

MURATA PRODUCTS

Lineup 2020



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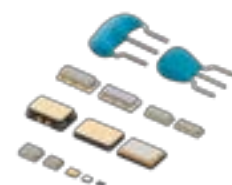
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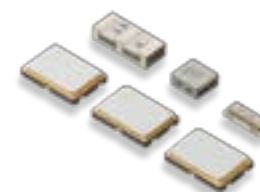
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Capacitors

The most comprehensive product lineup in the industry, providing ideal solutions, responding to all possible requirements.

Summary

Using Murata's unique ceramic material technology, we offer a wide lineup of products. Murata also offers technical support that includes design kits and a comprehensive set of software tools to simulate virtually any circuit condition, satisfying the demands of many applications. We are also expanding our lineup of products that use non-ceramic dielectric materials, such as silicon capacitors, to support various applications.

Lineup

- Ceramic Capacitors (SMD, lead type)
- Polymer Aluminum Electrolytic Capacitors
- Single-Layer Microchip Capacitors
- Thin Film Circuit Substrates (RUSUB) ●Variable Capacitors
- Silicon Capacitors ●Film Capacitors



<https://www.murata.com/en-global/products/capacitor>



Ceramic Capacitors

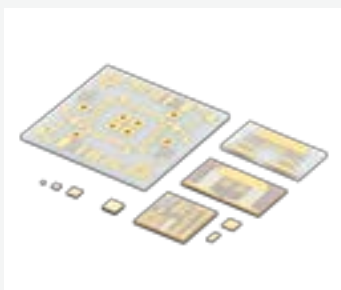
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Murata offers the No. 1 most abundant lineup in the industry, responding to all possible needs, and proposing ideal solutions.

Polymer Aluminum Electrolytic Capacitors

These are high-capacity capacitors that are characterized by a low profile and low ESR.

They handle the stabilization of voltage in circuits where serious voltage control is demanded, and contribute to the advanced features in customer products.



Single-Layer Microchip Capacitors

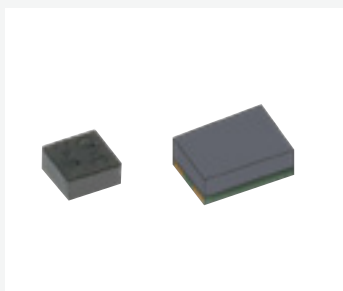
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Simple single-layer structure provides very reliable performance and excellent frequency characteristics. A wide selection of sizes from 0.25mm square enables the miniaturization of the circuit and higher density.

Thin Film Circuit Substrates (RUSUB)

RUSUB technology combines capacitor and thin film resistor in one chip.

Custom specifications (dimensions, capacitance values, etc.) are also available upon request.

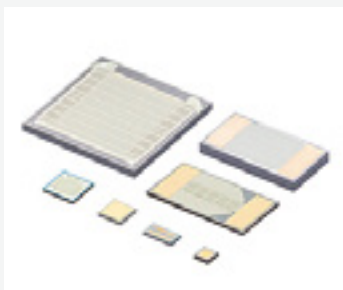


Variable Capacitors

p34

Variable capacitors can carry out the variable of the capacitor by adjusting the tuning voltage.

They are designed for frequency matching use for HF band (13.56MHz).



Silicon Capacitors

p34

Murata High-Density Silicon Capacitors are based on a MOS Semiconductor technology and utilize a 3D structure that substantially increases their performance and enables compact design. Silicon Capacitors offer small size and low thickness, superior reliability, and stability over high temperatures and high frequencies. They are the ideal choice for all demanding markets, such as Networking (RF Power and Broadband), Medical (Implantable devices), Automotive, or High-Reliability applications. Murata can provide customized Silicon Capacitors or Integrated Passive Devices (IPDs) to optimize your design.



Film Capacitors

p40

The FH series uses materials with high heat resistance. Therefore, it has a higher allowable ripple current under a higher temperature environment than conventional PP film capacitors.

This feature is more prominent in the high-frequency range. For example, when the ambient temperature is at 105°C, the PP film capacitors would be already at its limit for allowable ripple current, but because of the higher heat resistance of the FH series, the allowable ripple current can be increased drastically.

Ceramic Capacitors, Polymer Aluminum Electrolytic Capacitors

Ceramic Capacitors, Polymer Aluminum Electrolytic Capacitors

Icons

	For applications that do not require a particular reliability, such as general equipment.
	Infotainment for Automotive Products for entertainment equipment like car navigation, car audio, and body control equipment like wipers and power windows.
	Powertrain/Safety for Automotive Products used for applications (running, turning, stopping, and safety devices) that particularly concern human life, such as in devices for automotive.
	Medical-grade products for Implanted Medical Devices These products are intended for use in implanted medical devices such as cardiac pacemakers, cochlear implants, insulin pumps, and gastric electrostimulators. They are suitable for use in non-critical circuits.*1 *1 Non-critical circuits This term refers to circuits in implanted medical devices that are not directly linked to life support, i.e., circuits that will not directly endanger the life of the patient should the functionality of the device be reduced or halted by failure of the circuit.
	AEC-Q200 compliant product
	Products that acquired safety standard certification IEC60384-14.
	Products that are based on the Electrical Appliance and Material Safety Law of Japan.
	Low dissipation for high frequency By devising ceramic materials and electrode materials, low dissipation is achieved in frequency bands of VHF, UHF, and microwave or beyond.
	Low inductance This capacitor is designed so that the parasitic inductance component (ESL) that the capacitor has on the high frequency side becomes lower.
	Fail safe product This capacitor is designed to prevent failures as much as possible by short mode.
	Product resistant to deflection cracking This capacitor is designed to prevent failures as much as possible by short mode caused by cracking when there is board deflection.
	Product with solder cracking suppression This capacitor is configured with metal terminals and leads connected to the chip. The metal terminals and leads relieve the stress from expansion and contraction of the solder, to suppress solder cracking.
	Product suitable for acoustic noise reduction and low distortion This product suppresses acoustic noise, which occurs when a ceramic capacitor is used, by devising the materials and configuration.
	No DC bias characteristics Polymer capacitor is no capacitance change with DC bias due to aluminum oxidized film for dielectric.
	Low-inductance product suitable for noise suppression This product has extremely low ESL and is suitable for suppression of noise, including high frequencies.
	Product for bonding Since gold is used for the external electrodes, the capacitor can be mounted by die bonding/wire bonding.
	Limited to Conductive Glue Mounting Since silver palladium is used for the external electrodes, the capacitor can be mounted by conductive adhesive.

Ceramic Capacitors, Polymer Aluminum Electrolytic Capacitors

Product Lineup

For general			
General	SMD		
	Solder mounting		
	Chip type		
		GRM	p6
		GRM	For LCD backlight inverter circuit only p8
		GR3	Anti-noise High effective capacitance & high ripple current p8
		GRJ	Defeating crack Soft termination p8
		GR4	For information devices only p9
		GR7	For camera flash circuit only WEB
		GJM	High Q p9
		GQM	High Q High power p9
		GA2	Japanese Safety Low Based on the Electrical Appliance and Material Safety Law of Japan p10
		GA3	Safety standard p10
		LLL	Low ESL LW reversed p11
		LLA	Low ESL 8 terminals p11
		LLM	Low ESL 10 terminals p12
		LLR	Low ESL LW reversed controlled ESR p12
		NFM	Low ESL EMI Filter 3 terminals p12
		GJ4	Anti-noise Low distortion WEB
	On interposer board		
		ZRA	Anti-noise WEB
		ZRB	Anti-noise WEB
	Metal terminal type		
		KRM	Anti-noise Defeating crack Soldering crack p13
		KR3	Anti-noise Defeating crack Soldering crack High effective capacitance & high ripple current p13
	Resin molding SMD type		
		DK1	Safety standard p28
	Polymer Aluminum Electrolytic Capacitors		
		ECAS	Anti-noise Defeating crack Effective Cap p29
		ECNS	Anti-noise Defeating crack Effective Cap p29
	Wire bonding mounting		
	Chip type		
		GMA	Microchip p13
		GMD	p14
	Lead type		
	Solder mounting		
		RDE	Anti-noise Defeating crack Soldering crack p22
		DE1	Safety standard X1/Y1 Class certified product p24
		DE2	Safety standard X1/Y2 Class certified product p25

Infotainment for automotive			
Infotainment	SMD		
	Solder mounting		
	Chip type		
		GRT	p14
Powertrain/Safety for automotive			
Powertrain	SMD		
	Solder mounting		
	Chip type		
		GCM	p15
		GC3	Anti-noise High effective capacitance & high ripple current p17
		GCJ	Fall safe Defeating crack Soft termination p17
		GCQ	High Q p18
		GCD	Fall safe Defeating crack MLSC design p18
		GCE	Fall safe Defeating crack Soft termination MLSC design p18
		NFM	Low ESL EMI Filter 3 terminals p19
	Metal terminal type		
		KCM	Anti-noise Defeating crack Soldering crack p19
		KC3	Anti-noise Defeating crack Soldering crack High effective capacitance & high ripple current p19
		KCA	Safety standard Anti-noise Defeating crack Soldering crack p20
	Limited to Conductive Glue Mounting		
	Chip type		
		GCB	Defeating crack Soldering crack Ni plating + Pd plating termination conductive glue mounting WEB
		GCG	Defeating crack Soldering crack AgPd termination conductive glue mounting p20
	Lead type		
	Solder mounting		
		RCE	Anti-noise Defeating crack Soldering crack p26
		RHE	Anti-noise Defeating crack Soldering crack 150°C operation leaded p27
		RHS	Anti-noise Defeating crack Soldering crack 200°C operation leaded p28
		DE6	Safety standard p28
Medical-grade products for implanted medical devices			
Medical Device	SMD		
	Solder mounting		
	Chip type		
		GCH	p21

Ceramic capacitors SMD type For General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose



GRM

Temperature Compensating Type

General

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)												
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ		
GRM01	0.25X0.125 <008004>	25	0.20pF	100pF											
		16	0.20pF	100pF											
GRM02	0.4X0.2 <01005>	50	0.20pF	100pF											
		25				120pF	220pF								
		16				120pF	220pF								
GRM03	0.6X0.3 <0201>	100	0.10pF	100pF											
		50	0.10pF	220pF											
		25					270pF	1000pF							
GRM15	1.0X0.5 <0402>	100				150pF	1000pF								
		50					270pF	6800pF							
		35							10000pF						
		25							10000pF						
		10								2700pF	4700pF				
GRM18	1.6X0.8 <0603>	250			10pF	47pF									
		100					1000pF	3900pF							
		50					1000pF	10000pF							
		10						5600pF	22000pF						
GRM21	2.0X1.25 <0805>	630			10pF	2200pF									
		250				10pF	10000pF								
		200			10pF	4700pF									
		100					1000pF	22000pF							
		50					2700pF	47000pF							
		10						56000pF	0.10μF						
GRM31	3.2X1.6 <1206>	2000			10pF	68pF									
		1000			10pF	1000pF									
		630			10pF	4700pF									
		500			10pF	4700pF									
		250						6800pF	22000pF						
		200						6800pF	10000pF						
		100						4700pF	0.10μF						
		50						12000pF	0.22μF						
GRM32	3.2X2.5 <1210>	2000			100pF	220pF									
		1000					1500pF	2200pF							
		630					1500pF	15000pF							
		500					1500pF	10000pF							
GRM42	4.5X2.0 <1808>	3150			10pF	100pF									
GRM43	4.5X3.2 <1812>	1000					3300pF	4700pF							
		630						15000pF	22000pF						
		500						15000pF	22000pF						
GRM55	5.7X5.0 <2220>	1000					6800pF	10000pF							
		630						33000pF	47000pF						
		500						33000pF	47000pF						

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Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

■ High Dielectric Constant Type

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)														
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ				
GRM01	0.25X0.125 <008004>	10				100pF	470pF										
		6.3					1000pF	10000pF									
GRM02	0.4X0.2 <010005>	16				100pF	10000pF										
		10				100pF	10000pF										
		6.3					1000pF	0.10μF									
		4						15000pF	0.10μF								
		2.5							0.10μF								
GRM03	0.6X0.3 <0201>	50				100pF	1500pF										
		35							0.10μF								
		25				100pF	0.22μF										
		16					2200pF	0.22μF									
		10					4700pF	1.0μF									
		6.3					4700pF	1.0μF									
		4							0.22μF	1.0μF							
GRM15	1.0X0.5 <0402>	2.5								1.0μF							
		100					220pF	4700pF									
		50						2200pF	0.47μF								
		35							0.22μF	1.0μF							
		25							22000pF	2.2μF							
		16							0.22μF	2.2μF							
		10							0.22μF	4.7μF							
		6.3								1.0μF	10μF						
GRM18	1.6X0.8 <0603>	4								1.0μF	10μF						
		2.5									4.7μF	10μF					
		50								2.2μF							
		35								2.2μF	4.7μF						
		25								2.2μF	10μF						
		16								2.2μF	10μF						
		10								2.2μF	10μF						
GRM21	2.0X1.25 <0805>	6.3								4.7μF	22μF						
		4									10μF	22μF					
		100								1.0μF							
		50									4.7μF						
		35									4.7μF	10μF					
		25								2.2μF	22μF						
		16								4.7μF	22μF						
GRM31	3.2X1.6 <1206>	10									22μF	47μF					
		6.3									22μF	100μF					
		4									22μF	100μF					
		2.5									47μF	100μF					
		50									4.7μF						
		25									10μF	22μF					
		16									22μF	47μF					
GRM32	3.2X2.5 <1210>	10									22μF	100μF					
		6.3									22μF	220μF					
		4									47μF	220μF					
		2.5										220μF					
		100									10μF						
GRM43	4.5X3.2 <1812>	25									22μF						
		16									22μF	47μF					
		10									47μF	100μF					
		6.3									47μF	220μF					
		4									100μF	220μF					
GRM43	4.5X3.2 <1812>	1000						33000pF	47000pF								
		630							68000pF	0.10μF							

Continued on the following page. ↗

Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GRM43	4.5X3.2 <1812>	500							0.15μF	0.22μF			
		250							0.15μF	0.47μF			
GRM55	5.7X5.0 <2220>	1000							68000pF	0.10μF			
		630							0.15μF	0.22μF			
		500							0.33μF	0.47μF			
		250							0.33μF	1.0μF			
		200							0.33μF	1.0μF			

Chip Multilayer Ceramic Capacitors for LCD Backlight Inverter Circuit only



GRM

General

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GRM42	4.5X2.0 <1808>	3150			5.0pF	47pF							

High Effective Capacitance & High Ripple Current Chip Multilayer Ceramic Capacitors for General Purpose



GR3

General

Anti-noise

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GR321	2.0X1.25 <0805>	250						10000pF	22000pF				
GR331	3.2X1.6 <1206>	630						10000pF	15000pF				
		450						10000pF	47000pF				
		250						33000pF	68000pF				
GR332	3.2X2.5 <1210>	630						22000pF	47000pF				
		450						68000pF	0.10μF				
		250						0.10μF	0.15μF				
GR343	4.5X3.2 <1812>	630							68000pF				
		450							0.15μF				
		250							0.22μF	0.33μF			
GR355	5.7X5.0 <2220>	630							0.10μF	0.22μF			
		450							0.22μF	0.47μF			
		250							0.47μF	1.0μF			

Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose



GRJ

General

Deflecting crack

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GRJ21	2.0X1.25 <0805>	100									1.0μF		
		25									10μF		
GRJ31	3.2X1.6 <1206>	50									4.7μF		
GRJ32	3.2X2.5 <1210>	25										22μF	
		10										47μF	
GRJ43	4.5X3.2 <1812>	1000						33000pF	47000pF				
		630						68000pF	0.10μF				

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Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GRJ43	4.5X3.2 <1812>	250							0.15μF	0.47μF			
GRJ55	5.7X5.0 <2220>	1000							68000pF	0.10μF			
		630							0.15μF	0.22μF			
		250							0.33μF	1.0μF			

Chip Multilayer Ceramic Capacitors for Ethernet LAN and primary-secondary coupling of DC-DC converters



GR4

General

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GR442	4.5X2.0 <1808>	2000				220pF		1500pF					
GR443	4.5X3.2 <1812>	2000					1800pF	4700pF					
GR455	5.7X5.0 <2220>	2000							10000pF				

Chip Multilayer Ceramic Capacitors for Splitter Circuit of G-Fast, xDSL



GR4

General

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GR431	3.2X1.6 <1206>	630					1000pF	4700pF						
GR432	3.2X2.5 <1210>	630						6800pF	15000pF					

High Q Chip Multilayer Ceramic Capacitors for General Purpose



GJM

General

High Q

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GJM02	0.4X0.2 <01005>	25	0.20pF			22pF								
GJM03	0.6X0.3 <0201>	100	0.30pF			15pF								
		50	0.20pF			0.90pF								
		25		1.0pF			33pF							
GJM15	1.0X0.5 <0402>	50	0.10pF			47pF								

High Q and High Power Chip Multilayer Ceramic Capacitors for General Purpose



GQM

General

High Q

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GQM15	1.0X0.5 <0402>	200	0.10pF			33pF							
		100			36pF 47pF								
GQM18	1.6X0.8 <0603>	250		1.0pF		47pF							
GQM21	2.0X1.25 <0805>	500		1.0pF		22pF							
		250		1.0pF		100pF							
GQM22	2.8X2.8 <1111>	500		1.0pF		100pF							

Continued on the following page. ↗

Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

Based on the Electrical Appliance and Material Safety Law of Japan Chip Multilayer Ceramic Capacitors for General Purpose



GA2

General

Japanese
Safety
Law

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GA242	4.5X2.0 <1808>	AC250 (r.m.s.)					470pF	1000pF					
GA243	4.5X3.2 <1812>	AC250 (r.m.s.)					2200pF	47000pF					
GA255	5.7X5.0 <2220>	AC250 (r.m.s.)							0.10μF				

Safety Standard Certified Chip Multilayer Ceramic Capacitors for General Purpose Type GB IEC60384-14 Class X2



GA3 Type GB

General

Safety
standard

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GA355	5.7X5.0 <2220>	AC250 (r.m.s.)					10000pF	56000pF					

Safety Standard Certified Chip Multilayer Ceramic Capacitors for General Purpose Type GD Acquired certifications of UL60950-1



GA3 Type GD

Temperature Compensating Type

General

Safety
standard

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GA342	4.5X2.0 <1808>	AC250 (r.m.s.)			10pF	82pF							

High Dielectric Constant Type

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (V)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GA342	4.5X2.0 <1808>	AC250 (r.m.s.)				100pF	1500pF							
GA343	4.5X3.2 <1812>	AC250 (r.m.s.)					1800pF	4700pF						

Safety Standard Certified Chip Multilayer Ceramic Capacitors for General Purpose Type GF Acquired certifications of IEC60384-14 Class X1/Y2 and UL60950-1



GA3 Type GF

Temperature Compensating Type

General

Safety
standard

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GA342	4.5X2.0 <1808>	AC250 (r.m.s.)			10pF	82pF							

Continued on the following page. ↗

Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

High Dielectric Constant Type

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GA342	4.5X2.0 <1808>	AC250 (r.m.s.)				100pF	1000pF						
GA352	5.7X2.8 <2211>	AC250 (r.m.s.)				100pF	1500pF						
GA355	5.7X5.0 <2220>	AC250 (r.m.s.)					1800pF 4700pF						

LW Reversed Low ESL Chip Multilayer Ceramic Capacitors for General Purpose



LLL

General Low ESL

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
LLL15	0.5X1.0 <0204>	6.3							0.10μF	0.22μF				
		4							0.47μF	1.0μF				
LLL1U	0.6X1.0 <02404>	4									4.3μF			
LLL18	0.8X1.6 <0306>	50					2200pF	4700pF						
		25					10000pF	22000pF						
		16					22000pF	47000pF						
		10						0.10μF	0.22μF					
		4						0.22μF	2.2μF					
LLL21	1.25X2.0 <0508>	50					10000pF	22000pF						
		25					22000pF	0.10μF						
		16					47000pF	0.22μF						
		10						0.22μF	1.0μF					
		6.3							0.47μF					
		4							1.0μF	2.2μF				
LLL31	1.6X3.2 <0612>	50					10000pF	0.10μF						
		25					47000pF	0.47μF						
		16						0.22μF	1.0μF					
		10						0.47μF	2.2μF					
		6.3							2.2μF	10μF				

8 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose



LLA

General Low ESL

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
LLA18	1.6X0.8 <0603>	4							0.10μF	2.2μF			
LLA21	2.0X1.25 <0805>	25						10000pF	47000pF				
		16						47000pF	0.22μF				
		10							0.22μF	0.47μF			
		6.3							0.47μF	1.0μF			
		4								1.0μF	4.7μF		

Continued on the following page. ↗

Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

10 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose



LLM

General

Low ESL

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
LLM21	2.0X1.25 <0805>	25						10000pF	22000pF				
		16						47000pF	0.10μF				
		6.3							0.22μF	0.47μF			
		4								1.0μF			

LW Reversed Controlled ESR Low ESL Chip Multilayer Ceramic Capacitors for General Purpose



LLR

General

Low ESL

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	ESR (mΩ)				Capacitance Range
			100	220	470	1000	
LLR18	0.8X1.6 <0306>	4					1.0μF

3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose



NFM

General

Low ESL

EMI Filter

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
NFM15	1.0X0.5 <0402>	16					2200pF		47000pF				
		10					2200pF		0.22μF				
		6.3							0.10μF	0.47μF			
		4							0.47μF	1.0μF			
		2.5									4.3μF	9.1μF	
NFM18	1.6X0.8 <0603>	16				100pF			0.10μF				
		10								2.2μF			
		6.3							0.22μF	2.2μF			
NFM21	2.0X1.25 <0805>	50				220pF		22000pF					
		25							0.10μF				
		16							0.22μF	1.0μF			
		10								1.0μF	4.7μF		
		6.3								2.2μF	10μF		
NFM3D	3.2X1.25 <1205>	50				220pF		22000pF					
NFM31	3.2X1.6 <1206>	100					10000pF		0.10μF				
		50					10000pF		0.10μF				
		6.3										27μF	
NFM41	4.5X1.6 <1806>	100				470pF		22000pF					
		50								1.5μF			
		25								1.5μF			

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Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

Metal Terminal Type Multilayer Ceramic Capacitors for General Purpose



KRM

General

Deflecting crack

Soldering crack

Anti-noise

Temperature Compensating Type

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
KRM55	6.1X5.1	630						15000pF	54000pF				

High Dielectric Constant Type

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
KRM21	2.2X1.25	25									10μF	22μF		
		16									10μF			
KRM31	3.5X1.7	100								1.0μF				
		50								4.7μF				
		35									10μF			
		25									10μF			
	3.6X1.7	50								2.2μF				
	3.7X1.85	100								2.2μF				
KRM55	6.1X5.3	1000						68000pF	0.22μF					
		630							0.15μF	0.47μF				
		450							0.33μF	1.0μF				
		250							0.68μF	2.2μF				
		100								4.7μF	22μF			
		63								4.7μF	22μF			
		50								4.7μF	33μF			
		35								10μF	47μF			
	25								15μF	100μF				

High Effective Capacitance & High Allowable Ripple Current Metal Terminal Type Multilayer Ceramic Capacitors for General Purpose



KR3

General

Deflecting crack

Soldering crack

Anti-noise

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
KR355	6.1X5.3	630							0.10μF	0.56μF			
		450							0.22μF	1.2μF			
		250							0.47μF	2.2μF			

Wire Bonding Mount Multilayer Microchip Capacitors for General Purpose



GMA

General

Bonding

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GMA0D	0.38X0.38 <015015>	10					1000pF	10000pF					
GMA05	0.5X0.5 <0202>	100				100pF	1000pF						
		25					1500pF	4700pF					
		10					6800pF	22000pF					

Continued on the following page. ↗

Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GMA05	0.5X0.5 <0202>	6.3								0.10μF			
GMA08	0.8X0.8 <0303>	100					1500pF	6800pF					
		25						10000pF	22000pF				
		10						33000pF	0.10μF				
		6.3								0.47μF			

Wire Bonding/AuSn Soldering Mount Chip Multilayer Ceramic Capacitors for General Purpose



GMD

General

Bonding

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GMD03	0.6X0.3 <0201>	25				100pF	1500pF						
		16					1800pF	3300pF					
		10					3900pF	10000pF					
		6.3						56000pF	0.10μF				
GMD15	1.0X0.5 <0402>	50				220pF	4700pF						
		25					5600pF	47000pF					
		16						56000pF	0.10μF				
		10							0.12uF	0.47uF			

Ceramic capacitors SMD type For Automotive

AEC-Q200 Compliant Chip Multilayer Ceramic Capacitors for Infotainment



GRT

Temperature Compensating Type

Infotainment

AEC-Q200

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GRT03	0.6X0.3 <0201>	100		1.0pF		100pF							
		50		1.0pF		220pF							
		25		1.0pF		1000pF							
GRT15	1.0X0.5 <0402>	100		1.0pF		100pF							
		50		1.0pF		1000pF							
		25			10pF	1000pF							
GRT18	1.6X0.8 <0603>	100				120pF	1500pF						
		50					1200pF	10000pF					
		25					1200pF	10000pF					
GRT21	2.0X1.25 <0805>	100					1800pF	3300pF					
		50						18000pF	22000pF				
		25					1800pF	2200pF					
GRT31	3.2X1.6 <1206>	100					3900pF	22000pF					
		50						56000pF	0.10μF				
		25							0.10μF	0.12μF			
		16								0.12μF			

Continued on the following page. ↗

Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

■ High Dielectric Constant Type

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GRT03	0.6X0.3 <0201>	35							0.10μF				
		25				100pF		0.10μF					
		16					10000pF	0.10μF					
		10					1500pF	1.0μF					
		6.3					2200pF	1.0μF					
		4						68000pF	1.0μF				
		2.5							1.0μF				
GRT15	1.0X0.5 <0402>	50				220pF		0.10μF					
		35						0.22μF	1.0μF				
		25					10000pF	2.2μF					
		16					10000pF	2.2μF					
		10						0.22μF	4.7μF				
		6.3					22000pF	4.7μF					
		4						1.0μF	4.7μF				
GRT18	1.6X0.8 <0603>	2.5								10μF			
		100					3300pF	10000pF					
		50							1.0μF	2.2μF			
		35							1.0μF	4.7μF			
		25							0.15μF	10μF			
		16							0.33μF	10μF			
		10								10μF	22μF		
GRT21	2.0X1.25 <0805>	6.3								10μF	22μF		
		4							1.0μF	22μF			
		2.5									22μF		
		100						47000pF					
		50							0.47μF	4.7μF			
		35								4.7μF			
		25							2.2μF	22μF			
GRT31	3.2X1.6 <1206>	16							2.2μF	22μF			
		10							3.3μF	22μF			
		6.3							3.3μF	47μF			
		4									47μF		
		50							1.0μF	10μF			
		35								10μF			
		25							1.5μF	10μF			
GRT32	3.2X2.5 <1210>	16							1.5μF	22μF			
		10									47μF		
		6.3								15μF	47μF		
		50							3.3μF	4.7μF			
		25								6.8μF			
		16									47μF		
		10									47μF		

■ Chip Multilayer Ceramic Capacitors for Automotive



GCM

■ Temperature Compensating Type



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GCM03	0.6X0.3 <0201>	50		10pF		100pF							
		25		10pF		100pF							
GCM15	1.0X0.5 <0402>	50		10pF		1000pF							
GCM18	1.6X0.8 <0603>	100		10pF		10000pF							

Continued on the following page. ↗

Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GCM18	1.6X0.8 <0603>	80					1800pF	3900pF					
		50					1000pF	10000pF					
GCM21	2.0X1.25 <0805>	630			10pF			2200pF					
		250			10pF			10000pF					
		100					1000pF	3300pF					
		80					4700pF	22000pF					
		50						12000pF	22000pF				
GCM31	3.2X1.6 <1206>	1000			10pF		1000pF						
		630			10pF		4700pF						
		250					6800pF	22000pF					
		100					3900pF	0.10μF					
		80						27000pF	33000pF				
GCM32	3.2X2.5 <1210>	50						68000pF	0.10μF				
		1000					1500pF	2200pF					
GCM43	4.5X3.2 <1812>	630					1500pF	10000pF					
		1000					3300pF	4700pF					
GCM55	5.7X5.0 <2220>	630						15000pF	22000pF				
		1000					6800pF	10000pF					
								33000pF	47000pF				

High Dielectric Constant Type

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GCM03	0.6X0.3 <0201>	25				100pF	3300pF							
		16				330pF	3300pF							
		10					4700pF	10000pF						
GCM15	1.0X0.5 <0402>	100				220pF	4700pF							
		50				220pF	0.10μF							
		25					10000pF	0.10μF						
		16					33000pF	0.22μF						
		10						0.47μF	1.0μF					
GCM18	1.6X0.8 <0603>	100					6800pF	22000pF						
		50							0.22μF					
		25							0.22μF	1.0μF				
		16							0.33μF	1.0μF				
		6.3								2.2μF	10μF			
		4									10μF			
GCM21	2.0X1.25 <0805>	100					33000pF	1.0μF						
		50							0.22μF	1.0μF				
		35								0.68μF	4.7μF			
		25								0.33μF	4.7μF			
		16								1.0μF	10μF			
		10								2.2μF	10μF			
		6.3									10μF			
GCM31	3.2X1.6 <1206>	100							0.22μF	2.2μF				
		50								1.0μF	4.7μF			
		25								1.0μF	10μF			
		16									4.7μF	10μF		
		10										22μF		
		6.3										22μF		
GCM32	3.2X2.5 <1210>	100									4.7μF			
		50									4.7μF	10μF		
		35										10μF		
		25									10μF	22μF		
		16										22μF		
		10										22μF	47μF	
		6.3											47μF	

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Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

High Effective Capacitance & High Ripple Current Chip Multilayer Ceramic Capacitors for Automotive



GC3



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GC321	2.0X1.25 <0805>	250						10000pF	22000pF				
GC331	3.2X1.6 <1206>	630						10000pF	15000pF				
		450						10000pF	47000pF				
		250						33000pF	68000pF				
GC332	3.2X2.5 <1210>	630						22000pF	47000pF				
		450						68000pF	0.10μF				
		250						0.10μF	0.15μF				
GC343	4.5X3.2 <1812>	630						68000pF					
		450						0.15μF					
		250						0.22μF	0.33μF				
GC355	5.7X5.0 <2220>	630						0.10μF	0.22μF				
		450						0.22μF	0.47μF				
		250						0.47μF	1.0μF				

Soft Termination Chip Multilayer Ceramic Capacitors for Automotive



GCJ



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GCJ18	1.6X0.8 <0603>	100					1000pF		0.10μF				
		50					1000pF		0.22μF				
		35						33000pF	68000pF				
		25					1000pF		1.0μF				
		16						27000pF	0.47μF				
		10							0.22μF				
		6.3							2.2μF	4.7μF			
GCJ21	2.0X1.25 <0805>	250					1000pF	22000pF					
		100						27000pF	1.0μF				
		50						82000pF	1.0μF				
		35						0.12μF	0.47μF				
		25						0.12μF	2.2μF				
		16						0.27μF	4.7μF				
		10							2.2μF	10μF			
GCJ31	3.2X1.6 <1206>	1000					1000pF	10000pF					
		630					1000pF	22000pF					
		250						15000pF	0.10μF				
		100						0.15μF	2.2μF				
		50						0.47μF	4.7μF				
		35						0.56μF	1.0μF				
		25							2.2μF	10μF			
		16							3.3μF	10μF			
		10							6.8μF	22μF			
		6.3								22μF			
GCJ32	3.2X2.5 <1210>	1000						15000pF	22000pF				
		630						6800pF	47000pF				
		250						68000pF	0.22μF				
		100							2.2μF	4.7μF			

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Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GCJ32	3.2X2.5 <1210>	50									4.7μF	10μF		
		25								4.7μF	22μF			
		16								6.8μF	22μF			
		6.3									47μF			
GCJ43	4.5X3.2 <1812>	1000						33000pF	47000pF					
		630						33000pF	0.10μF					
		250							0.15μF	0.47μF				
GCJ55	5.7X5.0 <2220>	1000						68000pF	0.10μF					
		630							0.10μF	0.22μF				
		250							0.33μF	1.0μF				

High Q Chip Multilayer Ceramic Capacitors for Automotive



GCQ



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GCQ15	1.0X0.5 <0402>	50	0.10pF			47pF							

MLSC Design Chip Multilayer Ceramic Capacitors for Automotive



GCD



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GCD18	1.6X0.8 <0603>	100					1000pF	22000pF					
		50					1000pF	22000pF					
		25						27000pF	47000pF				
GCD21	2.0X1.25 <0805>	100						27000pF	0.10μF				
		50						27000pF	0.10μF				
		16								0.47μF			

Soft Termination MLSC Design Chip Multilayer Ceramic Capacitors for Automotive



GCE



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GCE18	1.6X0.8 <0603>	100					1000pF	22000pF					
		50					1000pF	22000pF					
		25						27000pF	47000pF				
GCE21	2.0X1.25 <0805>	100						27000pF	0.10μF				
		50						27000pF	0.10μF				

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Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for Automotive



NFM



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
NFM18	1.6X0.8 <0603>	16								1.0μF			
		6.3								1.0μF			
NFM21	2.0X1.25 <0805>	50				220pF		22000pF					
		16								1.0μF			
		10							0.10μF	0.47μF			
NFM31	3.2X1.6 <1206>	100						10000pF					
		50						10000pF	0.10μF				

Metal Terminal Type Multilayer Ceramic Capacitors for Automotive



KCM

Temperature Compensating Type



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
KCM55	6.1X5.1	630						15000pF	54000pF				

High Dielectric Constant Type

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
KCM55	6.1X5.3	100									4.7μF	22μF		
		63									4.7μF	22μF		
		50									4.7μF	33μF		
		35									10μF	47μF		
		25									15μF	100μF		

High Effective Capacitance & High Allowable Ripple Current Metal Terminal Type Multilayer Ceramic Capacitors for Automotive



KC3



Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
KC355	6.1X5.3	630							0.10μF	1.2μF				
		450							0.22μF	2.2μF				
		250							0.47μF	2.2μF				

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Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

Safety Standard Certified Metal Terminal Type Multilayer Ceramic Capacitors for Automotive



KCA



Series	LXW (mm)	Rated Voltage (V)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
KCA55	6.1X5.1	AC250 (r.m.s.)				100pF		10000pF						

AgPd Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive



GCG

Temperature Compensating Type



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GCG15	1.0X0.5 <0402>	50				120pF		470pF						
GCG18	1.6X0.8 <0603>	100			10pF				10000pF					
		50			10pF			2200pF						
GCG21	2.0X1.25 <0805>	50					1000pF		10000pF					

High Dielectric Constant Type

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GCG15	1.0X0.5 <0402>	50				220pF		4700pF						
		25					5600pF		10000pF					
		16						15000pF		0.10μF				
GCG18	1.6X0.8 <0603>	100					1000pF		0.10μF					
		50					1200pF		0.22μF					
		25							0.12μF		0.47μF			
		16							0.15μF		1.0μF			
		10									2.2μF			
		6.3									2.2μF			
GCG21	2.0X1.25 <0805>	50							0.15μF		1.0μF			
		35								0.68μF		1.0μF		
		25							0.27μF		1.0μF			
		16								0.33μF		4.7μF		
		10									10μF			
		6.3									10μF			
GCG31	3.2X1.6 <1206>	50							0.22μF		0.33μF			
		25								1.2μF		4.7μF		
		16								0.68μF		4.7μF		
		6.3										22μF		
GCG32	3.2X2.5 <1210>	50									10μF			
		35									10μF			
		25									10μF	22μF		
		16									6.8μF	10μF		
		6.3											47μF	

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Ceramic capacitors SMD type For Medical Devices

Chip Multilayer Ceramic Capacitors for Implantable Medical devices
(Non Life support circuit)



GCH

Medical Device

Temperature Compensating Type

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GCH15	1.0X0.5 <0402>	50		10pF			1000pF							
GCH18	1.6X0.8 <0603>	100		10pF			1500pF							
		50					1500pF	3300pF						
GCH21	2.0X1.25 <0805>	100					2200pF	3300pF						
		50					4700pF	22000pF						
GCH31	3.2X1.6 <1206>	100					4700pF	10000pF						
		50					33000pF	0.10μF						

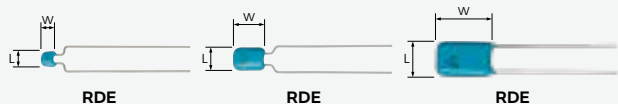
High Dielectric Constant Type

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GCH03	0.6X0.3 <0201>	25					1000pF							
GCH15	1.0X0.5 <0402>	100				220pF	4700pF							
		50				220pF	0.10μF							
		25					10000pF	47000pF						
		16					47000pF	0.22μF						
		10					0.10μF	1.0μF						
GCH18	1.6X0.8 <0603>	100					10000pF	22000pF						
		50						0.22μF						
		25						0.10μF	1.0μF					
		16						0.47μF	1.0μF					
		10							2.2μF					
		6.3							2.2μF					
GCH21	2.0X1.25 <0805>	100					47000pF	1.0μF						
		50						0.47μF	1.0μF					
		35						1.0μF	4.7μF					
		25						2.2μF	4.7μF					
		16						2.2μF	4.7μF					
		10							4.7μF	10μF				
		6.3								10μF				
GCH31	3.2X1.6 <1206>	100						0.22μF						
		50							2.2μF					
		16								10μF				
GCH32	3.2X2.5 <1210>	50							4.7μF					
		10								22μF				
		6.3									47μF			

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Ceramic capacitors lead type For General Purpose

Leaded MLCC for General Purpose



Temperature Compensating Type

General

Deflecting crack

Soldering crack

Anti-noise

Series	LXW (mm)	Rated Voltage (Vdc)	0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
RDE5C	4.0X3.5	100		1.0pF				1500pF					
		50		1.0pF				3900pF					
	4.5X3.5	630			10pF			2200pF					
		250			10pF			10000pF					
		100					1800pF	3300pF					
		50					4700pF	22000pF					
	5.0X3.5	100		1.0pF				3300pF					
		50		1.0pF				22000pF					
	5.5X4.0	1000			10pF			1000pF					
		630			10pF			4700pF					
		250			10pF			22000pF					
		100					3900pF	22000pF					
RDE7U	4.5X3.5	250				100pF		4700pF					
		1000			10pF			1000pF					
	5.5X4.0	630			10pF			4700pF					
		250						6800pF					
		1000					1500pF	2200pF					
	5.5X5.0	630						6800pF					
		250						33000pF					
		1000						3300pF					
	7.5X5.5	630						15000pF					
		1000						6800pF					
	7.5X8.0	630						33000pF					
		1000						20000pF					
	7.7X13.0	630								94000pF			

High Dielectric Constant Type

Series	LXW (mm)	Rated Voltage (Vdc)	0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
RDEC7	4.0X3.5	25							0.22μF	1.0μF			
		50								1.0μF			
	4.5X3.5	25									2.2μF		
		50								1.0μF			
	5.0X3.5	50							0.22μF	2.2μF			
		25									4.7μF		
	5.5X4.0	50								4.7μF	10μF		
		25										22μF	
	5.5X5.0	100							1.5μF	2.2μF			
		50									10μF		
		25										22μF	
	5.5X7.5	100									4.7μF		
		50										22μF	
		25											47μF
RDED7	5.5X4.0	630					10000pF	15000pF					
		450					10000pF	47000pF					

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Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
RDED7	5.5X4.0	250							33000pF	68000pF				
	5.5X5.0	630							22000pF	47000pF				
		450								68000pF	0.10μF			
		250								0.10μF	0.15μF			
	7.5X5.5	630								68000pF				
		450									0.15μF			
		250								0.22μF	0.33μF			
	7.5X7.5	450								0.22μF	0.56μF			
		250								0.47μF	1.0μF			
	7.5X8.0	630								0.10μF	0.27μF			
	7.7X12.5	450									1.0μF	1.2μF		
		250										2.2μF		
	7.7X13.0	630								0.47μF	0.56μF			
RDER7	4.0X3.5	100					220pF				22000pF			
		50					220pF				0.10μF			
		25									0.10μF			
	4.5X3.5	500					1000pF			10000pF				
		250					1000pF			22000pF				
		100							33000pF		0.47μF			
	5.0X3.5	50								0.15μF	0.47μF			
		100					220pF			0.47μF				
		50					220pF			0.47μF				
	5.5X4.0	25								0.10μF				
		1000					470pF			10000pF				
		630					1000pF			22000pF				
	5.5X5.0	500							15000pF	47000pF				
		250							33000pF	0.10μF				
		100								0.15μF	1.0μF			
		50								0.68μF	2.2μF			
		1000							15000pF	22000pF				
		630							33000pF	47000pF				
	5.5X5.0	500							68000pF	0.10μF				
		250								0.15μF	0.22μF			
		50										3.3μF		
		1000							33000pF	47000pF				
		630							68000pF	0.10μF				
	7.5X5.5	500								0.15μF	0.22μF			
		250								0.33μF	0.47μF			
		500								0.33μF	0.47μF			
		250								0.68μF	1.0μF			
	7.5X7.5	500								0.33μF	0.47μF			
		250									0.68μF	1.0μF		
	7.5X8.0	1000							68000pF	0.10μF				
		630								0.15μF	0.22μF			
	7.7X12.5	500								0.68μF	1.0μF			
		250										2.2μF		
7.7X13.0	1000									0.22μF				
	630									0.47μF				

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Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

Safety Standard Certified Lead Type Disc Ceramic Capacitors for General Purpose / IEC60384-14 Class X1/Y1 Type RA [500Vac (r.m.s.) product]



DE1 Type RA

Temperature Compensating Type

General Safety standard

Series	Rated Voltage (V)	D (mm)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
DE11X	X1: AC500V (r.m.s.), Y1: AC500V(r.m.s.)	6.0 to 9.0			10pF	68pF								

High Dielectric Constant Type

Series	Rated Voltage (V)	D (mm)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
DE1B3	X1: AC500V (r.m.s.), Y1: AC500V(r.m.s.)	6.0 to 9.0				100pF	680pF							
DE1E3	X1: AC500V (r.m.s.), Y1: AC500V(r.m.s.)	8.0 to 14.0				1000pF	4700pF							

Safety Standard Certified Lead Type Disc Ceramic Capacitors for General Purpose / IEC60384-14 Class X1/Y1 Type RA [250Vac, 300Vac rated]



DE1 Type RA

Temperature Compensating Type

General Safety standard

Series	Rated Voltage (V)	D (mm)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
DE11X	X1: AC440V (r.m.s.), Y1: AC300V(r.m.s.)	6.0 to 8.0			10pF	68pF								
	X1: AC440V (r.m.s.), Y1: AC250V(r.m.s.)	6.0 to 8.0			10pF	68pF								

High Dielectric Constant Type

Series	Rated Voltage (V)	D (mm)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
DE1B3	X1: AC440V (r.m.s.), Y1: AC300V(r.m.s.)	6.0 to 8.0				100pF	680pF							
	X1: AC440V (r.m.s.), Y1: AC250V(r.m.s.)	6.0 to 8.0				100pF	680pF							
DE1E3	X1: AC440V (r.m.s.), Y1: AC300V(r.m.s.)	7.0 to 12.0				1000pF	4700pF							
	X1: AC440V (r.m.s.), Y1: AC250V(r.m.s.)	7.0 to 12.0				1000pF	4700pF							

Safety Standard Certified Lead Type Disc Ceramic Capacitors for General Purpose / IEC60384-14 Class X1/Y1 Type RB [X1:760Vac(r.m.s)product]



DE1 Type RB

Temperature Compensating Type

General Safety standard

Series	Rated Voltage (V)	D (mm)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
DE11X	X1: AC760V (r.m.s.), Y1: AC500V(r.m.s.)	6.0 to 9.0			10pF	68pF								

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Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

■ High Dielectric Constant Type

Series	Rated Voltage (V)	D (mm)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
DE1B3	X1: AC760V (r.m.s.), Y1: AC500V(r.m.s.)	6.0 to 9.0				100pF	680pF							
DE1E3	X1: AC760V (r.m.s.), Y1: AC500V(r.m.s.)	8.0 to 14.0				1000pF	4700pF							

■ Safety Standard Certified Lead Type Disc Ceramic Capacitors for General Purpose / IEC60384-14 Class X1/Y2 Type SA [400Vac (r.m.s.) product]



DE2 Type SA

General Safety standard

■ Temperature Compensating Type

Series	Rated Voltage (V)	D (mm)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
DE21X	X1: AC440V (r.m.s.), Y2: AC400V(r.m.s.)	6.0 to 9.0			10pF	68pF							

■ High Dielectric Constant Type

Series	Rated Voltage (V)	D (mm)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
DE2B3	X1: AC440V (r.m.s.), Y2: AC400V(r.m.s.)	6.0 to 8.0				100pF	680pF							
DE2E3	X1: AC440V (r.m.s.), Y2: AC400V(r.m.s.)	7.0 to 17.0				1000pF	10000pF							

■ Safety Standard Certified Lead Type Disc Ceramic Capacitors for General Purpose / IEC60384-14 Class X1/Y2 Type SA [250Vac, 300Vac rated]



DE2 Type SA

General Safety standard

■ Temperature Compensating Type

Series	Rated Voltage (V)	D (mm)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
DE21X	X1: AC300V (r.m.s.), Y2: AC300V(r.m.s.)	6.0 to 8.0			10pF	68pF								
	X1: AC300V (r.m.s.), Y2: AC250V(r.m.s.)	6.0 to 8.0			10pF	68pF								

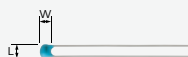
■ High Dielectric Constant Type

Series	Rated Voltage (V)	D (mm)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
DE2B3	X1: AC300V (r.m.s.), Y2: AC300V(r.m.s.)	6.0 to 7.0				100pF	680pF							
	X1: AC300V (r.m.s.), Y2: AC250V(r.m.s.)	6.0 to 7.0				100pF	680pF							
DE2E3	X1: AC300V (r.m.s.), Y2: AC300V(r.m.s.)	6.0 to 15.0				1000pF	10000pF							
	X1: AC300V (r.m.s.), Y2: AC250V(r.m.s.)	6.0 to 15.0				1000pF	10000pF							

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Ceramic capacitors lead type For Automotive

Leaded MLCC for Automotive



RCE

Temperature Compensating Type



Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
RCE5C	3.6X3.5	100		1.0pF	1500pF								
		50		1.0pF	3900pF								
	4.0X3.5	630			10pF	2200pF							
		250			10pF	10000pF							
		100					1800pF	3300pF					
		50					4700pF	22000pF					
	5.5X4.0	1000			10pF	1000pF							
		630			10pF	4700pF							
		250			10pF	22000pF							
		100					3900pF	10000pF					
		50					27000pF	0.10μF					
RCE7U	4.0X3.5	250				100pF	4700pF						
	5.5X4.0	1000			10pF	1000pF							
		630			10pF	4700pF							
		250					6800pF	10000pF					
	5.5X5.0	1000					1500pF	2200pF					
		630					6800pF	10000pF					
	7.5X5.5	1000					3300pF	4700pF					
		630					15000pF	22000pF					
	7.5X8.0	1000					6800pF	10000pF					
		630					33000pF	47000pF					
	7.7X13.0	1000						20000pF					
630							94000pF						

High Dielectric Constant Type

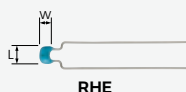
Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
RCEC7	4.0X3.5	50									1.0μF		
	5.5X4.0	50									4.7μF		
	5.5X5.0	100								1.5μF	2.2μF		
		50									10μF		
	5.5X7.5	100									4.7μF		
		50										22μF	
RCER7	3.6X3.5	100				220pF	22000pF						
		50				220pF	0.10μF						
		25						0.10μF	0.22μF				
	4.0X3.5	250				1000pF	22000pF						
		100						33000pF	0.33μF				
		50							0.15μF	0.47μF			
		25							0.33μF	1.0μF			
	5.5X4.0	1000				1000pF	10000pF						
		630				1000pF	22000pF						
		250						33000pF	0.10μF				
		100							0.15μF	1.0μF			
		50							0.68μF	2.2μF			
		25							1.5μF	4.7μF			
		100											

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Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
RCER7	5.5X5.0	1000						15000pF	22000pF					
		630						33000pF	47000pF					
		250							0.15μF	0.22μF				
		50								3.3μF	4.7μF			
		25									10μF			
	5.5X7.5	50									10μF			
		25										22μF		
	7.5X5.5	1000						33000pF	47000pF					
		630							68000pF	0.10μF				
		250								0.33μF	0.47μF			
	7.5X7.5	250							0.68μF	1.0μF				
	7.5X8.0	1000						68000pF	0.10μF					
		630							0.15μF	0.22μF				
	7.7X12.5	250									2.2μF			
	7.7X13.0	1000								0.22μF				
		630								0.47μF				

150°C Operation Leaded MLCC for Automotive



Temperature Compensating Type



Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
RHE5G	3.6X3.5	100				100pF	1500pF							
		50				100pF	3900pF							
	4.0X3.5	100					1800pF	3300pF						
		50						4700pF	10000pF					

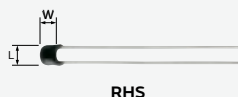
High Dielectric Constant Type

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
RHEL8	3.6X3.5	100				220pF	22000pF							
		50				220pF	0.10μF							
		25						0.10μF	0.22μF					
	4.0X3.5	100					33000pF	0.10μF						
		50							0.15μF	0.33μF				
		25							0.33μF	1.0μF				
	5.5X4.0	100							0.15μF	0.22μF				
		50							0.47μF	2.2μF				
		25								1.5μF	4.7μF			
	5.5X5.0	50								3.3μF	4.7μF			
		25									10μF			
	5.5X7.5	50									10μF			
		25										22μF		

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Ceramic Capacitor, Polymer Aluminum Electrolytic Capacitors

175°C/200°C Operation Leaded MLCC for Automotive



RHS



Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
RHS7G	3.9X3.5	100				100pF	1500pF						
	4.2X3.5	100					1800pF 3300pF						
RHS7J	4.2X3.5	200				100pF	4700pF						
	5.5X4.0	500				100pF	4700pF						
		200					6800pF 10000pF						

Safety Standard Certified Lead Type Disc Ceramic Capacitors for Automotive



DE6



Series	Rated Voltage (V)	D (mm)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
DE6E3	X1: AC440V (r.m.s.), Y2: AC300V(r.m.s.)	7.0 to 12.0					1000pF	4700pF						

Resin Molding SMD Type Ceramic Capacitors

Safety Standard Certified Resin Molding SMD Type Ceramic Capacitors for General Purpose



DK1

Temperature Compensating Type



Series	Rated Voltage (V)	LXW (mm)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
DK11X	X1: AC440V (r.m.s.), Y1: AC300V(r.m.s.)	11.4X6.0			10pF	47pF								
	X1: AC440V (r.m.s.), Y1: AC250V(r.m.s.)	11.4X6.0			10pF	47pF								

High Dielectric Constant Type

Series	Rated Voltage (V)	LXW (mm)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
DK1B3	X1: AC440V (r.m.s), Y1: AC300V(r.m.s)	11.4X6.0				100pF	680pF							
	X1: AC440V (r.m.s), Y1: AC250V(r.m.s)	11.4X6.0				100pF	680pF							
DK1E3	X1: AC440V (r.m.s), Y1: AC300V(r.m.s)	11.4X6.0					1000pF 1500pF							
	X1: AC440V (r.m.s), Y1: AC250V(r.m.s)	11.4X6.0					1000pF 1500pF							

Continued on the following page. ↗

ECAS ECNS

General Deflecting crack Anti-noise Effective Cap

- Cat. No. C02E
Cat. No. C03E
- Cat. No. C85E
Cat. No. C90E
Cat. No. C49E

Single-Layer Microchip Capacitors, Thin Film Circuit Substrates (RUSUB)

Single-Layer Microchip Capacitors, Thin Film Circuit Substrates (RUSUB)

Single-Layer Microchip Capacitors

Very reliable performance and excellent frequency characteristics

Temperature Compensating Type

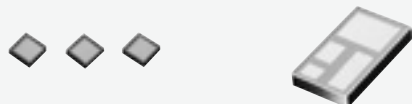


Capacitance Change (Temperature Range)	Series	Size (mm)	Rated Voltage (Vdc)	Capacitance Range at 25°C (pF)					Operating Temperature Range (°C)
				0.1	1	10	100	1000	
0±30ppm/°C (-25 to 85°C)	CLB0A	0.25X0.25	100	0.1					-55 to 125
	CLB0C	0.35X0.25	100	0.2					-55 to 125
	CLB0D	0.38X0.38	100	0.2	0.4				-55 to 125
	CLB0S	0.50X0.50	100	0.3	0.6				-55 to 125
	CLB0E	0.55X0.38	100	0.5	0.6				-55 to 125
	CLB0F	0.64X0.64	100	0.3	1.0				-55 to 125
	CLB0G	0.70X0.50	100	0.7	1.0				-55 to 125
	CLB0H	0.71X0.38	100	0.7	0.8				-55 to 125
	CLB0J	0.76X0.76	100	0.4	1.3				-55 to 125
	CLB09	0.90X0.90	100	0.5	1.8				-55 to 125
	CLB1A	1.00X0.64	100	1.1	1.6				-55 to 125
	CLB1B	1.09X0.76	100	1.5	2.0				-55 to 125
	CLB1C	1.27X1.27	100	1.0	3.6				-55 to 125
	CLB1E	1.49X0.90	100	2.0	2.7				-55 to 125
	CLB1G	1.73X1.27	100	3.9	4.7				-55 to 125
	CLB1H	1.78X1.78	100	1.8	6.8				-55 to 125
	CLB2C	2.19X1.27	100	5.1					-55 to 125
	CLB2E	2.29X2.29	100	3.0	10				-55 to 125
	CLB2L	2.95X1.78	100	7.5	10				-55 to 125
	CLB3G	3.71X2.29	100	11	16				-55 to 125
-750±60ppm/°C (-25 to 85°C)	CLB0A	0.25X0.25	100	0.3	0.7				-55 to 125
	CLB0B	0.30X0.25	100	0.8					-55 to 125
	CLB0C	0.35X0.25	100	0.9					-55 to 125
	CLB0D	0.38X0.38	100	0.9	1.6				-55 to 125
	CLB0S	0.50X0.50	100	1.0	2.4				-55 to 125
	CLB0E	0.55X0.38	100	1.8	2.4				-55 to 125
	CLB0F	0.64X0.64	100	2.0	4.3				-55 to 125
	CLB0G	0.70X0.50	100	2.7	3.0				-55 to 125
	CLB0H	0.71X0.38	100	2.7					-55 to 125
	CLB0J	0.76X0.76	100	3.0	6.2				-55 to 125
	CLB09	0.90X0.90	100	3.3	6.8				-55 to 125
	CLB1A	1.00X0.64	100	4.7	6.2				-55 to 125
	CLB1B	1.09X0.76	100	6.8	7.5				-55 to 125
	CLB1C	1.27X1.27	100	7.5	15				-55 to 125
	CLB1E	1.49X0.90	100	7.5	9.1				-55 to 125
	CLB1H	1.78X1.78	100	13	15				-55 to 125
	CLB2E	2.29X2.29	100	20					-55 to 125

All Single Layer Microchip Capacitors are produced after receiving an order.

Single-Layer Microchip Capacitors, Thin Film Circuit Substrates (RUSUB)

High Dielectric Constant Type



Capacitance Change (Temperature Range)	Series	Size (mm)	Rated Voltage (Vdc)	Capacitance Range at 25°C (pF)					Operating Temperature Range (°C)
				0.1	1	10	100	1000	
±10% (-25 to 85°C)	CLB0A	0.25X0.25	100			5.6	12		-55 to 125
	CLB0B	0.30X0.25	100			13	15		-55 to 125
	CLB0C	0.35X0.25	100			16	18		-55 to 125
	CLB0D	0.38X0.38	100			18	30		-55 to 125
	CLB05	0.50X0.50	100			22	43		-55 to 125
	CLB0E	0.55X0.38	100			33	43		-55 to 125
	CLB0F	0.64X0.64	100			43	75		-55 to 125
	CLB0G	0.70X0.50	100			47	68		-55 to 125
	CLB0H	0.71X0.38	100			47	56		-55 to 125
	CLB0J	0.76X0.76	100			68	110		-55 to 125
	CLB09	0.90X0.90	100			68	130		-55 to 125
	CLB1A	1.00X0.64	100			82	120		-55 to 125
	CLB1C	1.27X1.27	100				160	200	-55 to 125
	CLB1E	1.49X0.90	100				150	160	-55 to 125
	CLB1G	1.73X1.27	100				300		-55 to 125
	CLB1H	1.78X1.78	100				300	430	-55 to 125
	CLB2E	2.29X2.29	100				470	620	-55 to 125
+30, -80% (-25 to 85°C)	CLB0A	0.25X0.25	100			27	33		-55 to 125
	CLB0B	0.30X0.25	100			36	39		-55 to 125
	CLB0C	0.35X0.25	100			43	51		-55 to 125
	CLB0D	0.38X0.38	100			62	82		-55 to 125
	CLB05	0.50X0.50	100			75	130		-55 to 125
	CLB0E	0.55X0.38	100			91	120		-55 to 125
	CLB0F	0.64X0.64	100			130	220		-55 to 125
	CLB0G	0.70X0.50	100			150	200		-55 to 125
	CLB0H	0.71X0.38	100			130	150		-55 to 125
	CLB0J	0.76X0.76	100				200	300	-55 to 125
	CLB09	0.90X0.90	100				200	390	-55 to 125
	CLB1A	1.00X0.64	100				240	360	-55 to 125
+30, -90% (-25 to 85°C)	CLB0A	0.25X0.25	100			36	56		-55 to 125
	CLB0D	0.38X0.38	100			91	150		-55 to 125
	CLB05	0.50X0.50	100			130	220		-55 to 125
	CLB0F	0.64X0.64	100				220	390	-55 to 125
	CLB0J	0.76X0.76	100				330	560	-55 to 125
	CLB09	0.90X0.90	100				390	680	-55 to 125

All Single Layer Microchip Capacitors are produced after receiving an order.

Single-Layer Microchip Capacitors, Thin Film Circuit Substrates (RUSUB)

Thin Film Circuit Substrates (RUSUB)

Customizable capacitors for impedance matching for RF power amplifiers and decoupling for optical communication devices.

■ Features

- Single-layer structure enhances self-resonant frequency, which allows stable operation even at a high frequency range.
- RUSUB technology achieves miniaturization of the device by combining a single-layer capacitor and a thin film resistor. In addition, it contributes to attenuation of unnecessary noise.
- By utilizing Au electrodes, die bonding with AuSn and wire bonding with gold wire are possible.
- A wide selection of substrate materials meets customers' requirements. (Please refer to the following table.)

Function	Dielectric Constant (ϵ_r) *1	Size min. (mm) (LxWxT) *2	Temperature Characteristics of Capacitance (ppm/°C) *3	Through Hole	TaN Resistance	L/S min. (μm) *4	Coefficient of Thermal Expansion (ppm/°C) *1	Temperature Conductivity (ppm/(m·°C)) *1
Impedance Matching	9	0.25X0.25X0.10	-	○	○	30/30 (Au thickness 4 μm)	4.6	200.0
	10	0.25X0.25X0.20	-	○	○		7.0	33.5
	39	0.25X0.25X0.10	0 $\pm$ 30	×	○		6.6	1.9
	90	0.25X0.25X0.10	-330 $\pm$ 120	×	○		9.2	2.3
	150	0.25X0.25X0.10	-750 $\pm$ 120	×	○		11.7	2.0
	250	0.25X0.25X0.10	-750 $\pm$ 600	×	○		12.2	4.0
Decoupling	3000	0.25X0.25X0.10	$\pm$ 10%	×	○	50/50 (Au thickness 8 μm)	10.7	2.5
	10000	0.25X0.25X0.10	+30, -80%	×	×		10.5	1.6
	15000	0.25X0.25X0.10	+30, -90%	×	×		14.0	2.4
	30000	0.25X0.25X0.25	$\pm$ 25%	×	○		11.2	7.35

*1 : Typical value

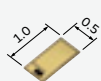
*2 : L = length, W = width, T = thickness

*3 : Temperature Range: -25 to 85°C, Reference Temperature: 25°C

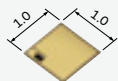
*4 : L = line, S = space

Single-Layer Microchip Capacitors, Thin Film Circuit Substrates (RUSUB)

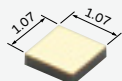
Thirteen types of standard products suitable for decoupling are also available.



RUCYT101 Series



RUCYT201 Series



RUCQD Series

(in mm)

Part Number	Size (mm) (LxWxT)	Capacitor			Resistor	
		Capacitance (pF)	Temperature Characteristics of Capacitance (-25 to 85°C)	Rated Voltage (V)	Resistance (Ω)	Temperature Coefficient of Resistance (ppm/°C)
RUCYT101K00009GNTC	1.0X0.5X0.11	100	±10%	100	50±20%	-70±50
RUCYT101K00011GNTC	1.0X0.5X0.11	100			100±20%	
RUCYT101K00012GNTC	1.0X0.5X0.11	100			200±20%	
RUCYT201K00010GNTC	1.0X1.0X0.12	200			50±20%	
RUCYT201K00013GNTC	1.0X1.0X0.12	200			100±20%	
RUCYT201K00014GNTC	1.0X1.0X0.12	200			200±20%	
RUCQD101RCC007GNTC	0.34X0.34X0.25	100	±25%	65	-	-
RUCQD431RCC001GNZB	0.70X0.70X0.25	430				
RUCQD471RCC002GNZB	0.73X0.73X0.25	470				
RUCQD511RCC003GNZB	0.76X0.76X0.25	510				
RUCQD561RCC004GNZB	0.80X0.80X0.25	560				
RUCQD102RCC008GNZB	1.07X1.07X0.25	1000				
RUCQD201ZCC005GNZB	1.10X0.60X0.25	200×4				

*Several samples for impedance matching are also available for your evaluation. Please find the details at the following link: <https://www.murata.com/en-global/products/capacitor/rusub/matching>

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



• Single-Layer Microchip Capacitors/Thin Film Circuit Substrates

Cat. No. C01E

Variable Capacitors, Silicon Capacitors

Variable Capacitors

Variable capacitors can carry out the variable of the capacitor by adjusting the tuning voltage. They are designed for frequency matching use for HF band (13.56MHz).

LXRW_V Series





(in mm)

LXRW0YV Series

LXRW19V Series

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
LXRW0Y	0.6X0.6	CSP			33pF	90pF								
LXRW19	1.3X0.9	DFN			33pF	200pF								

Silicon Capacitors

Murata High-Density Silicon Capacitors are based on a MOS Semiconductor technology and utilize a 3D structure that substantially increases their performance and enables compact design. Silicon Capacitors offer small size and low thickness, superior reliability, and stability over high temperatures and high frequencies. They are the ideal choice for all demanding markets, such as Networking (RF Power and Broadband), Medical (Implantable devices), Automotive, or High-Reliability applications. Murata can provide customized Silicon Capacitors or Integrated Passive Devices (IPDs) to optimize your design.

Product Lineup

	Thickness	Standard (150°C)	High temp.	Operating Frequency	Low ESL
 Solder Mounting	85μm				UESL (Typically 15pH) S p39
	100μm	LPSC R All p35		XBSC (100GHz+) UBSC (60GHz+) BBSC (40GHz) ULSC (20GHz) UBDC (60GHz+)	
	400μm	HSSC All p35	HTSC (200°C) XTSC (250°C) H p35		
 Wire-bonding vertical	100μm	WLSC P A B p38			
	250μm	WBSC P A B p38	WTSC (200°C) WXSC (250°C) A P H p38	UWSC (26GHz+) (down to 10pH) B P	p38
 Wire-bonding / Embedded horizontal	100μm	EMSC All MGSC M p35, 39		UBEC (60GHz+) BBEC (40GHz) ULEC (20GHz) B	p37
	250μm		ETSC (200°C) EXSC (250°C) H ATSC (200°C) A p36, 39		

Target application

A Automotive
M Medical

H High Reliability
All All applications

S Signal Integrity
P Power Amp for RF

B BroadBand
R RFID

High stability and reliability Si capacitors (HSSC)



BV 11V

BV 30V

Series	Size (inch)	Size (mm)	Capacitance Range (F)											
			47p	100p	470p	1n	10n	22n	33n	47n	100n	1μ	3.3μ	
HSSC	1812	4.70X3.60												
	1206	3.40X1.80												
	0805	2.20X1.40												
	0603	1.80X1.10												
	0402	1.20X0.70												
	0201	0.80X0.60												

Low-profile Si capacitors down to 100μm (LPSC)



BV 11V

BV 30V

Series	Size (inch)	Size (mm)	Capacitance Range (F)											
			47p	100p	330p	470p	1n	10n	22n	33n	47n	100n	1μ	
LPSC	1206	3.40X1.80												
	0805	2.20X1.40												
	0603	1.80X1.10												
	0402	1.20X0.70												
	0402	1.20X0.70												
	0201	0.80X0.60												
	0201	0.80X0.60												

Xtreme temperature Si capacitors up to 250°C (HTSC/XTSC)



BV 11V

BV 30V

Series	Size (inch)	Size (mm)	Capacitance Range (F)											
			47p	100p	470p	1n	10n	22n	33n	47n	100n	1μ	3.3μ	
HTSC XTSC	1812	4.70X3.60												
	1206	3.40X1.80												
	0603	1.80X1.10												
	0402	1.20X0.70												
	0201	0.80X0.60												

Wire-bondable or embedded low-profile Si capacitors down to 100μm (EMSC)



BV 11V

BV 30V

Series	Size (inch)	Size (mm)	Capacitance Range (F)									
			390p	470p	680p	1n	10n	33n	47n	100n	220n	1μ
EMSC	1208	3.07X2.07										△
	0605	1.59X1.32								△		
	0505	1.32X1.32							△		△	
	0404	1.07X1.07						△		△		
	0202	0.63X0.63	△	△	△	△	△					

△ Available parts. For other values, contact your Murata sales representative. △ Under development.

Silicon Capacitors

Extreme temperature wire-bondable Si capacitors up to 250°C (ETSC/EXSC)



BV 11V

BV 30V

Series	Size (inch)	Size (mm)	Capacitance Range (F)												
			390p	470p	680p	1n	10n	33n	47n	100n	220n	1μ	2.2μ	3.3μ	4.7μ
ETSC EXSC	2016	5.07X4.07													△
	1616	4.07X4.07										△		△	
	1612	4.07X3.07											△		
	1208	3.07X2.07										△			
	0605	1.59X1.32								△					
	0505	1.32X1.32							△		△				
	0404	1.07X1.07						△		△					
	0202	0.63X0.63	△	△	△	△	△								

Ultra broadband surface mounted Si capacitor up to 100GHz+ (XBSC)



BV 11V

BV 30V

Series	Size (inch)	Size (mm)	Capacitance Range (F)			
			1n	5.6n	10n	
XBSC	0201M	0.60X0.30	△	△	△	

Ultra broadband surface mounted Si capacitors up to 60GHz+ (UBSC)



BV 11V

BV 30V

Series	Size (inch)	Size (mm)	Capacitance Range (F)					
			1n	5.6n	10n	22n	47n	100n
UBSC	0402	1.20X0.70					△	△
	0201	0.80X0.60	△		△	△	△	
	0201M	0.60X0.30	△	△	△			

Ultra broadband surface mounted Si capacitors up to 40GHz (BBSC)



BV 11V

BV 30V

Series	Size (inch)	Size (mm)	Capacitance Range (F)					
			1n	5.6n	10n	22n	47n	100n
BBSC	0402	1.20X0.70					△	△
	0201	0.80X0.60	△		△	△	△	
	0201M	0.60X0.30	△	△	△			

△ Available parts. For other values, contact your Murata sales representative. △ Under development.

Ultra broadband surface mounted Si capacitors up to 20GHz (ULSC)



BV 11V

BV 30V

Series	Size (inch)	Size (mm)	Capacitance Range (F)					
			1n	5.6n	10n	22n	47n	100n
ULSC	0603	1.80X1.10						
	0402	1.20X0.70						
	0201	0.80X0.60						
	0201M	0.60X0.30						

Ultra Broadband surface mounted differential Si capacitors pairs up to 60GHz+ (UBDC)



BV 11V

BV 30V

Series	Size (inch)	Size (mm)	Capacitance Range (F)	
			2x5.6n	2x10n
UBDC	0402M	1.00X0.50		

Ultra broadband wire-bondable embedded Si capacitors up to 60GHz+ (UBEC)



BV 11V

BV 30V

Series	Size (inch)	Size (mm)	Capacitance Range (F)					
			1n	3.3n	5.6n	10n	33n	100n
UBEC	0404	1.07X1.07						
	0201M	0.60X0.30						

Ultra broadband wire-bondable embedded Si capacitors up to 40/20GHz (BBEC/ULEC)



BV 11V

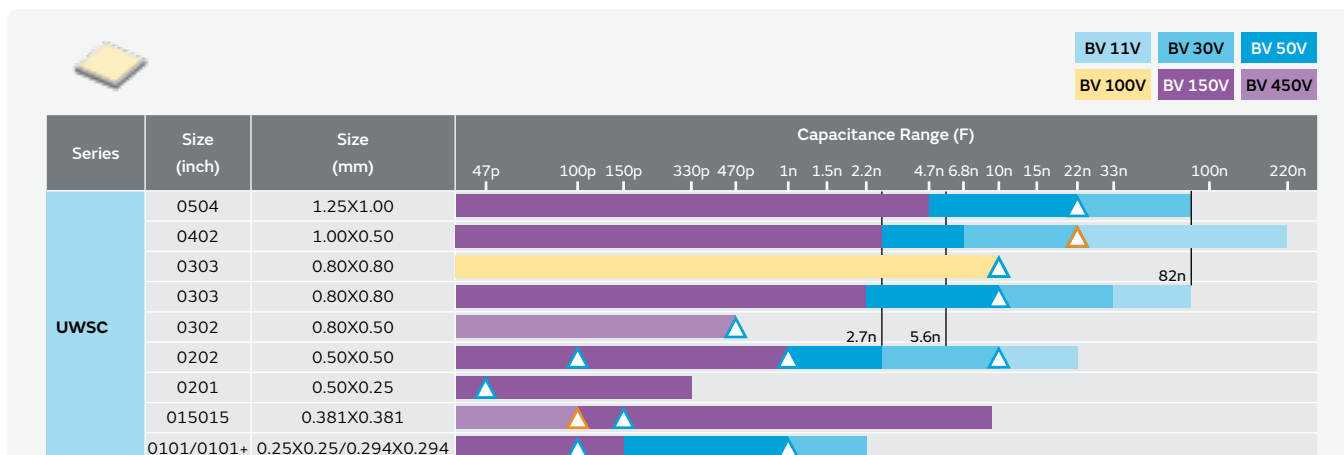
BV 30V

Series	Size (inch)	Size (mm)	Capacitance Range (F)				
			1n	5.6n	10n	33n	100n
BBEC ULEC	0404	1.07X1.07					
	0201M	0.60X0.30					

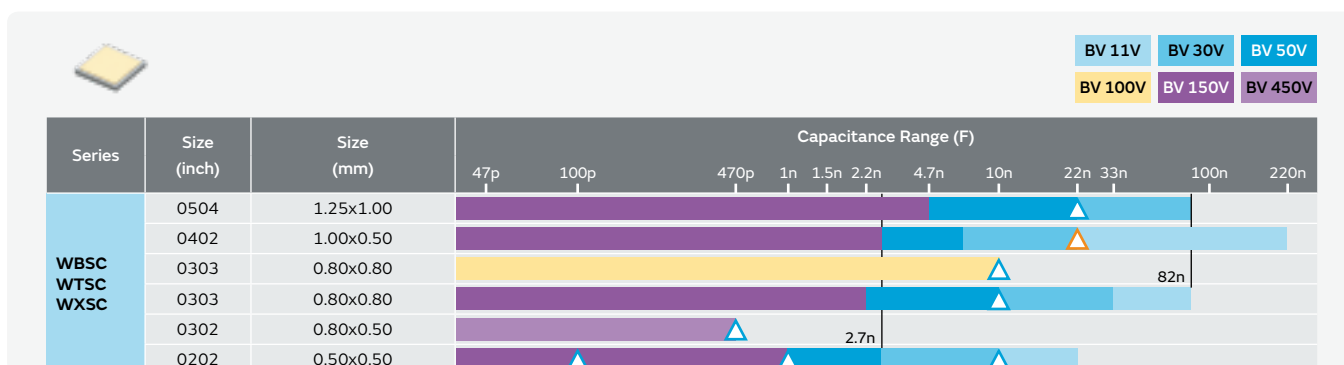
△ Available parts. For other values, contact your Murata sales representative. ▴ Under development.

Silicon Capacitors

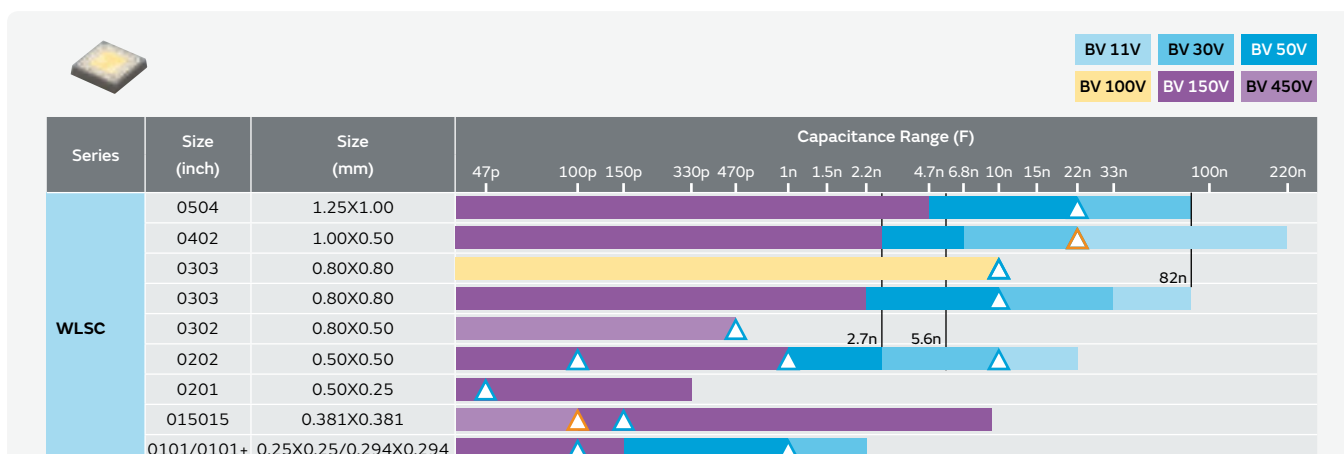
Ultra large-band wire-bondable vertical Si capacitors up to 26GHz+ (UWSC)



Wire-bondable vertical Si capacitors up to 250°C (WBSC/WTSC/WXSC)



Wire-bondable vertical low-profile Si capacitors down to 100µm (WLSC)



△ Available parts. For other values, contact your Murata sales representative. ▴ Under development.

Automotive high temperature Si capacitors up to 200°C (ATSC)



BV 30V

Series	Size (inch)	Size (mm)	Capacitance Range (F)									
			390p	470p	680p	1n	4.7n	10n	47n	100n	1μ	
ATSC	1616	4.07X4.07										△
	0605	1.59X1.32								△		
	0505	1.32X1.32							△			
	0202	0.63X0.63	△	△	△	△	△	△				

Ultra low ESL and ultra-low-profile Si capacitors down to 85μm (UESL)



BV 5V

Series	Size (inch)	Size (mm)	Capacitance Range (F)			
			50n	180n	450n	
UESL	0404	1.04X1.04				△
	0402M	1.00X0.50		△		
	0204M	0.50X1.00		△		
	0201M	0.60X0.30	△			

Medical grade Si capacitors (MGSC)



BV 30V

Series	Size (inch)	Size (mm)	Capacitance Range (F)					
			1n	10n	47n	100n	1μ	
MGSC	1616	4.07X4.07						△
	0605	1.59X1.32				△		
	0505	1.32X1.32			△			
	0202	0.63X0.63	△	△				

△ Available parts. For other values, contact your Murata sales representative. △ Under development.

Film Capacitors

Film Capacitors

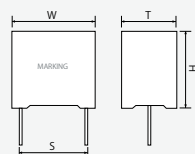
The FH series uses materials with high heat resistance. Therefore, it has a higher allowable ripple current under a higher temperature environment than conventional PP film capacitors.

This feature is more prominent in the high-frequency range. For example, when the ambient temperature is at 105°C, the PP film capacitors would be already at its limit for allowable ripple current, but because of the higher heat resistance of the FH series, the allowable ripple current can be increased drastically.



Specifications

Items	Basic Specifications
Rated Capacitance	10,15,20μF
Rated Voltage	500V
Operational Life	125°C/500V 2000h
Biased Humidity	85°C/85%RH/500V 1000h



Dimensions

Part Number	Capacitance	Dimensions (mm)			
		W	H	T	S
FHA50Y206KS	20μF	35.0	37.0	20.0	29.0
FHA50Y156KS	15μF	35.0	35.5	14.5	29.0
FHA50Y106KS	10μF				

Noise Suppression Products/ EMI Suppression Filters

Broad lineup of Noise Suppression Products and
EMI Suppression Filters

Summary

Using Murata's ceramic processing technology and unique materials, we offer a variety of Noise Suppression Products and EMI Suppression Filters.

Lineup

- EMI (chip and lead type)
- Noise Suppression Products for Automotive
- ESD Protection Devices



<https://www.murata.com/en-global/products/emc>

Noise Suppression Filters (Chip Ferrite Bead)/ (Frequency Specified Noise Filters)

			Series	Size Code inch (mm)	Max. Rated Current (mA)	Impedance at 100MHz (Rated Current)	
For General Band Noise	Universal Type [Power Lines/Signal Lines]		 BLM02AX	01005 (0402)	750	10Ω to 330Ω (0.15A to 0.75A)	
			 BLM03AX	0201 (0603)	1000	10Ω to 1000Ω (0.2A to 1A)	
			 BLM15AX	0402 (1005)	1740	10Ω to 1000Ω (0.35A to 1.74A)	
	Signal Lines Type	For General Signal Lines	 BLM03AG	0201 (0603)	-	10Ω to 1000Ω	
			 BLM15AG	0402 (1005)	-	10Ω to 1000Ω	
			 BLM18AG	0603 (1608)	-	120Ω to 1000Ω	
			 BLM21AG	0805 (2012)	-	120Ω to 1000Ω	
			 BLM18TG	0603 (1608)	-	120Ω to 1000Ω	
			 BLA2AA (4 circuits array)	0804 (2010)	-	120Ω to 1000Ω	
			 BLA31AG (4 circuits array)	1206 (3216)	-	30Ω to 1000Ω	
			For High Speed Signal Lines	 BLM02BX*	01005 (0402)	-	120Ω to 240Ω
				 BLM03BX	0201 (0603)	-	1000Ω to 1800Ω
		 BLM02BB/BC		01005 (0402)	-	10Ω to 100Ω	
		 BLM03BB/BC/BD		0201 (0603)	-	10Ω to 600Ω	
		 BLM15BA/BB/BC/BD		0402 (1005)	-	5Ω to 1800Ω	
		 BLM15BX		0402 (1005)	-	75Ω to 1800Ω	
		 BLM18BA/BB/BD		0603 (1608)	-	5Ω to 2500Ω	
		 BLM21BB/BD		0805 (2012)	-	5Ω to 2700Ω	
		 BLA2AB (4 circuits array)		0804 (2010)	-	10Ω to 1000Ω	
		 BLA31BD (4 circuits array)		1206 (3216)	-	120Ω to 1000Ω	
		For Digital Interface Lines	 BLM18RK	0603 (1608)	-	120Ω to 1000Ω	
			 BLM21RK	0805 (2012)	-	120Ω to 1000Ω	

* The derating of rated current is required for some items according to the operating temperature.

For automotive grade products, please refer to the catalog C51E, "EMI Suppression Filters (for DC)/Chip Inductors for Automotive."

Continued on the following page. ↗

Noise Suppression Filters (Chip Ferrite Bead)/(Frequency Specified Noise Filters)

		Series	Size Code inch (mm)	Max. Rated Current (mA)	Impedance at 100MHz (Rated Current)
For General Band Noise	Power Lines Type	 BLM02KX*	01005 (0402)	1500	10Ω to 18Ω (1.2A to 1.5A)
		 BLM02PX*	01005 (0402)	1100	10Ω to 60Ω (0.5A to 1.1A)
		 BLM03PX*	0201 (0603)	1800	22Ω to 120Ω (0.9A to 1.8A)
		 BLM03PG	0201 (0603)	900	22Ω to 33Ω (0.75A to 0.9A)
		 BLM15KD*	0402 (1005)	3800	20Ω to 120Ω (1.5A to 3.8A)
		 BLM15PX*	0402 (1005)	3000	33Ω to 600Ω (0.9A to 3A)
		 BLM15PD*	0402 (1005)	2200	30Ω to 120Ω (1.3A to 2.2A)
		 BLM15PG	0402 (1005)	1000	10Ω (1A)
		 BLM18PG*	0603 (1608)	3000	30Ω to 470Ω (1A to 3A)
		 BLM21PG*	0805 (2012)	6000	22Ω to 330Ω (1.5A to 6A)
		 BLM31PG*	1206 (3216)	6000	33Ω to 600Ω (1.5A to 6A)
		 BLM41PG*	1806 (4516)	6000	60Ω to 1000Ω (1.5A to 6A)
		 BLM18SN* (Low DC Resistance Type)	0603 (1608)	8000	22Ω (8A)
		 BLM18KG* (Low DC Resistance Type)	0603 (1608)	6000	26Ω to 1000Ω (1A to 6A)
		 BLM18SD* (Low DC Resistance Type)	0603 (1608)	6000	22Ω (6A)
		 BLM18SG* (Low DC Resistance Type)	0603 (1608)	6000	26Ω to 330Ω (1.5A to 6A)
		 BLM21SN*/SP* (Low DC Resistance Type)	0805 (2012)	8500	30Ω to 1000Ω (1.6A to 8.5A)
		 BLM31SN* (Low DC Resistance Type)	1206 (3216)	12000	50Ω (12A)
		 BLM31KN*	1206 (3216)	6000	120Ω to 1000Ω (2A to 6A)
		 BLE18PS*	0603 (1608)	8000	8.5Ω (8A)
		 BLE32PN	1210 (3225)	10000	26Ω to 30Ω (10A)
For GHz Band Noise	Universal Type [Power Lines/Signal Lines]	 BLM03EB*	0201 (0603)	600	25Ω to 50Ω (0.4A to 0.6A)
		 BLM15EG*	0402 (1005)	1500	120Ω to 220Ω (0.7A to 1.5A)
		 BLM15EX*	0402 (1005)	1800	120Ω to 470Ω (0.95A to 1.8A)
		 BLM18EG*	0603 (1608)	2000	100Ω to 600Ω (0.5A to 2A)
		 BLM18HE*	0603 (1608)	800	600Ω to 1500Ω (0.5A to 0.8A)
	Signal Lines Type	 BLM03HG	0201 (0603)	-	600Ω to 1200Ω
		 BLM03HD	0201 (0603)	-	330Ω to 1800Ω
		 BLM03HB	0201 (0603)	-	190Ω to 400Ω
		 BLM15HG	0402 (1005)	-	600Ω to 1000Ω
		 BLM15HD	0402 (1005)	-	600Ω to 1800Ω
		 BLM15HB	0402 (1005)	-	120Ω to 220Ω
		 BLM18HG	0603 (1608)	-	470Ω to 1000Ω
		 BLM18HD	0603 (1608)	-	470Ω to 1000Ω
		 BLM18HB	0603 (1608)	-	120Ω to 330Ω
		 BLM18HK	0603 (1608)	-	330Ω to 1000Ω
For High-GHz Band Noise	Signal Lines Type	 BLM15GG	0402 (1005)	-	220Ω to 470Ω
		 BLM15GA	0402 (1005)	-	75Ω
		 BLM18GG	0603 (1608)	-	470Ω
	Power Lines Type	 BLM18DN*	0603 (1608)	1400	150Ω to 600Ω

* The derating of rated current is required for some items according to the operating temperature.

For automotive grade products, please refer to the catalog C51E, "EMI Suppression Filters (for DC)/Chip Inductors for Automotive."

Continued on the following page. ↗

Frequency Specified Noise Filters	For 700MHz Band	Series	Size Code inch (mm)	Max. Rated Current (A)	Impedance at 700MHz
		 BLF02JD*	01005 (0402)	-	360Ω to 470Ω
		 BLF02GD	01005 (0402)	-	1600Ω
		 BLF03JD*	0201 (0603)	-	420Ω
Frequency Specified Noise Filters	For 2.4GHz Band	Series	Size Code inch (mm)	Max. Rated Current (A)	Impedance at 2.4GHz
		 BLF02RD*	01005 (0402)	-	330Ω to 470Ω
Frequency Specified Noise Filters	For 5GHz Band	Series	Size Code inch (mm)	Max. Rated Current (A)	Impedance at 5GHz
		 BLF03VK*	0201 (0603)	1.2	60Ω to 220Ω
For General Band Noise	Large Current Type Power Lines Type	Series	Size Code inch (mm)	Max. Rated Current (A)	Impedance at 100MHz (Rated Current)
		 BLT5BPT*	2020 (5050)	11	68Ω (11A)

Noise Suppression Filters (Feed Through Chip EMI Filters)

Universal Type [Power Lines/Signal Lines]	Series	Size Code inch (mm)	Max. Rated Current (mA)	Capacitance
	 NFE31PT	1206 (3216)	6000	22pF to 2200pF
	 NFE61PT	2706 (6816)	2000	33pF to 4700pF

Noise Suppression Filters (Chip LC Filters)

Signal Lines Type	Series	Size Code inch (mm)	Max. Rated Current (mA)	Nominal Cut-off Frequency
	 NFL18ST	0603 (1608)	-	50MHz to 500MHz
	 NFL18SP	0603 (1608)	-	150MHz to 500MHz
	 NFL21SP	0805 (2012)	-	10MHz to 500MHz
	 NFA18SL (4 circuits array)	0603 (1608)	-	50MHz to 480MHz
	 NFA18SD (4 circuits array)	0603 (1608)	-	180MHz to 200MHz
	 NFA21SL (4 circuits array)	0805 (2012)	-	50MHz to 330MHz
	 NFW31SP	1206 (3216)	-	10MHz to 500MHz

Noise Suppression Filters (Chip EMIFIL)

Noise Suppression Filters (Chip EMIFIL)

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Impedance at 900MHz	Impedance at 1.7GHz
For Audio Lines	 NFZ03SG_10	0201 (0603)	305	330Ω to 1600Ω	400Ω to 1200Ω
	 NFZ15SG_10	0402 (1005)	500	770Ω to 4600Ω	900Ω to 1800Ω
	 NFZ15SG_11	0402 (1005)	1100	100Ω to 330Ω	160Ω to 540Ω

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Impedance at 100MHz	Impedance at 900MHz
For Audio Lines	 NFZ15SF_10	0402 (1005)	-	1000Ω	-
	 NFZ15SR_10	0402 (1005)	-	200Ω to 500Ω	1500Ω to 3500Ω
	 NFZ18SM_10*	0603 (1608)	-	120Ω to 700Ω	-
	 NFZ2MSM_10	0806 (2016)	-	100Ω to 600Ω	-
	 NFZ32SW_10	1210 (3225)	-	300Ω to 900Ω	-

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Impedance at 10MHz
For Audio Lines	 NFZ2MSD_10*	0806 (2016)	-	15Ω to 130Ω

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Impedance at 1MHz
For LED Lighting Equipments	 NFZ5BBW_LN10*	2020 (5050)	4000	2.9Ω to 140Ω
	 NFZ2HBM_10	1008 (2520)	1200	1.5Ω to 60Ω
	 NFZ32BW_10*	1210 (3225)	2550	3.6Ω to 880Ω
	 NFZ32BW_11*	1210 (3225)	2900	3.3Ω to 150Ω

* The derating of rated current is required for some items according to the operating temperature.

For automotive grade products, please refer to the catalog C51E, "EMI Suppression Filters (for DC)/Chip Inductors for Automotive."

Noise Suppression Filters (Chip Common Mode Choke Coils/Chip Common Mode Noise Filters)

		Series	Size Code inch (mm)	Max. Rated Current (mA)	Common Mode Impedance at 100MHz		
Signal Lines Type	For Audio Lines	 DLM11GN	0504 (1210)	-	600Ω		
	For Ultra-High-Speed Signal Lines	 NFGONCN (3 Lines)	03025 (0806)	-	25Ω		
		 DLMOQSN	025020 (0605)	-	50Ω to 90Ω		
		 DLMOQSB	025020 (0605)	-	12Ω to 35Ω		
		 DLMONSN	03025 (0806)	-	50Ω to 90Ω		
		 DLMONSM	03025 (0806)	-	90Ω		
		 DLMONSB	03025 (0806)	-	12Ω to 28Ω		
		 DLM11SN	0504 (1210)	-	45Ω to 90Ω		
		 NFPQHB	025020 (0605)	-	-		
		 NFPQSB	025020 (0605)	-	(90Ω)		
		 DLPQSA	025020 (0605)	-	7Ω to 35Ω		
		 DLPONSC	03025 (0806)	-	28Ω to 90Ω		
		 DLPONSN	03025 (0806)	-	35Ω to 120Ω		
		 DLPONSA	03025 (0806)	-	7Ω to 15Ω		
		 DLP11SN	0504 (1210)	-	67Ω to 330Ω		
		 DLP11SA	0504 (1210)	-	35Ω to 90Ω		
		 DLP11RN	0504 (1210)	-	45Ω		
		 DLP11RB	0504 (1210)	-	15Ω to 40Ω		
		 DLP11TB	0504 (1210)	-	80Ω		
		 DLP31SN	1206 (3216)	-	120Ω to 550Ω		
		 DLP1NDN (2 circuits array)	05025 (1506)	-	35Ω to 90Ω		
		 DLP2ADA (2 circuits array)	0804 (2010)	-	35Ω to 90Ω		
		 DLP2ADN (2 circuits array)	0804 (2010)	-	67Ω to 280Ω		
		 DLP31DN (2 circuits array)	1206 (3216)	-	90Ω to 440Ω		
		 DLW21S	0805 (2012)	-	67Ω to 920Ω		
		 DLW21H	0805 (2012)	-	67Ω to 180Ω		
		 DLW31S	1206 (3216)	-	90Ω to 2200Ω		
		Universal Type [Power Lines/Signal Lines]		 DLW44S*	1515 (4040)	3100	(100Ω) to (2400Ω)
				 DLW5AH/DLW5BS*	2014 (5036) / 2020 (5050)	5000	(190Ω) to (4000Ω)
				 DLW5AT*/DLW5BT*	2014 (5036) / 2020 (5050)	6000	(50Ω) to (2700Ω)

* The derating of rated current is required for some items according to the operating temperature.

For automotive grade products, please refer to the catalog C51E, "EMI Suppression Filters (for DC)/Chip Inductors for Automotive."

Continued on the following page. ↗

Noise Suppression Filters (Chip Common Mode Choke Coils/Chip Common Mode Noise Filters), Noise Suppression Filters (Block Type)

	Series	Size Code inch (mm)	Max. Rated Current (A)	Common Mode Impedance at 10MHz
Large Current Type for Automotive Available	 PLT5BPH*	2020 (5050)	5.6	100Ω to 500Ω
	 PLT10HH*	-	18	45Ω to 1000Ω

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Common Mode Impedance at 100MHz
Large Current Type for Automotive Available	 UCMH0907	3527 (9070)	5000	(700Ω)

Noise Suppression Filters (Block Type)

		Series	Height (mm)	Rated Voltage (Vdc)	Rated Current (A)
Power Lines Type	SMD Type	 BNX022*	3.1	50	20
		 BNX023*	3.1	100	20
		 BNX024*	3.5	50	20
		 BNX025*	3.5	25	20
		 BNX026*	3.5	50	20
		 BNX027*	3.5	16	20
		 BNX028*	3.5	16	20
		 BNX029*	3.5	6.3	20
	Lead Type	 BNX002	12.5 max.	50	10
		 BNX003	12.5 max.	150	10
		 BNX005	13.0 max.	50	15
		 BNX012*	8.5 max.	50	15
		 BNX016*	8.5 max.	25	15

* The derating of rated current is required for some items according to the operating temperature.

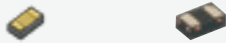
For automotive grade products, please refer to the catalog C51E, "EMI Suppression Filters (for DC)/Chip Inductors for Automotive."

ESD Protection Devices

Support ESD protection for various kinds of electronic devices.

Silicon ESD Protection Devices LXES_T Series

Applying accumulated design technology for excellent ESD suppression performance.



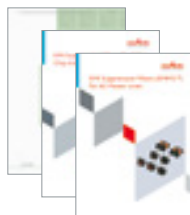
Noise Suppression Filters (Lead Type), Others

	Series				
Lead Type EMIFIL	 BLL18AG	 BL01	 BL02	 BL03	 DSS1
EMIGUARD	 VFC2H				
Common Mode Choke Coils	 PLT09H	 PLT10HN*			

* The derating of rated current is required for some items according to the operating temperature.

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- EMI Suppression Filters (Lead Type EMIFIL)
- EMI Suppression Filters (for DC)/Chip Inductors for Automotive
- Noise Suppression by EMIFIL Digital Equipment Application Manual
- Noise Suppression by EMIFIL Application Guide Application Manual
- Application Manual for Power Supply Noise Suppression and Decoupling for Digital ICs

Cat. No. C30E
Cat. No. C51E
Cat. No. C33E
Cat. No. C35E
Cat. No. C39E

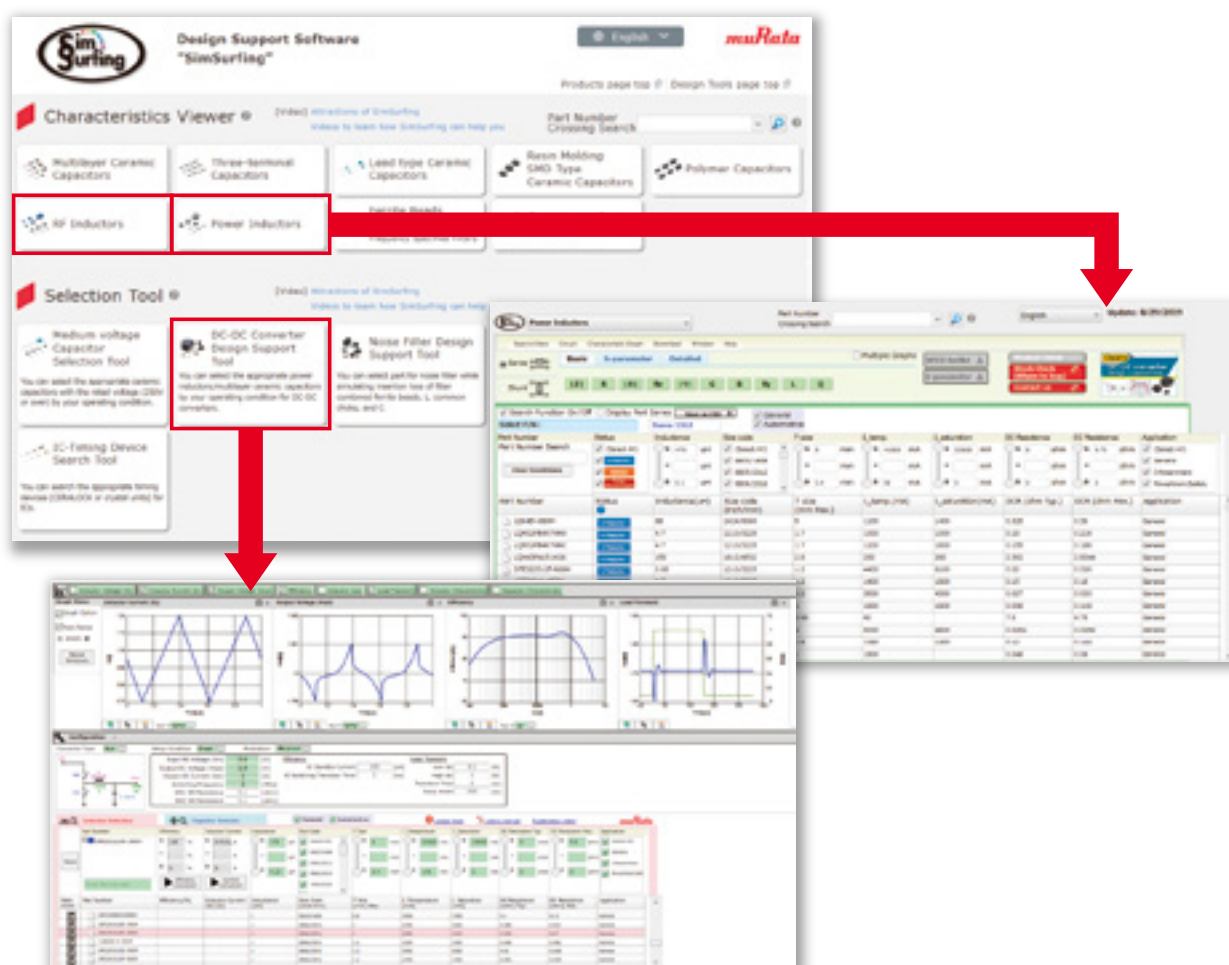
Murata's chip inductors are optimally designed, making full use of multiple construction techniques, such as the multilayer construction technique, film construction technique, and the wire wound construction technique according to the application. We offer an extensive lineup of inductors for power supplies to high frequency.

Lineup

- Inductors for Power Lines
- RF Inductors
- General Circuit Inductors
- Variable Inductors



You can view inductor characteristics and select appropriate power inductors for DC-DC converters



<https://ds.murata.co.jp/simsurfing/>

Inductors for Power Lines

Main Type:

▪ Wound Metal Alloy ▪ Multilayer Type ▪ Wound Ferrite Core

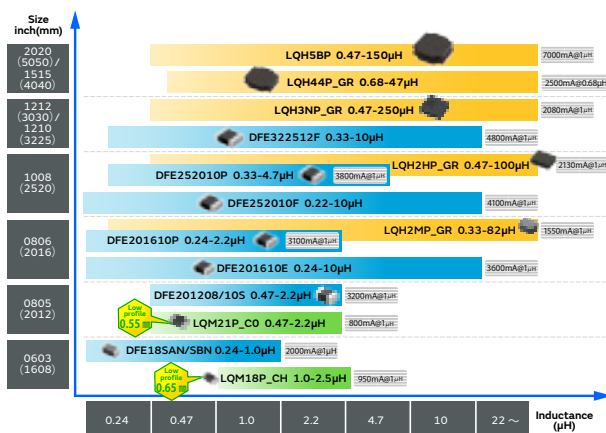


We have an extensive lineup of inductors covering a wide range of sizes from 1.6 mm x 0.8 mm to 12 mm square, which are manufactured using multiple techniques that include metal alloy wire wound construction technique and ferrite multilayer technique. We offer the optimum inductors for a wide range of applications including wearable devices, smartphones, medical applications, industrial electronics, and on board devices.

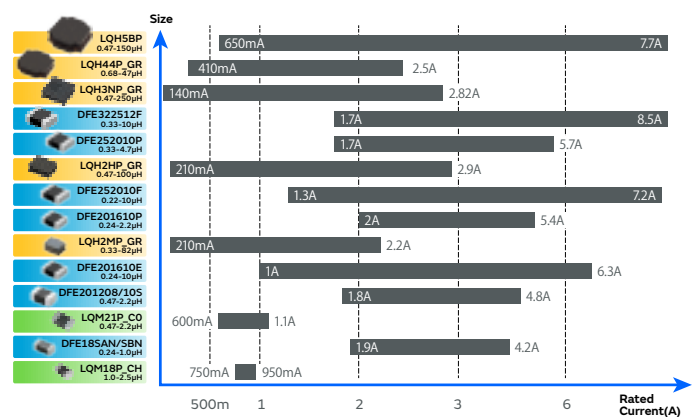
Structure	Description	Series
Wound Metal Alloy	Supports high current by using metal materials in which magnetic saturation does not occur so easily. This product can be used for a wide range of high current power circuits from smart phones to industrial electronics and automotive device applications.	DFEC/DFES series FDSD series
Multilayer Type	The features of this product is its small size and low profile. For example, 2012 and smaller footprint and 0.6mm height. This is ideal for low power circuits, including wearable devices and smartphones.	LQM series
Wound Ferrite Core	A feature of this product is the extensive lineup which supports an inductance of 100 uH or more. It is suitable for step-up power supply circuits in backlights, and choke applications.	LQH series DEM series

Recommended Lineup (General)

List of inductance values

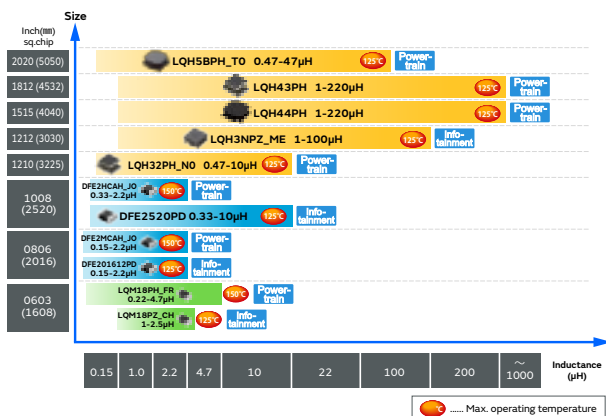


List of rated current values

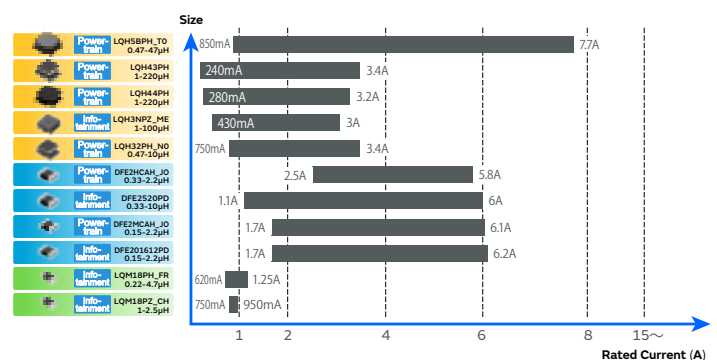


Recommended Lineup (For Automotive)

List of inductance values



List of rated current values



For Power Circuits (For General)

Structure	Size Code inch (mm)	Short Series Name/View		Series	Thickness (mm/max.)	Inductance Range	Rated Current Range
Wound Metal Alloy	0603 (1608)	DFE18SAN		DFE18SAN_E0	0.8	240nH to 1μH	2A to 4.2A
				DFE18SAN_G0	1.0	240nH to 1μH	2.1A to 4.9A
		DFE18SBN		DFE18SBN_E0	0.8	470nH to 1μH	1.9A to 3.1A
Multilayer Type		LQM18PN		LQM18PN_B0	0.4	1.5μH	600mA
				LQM18PN_C0	0.55	470nH to 2.2μH	700mA to 850mA
				LQM18PN_D0	0.75	2.5μH	700mA
				LQM18PN_DH	0.75	2.2μH	650mA
				LQM18PN_F0	0.95	1μH	600mA
				LQM18PN_FH	0.95	470nH to 2.2μH	700mA to 1.4A
				LQM18PN_FR	0.95	220nH to 4.7μH	620mA to 1.25A
				LQM18PN_GH	1.0	1μH to 3.3μH	1.05A
				LQM18PW_CH	0.65	1μH to 2.5μH	750mA to 950mA
Wound Metal Alloy	0805 (2012)	DFE2012		DFE201208S	0.8	470nH to 2.2μH	1.8A to 4A
				DFE201210S	1.0	470nH to 2.2μH	2.1A to 4.8A
				DFE201210U	1.0	240nH to 2.2μH	2A to 6.5A
Multilayer Type		LQM21PN		LQM21PN_C0	0.55	470nH to 2.2μH	600mA to 1.1A
				LQM21PN_CA	0.65	2.2μH	1.05A
				LQM21PN_CH	0.55	470nH to 2.2μH	1.05A to 1.6A
				LQM21PN_EH	0.8	240nH to 2.2μH	1.1A to 2.8A
				LQM21PN_G0	1.0	470nH to 3.3μH	800mA to 1.3A
				LQM21PN_GC	1.0	1μH to 2.2μH	800mA to 900mA
				LQM21PN_GH	1.0	470nH to 4.7μH	1A to 2.4A
				LQM21PN_GR	1.0	1μH to 4.7μH	800mA to 1.3A
				LQM21PN_GS	1.0	2.2μH to 4.7μH	750mA to 950mA
Wound Metal Alloy	0806 (2016)	DFE2016		DFE201610C	1.0	560nH to 2.2μH	1.5A to 2.8A
				DFE201610E	1.0	240nH to 10μH	1A to 6.3A
				DFE201610P	1.0	240nH to 2.2μH	2A to 5.4A
				DFE201610R	1.0	470nH to 2.2μH	1.6A to 3A
				DFE201612C	1.2	470nH to 2.2μH	1.6A to 3.4A
				DFE201612E	1.2	240nH to 4.7μH	1.8A to 6.6A
				DFE201612P	1.2	240nH to 2.2μH	2.1A to 6.5A
				DFE201612R	1.2	470nH to 2.2μH	1.7A to 3.5A
Wound Ferrite Core		LQH2MCN		LQH2MCN_02	0.95	1μH to 82μH	90mA to 485mA
				LQH2MCN_52	0.7	1μH to 22μH	130mA to 595mA
		LQH2MPN		LQH2MPN_GR	0.95	330nH to 82μH	210mA to 2.2A
Multilayer Type		LQM2MPN		LQM2MPN_DH	0.7	2.2μH	1.27A
				LQM2MPN_EH	0.8	240nH to 2.2μH	1.1A to 4.1A
				LQM2MPN_G0	1.0	470nH to 4.7μH	1.1A to 1.6A
	LQM2MPN_GH			1.0	160nH to 2.2μH	1.3A to 5A	

Continued on the following page. ↗

Inductors for Power Lines

Structure	Size Code inch (mm)	Short Series Name/View		Series	Thickness (mm/max.)	Inductance Range	Rated Current Range
Wound Metal Alloy	1008 (2520)	DFE2520		DFE252007F	0.7	470nH to 4.7μH	1.2A to 3.3A
				DFE252008C	0.8	470nH to 4.7μH	1.1A to 3A
				DFE252008U	0.8	470nH to 10μH	1A to 4.5A
				DFE252010C	1.0	470nH to 10μH	1A to 3.5A
				DFE252010F	1.0	220nH to 10μH	1.7A to 7.2A
				DFE252010P	1.0	330nH to 4.7μH	1.7A to 5.7A
				DFE252010R	1.0	1μH to 4.7μH	1.4A to 3A
				DFE252012C	1.2	470nH to 10μH	1A to 3.8A
				DFE252012F	1.2	330nH to 10μH	1.4A to 7.6A
				DFE252012P	1.2	330nH to 4.7μH	2A to 6.6A
				DFE252012R	1.2	1μH to 4.7μH	1.7A to 3.4A
Wound Ferrite Core	1008 (2520)	LQH2HPN		LQH2HPN_DR	0.6	470nH to 22μH	270mA to 1.67A
LQH2HPN_GR				1.0	470nH to 100μH	210mA to 2.9A	
LQH2HPN_JR				1.2	470nH to 22μH	540mA to 3.5A	
Multilayer Type		LQM2HPN		LQM2HPN_CH	0.55	240nH to 2.2μH	850mA to 2.55A
				LQM2HPN_E0	0.8	560nH	1.5A
				LQM2HPN_EH	0.8	240nH to 2.2μH	1.3A to 4.5A
				LQM2HPN_GO	1.0	470nH to 4.7μH	1.1A to 1.8A
				LQM2HPN_GC	1.0	1μH to 4.7μH	800mA to 1.5A
				LQM2HPN_GH	1.0	240nH to 2.2μH	1.5A to 5A
				LQM2HPN_GS	1.0	2.2μH to 4.7μH	1A to 1.1A
				LQM2HPN_J0	1.2	1μH to 3.3μH	1A to 1.5A
				LQM2HPN_JH	1.2	470nH to 2.2μH	1.5A to 3.2A
Wound Ferrite Core	3mm square	DEM28/DEM35		DEM2812C	1.2	470nH to 12μH	760mA to 3.1A
				DEM2815C	1.5	470nH to 15μH	800mA to 3.9A
				DEM2818C	1.8	470nH to 12μH	1A to 4.7A
				DEM3512C	1.2	680nH to 22μH	530mA to 2.5A
				DEM3518C	1.8	560nH to 22μH	880mA to 3.4A
		LQH3NPN		LQH3NPN_GR	1.0	470nH to 250μH	140mA to 2.82A
				LQH3NPN_JR	1.2	680nH to 47μH	570mA to 2.86A
				LQH3NPN_ME	1.5	1μH to 100μH	430mA to 3A
Multilayer Type	1206 (3216)	LQM31PN		LQM31PN_00	0.95	470nH to 4.7μH	700mA to 1.4A
Wound Metal Alloy	1210 (3225)	DFE3225		DFE322510C	1.0	470nH to 10μH	1A to 3.8A
DFE322512C				1.2	470nH to 10μH	1.2A to 4.7A	
DFE322512F				1.2	330nH to 10μH	1.7A to 8.5A	
Wound Ferrite Core		LQH32P		LQH32PB_N0	1.7	470nH to 120μH	200mA to 3.4A
				LQH32PB_NC	1.7	470nH to 22μH	650mA to 4.4A
				LQH32PN_N0	1.7	470nH to 120μH	200mA to 3.4A
				LQH32PN_NC	1.7	470nH to 22μH	650mA to 4.4A
Multilayer Type			LQM32PN		LQM32PN_GO	1.0	1μH
	LQM32PN_GC				1.0	1μH	2.2A

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Inductors for Power Lines

Structure	Size Code inch (mm)	Short Series Name/View		Series	Thickness (mm/max.)	Inductance Range	Rated Current Range	
Wound Metal Alloy	4mm square	FDSD04		FDSD0412	1.2	330nH to 4.7μH	2.5A to 7.5A	
				FDSD0415	1.5	220nH to 4.7μH	2.9A to 12A	
				FDSD0420	2.0	330nH to 10μH	2.5A to 11A	
				FDSD0420W	2.0	15μH to 22μH	1.5A to 1.9A	
Wound Ferrite Core		LQH44PN		LQH44PN_GR	1.0	680nH to 47μH	410mA to 2.5A	
				LQH44PN_J0	1.2	1μH to 47μH	380mA to 2A	
				LQH44PN_P0	1.8	1μH to 22μH	800mA to 2.95A	
				LQH43P	LQH43PB_26	2.8	1μH to 220μH	240mA to 3.4A
					LQH43PN_26	2.8	1μH to 220μH	240mA to 3.4A
				DEM4518	DEM4518C	1.8	1.2μH to 22μH	1A to 3.5A
Wound Ferrite Core		5mm square	LQH5BP		LQH5BPB_T0	2.2	470nH to 22μH	1.4A to 7.7A
					LQH5BPN_38	4.0	1μH to 150μH	650mA to 7A
	LQH5BPN_T0				2.2	470nH to 22μH	1.4A to 7.7A	
	D52LC/D53LC			D52LC	2.0	1.2μH to 100μH	260mA to 2.44A	
				D53LC	3.0	1.1μH to 220μH	350mA to 3.87A	
	FDV05			FDV0530S	3.0	0.12μH to 2.2μH	4.5A to 18A	
FDSD05					FDSD0512	1.2	1μH to 6.8μH	2.3A to 6.1A
					FDSD0515	1.5	1μH to 4.7μH	3.2A to 7A
	FDSD0518		1.8		680nH to 10μH	2.7A to 9A		
Wound Ferrite Core	6 to 9mm square		DG60		DG6028C	2.8	1μH to 22μH	1.7A to 5.8A
		DG6045C			4.5	1μH to 100μH	900mA to 9.5A	
		DG6050C			5.0	1.2μH to 100μH	1.2A to 9.8A	
		D63		D63LCB	3.0	1μH to 150μH	440mA to 4.52A	
		DS75LC		DS75LC	5.0	1μH to 470μH	430mA to 9.2A	
		DEM80		DEM8030C	3.0	2.2μH to 47μH	1.3A to 6.2A	
				DEM8040C	4.0	1.5μH to 33μH	2.4A to 10A	
				DEM8045C	4.5	1.5μH to 47μH	2.1A to 11.2A	
		DG80		DG8040C	4.0	1μH to 100μH	1.3A to 10.4A	
		Wound Metal Alloy	FCUL05		FCUL0530	3.0	360nH to 470nH	16A to 18A
FDSD06				FDSD0630	3.0	680nH to 10μH	5.4A to 17A	
FCUL06				FCUL0624	2.4	220nH to 470nH	17A to 24A	
				FCUL0630	3.0	120nH to 680nH	15A to 32A	
FDV05/FDV06				FDV0530	3.0	110nH to 4.7μH	3.6A to 19.6A	
				FDV0618	1.8	240nH to 3.3μH	4.1A to 14A	
				FDV0620	2.0	200nH to 4.7μH	3.5A to 16.2A	
				FDVE0630	3.0	160nH to 10μH	3.1A to 20.7A	
				FDVE0640	4.0	1.5μH to 4.7μH	5A to 8.2A	
	FDUE06				FDUE0630	3.0	120nH to 240nH	27A to 36A
FDUE0640		4.0	150nH to 420nH		22A to 33A			
FDUE0650		5.0	600nH to 1μH		16A to 18A			

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Structure	Size Code inch (mm)	Short Series Name/View		Series	Thickness (mm/max.)	Inductance Range	Rated Current Range
Wound Ferrite Core	10mm square and over	DEM10050		DEM10050C	5.0	1.5μH to 33μH	3.5A to 15.3A
				DEM10050C_DD	5.0	1.5μH to 33μH	3.5A to 15.3A
		DS10/DS12		DS104C2	4.8	1.1μH to 120μH	970mA to 11.7A
				DS106C2	6.8	1.2μH to 330μH	690mA to 12A
				DS126C2	6.8	1.7μH to 680μH	580mA to 11.8A
Wound Metal Alloy		FDA10/FDA12		FDA1055	5.5	560nH to 5.6μH	8A to 27.7A
				FDA1254	5.4	680nH to 8μH	9.1A to 29.1A
		FDUE10		FDUE1040D	4.0	220nH to 1μH	18A to 32A
		FDVE10		FDVE1040	4.0	1.5μH to 10μH	6.1A to 14.6A
		FCUL10		FCUL1040	4.0	180nH to 420nH	34A to 53A
				FCUL1060	6.0	360nH to 560nH	34A to 41A
		FDUE12		FDUE1245	4.5	500nH to 2.2μH	17A to 30A
				FDUE1260	6.0	450nH	34A

For Choke Circuits (For General)

Structure	Size Code inch (mm)	Short Series Name/View		Series	Thickness (mm/max.)	Inductance Range	Rated Current Range
Wound Ferrite Core	0402 (1005)	LQW15DN		LQW15DN_00	0.7	10μH to 15μH	100mA to 120mA
Multilayer Type	0603 (1608)	LQM18FN		LQM18FN_00	0.9	1μH to 10μH	50mA to 150mA
	0805 (2012)	LQM21DN		LQM21DN_00	1.05	1μH to 47μH	7mA to 60mA
				LQM21FN_00	1.45	1μH to 47μH	7mA to 220mA
				LQM21FN_70	1.45	4.7μH to 10μH	100mA to 120mA
				LQM21FN_80	1.45	4.7μH to 10μH	100mA to 120mA
Wound Ferrite Core	1206 (3216)	LQH31CN		LQH31CN_03	2.0	120nH to 100μH	80mA to 970mA
	1210 (3225)	LQH32CN		LQH32CN_23	2.2	1μH to 560μH	60mA to 800mA
				LQH32CN_33	2.2	150nH to 10μH	450mA to 1.45A
				LQH32CN_53	1.7	1μH to 100μH	100mA to 1A
		LQH32DN		LQH32DN_23	2.2	1μH to 560μH	60mA to 800mA
				LQH32DN_53	1.7	1μH to 100μH	100mA to 1A
	4mm square	LQH43CN		LQH43CN_03	2.8	1μH to 470μH	90mA to 1.08A
				LQH43CN_33	2.8	560nH to 3.9μH	1.6A to 2.95A
	5mm square	LQH55DN		LQH55DN_03	5.0	120nH to 10mH	50mA to 6A
	6 to 9mm square	LQH66SN		LQH66SN_03	5.0	270nH to 10mH	50mA to 6A

For Power Circuits (Infotainment)

Structure	Size Code inch (mm)	Short Series Name/View		Series	Thickness (mm/max.)	Inductance Range	Rated Current Range			
Multilayer Type	0603 (1608)	LQM18PZ		LQM18PZ_CH	0.6	1μH to 2.5μH	750mA to 950mA			
				LQM18PZ_DH	0.75	2.2μH	650mA			
				LQM18PZ_FH	0.95	2.2μH	700mA			
	0805 (2012)	LQM21PZ		LQM21PZ_C0	0.55	470nH to 2.2μH	600mA to 1.1A			
				LQM21PZ_G0	1.0	470nH to 3.3μH	800mA to 1.3A			
				LQM21PZ_GC	1.0	1μH to 2.2μH	800mA to 900mA			
				LQM21PZ_GR	1.0	1μH to 4.7μH	800mA to 1.3A			
Wound Metal Alloy Wound Ferrite Core	0806 (2016)		DFE2016		DFE201612P_D	1.2	150nH to 2.2μH	1.7A to 6.2A		
			LQH2MPZ		LQH2MPZ_GR	0.95	330nH to 82μH	210mA to 2.2A		
			Multilayer Type		LQM2MPZ		LQM2MPZ_G0	1.0	470nH to 4.7μH	1.1A to 1.6A
							LQM2MPZ_JH	1.2	100nH	4A
Wound Ferrite Core	1008 (2520)	LQH2HPZ		LQH2HPZ_DR	0.6	470nH to 22μH	270mA to 1.67A			
				LQH2HPZ_GR	1.0	470nH to 22μH	460mA to 2.9A			
				LQH2HPZ_JR	1.2	470nH to 22μH	540mA to 3.5A			
		Multilayer Type	LQM2HPZ		LQM2HPZ_E0	0.8	560nH	1.5A		
					LQM2HPZ_G0	1.0	470nH to 4.7μH	1.1A to 1.8A		
					LQM2HPZ_GC	1.0	1μH to 4.7μH	800mA to 1.5A		
					LQM2HPZ_GS	1.0	2.2μH to 4.7μH	1A to 1.1A		
					LQM2HPZ_J0	1.2	1μH to 3.3μH	1A to 1.5A		
		Wound Metal Alloy	DFE2520		DFE252012P_D	1.2	330nH to 10μH	1.1A to 6A		
Wound Ferrite Core	3mm square	LQH3NPZ		LQH3NPZ_GR	1.0	470nH to 47μH	460mA to 2.82A			
				LQH3NPZ_JR	1.2	680nH to 47μH	570mA to 2.86A			
				LQH3NPZ_ME	1.5	1μH to 100μH	430mA to 3A			
Wound Metal Alloy Wound Ferrite Core	1210 (3225)	DFE3225		DFE322520F_D	2.0	1μH to 4.7μH	3.4A to 7.5A			
		LQH32PZ		LQH32PZ_N0	1.7	470nH to 120μH	200mA to 3.4A			
				LQH32PZ_NC	1.7	470nH to 22μH	650mA to 4.4A			
	4mm square	LQH44PZ		LQH44PZ_GR	1.0	680nH to 47μH	410mA to 2.5A			
		LQH43PZ		LQH43PZ_26	2.8	1μH to 220μH	240mA to 3.4A			
		5mm square	LQH5BPZ		LQH5BPZ_T0	2.2	470nH to 22μH	1.4A to 7.7A		
		6 to 9mm square	DEM80		DEM8045C_Z	4.5	1.5μH to 47μH	2.1A to 11.2A		

For Power Circuits (Powertrain)

Structure	Size Code inch (mm)	Short Series Name/View	Series	Thickness (mm/max.)	Inductance Range	Rated Current Range
Multilayer Type	0603 (1608)	LQM18PH 	LQM18PH_FR	0.95	220nH to 4.7µH	620mA to 1.25A
	0805 (2012)	LQM21PH 	LQM21PH_GO	1.0	0.47µH to 0.54µH	1.3A
			LQM21PH_GC	1.0	1.0µH to 2.2µH	800mA to 1A
Wound Metal Alloy	0806 (2016)	DFE2MCAH 	DFE2MCAH_J0	1.2	0.15µH to 2.2µH	1.7A to 6.1A
	1008 (2520)	DFE2HCAH 	DFE2HCAH_J0	1.2	330nH to 2.2µH	2.5A to 5.8A
Wound Ferrite Core	1210 (3225)	LQH32PH 	LQH32PH_N0	1.7	470nH to 10µH	750mA to 3.4A
			LQH32PH_NC	1.7	470nH to 22µH	650mA to 4.4A
	4mm square	LQH44PH 	LQH44PH_PR	1.8	1µH to 220µH	330mA to 4.3A
		LQH43PH 	LQH43PH_26	2.8	1µH to 220µH	240mA to 3.4A
	5mm square	LQH5BPH 	LQH5BPH_T0	2.2	0.47µH to 47µH	850mA to 7.7A

For Choke Circuits (Infotainment)

Structure	Size Code inch (mm)	Short Series Name/View	Series	Thickness (mm/max.)	Inductance Range	Rated Current Range
Wound Ferrite Core	1210 (3225)	LQH32D 	LQH32DZ_23	2.2	1µH to 470µH	60mA to 800mA
			LQH32DZ_53	1.7	1µH to 100µH	100mA to 1A

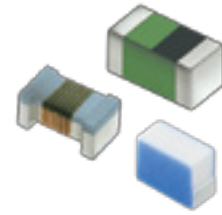
For Choke Circuits (Powertrain)

Structure	Size Code inch (mm)	Short Series Name/View	Series	Thickness (mm/max.)	Inductance Range	Rated Current Range
Wound Ferrite Core	1210 (3225)	LQH32C 	LQH32CH_23	2.2	1µH to 22µH	250mA to 800mA
			LQH32CH_33	2.2	150nH to 10µH	450mA to 1.45A
			LQH32CH_53	1.7	1µH to 22µH	250mA to 1A
		LQW32F 	LQW32FT_0H	2.5	10µH to 47µH	500mA to 700mA

RF Inductors

Main Type:

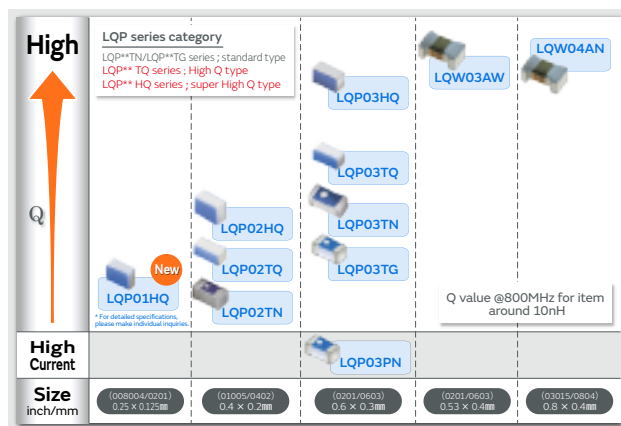
▪ Film Type ▪ Wire Wound Type ▪ Multilayer Type



An RF inductor is used for matching applications and choke applications in the RF section which has wireless communication functions. By using three characteristic methods, you can select the optimum series for the intended application. For a smartphone or a module film type LQP series which is compact and also has high Q characteristics is optimum. For an RF inductor of size 1005 mm or more, the high Q wound type LQW series which has a large rated current value is recommended for use in a base station or STB. While the multilayer LQG series has a good balance between cost and performance, it is recommended for a wide range of automotive applications, based on our market achievements over many years. Products that are suitable for choke circuits using magnetic materials, such as the LQW_CN series, LQW_H series and other series are also available for power lines. You can select the optimum series from our lineup, based on either the intended application or the relationship between the size and Q characteristics.

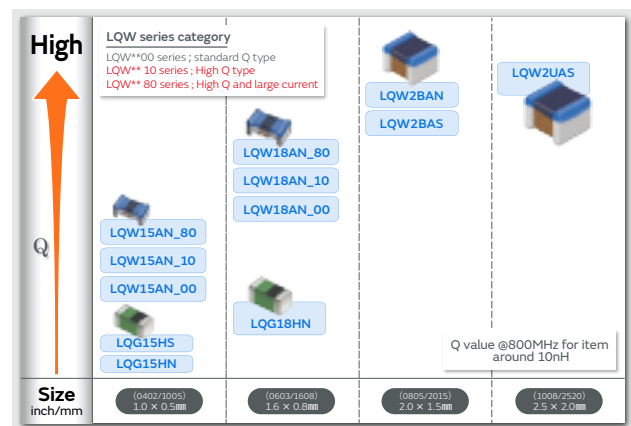
General (0.8×0.4 mm or less)

Lineup list



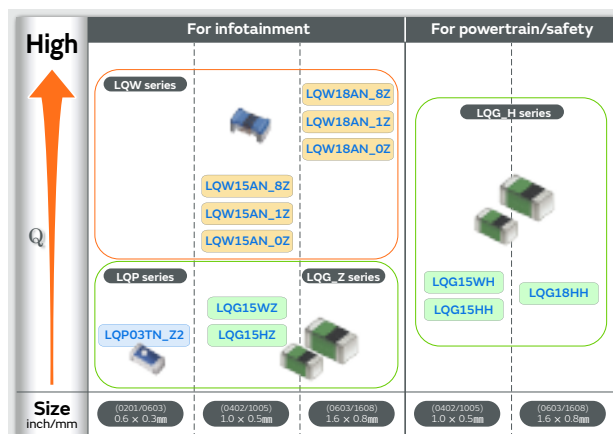
General (1.0×0.5 mm or more)

Lineup list



For Automotive

Lineup list



RF Circuits (0.8 x 0.4 mm or less)

Structure	Size Code inch (mm)	Short Series Name/View	Series	Thickness (mm/max.)	Inductance Range	Rated Current Range
Wound non-magnetic type	0201 (0603)	LQW03A	 LQW03AW_00	0.45	1nH to 15.5nH	230mA to 900mA
	03019 (0805)	LQW04A	 LQW04AN_00	0.45	0.8nH to 33nH	140mA to 1.8A
			LQW04AN_10	0.45	36nH to 56nH	180mA to 200mA
			LQW04AN_20	0.45	36nH to 56nH	120mA to 155mA
Film type	008004 (0201)	LQP01	 LQP01HQ	0.213	0.3nH to 2.7nH	200mA to 500mA
	01005 (0402)	LQP02	 LQP02HQ_02	0.32	0.2nH to 56nH	100mA to 1A
			LQP02TQ_02	0.22	0.2nH to 22nH	120mA to 990mA
			LQP02TN_02	0.22	0.2nH to 39nH	90mA to 320mA
	0201 (0603)	LQP03	 LQP03HQ_02	0.42	0.5nH to 470nH	50mA to 1.1A
			LQP03TQ_02	0.32	0.6nH to 110nH	70mA to 1A
			LQP03TN_02	0.33	0.6nH to 270nH	60mA to 850mA
			LQP03TG_02	0.33	0.1nH to 120nH	80mA to 850mA
			LQP03PN_02	0.33	2.2nH to 4.7nH	900mA to 1.4A

RF Circuits (1.0 x 0.5 mm or more)

Structure	Size Code inch (mm)	Short Series Name/View	Series	Thickness (mm/max.)	Inductance Range	Rated Current Range
Wound non-magnetic type	0402 (1005)	LQW15A	 LQW15AN_00	0.6	1.5nH to 120nH	110mA to 1A
			LQW15AN_10	0.6	1.3nH to 8.4nH	640mA to 1.2A
			LQW15AN_80	0.6	1.3nH to 75nH	320mA to 3.15A
			LQW15AW_80	0.66	51nH to 220nH	220mA to 480mA
	0603 (1608)	LQW18A	 LQW18AN_00	1.0	2.2nH to 470nH	75mA to 850mA
			LQW18AN_10	1.0	2.2nH to 33nH	550mA to 1.4A
			LQW18AN_80	1.0	2.2nH to 390nH	190mA to 3.2A
			LQW18AS_00	1.0	1.2nH to 390nH	100mA to 700mA
			LQW18AS_0C	1.0	1.6nH to 390nH	100mA to 700mA
	0806 (2016)	LQW2B	 LQW2BAN_00	1.52	3.2nH to 200nH	750mA to 3.8A
			LQW2BAS_00	1.52	2.7nH to 1μH	170mA to 910mA
			LQW2BHN_03	1.78	3.3nH to 470nH	160mA to 1.32A
			LQW2BHN_13	1.78	2.7nH to 27nH	900mA to 1.9A
	1008 (2520)	LQW2U	 LQW2UAS_00	2.03	12nH to 4.7μH	260mA to 1A
			LQW2UAS_0C	2.03	12nH to 8.2μH	170mA to 1A
	1206 (3216)	LQW31H	 LQW31HN_03	2.0	8.8nH to 100nH	230mA to 750mA
Film type	0402 (1005)	LQP15M	 LQP15MN_02	0.45	1nH to 33nH	60mA to 400mA
	0603 (1608)	LQP18M	 LQP18MN_02	0.6	1.3nH to 100nH	50mA to 300mA
Multilayer Type	0402 (1005)	LQG15H	 LQG15HN_02	0.55	1nH to 120nH	150mA to 1A
			LQG15HS_02	0.55	1nH to 270nH	110mA to 1A
	0603 (1608)	LQG18H	 LQG18HN_00	0.95	1.2nH to 100nH	350mA to 1.1A

For Choke/Tuner Circuits (1.0 x 0.5 mm or more)

Structure	Size Code inch (mm)	Short Series Name/View	Series	Thickness (mm/max.)	Inductance Range	Rated Current Range
Wound Ferrite Core type	0402 (1005)	LQW15C	 LQW15CN_00	0.6	18nH to 200nH	390mA to 1.4A
			 LQW15CN_10	0.6	20nH to 3.3μH	130mA to 2.2A
	0402 (1005)	LQW15D	 LQW15DN_00	0.7	10μH to 15μH	100mA to 120mA
	0603 (1608)	LQW18C	 LQW18CN_00	0.95	4.9nH to 650nH	430mA to 2.6A
	0805 (2012)	LQW21H	 LQW21HN_00	1.0	470nH to 2.2μH	75mA to 160mA
	1206 (3216)	LQH31H	 LQH31HN_03	2.0	54nH to 880nH	180mA to 920mA

LC trap filter

Part number	Impedance (Ω Typ.)			Insertion Loss Characteristic (dB Typ.)			DC Resistance Max.(Ω)	Rated Current (mA)	Self Resonant Frequency (GHz Typ.)
	at 2.40GHz	at 2.44GHz	at 2.50GHz	at 2.40GHz	at 2.44GHz	at 2.50GHz			
LQZ02HQ242A02 	460	600	345	15.0	15.7	13.0	0.55	200	2.44

For RF Circuits (Infotainment)

Structure	Size Code inch (mm)	Short Series Name/View	Series	Thickness (mm/max.)	Inductance Range	Rated Current Range
Wound non-magnetic type	0402 (1005)	LQW15A	 LQW15AN_OZ	0.6	1.5nH to 120nH	110mA to 1A
			 LQW15AN_1Z	0.6	1.3nH to 8.4nH	640mA to 1.2A
			 LQW15AN_8Z	0.6	1.3nH to 75nH	320mA to 3.15A
	0603 (1608)	LQW18A	 LQW18AN_OZ	1.0	2.2nH to 470nH	75mA to 850mA
			 LQW18AN_1Z	1.0	2.2nH to 33nH	550mA to 1.4A
			 LQW18AN_8Z	1.0	2.2nH to 390nH	190mA to 3.2A
			 LQW18AS_OZ	1.0	1.6nH to 390nH	100mA to 700mA
Film type	0201 (0603)	LQP03T	 LQP03TN_Z2	0.33	0.6nH to 120nH	80mA to 850mA
Multilayer Type	0402 (1005)	LQG15H	 LQG15HZ_02	0.55	1nH to 270nH	110mA to 1A
		LQG15W	 LQG15WZ_02	0.6	0.7nH to 150nH	110mA to 1.2A

For RF Circuits (Powertrain)

Structure	Size Code inch (mm)	Short Series Name/View	Series	Thickness (mm/max.)	Inductance Range	Rated Current Range
Multilayer Type	0402 (1005)	LQG15H	 LQG15HH_02	0.55	1nH to 270nH	110mA to 1A
		LQG15W	 LQG15WH_02	0.6	0.7nH to 150nH	110mA to 1.2A
	0603 (1608)	LQG18H	 LQG18HH_00	0.95	1.2nH to 270nH	200mA to 1.1A

For Choke/Tuner Circuits (Infotainment)

Structure	Size Code inch (mm)	Short Series Name/View	Series	Thickness (mm/max.)	Inductance Range	Rated Current Range
Wound Ferrite Core type	0402 (1005)	LQW15C	 LQW15CN_OZ	0.6	18nH to 200nH	390mA to 1.4A
				0.6	20nH to 560nH	300mA to 2.2A
	0603 (1608)	LQW18C	 LQW18CN_OZ	0.95	4.9nH to 650nH	430mA to 2.6A
	1206 (3216)	LQH31H	 LQH31HZ_03	2.0	54nH to 880nH	180mA to 920mA

General Circuit Inductors

Main Type:

▪ Multilayer Type ▪ Wire-wound Type ▪ 2in1 Type



We have an extensive lineup of general purpose inductors for a variety of circuits.

You can select an inductor to match your particular application. Wire-wound type LQH_M, LQH_N series are suitable for large inductance, multilayer type LQM_M, LQM_N series are suitable for small size.

In addition, we have the 2-in-1 type HEAWS series inductors for digital audio amplifiers.

General Purpose (For General)

Structure	Size Code inch (mm)	Short Series Name/View	Series	Thickness (mm/max.)	Inductance Range	Rated Current Range
Wound Ferrite Core type	03019 (0805)	LQW04CA	 LQW04CA_00	0.55	60nH to 510nH	200mA to 620mA
	0402 (1005)	LQW15CA	 LQW15CA_00	0.66	22nH to 2μH	130mA to 1.3A
	0603 (1608)	LQW18CA	 LQW18CA_00	0.95	32nH to 580nH	450mA to 2.2A
	1206 (3216)	LQH31MN	 LQH31MN_03	2.0	150nH to 100μH	45mA to 250mA
	1210 (3225)	LQH32MN	 LQH32MN_23	2.2	1μH to 560μH	40mA to 445mA
	4mm square	LQH44NN	 LQH44NN_03	4.5	510nH to 470μH	145mA to 4.5A
		LQH43M/N	 LQH43MN_03	2.8	1μH to 1.5mH	40mA to 500mA
			LQH43NN_03	2.8	1μH to 2.4mH	25mA to 500mA
Multilayer Type	0402 (1005)	LQB15NN	 LQB15NN_10	0.55	220nH to 560nH	300mA to 380mA
		LQB18NN	 LQB18NN_10	0.95	220nH to 560nH	300mA to 450mA
	0603 (1608)	LQM18JN	 LQM18JN_00	0.65	100nH to 160nH	550mA to 650mA
		LQM18NN	 LQM18NN_00	0.95	47nH to 2.2μH	15mA to 50mA
	0805 (2012)	LQM21NN	 LQM21NN_10	1.05	100nH to 4.7μH	30mA to 250mA

General Purpose (For Automotive Infotainment)

Structure	Size Code inch (mm)	Short Series Name/View	Series	Thickness (mm/max.)	Inductance Range	Rated Current Range
Wound Ferrite Core type	1210 (3225)	LQH32NZ	 LQH32NZ_23	2.2	1μH to 470μH	45mA to 445mA
	4mm square	LQH43NZ	 LQH43NZ_03	2.8	1μH to 2.4mH	25mA to 500mA
2in1 Type	10mm square and over	HEAWS	 HEAWS	10.0	3.3uH to 10uH	5A to 8A

General Circuit Inductors, Variable Inductors

General Purpose (For Automotive Powertrain)

Structure	Size Code inch (mm)	Short Series Name/View	Series	Thickness (mm/max.)	Inductance Range	Rated Current Range
Wound Ferrite Core type	1210 (3225)	LQH32NH	 LQH32NH_23	2.2	1μH to 560μH	40mA to 780mA
	4mm square	LQH43NH	 LQH43NH_03	2.8	1μH to 2.2mH	30mA to 1.3A

Variable Inductors

Variable inductor products are coil products that allow the inductance to be easily varied by changing the position of the ferrite core in a threaded structure. The interior is covered by a metal case that is magnetically shielded, while a resin molded structure protects the windings with a high degree of reliability.

**5CCEG****6.5×5.9×6.0(H) mm MAX.**

Supported inductance range: 0.05 to 2.7μH

Features

- High reliability that conforms to automotive standards
- Operating temperature range: -40°C to +85°C

Applications

- Ideal for use as RF matching transformers for car tuners

**FSDVA****5.8×5.8×5.5(H) mm MAX.**

Supported inductance range:

0.1 to 52mH(1 to 7 mH for corner sensor applications)

Features

- Resistant to mechanical stress
- Operating temperature range:
Up to 20 mH (-40°C to +105°C)
20 mH or more (-40°C to +85°C)
- Various reliability conditions guaranteed for 1,000 hours
(evaluation performed up to 3,000 hours)
- Lead coplanarity guaranteed within 0.1 mm

5CCEG Series

Winding Connection (Bottom View)	Part Number	Test Frequency (MHz)	Resonance Capacitor Range (pF)	Unloaded Q
	#A1313AN-0001GGH=P3	100	11.4+3/-3%	72+/-20%
	#A1313AN-0002GRG=P3	100	11.4+5/-2%	61+/-20%
	#A1313AN-0003GRG=P3	100	11.4+2/-4%	54+/-20%
	#A1313AN-0004GGH=P3	100	11.7+3/-3%	72+/-20%

FSDVA Series

Winding Connection (Bottom View)	Part Number	Test Frequency (kHz)	Inductance Range (mH)	Unloaded Q
	N1342JC-0143UG=P3	252	4.4±3%	25 min.
	N1342LE-0144BQE=P3	252	2.5±5%	25 min.

 DC-DC converters design assistant tool

No download necessary; available on web browsers.

We have released a design assistant tool to select inductors or capacitors for DC-DC converters efficiently. Input converter work condition and click the calculation button; the ranking of efficiency with each inductor will be listed.

To use this tool, go to
<https://ds.murata.co.jp/mpst>

 Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- Chip Inductors (Chip Coils) Cat. No. 005E
- EMI Suppression Filters (for DC)/Chip Inductors for Automotive Cat. No. C51E

Resistors

Full lineup for various applications

Summary

Using Murata's ceramic processing technology and unique materials, we offer a series of resistor products.

Lineup

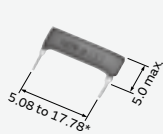
- High Voltage Resistors



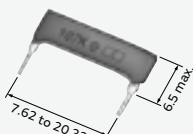
<https://www.murata.com/en-global/products/resistor>

High Voltage Resistors

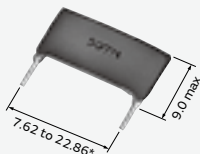
Featuring thick-film resistors, the Murata MHR series of high-voltage resistors is available in compact and thin SIP packages. Variants with small deviations are also available on request.



MHR03 Series



MHR04 Series



MHR06 Series

(in mm)
*The terminal pitch is an integral multiple of 2.54mm.

Series	Resistance (min.) (MΩ)	Resistance (max.) (MΩ)	Maximum Operating Voltage (Single Use) (kV)	Maximum Operating Voltage (Molded Use) (kV)	Rated Power (W)
MHR03	1	500 to 1000	2 to 8	3 to 14	0.3 to 1.0
MHR04	1	1000	3.5 to 10	10 to 18	0.6 to 1.4
MHR06	1	1000	3.5 to 10	10 to 20	0.8 to 1.6

Resistance 2 element type is also available.
For resistance value and ratio, please contact us.

Timing Devices

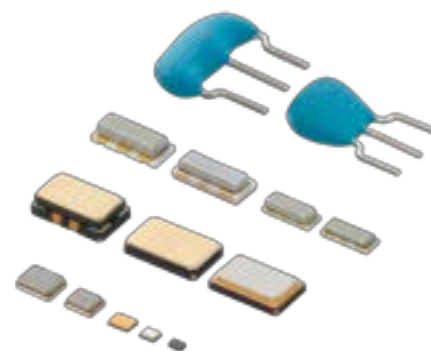
A stable timing source for microprocessors in various electronic devices

Summary

Murata's ceramic processing technology and unique piezoelectric material has led to the development of a range of small and thin ceramic timing devices that offer high oscillation frequency and remarkable oscillation tolerance.

Lineup

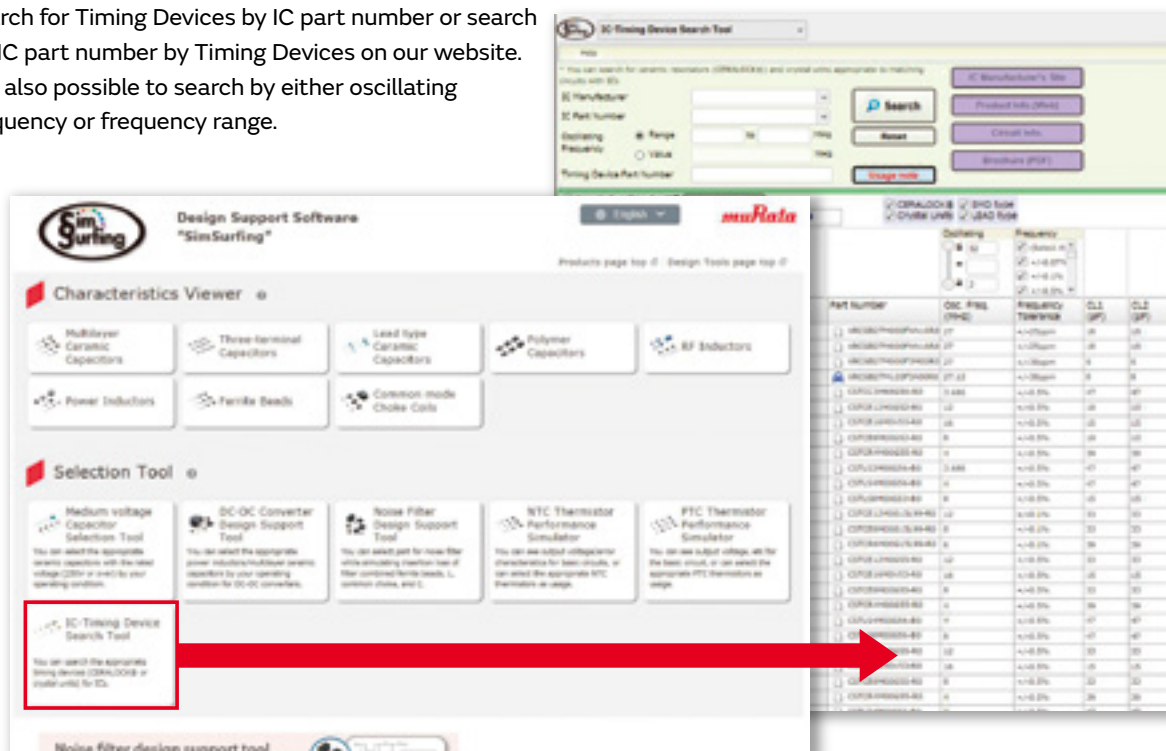
- MEMS Resonator ●Crystal Units ●Crystal Oscillators
- Ceramic Resonators CERALOCK



<https://www.murata.com/en-global/products/timingdevice>

IC Part Number - Timing Devices Search

Search for Timing Devices by IC part number or search for IC part number by Timing Devices on our website. It is also possible to search by either oscillating frequency or frequency range.



<https://www.murata.com/simsurfing/>

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- Ceramic Resonators (CERALOCK)
- Ceramic Resonator (CERALOCK) Application Manual
- Crystal Units/Crystal Oscillators

Cat. No. P16E
Cat. No. P17E
Cat. No. P79E

MEMS Resonator

The ultra small-sized and highly reliable resonator is realized with Murata's MEMS technology.

The small size makes the resonator suitable for a variety of applications such as miniature IoT devices, wireless modules, medical devices, and industrial equipment.

The resonator package is silicon based with low form factor which enables embedding with IC in over molded packages.

For Consumer/Industrial



(in mm)

Series	Frequency (kHz)										Frequency Tolerance (ppm)					Operating Temperature Range (°C)
	0	10	20	30	40	50	60	70	0	20	40	60	80	100		
WMRAG				32.768								±20			-40 to 125	

Crystal Units

Crystals Unit utilize highly accurate frequency-based high-grade quartz crystal elements.

We offer a wide lineup of Crystal Units using Murata's proven package technology for small digital devices, automotive, etc.

For Consumer/Industrial



XRCTD



XRCFD



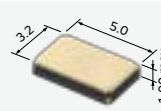
XRCMD



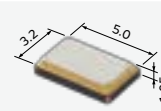
XRCGB



XRCHA



XRCLH

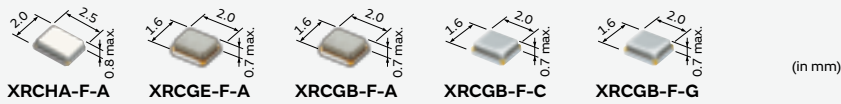


XRCLK

(in mm)

Series	Type	Seal	Frequency (MHz)							Frequency Tolerance (ppm)	Frequency Shift by Temperature (ppm max.)	Operating Temperature Range (°C)
XRCTD	MCR1210	Metal			32.0000					±10	±10	-30 to 85
XRCFD	MCR1612	Metal			24.0000			29.9999		±10	±10	-20 to 70
XRCMD	MCR1612	Metal			30.0000			48.0000		±10	±10	-20 to 70
XRCGB-F-H	HCR2016	Resin			24.0000		25.0000			±10	±10	-20 to 70
					26.0000		32.0000			±10	±10	-30 to 85
XRCGB-F-P	HCR2016	Resin	16.0000				38.4000			±20	±20	-30 to 85
XRCGB-F-M	HCR2016	Resin	16.0000				32.0000			±30	±40	-30 to 85
					33.8688		50.0000			±45	±40	-30 to 85
XRCGB-F-L	HCR2016	Resin	16.0000				50.0000			±100	±50	-30 to 85
XRCHA-F-L	HCR2520	Resin	16.0000			20.0000				±100	±100	-30 to 85
XRCLH	TAS-5032F	Metal	10.0000				52.0000			±10	±15	-30 to 85
XRCLK	TSS-5032A	Seam	10.0000				52.0000			±10	±15	-30 to 85

For Automotive Applications

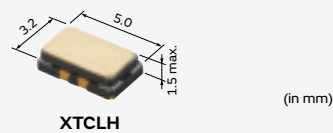


Series	Type	Seal	Frequency (MHz)							Frequency Tolerance (ppm)					Frequency Shift by Temperature (ppm max.)	Operating Temperature Range (°C)
			0	10	20	30	40	50	60	0	20	40	60	80		
XRCHA-F-A	HCR2520	Resin	16.0000 24.0000							±100					±100	-40 to 125
XRCGE-F-A	HCR2016	Resin	20.0000 23.9999							±30					±45	-40 to 125
			24.5454 27.6000							±15					±35	-40 to 125
XRCGB-F-A	HCR2016	Resin	24.0000 29.9999							±30					±35	-40 to 125
			30.0000 48.0000							±50					±65	-40 to 125
XRCGB-F-C	HCR2016	Resin	27.6000							±20					±20	-30 to 85
XRCGB-F-G	HCR2016	Resin	24.0000 48.0000							±30 ±45 ±100					±50	-40 to 85

Crystal Oscillators

We offer a lineup of Crystal Oscillators using highly reliable crystal units, and superior temperature compensation methods.

For Industrial Applications



Series	Type	VC Function	Frequency (MHz)							Initial Frequency Tolerance (ppm)	Frequency Shift by Temperature (ppm max.)	Frequency Aging (ppm max./year)	Operating Temperature Range (°C)
			0	10	20	30	40	50	60				
XTCLH_T	TTS14VSH		10.0000							±0.5	±0.20	±0.5	-40 to 85
XTCLH_C	TTS14VCH		10.0000							±0.5	±0.28	±0.5	-40 to 85

Ceramic Resonators CERALOCK

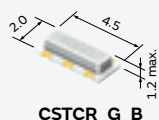
Wide product lineup of SMD and lead type versions for automotive and consumer applications.

MHz Chip Type for Automotive (Tight Frequency Tolerance)

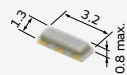


Series	Frequency (MHz)										Frequency Tolerance (%)	Frequency Shift by Temperature (% max.)	Operating Temperature Range (°C)
	0	10	20	30	40	50	60	70	80	90			
CSTNR_GH5C	4.00										±0.07	±0.13	-40 to 125
CSTNE_GH5C	8.00										±0.07	±0.13	-40 to 125
CSTNE_VH3C	14.00										±0.07	±0.13	-40 to 125

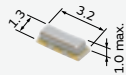
MHz Chip Type for Automotive (Standard Frequency Tolerance)



CSTCR_G_B



CSTNE_G_A



CSTNE_V_C

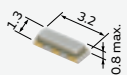
(in mm)

Series	Frequency (MHz)								Frequency Tolerance (%)	Frequency Shift by Temperature (% max.)	Operating Temperature Range (°C)
	0	10	20	30	40	50	60	70			
CSTCR_G_B	4.00	7.99							±0.5	±0.15	-40 to 125
CSTNE_G_A	8.00	13.99							±0.5	±0.20	-40 to 125
CSTNE_V_C	14.00	20.00							±0.5	±0.15	-40 to 125

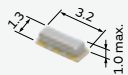
MHz Chip Type for Consumer Electronics (Tight Frequency Tolerance)



CSTNR_GH5L



CSTNE_GH5L

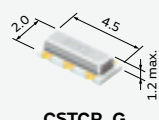


CSTNE_VH3L

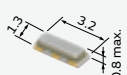
(in mm)

Series	Frequency (MHz)								Frequency Tolerance (%)	Frequency Shift by Temperature (% max.)	Operating Temperature Range (°C)
	0	10	20	30	40	50	60	70			
CSTNR_GH5L	4.00	7.99							±0.07	±0.11	-20 to 85
CSTNE_GH5L	8.00	13.99							±0.07	±0.11	-40 to 85
CSTNE_VH3L	14.00	20.00							±0.07	±0.11	-40 to 85

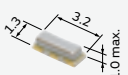
MHz Chip Type for Consumer Electronics (Standard Frequency Tolerance)



CSTCR_G



CSTNE_G

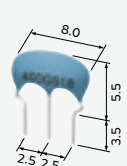


CSTNE_V

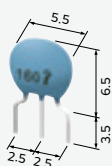
(in mm)

Series	Frequency (MHz)								Frequency Tolerance (%)	Frequency Shift by Temperature (% max.)	Operating Temperature Range (°C)
	0	10	20	30	40	50	60	70			
CSTCR_G	4.00	7.99							±0.5	±0.20	-20 to 80
CSTNE_G	8.00	13.99							±0.5	±0.20	-40 to 85
CSTNE_V	14.00	20.00							±0.5	±0.30	-40 to 85

MHz Lead Type for Consumer Electronics (Standard Frequency Tolerance)



CSTLS_G



CSTLS_X

(in mm)

Series	Frequency (MHz)								Frequency Tolerance (%)	Frequency Shift by Temperature (% max.)	Operating Temperature Range (°C)
	0	10	20	30	40	50	60	70			
CSTLS_G	3.40	10.00							±0.5	±0.20 (15pF) -0.40/+0.20 (47pF)	-20 to 80
CSTLS_X	16.00	70.00							±0.5	±0.20	-20 to 80

Filters

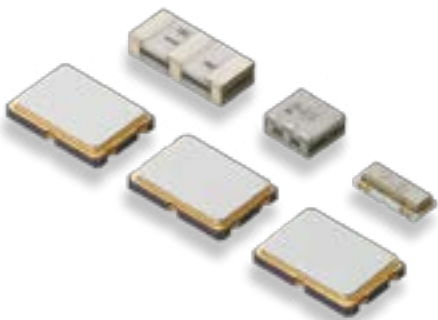
Broad lineup of Filters for video, audio, RF/Local, Duplexers, and Filters for IF

Summary

Using Murata's ceramic processing technology and unique materials, we offer miniaturized filters with excellent properties for advanced digital audio/visual systems and communication equipment.

Lineup

- Ceramic Filters CERAFIL (Filters and Discriminators)
- Crystal Filters ●SAW Filters for Mobile Communications
- Dielectric Filters GIGAFIL ●Chip Multilayer LC Filters

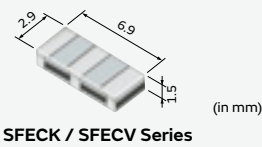


<https://www.murata.com/en-global/products/filter>

Ceramic Filters CERAFIL

CERAFIL 10.7MHz Chip Type

Small and lightweight filters for IF in communications or AV equipment using unique piezoelectric material.



SFECK / SFECV Series

Type	Series	3dB Bandwidth (kHz)		
		E	J	K
		330	150	110
High-reliability Type	SFECK10M7□	-	●	●
Standard Type	SFECV10M7□	-	●	●
Standard Type	SFECV15M0□	●	-	-

□ is filled with the letter designating the required 3dB bandwidth.



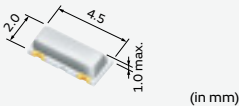
SFECF Series

Type	Series	3dB Bandwidth (kHz)				
		D	E	F	G	H
		350	330	280	230	180
Standard Type	SFECF10M7□	●	●	●	●	●

□ is filled with the letter designating the required 3dB bandwidth.

Ceramic Discriminators

In combination with ICs, this type obtains stable demodulation characteristics in a wide bandwidth.



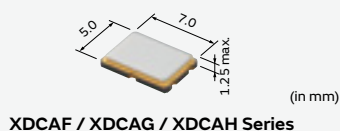
CDSCB Series

Series	Center Frequency
CDSCB	10.700MHz±30kHz

The recommended part number depends on IC specifications. Please contact us with the IC part number to be applied.

Crystal Filters

Our original wafer-thin technology has made it possible to make highly reliable filters in various applications such as radio communication worldwide.



Series	Type	Frequency Range (MHz)	Number of Poles
XDCAF	TM7050F	20 to 80 [Fundamental] 70 to 150 [3rd overtone]	2
XDCAG	TM7050G		4
XDCAH	TM7050H		4

*Please be sure to consult with our sales representative or engineer if you require other center frequency.

SAW Filters for Mobile Communications

SAW Duplexers

Low loss, high attenuation performance, small size, highly selective pass band, chip size package



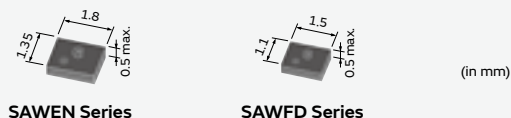
RF Filters

Low loss, high attenuation performance, small size, highly selective pass band, chip size package

Single Filter



Dual Filter



SAW Filters and SAW Duplexers may be used only in the following equipment:

Mobile phones, cordless telephones (except automobile telephone), smartphones, tablet PC, PC (including laptop/netPC), game machines, cameras (except for business use and for security), STB, electronic dictionaries, and digital audio instruments. Please contact us for other usages.

Dielectric Filters GIGAFIL

This is a high frequency dielectric filter for Wi-Fi routers, accespoints, communication infrastructures of mobile phone base stations, for example.

It employs a unique plate construction which enables the filter to be compact and have a low profile.



TDF Series

	Series	Frequency Range (MHz)								Number of Resonators	Input Power Range
		100	1000	2000	3000	4000	5000	6000	7000		
RF/IF/Local Filter	TDF			2000					6000	2 to 5	1 to 10W*

*Power depends upon specifications.

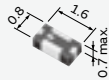
Chip Multilayer LC Filters

Ultra-small and low-profile filters based on ceramic multilayer technology.

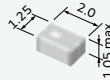
Band Pass Filters



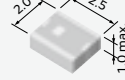
LFB15 Series



LFB18 Series



LFB21 Series



LFB2H Series



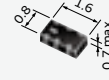
LFB31 Series

(in mm)

Low Pass Filters



LFL15 Series



LFL18 Series



LFL21 Series

(in mm)

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- Ceramic Filters (CERAFIL)/Crystal Filters
- Ceramic Filters (CERAFIL) Application Manual

Cat. No. P51E

Cat. No. P11E

RF Components

Broad lineup of RF Components for RF/Local circuits in communications equipment

Summary

To enhance the technical advantages of communication equipment, Murata offers miniaturized, sophisticated components to meet the demands of many applications.

Lineup

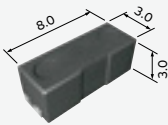
- Antennas
- Baluns (Chip Multilayer and Wire Wound/Film type)
- Couplers (Chip Multilayer) ●Chip Multilayer Hybrid Dividers
- Chip Multilayer Diplexers
- Microwave Coaxial Connectors



Antennas

Antenna Coils

Rx 1D-ANT

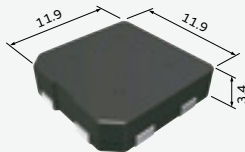


(in mm)

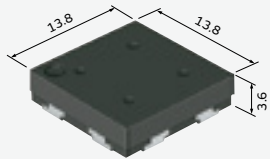
SA3M08 Series

Series	Inductance (mH)	Q (Reference)
SA3M08	1.0 to 18.0	25

Rx 3D-ANT



SA3D12 Series



(in mm)

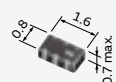
SA3D14 Series

Series		Inductance (mH)	Q (Reference)
SA3D12	X	1.0 to 6.3	20
	Y	1.0 to 6.3	20
	Z	1.0 to 9.0	20
SA3D14	X	1.0 to 6.3	20
	Y	1.0 to 6.3	20
	Z	1.0 to 9.0	20

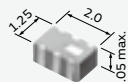
Baluns

SMD baluns constructed with a copper conductor and ceramic material. Ideal for high-frequency applications. Small-size and low-loss baluns can be customized for balance impedance of 50Ω to 200Ω.

Chip Multilayer Type



LDB18 Series



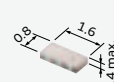
LDB21 Series



LDM0Q Series



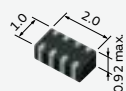
LDM15 Series



LDM18 Series

(in mm)

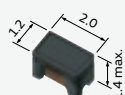
Film Type



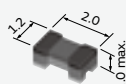
DXP2AB Series

(in mm)

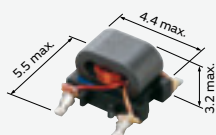
Wire Wound Type



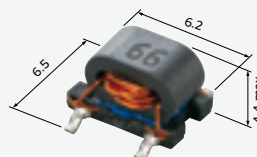
DXW21B Series



DXW21H Series



B4F Series



B5F Series



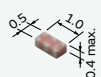
B5FL Series

(in mm)

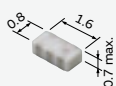
Couplers

An ultra-small, low-profile directional coupler based on ceramic multilayer technology. This coupler achieves ultra-small size, low insertion loss, and high isolation.

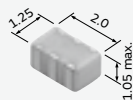
Chip Multilayer Type



LDC15 Series
LDJ15 Series



LDC18 Series
LDJ18 Series



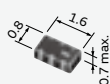
LDC21 Series
LDJ21 Series

*It is available with Integrated LPF for **LDC21 Series**.

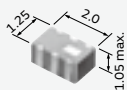
(in mm)

Chip Multilayer Hybrid Dividers

Power divider with a multilayer low pass filter in an ultra-compact package.



LDD18 Series



LDD21 Series

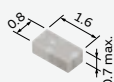
(in mm)

Chip Multilayer Diplexers

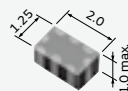
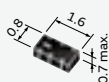
A diplexer branching low and high band. Suitable for band-switching for dual-band system.



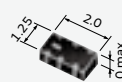
LFD15 Series



LFD18 Series



LFD21 Series



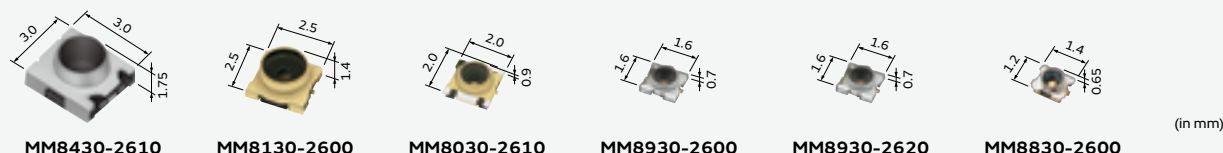
LFD2H Series

(in mm)

Microwave Coaxial Connectors

Microwave Coaxial Connectors with Switch

The coaxial connector with switch is very useful for characteristic measurement in cellular phones and microwave circuits.

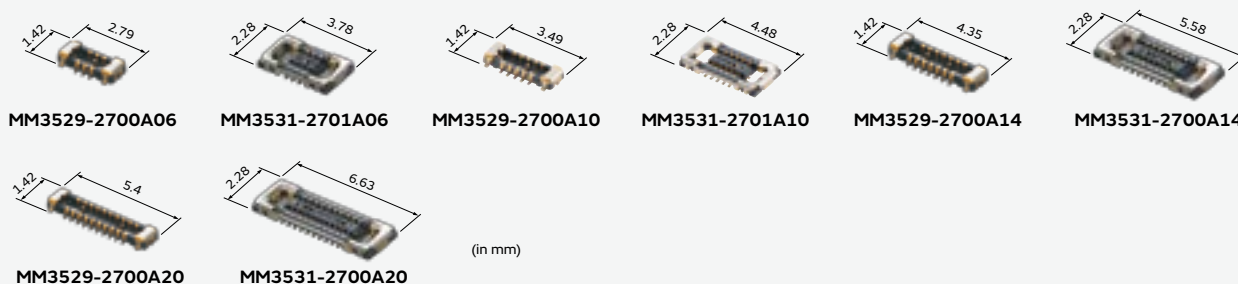


Type	Receptacle Part Number	Frequency Rating (GHz)	Voltage Standing Wave Ratio	Standard Measurement Probe Part Number
SWD	MM8430-2610	to 6	1.2 max. (DC to 3GHz) 1.3 max. (3GHz to 6GHz)	MM126320 MXHS83QE3000
SWF	MM8130-2600	to 6	1.2 max. (DC to 3GHz) 1.3 max. (3GHz to 6GHz)	
SWG	MM8030-2610	to 11	1.2 max. (DC to 3GHz) 1.3 max. (3GHz to 6GHz) 1.5 max. (6GHz to 11GHz)	MM126320 MXHQ87WJ3000
SWH	MM8930-2600	to 6	1.2 max. (DC to 3GHz) 1.3 max. (3GHz to 6GHz)	MM126515 MXHQ87PA3000
SWH-2Way	MM8930-2620	to 6	1.2 max. (DC to 3GHz) 1.3 max. (3GHz to 6GHz)	RF: MM126526 ANT: MM126517 RF: MXHQ87PN3000 ANT: MXHQ87PP3000
SWJ	MM8830-2600	to 9	1.2 max. (DC to 8GHz) 1.3 max. (8GHz to 9GHz)	MM126715 MXHQ87PK3000

Nominal Impedance: 50Ω Rated Voltage: 30Vrms Temperature Range: -40 to 85°C

Multi Line Connectors

Multi line connectors transmit signals from board to board. The connectors can transmit not only digital signals but also RF signals.



Type	Receptacle Part Number	Plug Receptacle Part Number (Mating Height (mm))	Pitch (mm)	Frequency Rating (GHz)	Voltage Standing Wave Ratio
MLF06	MM3529-2700A06	MM3531-2701A06 (0.69max.)	0.35	to 20	1.2 max. (DC to 3GHz)
MLF10	MM3529-2700A10	MM3531-2701A10 (0.69max.)			1.2 max. (3GHz to 6GHz)
MLF14	MM3529-2700A14	MM3531-2700A14 (0.69 max.)			1.3 max. (6GHz to 9GHz)
MLF20	MM3529-2700A20	MM3531-2700A20 (0.69 max.)			1.3 max. (9GHz to 12GHz)
					1.35 max. (12GHz to 15GHz)
					1.5 max. (15GHz to 18GHz)
					1.65 max. (18GHz to 20GHz)

Nominal Impedance: 50Ω Rated Voltage: 30Vrms Temperature Range: -40 to 85°C

Microwave Coaxial Cable Connectors/Board to Board Connectors

Murata microwave coaxial connectors are small, thin, and suitable for low-profile design. The connectors have high RF performance.



Type	Receptacle Part Number	Pulg Receptacle Part Number (Mating Height (mm))	Cable Number (Mating Height (mm))	Cable Dia. (mm)	Frequency Rating (GHz)	Voltage Standing Wave Ratio
JSC	MM5829-2700	MM5831-2700 (0.8 max.)	MXJA01_ (1.0 max.)	0.81	to 12	1.3 max. (DC to 3GHz) 1.4 max. (3GHz to 6GHz) 1.5 max. (6GHz to 9GHz) 1.6 max. (9GHz to 12GHz)
			MXJGB3_ (1.0 max.)	0.49		
			MXJF56_ (1.0 max.)	0.53		
KSC	MM6829-2700	MM6831-2700 (0.6 max.)	MXKGB3_ (0.8 max.)	0.49	to 12	1.3 max. (DC to 3GHz) 1.4 max. (3GHz to 6GHz) 1.6 max. (6GHz to 9GHz) 1.7 max. (9GHz to 12GHz)
			MXKF56_ (0.8 max.)	0.53		
LSC	MM7829-2700	MM7831-2700 (0.6 max.)	MXLAB3_ (0.8 max.)	0.49	to 6	1.3 max. (DC to 3GHz) 1.4 max. (3GHz to 6GHz)
			MXLF56_ (0.8 max.)	0.53		

Nominal Impedance: 50Ω Rated Voltage: 30Vrms Temperature Range: -40 to 85°C
Mating Height is mated with receptacle.

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



• Microwave Coaxial Connectors

Cat. No. O30E

Memo

Sensors

Summary

Murata pursued sensing functions making full use of MEMS and processing technology, and magnetoresistive elements including ceramic material technology in order to develop highly efficient and highly reliable devices, modules, and systems.

A lineup of various sensors respond to the sensing needs of various applications for automobile, wearable, medical care, and health care.

Lineup

- Infrared Sensors ● Ultrasonic Sensors
- AMR Sensors (Magnetic Sensors) ● Shock Sensors
- Accelerometers ● Inclinometers ● Gyro Sensors
- Temperature Sensors (Thermistors)



<https://www.murata.com/en-global/products/sensor>

Sensor Guide (Select by Method/Principle)



Temperature

Thermistors: The resistance changes with the temperature.

NC_Series

PR_Series

NX Series

PTF Series



Infrared

Pyroelectric infrared sensors: The sensor reacts to the infrared radiation emitted from the human body to output an electric charge.



IRA Series

For more details on Thermistors, please refer to p. 80



Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- MEMS Sensors & Sensing Elements
- NTC Thermistors
- POSISTOR for Circuit Protection
- NTC/PTC Thermistors for Automotive

Cat. No. S47E
Cat. No. R44E
Cat. No. R90E
Cat. No. R03E



Distance

Ultrasonic sensors: The sensor sends and receives ultrasonic waves in order to detect distances from the state of the reflected wave.



MA300D1-1
(for Dual Use)



MA40S4R (for Receiver)
MA40S4S (for Transmitter)



MA58MF14-7N
(for Dual Use)



MA40H1S-R
(for Dual Use)



Magnetic/ Open and Shut

Magnetic switches: This switch switches built-in ICs when the magnetoresistive element detects the magnetic proximity.



MR Series



Inertial force

Shock sensors: This sensor generates an electric charge according to the acceleration (stress) applied to the piezoelectric element.



PKG5 Series

Accelerometers: This sensor detects the acceleration from the change of the capacitance that occurs in the 3DMEMS element.



SCA Series

Inclinometers: This sensor detects the gravitational acceleration of the Earth to calculate the angle of gradient.



SCA Series

Gyro sensors: This sensor detects the angular velocity from the change in the capacitance that occurs in the 3DMEMS element.



SCC Series
SCR Series

Lineup

Detection	Murata's Sensors			Applications										
	Products	Series or Main Part Number	Dimensions (mm)	AV Equipment					Communications Devices					
				TV	Audio	DVD, CD	Digital Video Camera	Digital Camera	PC	Scanner	Multifunction Machine	Printer	FAX	Electronic Bulletin Board
Infrared	Pyroelectric Infrared Sensors	IRA Series	 $\varnothing 9.2$ H4.7	●	●	●			●	●	●	●	●	●
Ultrasonic	Open Structure Type Ultrasonic Sensors	MA40S4R (for Receiver) MA40S4S (for Transmitter)	 $\varnothing 9.9$ H7.1											●
		MA40H1S-R (SMD/for Dual Use)	 5.2X5.2X1.15	●					●		●			●
	Drip-proof Type Ultrasonic Sensors	MA58MF14-7N (for Dual Use)	 $\varnothing 14.0$ H9.0											
	High Frequency Type Ultrasonic Sensors	MA300D1-1 (for Dual Use)	 $\varnothing 9.9$ H7.3							●	●	●		
Magnetic	AMR Sensors (Magnetic Sensors)	MR Series	 MRMS201A-001: 2.8X2.9X1.1 MRMS501A-001: 1.45X1.45X0.55			●	●	●	●					
Acceleration	Shock Sensors	PKGS Series	 3.2X2.0X1.05						●					
	Accelerometers	SCA Series	 7.6X8.6X3.3											
	Inclinometers	SCA Series	 7.6X8.6X3.3								●			
Angle Velocity	Gyro Sensors	SCC Series SCR Series	 12.1X15.0X4.35											
Temperature	NTC Thermistors	Chip Type NC_ Series	 NCP02: 0.4X0.2X0.2 NCP03: 0.6X0.3X0.3 NC_15: 1.0X0.5X0.5 NC_18: 1.6X0.8X0.8	●	●	●	●	●	●	●	●	●	●	●
		Lead Type NX Series	 NXF: $\varnothing 1.2$ L25 to 150 NXR: $\varnothing 4.0$ L10 to 40	●	●	●	●	●	●	●	●	●	●	●
	PTC Thermistors POSISTOR	Chip Type PR_ Series	 PRF15: 1.0X0.5X0.5 PRF18: 1.6X0.8X0.8 PRF21: 2.0X1.25X0.9	●	●	●	●	●	●	●	●	●	●	●
		Lead Type PTF Series	 $\varnothing 5.0$ max. T4.0 max. $\varnothing 7.5$ T3.0	●	●				●	●	●	●	●	●

Applications																							
Home Electronics												Security		Car Electronics		Toy		Others					
Refrigerator	Electric Rice-cooker	Air Conditioner	Air Purification System	Humidifier	Cleaner	Laundry Machine	Food Fan	Water Heater	Toilet Seats with a Warm-water Shower Feature	Lighting	Security Camera	Security Light	Indoor Security Sensor	Intrusion Detection Sensor	Navigation System	Climate Control	Parking Assist	Radio Control (Attitude Control)	Game Controller	Machine Tool	ATM, CD	Vending Machine	Amusement Machine
	●	●	●	●						●	●	●	●	●							●	●	●
	●		●		●					●	●	●	●	●							●	●	●
	●		●		●					●	●	●	●	●							●	●	●
																	●						
	●	●	●	●	●	●	●	●	●	●			●							●	●	●	●
						●														●		●	●
																				●			●
						●									●					●		●	●
		●	●	●	●	●	●	●	●	●				●	●	●	●	●	●	●	●	●	●
	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	●	●	●	●	●	●	●	●	●	●				●	●	●			●			●	
				●	●	●	●	●	●	●												●	
					●	●	●	●	●	●												●	

Murata's Sensors

Products

Pyroelectric Infrared Sensors

Open Structure Type Ultrasonic Sensors

Drip-proof Type Ultrasonic Sensors

High Frequency Type Ultrasonic Sensors

AMR Sensors (Magnetic Sensors)

Shock Sensors

Accelerometers

Inclinometers

Gyro Sensors

NTC Thermistors

PTC Thermistors POSISTOR

Thermistors

Facilitate your designs and products utilizing our thermal design and thermistor products.

Summary

Murata's semi-conductive ceramics and electrode printing technologies, such as PTC and NTC Thermistors, provide vital protection and sensing within electronic equipment. Simulation software tools are also available for your convenience.

Lineup

- NTC Thermistors for temperature sensor/compensation, and automotive
- PTC Thermistors POSISTOR for overheat sensing, overcurrent protection, inrush current suppression, and automotive



<https://www.murata.com/en-global/products/thermistor>

NTC Thermistors for Temperature Sensor/ Temperature Compensation

Chip Type

Chip NTC Thermistors have Ni barrier terminations, provide excellent solderability, and offer high stability in harsh environments due to their unique inner construction.



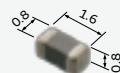
NCP02 Series



NCP03 Series



NCP15 Series
NCU15 Series



NCP18 Series
NCU18 Series

(in mm)

Series	Size Code inch (mm)	Resistance (25°C) (Ω)	B-Constant (25-50°C) (K)	Maximum Operating Current for Sensor (25°C) (mA)	Maximum Voltage (V)	Typical Dissipation Constant (25°C) (mW/°C)	Operating Temperature Range (°C)
NCP02	01005 (0402)	10k to 470k	3380 to 4250	0.015 to 0.100	5	1	-40 to 125
NCP03	0201 (0603)	1.0k to 220k	3500 to 4485	0.021 to 0.316	5	1	-40 to 125
NCP15	0402 (1005)	220 to 470k	3500 to 4500	0.015 to 0.674	5	1	-40 to 125
NCU15	0402 (1005)	10k to 100k	3380 to 4250	0.032 to 0.100	5	1	-40 to 125
NCP18	0603 (1608)	220 to 470k	3500 to 4500	0.015 to 0.674	5	1	-40 to 125
NCU18	0605 (1608)	10k to 470k	3380 to 4500	0.032 to 0.100	5	1	-40 to 125

Maximum Operating Current for Sensor raises the Thermistor's temperature by 0.1°C.
There are also items for automotive applications in the NCP/NCU Series.

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.

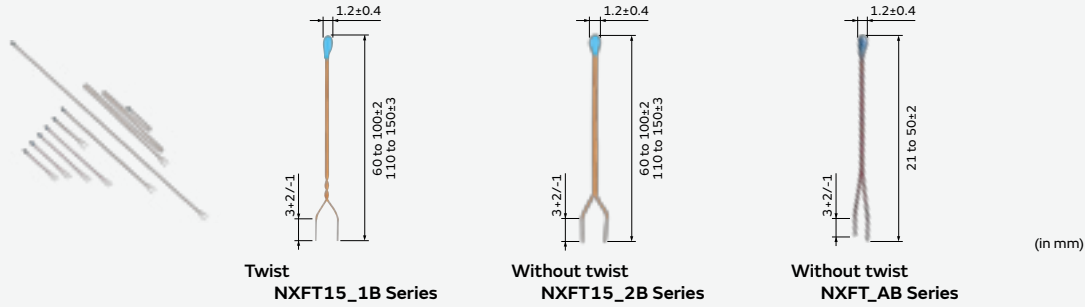


- NTC Thermistors
- POSISTOR for Circuit Protection
- NTC/PTC Thermistors for Automotive

Cat. No. R44E
Cat. No. R90E
Cat. No. R03E

Thermo String Type

Small flexible lead type NTC Thermistors with a small head and a thin lead wire.

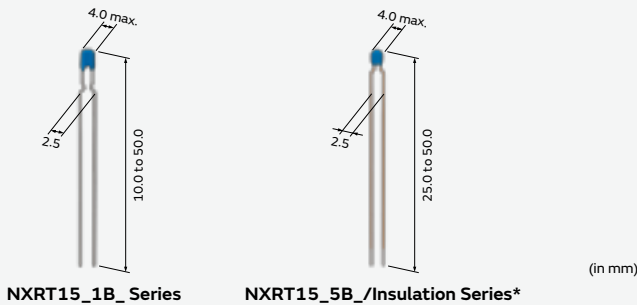


Series	Resistance (25°C) (Ω)	B-Constant (25-50°C) (K)	Maximum Operating Current for Sensor (25°C) (mA)	Thermal Time Constant (25°C) (s)	Full Length (mm)	Operating Temperature Range (°C)
NXFT15_1/2B_ (Cooper wire type)	3k to 100k	3380 to 4250	0.04 to 0.22	4	60 to 150	-40 to 125
NXFT15_AB_ (Nickel Cooper wire type)	3k to 100k	3380 to 4250	0.024 to 0.14	3	21 to 50	-40 to 125

Maximum Operating Current for Sensor raises the Thermistor's temperature by 0.1°C.
There are also items for automotive applications in the NXF Series.

Lead Type

This product is a thermistor for normal temperature level sensors having self-subsistence due to strong lead strength based on chip NTC.



Series	Resistance (25°C) (Ω)	B-Constant (25-50°C) (K)	Maximum Operating Current for Sensor (25°C) (mA)	Thermal Time Constant (25°C) (s)	Full Length (mm)	Operating Temperature Range (°C)
NXRT15_1B_	2k to 100k	3380 to 4250	0.04 to 0.27	4	10 to 50	-40 to 125
NXRT15_5B_ (Insulation*)	2k to 100k	3380 to 4250	0.05 to 0.36	4	25 to 50	-40 to 125

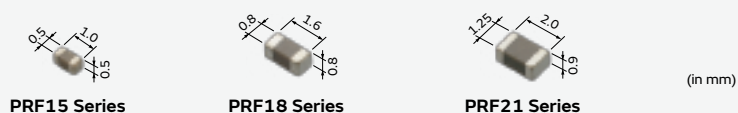
Maximum Operating Current for Sensor raises the Thermistor's temperature by 0.1°C.
There are also items for automotive applications in the NXR Series.

*Insulation: Lead wire insulation type.

PTC Thermistors POSISTOR for Overheat Sensing

Chip Type

For overheat sensing for power transistors, power diodes, and power ICs in hybrid circuits.

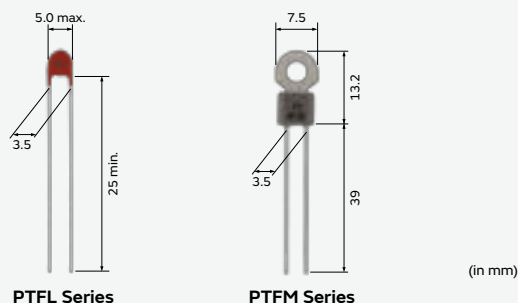


Series	Sensing Temperature Range (°C)										Sensing Temperature Tolerance (°C)	Maximum Voltage (V)	Size Code inch (mm)
	60	70	80	90	100	110	120	130	140	150			
PRF15	●	●	●	●	●	●	●	●	●	●	±3/±5	32	0402 (1005)
PRF18	●	●	●	●	●	●	●	●	●	●	±3/±5	32	0603 (1608)
PRF21			●	●	●	●	●	●	●	●	±5	32	0805 (2012)

There are also items for automotive applications in the PRF Series.

Lead Type

For protecting power transistors, stereo main amplifiers, etc., from overheating, and also for sensing the temperature of other components that may be overheated.

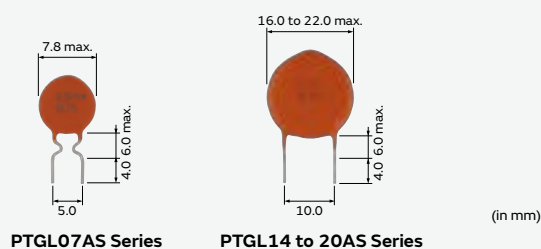


Series	Sensing Temperature Range (TS) (°C)										Maximum Voltage (V)	Resistance (25°C) (max.) (Ω)	Resistance (TS-10°C) (max.) (Ω)	Resistance (TS°C) (min.) (Ω)
	60	70	80	90	100	110	120	130	140	150				
PTF□_471Q	●	●	●	●	●	●	●				16	100	330	470
PTF□_222Q	●	●	●	●	●	●	●				16	330	1.5k	2.2k

The blank is filled with type codes. (L: Lead type, M: with lug-terminal)
 Operating Temperature Range is -10 to TS+10°C.

PTC Thermistors POSISTOR for Inrush Current Suppression

This series is able to support overcurrent or inrush current issues on the power supply circuit.



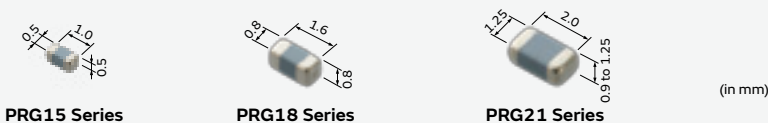
Series	Resistance (25°C) (Ω)	Maximum Voltage (V)	Maximum Inrush Current (A _{o-p})	Maximum Charge Energy (J)	Operating Temperature Range (°C)
PTGL07AS	120 to 200	280	5.66 to 8.46	7.8 (105°C)	-40 to 105
PTGL14 to 20AS	33 to 100	280	13 to 39	56.9 to 181.7 (60 to 85°C)	-20 to 85

Maximum Inrush Current shows the maximum inrush current value introduced into the Posistor at operating temperature range.

PTC Thermistors POSISTOR for Overcurrent Protection

Chip Type

Overcurrent Protection device with resettable function suitable for current-limiting resistors.

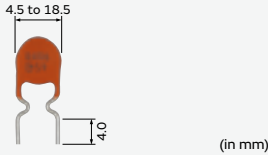


Series	Maximum Voltage (V)	Hold Current (60°C) (mA)	Trip Current (-10°C) (mA)	Maximum Current (A)	Resistance (25°C) (Ω)	Size Code inch (mm)
PRG15	6 to 30	17 to 88	65 to 318	0.6 to 3.5	2.2 to 68	0402 (1005)
PRG18	6 to 30	7 to 220	25 to 850	0.06 to 7.5	1.0 to 470	0603 (1608)
PRG21	6 to 32	30 to 500	110 to 2000	0.59 to 37	0.2 to 42	0805 (2012)

Maximum Current shows typical transformer capacities that can be used.
There are also items for automotive applications in the PRG Series.

Lead Type

Best suited to meet the requirements of power supplies and motor protection.
Error-free operation is ensured by rush current.



PTGL Series
*The Lead shape is an example.

Series	Maximum Voltage (V)	Hold Current (60°C) (mA)	Trip Current (-10°C) (mA)	Maximum Current (A)	Resistance (25°C) (Ω)
PTGL	16	370 to 1200	1040 to 3360	2.0 to 10.0	0.15 to 1.0
	24	120 to 140	500 to 580	2.0	3.3 to 4.7
	30	122 to 685	240 to 1900	1.5 to 7.0	0.8 to 10
	32	40 to 60	170 to 240	1.5	15 to 33
	51	168 to 592	332 to 1168	1.0 to 5.0	1.2 to 10
	56	90 to 380	240 to 980	1.0 to 2.5	3.3 to 22
	60	88 to 439	175 to 867	1.0 to 5.0	2.2 to 22
	80	50 to 190	135 to 530	0.7 to 3.0	9.4 to 55
	125	30 to 220	75 to 550	0.3 to 1.2	10 to 180
	140	74 to 310	147 to 670	0.5 to 3.5	4.7 to 56
	250	90 to 100	280 to 300	0.5 to 0.6	12 to 39
	265	28 to 300	70 to 830	0.2 to 4.1	6.0 to 180

Maximum Current shows typical transformer capacities that can be used.
There are also items for automotive applications in the PTGL Series.

Power Devices

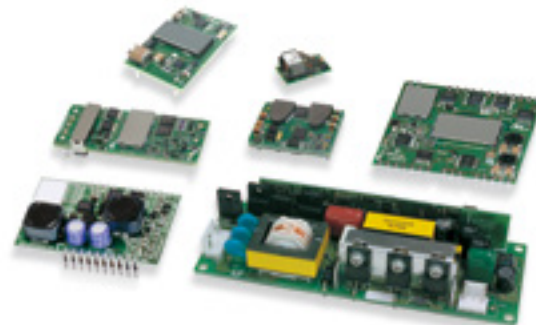
Eco-friendly and high-quality power devices

Summary

To meet consumer needs Murata offers power supply products and energy devices that can be used with a variety of equipment, such as video equipment, household information appliances, and communication/transfer equipment. Murata provides standard and customized products using highly reliable. Murata makes components utilizing advanced design and high-density packaging technology.

Lineup

- DC-DC Converters
- High Voltage Power Supplies
- Switching Power Supplies



<https://www.murata.com/en-global/products/power>

DC-DC Converters

DC-DC converters are vital to the demands of electronic equipment.

Murata offers DC-DC converters that set the standard for miniaturization, low-profile, high-efficiency, power-saving and low-noise power supplies. Murata also provides standard products and customized products, ultra-low-profile products, and products for FPGAs.

Non-isolated Type



Part number	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Efficiency (%)	I2C or PMBus	Package	Size (mm)		
							W	L	T
MYLSM00502ERPL	2.5	4.5 to 17	1 to 5.25	89.4	Not available	SMD	7.9	7.9	2.3
MYMGK1R804FRSR	4	4.5 to 8	0.7 to 1.8	93.1	Not available	SMD	7.5	9.0	5.0
MYMGK00504ERSR	4	8 to 15	0.7 to 5	96.1	Not available	SMD	7.5	9.0	5.0
MYMGK1R806FRSR	6	4.5 to 8	0.7 to 1.8	90.4	Not available	SMD	7.5	9.0	5.0
MYMGK00506ERSR	6	8 to 15	0.7 to 5	95.4	Not available	SMD	7.5	9.0	5.0
MYMGK1R812FRSR	12	4.5 to 8	0.7 to 1.8	92	Not available	SMD	9.0	10.5	5.6
MYMGK1R812ERSR	12	8 to 15	0.7 to 1.8	90.4	Not available	SMD	9.0	10.5	5.6
MYMGK1R820FRSR	20	4.5 to 8	0.7 to 1.8	89.2	Not available	SMD	9.0	10.5	5.6

These are just a few examples of our large assortment of power products.

Continued on the following page. ↗

DC-DC Converters

Part number	Output Current (A)	Input Voltage (V)	Output Voltage (V)	Efficiency (%)	I2C or PMBus	Package	Size (mm)		
							W	L	T
MYMGK1R820ERSR	20	8 to 15	0.7 to 1.8	87.8	Not available	SMD	9.0	10.5	5.6
MYSGK1R830FRSR	30	4.5 to 15	0.7 to 1.8	89.7	Not available	SMD	14.0	11.0	8.3
MYSGK02506BRSR	6	13.5 to 42	5 to 25	98	Not available	SMD	14.7	16.3	7.5
MYMGA5R04RELA5RA	4	8.0 to 16.0	3.3 to 5	94	Not available	SMD	9.0	10.5	5.6
MYMGC0R88RFLF2RV	8	3.3 to 5.5	0.85	81	I2C	SMD	11.9	15.0	2.4
MYMGC1R83BFPF2RV (Quad output)	3.2 0.5 0.5 1.5 2.5	3.3 to 5.5	0.85 0.85 1.2 1.8 1.2	81	I2C	SMD	11.9	15.0	2.4
MYMGC3R32EFPF2RV (Quad output)	1 2 1.5	4.3 to 5.5	1.8 3.3 2.5	91	I2C	SMD	11.9	15.0	2.4
OKL-T/3-W5P-C	3	2.4 to 5.5	0.6 to 3.63	95.3	Not available	SMD	12.2	12.2	6.2
OKL-T/6-W12P-C	6	4.5 to 14	0.591 to 5.5	93	Not available	SMD	12.2	12.2	7.2
OKL2-T/12-W12P2-C	12	4.5 to 14	0.69 to 5.5	95	Not available	SMD	20.32	11.43	8.55
OKL2-T/20-W12P2-C	20	4.5 to 14	0.69 to 5.5	94	Not available	SMD	33.02	13.46	8.7
MYSSM02406BEPL	6	30.5 to 40	12 to 24	97.6	Not available	SMD	30.2	20.9	8.3
MYUSP3R303FMP	3	3 to 5.5	0.7 to 3.3	94	Not available	SMD	11.0	8.5	5.6

These are just a few examples of our large assortment of power products.

Isolated DC-DC Converter for PoE



MYBSP0055AABFT
MYBSP0122BABFT



MYBSP0055AABF
MYBSP0122BABF



MYBSP00502ABF
MYBSP01201ABF



MYBTA00512ABT



MYBSC00520ABT
MYBSC0128CABT
MYBSC0128CAZT



MYBSS054R6EBF

Part number	Output Power (W)	Input Voltage (V)	Output Voltage (V)	Efficiency (%)	PoE controller	Package	Size (mm)		
							W	L	T
MYBSP00502ABF	10	37 to 57	5	80	Available	SMD	26.0	14.8	6.2
MYBSP01201ABF	12	37 to 57	12	84	Available	SMD	26.0	14.8	6.2
MYBSP0055AABF	25.5	37 to 57	5	90.5	Available	SMD	35.5	22.4	10.55
MYBSP0122BABF	25.5	37 to 57	12	92.5	Available	SMD	35.5	22.4	10.55
MYBSP0055AABFT	25.5	37 to 57	5	90.5	Available	SMD	35.5	22.4	10.55
MYBSP0122BABFT	25.5	37 to 57	12	92.5	Available	SMD	35.5	22.4	10.55
MYBTA00512ABT	60	36 to 75	5	92	Not available	SMD	23.36	19.05	12.7
MYBSC00520ABT	100	36 to 75	5	92	Not available	SMD	33.0	23.2	10.35
MYBSC0128CABT	100	36 to 75	12	92.5	Not available	SMD	33.0	23.2	10.35
MYBSC0128CAZT	100	36 to 75	12	92.5	Not available	Insert	33.0	23.2	9.32
MYBSS054R6EBF	30	10.8 to 27	54	90	Not available	SMD	35.5	22.4	8.9

Isolated Type

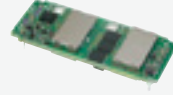


MYBEA01212AZT



MYBEB01212AZTB


MYBEA01212AZTB
MYBEA01210CZTB

MYBSC00520ABT
MYBSC0128CABT
MYBSC0128CAZT


MYBEA01210CZT



MYBTA00512ABT

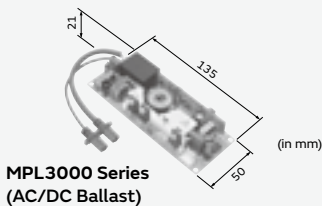

MYBSA00804KZT
MYBSA0122ECZT

MPD5D017S
MPD5D018S

Part number	Output Power (W)	Input Voltage (V)	Output Voltage (V)	Efficiency (%)	Footprint (Brick)	Package	Size (mm)		
							W	L	T
MYBEA01212AZT	144	36 to 75	12	92.5	1/8	Insert	58.4	22.8	8.46
MYBEA01212AZTB	144	36 to 75	12	92.5	1/8	Insert	58.4	22.8	11.3
MYBEA01210CZT	120	18 to 36	12	93	1/8	Insert	58.4	22.8	8.46
MYBEA01210CZTB	120	18 to 36	12	93	1/8	Insert	58.4	22.8	11.3
MYBEB01212AZTB	100	36 to 75	12	91.5	1/8	Insert	58.4	22.8	12.2
MYBTA00512ABT	60	36 to 75	5	92	1/32	SMD	23.36	19.05	12.7
MYBSC00520ABT	100	36 to 75	5	92	1/16	SMD	33.0	23.2	10.35
MYBSC0128CABT	100	36 to 75	12	92.5	1/16	SMD	33.0	23.2	10.35
MYBSC0128CAZT	100	36 to 75	12	92.5	1/16	Insert	33.0	23.2	9.32
MPD5D017S	4.95	36 to 75	3.3	84	NA	SMD	26.8	14.6	4.7
MPD5D018S	5	36 to 75	5	84	NA	SMD	26.8	14.6	4.7
MYBSA00804KZT	33.6	18 to 60	8	88	1/16	Insert	33.0	22.7	8.95
MYBSA0122ECZT	30	19.2 to 30	12	91	1/16	Insert	33.0	22.7	8.95

These are just a few examples of our large assortment of power products.

High Voltage Power Supplies



Series	Applications	Input Voltage Vin	Output Power	Other Specification
MPL3000 (AC/DC Ballast)	Projector	250 to 420V DC	to 350W	For extra-high pressure mercury lamp

For more details on our products, please contact us.

Switching Power Supplies



Applications	Input Voltage	Output Voltage	Safety Standard	EMI Standard	Remarks
LED Lighting	90 to 264V AC	8 to 25V 30 to 50V	PSE	VCCI, CISPR	PWM Dimming, Accepted for DALI, UART

For more details on our products, please contact us.

For Ionizer Modules, please refer to p. 100.

Batteries

Battery solutions for energy storage systems and various small devices

Summary

Murata offers battery solutions for a wide range of applications from IoT & wearable devices to energy storage systems for enterprise and household use.

Lineup

- Laminated Type Lithium Ion Batteries
- Cylindrical Type Lithium Ion Batteries
- Li-ion Energy Storage System
- Micro Batteries



Laminated Type Lithium Ion Batteries

Laminated type lithium ion battery has laminate film for packaging. These batteries are known for their excellent safety, thinner form factors, and size flexibility.

Cylindrical Type Lithium Ion Batteries

Cylindrical type lithium ion batteries are packaged in metal cans. These batteries can be used at high rate and maintain high capacity.

Li-ion Energy Storage System

Possible to customize capacity in order to meet wide usage

2.1kWh Energy Storage Module



(Excluding terminal)
IJ1101M
27kg

(in mm)

Model Name	Nominal Capacity	Rated Capacity	Nominal Voltage	Maximum Discharge Current	Charge Voltage	Maximum Charge Current	Safety Standard
IJ1101M	2.1kWh (42.0Ah)	2.0kWh (39.5Ah)	51.2V	50A	56.0V	40A	EU RE Directive UL 1973 FCC Part 15 Class B

Storage Temperature: -20 to 45°C (Recommended room temperature)

Operating Ambient Temperature: Discharge: -20 to 40°C (Discharge current $\leq 50.0A$)
40 to 50°C (Discharge current $\leq 40.0A$)

Charge: 10 to 45°C (Charge current $\leq 40.0A$)
0 to 10°C (Charge current $\leq 12.0A$)

High Rate Module



(Excluding terminal)
IJ1201M
18kg

(in mm)

*use for Japan market

Model Name	Nominal Capacity	Rated Capacity	Nominal Voltage	Maximum Discharge Current	Charge Voltage	Maximum Charge Current	Safety Standard
IJ1201M	1.2kWh (24Ah)	1.15kWh (22.5Ah)	51.2V	90A	56.0V	22.5A	-

Storage Temperature: -20 to 45°C (Recommended room temperature)

Operating Ambient Temperature: Continuous Discharge: 0 to 30°C (Discharge current $\leq 90.0A$)

30 to 35°C (Discharge current $\leq 75.0A$)

35 to 40°C (Discharge current $\leq 67.5A$)

Non-Continuous Discharge: 30 to 40°C (Discharge current $\leq 90.0A$, Time ≤ 60 sec)

Charge: 10 to 40°C (Charge current $\leq 22.5A$)

0 to 10°C (Charge current $\leq 6.75A$ Recommended)

Battery Management Unit (BMU)



(Excluding terminal)
IJ5101C
12kg

*use for Japan market



(Excluding terminal)
IJ8101C
14kg

(in mm)

Model Name	Operating Voltage	Operating Current	Communication Interface	Configuration	Safety Standard
IJ5101C	60 to 420V	0 to 100A	RS232C/RS485C	Series: to 7 series Mix Combination: to 6 series and to 2 parallels Maximum module connections: 32 modules	-
IJ8101C	300 to 1000V	0 to 100A	RS232C/RS485C	Series: to 16 series Mix Combination: to 16 series and to 2 parallels	EU LV Directive EU EMC Directive UL 1973 FCC Part 15 Class B *It is certificated along with IJ1101M. *UL 1973 is certified for maximum of 90 A.

Storage Temperature: -20 to 65°C (Recommended room temperature)

Operating Ambient Temperature: -20 to 50°C (Recommended room temperature)

Li-ion Energy Storage System

BMU-HUB



Model Name	Operating Voltage	Purpose	Configuration	Safety Standard
IJ1101K	DC12V, DC24 to 60V	Interface unit to connect IJ8101C for utility	Parallel: to 64BMU Maximum module connections: 64X32=2048 modules (maximum 4.3MWh)	EU EMC Directive FCC Part 15 Class B

Storage Temperature: -20 to 65°C (Storage and use at room temperature is recommended)

Operating Ambient Temperature: -20 to 60°C (Storage and use at room temperature is recommended)

Cable

Model Name	Type	Specification
IJT-102F	Communication Cable 20cm	RS485
IJT-103F	Communication Cable 30cm	RS485
IJT-115F	Communication Cable 150cm	RS485
IJT-130F	Communication Cable 300cm	RS485
IJD-103F/R	Thicker Power Cable 30cm (red)	AWG4
IJD-103F/B	Thicker Power Cable 30cm (black)	AWG4
IJD-110F/R	Thicker Power Cable 100cm (red)	AWG4
IJD-110F/B	Thicker Power Cable 100cm (black)	AWG4

Coin Manganese Dioxide Lithium Batteries

Coin manganese dioxide lithium batteries are small-sized primary batteries for various applications such as TPMS (Tire Pressure Monitoring System) or smart entry systems for automobile, IoT devices, and backup power source for memory.



Standard

A lineup of 11 models is offered from small size and thin models to high-capacity models.

Model	Electrical Characteristics			Dimensions			Operating Temperature Range (°C)
	Nominal Voltage (V)	Nominal Capacity (mAh)	Standard Discharge Current (mA)	Diameter (mm)	Height (mm)	Weight (g)	
CR1216	3	30	0.1	12.5	1.6	0.67	-30 to 70
CR1220	3	40	0.1	12.5	2.0	0.77	-30 to 70
CR1616	3	60	0.1	16.0	1.6	1.1	-30 to 70
CR1620	3	80	0.1	16.0	2.0	1.3	-30 to 70
CR1632	3	140	0.2	16.0	3.2	1.9	-30 to 70
CR2016	3	90	0.1	20.0	1.6	1.8	-30 to 70
CR2025	3	160	0.2	20.0	2.5	2.6	-30 to 70
CR2032	3	220	0.2	20.0	3.2	3.1	-30 to 70
CR2430	3	300	0.2	24.5	3.0	4.4	-30 to 70
CR2450	3	610	0.2	24.5	5.0	6.5	-30 to 70
CR2477	3	1000	0.4	24.5	7.7	11	-30 to 70

Nominal capacity indicates duration until discharge voltage drops down to 2.0V when discharged at nominal discharge current at 23°C.

Heat-resistant

Ideal for devices used in severe operating temperature environments including automobiles and FA, etc.

Model	Electrical Characteristics			Dimensions			Operating Temperature Range (°C)
	Nominal Voltage (V)	Nominal Capacity (mAh)	Recommended Continuous Discharge Current (mA)	Diameter (mm)	Height (mm)	Weight (g)	
CR2032W	3	210	≤1	20.0	3.2	3.1	-40 to 125
CR2050W	3	345	≤1	20.0	5.0	4.2	-40 to 125
CR2450W	3	550	≤1	24.5	5.0	6.7	-40 to 125
CR2477W	3	1000	≤1	24.5	7.7	11	-40 to 125

Continued on the following page. ↗

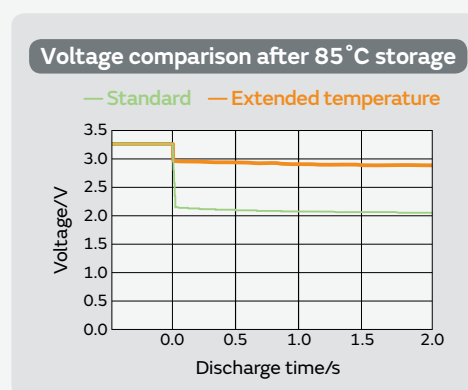
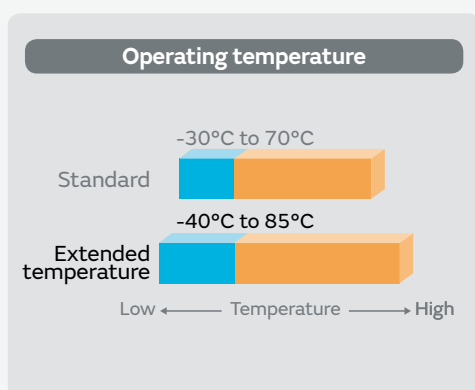
Extended Temperature

Designed for automotive devices and outdoor IoT systems, including smart meters and FA control systems. Recommended as an alternative smaller and thinner solution to conventional cylindrical lithium batteries.

Model	Electrical Characteristics				Dimensions			Operating Temperature Range (°C)
	Nominal Voltage (V)	Nominal Capacity (mAh)	Recommended Continuous Discharge Current (mA)	Maximum pulse discharge current*1 (mA)	Diameter (mm)	Height (mm)	Weight (g)	
CR2032X	3.0	220	≤1	30	20.0	3.2	3.0	-40 to 85
CR2450X	3.0	600	≤1	30	24.5	5.0	6.2	-40 to 85
CR2477X	3.0	1000	≤1	30	24.5	7.7	9.5	-40 to 85
CR3677X*2	3.0	2000	≤1	80	36.5	7.7	20	-40 to 85

*1 Current for maintaining minimum 2V voltage with pulsed discharge of 3 seconds and 50% nominal capacity discharged (ambient temperature 23°C)

*2 Shipment of mass-produced CR3677X is scheduled to start at the end of 2019.

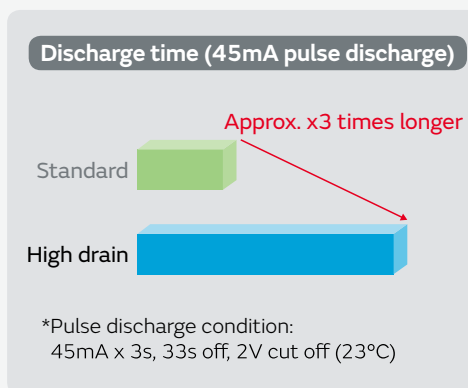
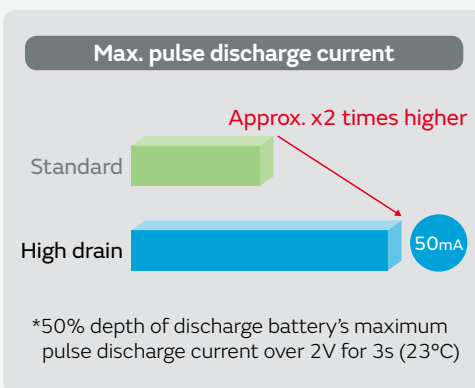


High Drain

Ideal for tracking devices for logistics and asset management by adopting Low Power Wide Area (LPWA) networks such as LoRa and SIGFOX as well as for outdoor infrastructures, FA control systems, and environment monitoring sensors.

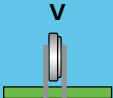
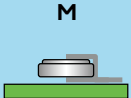
Model	Electrical Characteristics				Dimensions			Operating Temperature Range (°C)
	Nominal Voltage (V)	Nominal Capacity (mAh)	Recommended Continuous Discharge Current (mA)	Maximum pulse discharge current*1 (mA)	Diameter (mm)	Height (mm)	Weight (g)	
CR2032R	3.0	200	≤3	50	20.0	3.2	3.0	-30 to 70
CR2450R	3.0	500	≤3	50	24.5	5.0	6.2	-30 to 70

*1 Current for maintaining minimum 2V voltage with pulsed discharge of 3 seconds and 50% nominal capacity discharged (ambient temperature 23°C)



Continued on the following page. ↗

Tab-welder

Mounting Direction		H 			V 	M 
Tab Specification	Shape	E		O	E	P
	Width of Negative Tab Tip (mm)	0.75	0.75	1.8	0.75	2.0
	Width of Positive Tab Tip (mm)	0.75X2	0.75X2	2.8	0.75X2	2.0
	Pitch (mm)	17.8	20.5	20.5	N/A	N/A
Standard	CR2032	CR2032-HE8 	CR2032-HE1 	CR2032-HO6 	CR2032-VE3 	
	CR2430	CR2430-HE1 	CR2430-HE2 	CR2430-HO1 	CR2430-VE1 	
	CR2450	CR2450-HE5 	CR2450-HE6 	CR2450-HO5 	CR2450-VE6 	
	CR2477		CR2477-HE2 	CR2477-HO4 	CR2477-VE1 	
Extended Temperature	CR2032X		CR2032X-HE1 	CR2032X-HO6 		
	CR2450X		CR2450X-HE6 	CR2450X-HO5 		
	CR2477X		CR2477X-HE2 	CR2477X-HO4 		
Heat-resistant	CR2032W		CR2032W-HE1 	CR2032W-HO6 		
	CR2050W					CR2050W-MP1 
	CR2450W		CR2450W-HE6 	CR2450W-HO5 		CR2450W-MP1 
	CR2477W		CR2477W-HE2 	CR2477W-HO4 		
High Drain	CR2032R		CR2032R-HE1 	CR2032R-HO6 		
	CR2450R		CR2450R-HE6 	CR2450R-HO5 		

For tab shapes or specifications not included in the above list, please consult your sales representative.

Silver Oxide Batteries

Silver oxide batteries are small-sized primary batteries with high capacity and stable discharge characteristics. They are suitable for medical devices and precision instruments. All models are 100% made in Japan, and environmentally friendly (0% mercury).



Model	Electrical Characteristics		Dimensions			Operating Temperature Range (°C)
	Nominal Voltage (V)	Nominal Capacity (mAh)	Diameter (mm)	Height (mm)	Weight (g)	
SR621	1.55	20	6.8	2.15	0.32	-10 to 60
SR626	1.55	28	6.8	2.60	0.40	-10 to 60
SR721	1.55	29	7.9	2.10	0.42	-10 to 60
SR726	1.55	35	7.9	2.60	0.50	-10 to 60
SR41	1.55	45	7.9	3.60	0.65	-10 to 60
SR48	1.55	75	7.9	5.40	1.2	-10 to 60
SR920	1.55	40	9.5	2.05	0.59	-10 to 60
SR927	1.55	60	9.5	2.70	0.79	-10 to 60
SR936	1.55	75	9.5	3.60	1.1	-10 to 60
SR1120	1.55	60	11.6	2.05	0.92	-10 to 60
SR1130	1.55	85	11.6	3.05	1.4	-10 to 60
SR43	1.55	110	11.6	4.20	1.8	-10 to 60
SR44	1.55	160	11.6	5.40	2.2	-10 to 60

Data is not guaranteed, and is provided for reference purposes only.
Please contact us for other models.

Alkaline Manganese Batteries

Alkaline manganese batteries are small-sized primary batteries with high performance. They are suitable for various applications such as toys, medical devices and health appliances. All models are 100% made in Japan, and environmentally friendly (0% mercury).



Model	Electrical Characteristics		Dimensions			Operating Temperature Range (°C)
	Nominal Voltage (V)	Nominal Capacity (mAh)	Diameter (mm)	Height (mm)	Weight (g)	
LR41	1.5	45	7.9	3.60	0.57	-10 to 60
LR1130	1.5	70	11.6	3.05	1.2	-10 to 60
LR43	1.5	110	11.6	4.20	1.6	-10 to 60
LR44	1.5	120	11.6	5.40	2.0	-10 to 60

Data is not guaranteed, and is provided for reference purposes only.
Please contact us for other models.

Sound Components (Buzzer)

Piezoelectric ceramic materials that expand and shrink by applying voltage are used in piezoelectric sound components.

Summary

Using Murata's unique ceramic material, we offer a variety of piezoelectric sound components.

Lineup

- SMD Piezoelectric Sounders
- Pin Type Piezoelectric Sounders
- Piezoelectric Buzzers
- Piezoelectric Diaphragms



<https://www.murata.com/en-global/products/sound>

SMD Piezoelectric Sounders

Low power consumption, lightweight.

Optimized for small devices such as blood glucose meters, clinical thermometers, photoflashes for cameras, and portable terminals.

Applicable for automotive usage based on our design and manufacturing technology.



PKMCS1818E20



PKLCS1212E20



PKLCS1212E24



PKLCS1212E40



PKMCS0909E40

(in mm)

Applications	Mounting Type	Drive Type	Main Part Number	Sound Pressure Level (typ.)	Measurement Condition of Sound Pressure Level
For Automotive	Surface Mounting Type	External Drive	PKMCS1818E20A0-R1	100dB	12Vo-p, 2.0kHz, square wave, 10cm
			PKLCS1212E20A0-R1	76dB	±1.5Vo-p, 2.0kHz, square wave, 10cm
			PKLCS1212E24A0-R1	80dB	±1.5Vo-p, 2.4kHz, square wave, 10cm
			PKLCS1212E40A1-R1	84dB	±1.5Vo-p, 4.0kHz, square wave, 10cm
For Consumer			PKLCS1212E2000-R1	76dB	±1.5Vo-p, 2.0kHz, square wave, 10cm
			PKLCS1212E2400-R1	80dB	±1.5Vo-p, 2.4kHz, square wave, 10cm
			PKLCS1212E4001-R1	84dB	±1.5Vo-p, 4.0kHz, square wave, 10cm
			PKMCS0909E4000-R1	72dB	±1.5Vo-p, 4.0kHz, square wave, 10cm

Detailed Catalogs

For more details, please refer to our printed catalogs and the PDF catalogs on our website.



• Piezoelectric Sound Components

Cat. No. P37E

Pin Type Piezoelectric Sounders

Low power consumption, lightweight.

These products are optimized for operation confirmation sounds and warning sounds in household appliances such as air conditioners, washers, and refrigerators.

(in mm)

PKM13EPYH

PKM17EPP

PKM22EPH

PKM22EPPH20

PKM22EPPH40

Packaging	Mounting Type	Drive Type	Main Part Number	Sound Pressure Level (typ.)	Measurement Condition of Sound Pressure Level
Taping	Pin Type	External Drive	PKM13EPYH4000-A0	78dB	±1.5Vo-p, 4.0kHz, square wave, 10cm
Bulk			PKM13EPYH4002-B0	78dB	±1.5Vo-p, 4.0kHz, square wave, 10cm
			PKM17EPP-2002-B0	79dB	3.0Vo-p, 2.0kHz, square wave, 10cm
			PKM22EPH2001	85dB	±1.5Vo-p, 2.0kHz, square wave, 10cm
			PKM22EPPH2001-B0	79dB	±1.5Vo-p, 2.0kHz, square wave, 10cm
			PKM22EPPH4007-B0	92dB	±1.5Vo-p, 4.0kHz, square wave, 10cm

Piezoelectric Buzzers

This is a unified piezoelectric sounder connected to a built-in self-drive circuit, and it easily generates sound with only a DC power supply.

Suitable for gas detector alarms/burglar alarms/home-electronic appliances.



(in mm)

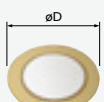
PKB24SPCH

Mounting Type	Drive Type	Main Part Number	Sound Pressure Level (min.)	Measurement Condition of Sound Pressure Level
Pin Type	Self Drive	PKB24SPCH3601-B0	90dB	12Vdc, 10cm

Piezoelectric Diaphragms

Low power consumption, lightweight.

Suitable for clocks/calculators/digital cameras/burglar alarms, and various alarms.



7BB-□□-□

Drive Type	Main Part Number	Plate Size (øD)
External Drive	7BB-12-9	ø12.0mm
	7BB-15-6	ø15.0mm
	7BB-20-6	ø20.0mm
	7BB-27-4	ø27.0mm

□: Indicates Metal Plate Diameter and Resonant Frequency Type.

Wireless Communication Modules

Available for a wide range of applications such as automotive, mobile computing devices, and household appliances.

Wi-Fi Modules/ Bluetooth · Wi-Fi Combo Modules



■ Features

Compact, highly efficient, and flexible custom-made correspondence

■ Applications

Mobile phones, automotive, tablet PC, POS, HT, electric equipment, smart grid, etc.

Bluetooth Modules/ Bluetooth Low Energy Modules



■ Features

Compact, highly efficient, and flexible custom-made correspondence

■ Applications

Mobile phones, automotive, PMP, POS, HT, healthcare, wireless remote control, etc.

Low Power Wide Area Network (LPWAN) Wireless Module



■ Features

LPWA Wireless Technology-Low-Power consumption, wide area coverage, enables IoT applications. Compact, high efficient, support various communication standards.

■ Applications

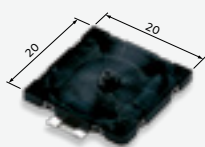
Positioning Tracking, Smart Houses, Agriculture, Healthcare/Medical, Industrial, Logistics, Utilities (Water, Gas Metering), etc.

Microblowers

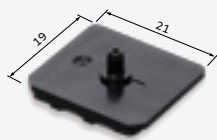
Tiny air blowers/pumps without a motor

■ Features

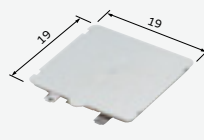
The structure is designed to operate as a blower and pump by applying the ultrasonic vibrations of the ceramic as the drive source. This is achieved in an extremely compact, thin, and silent device with a high flow rate.



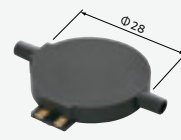
MZB1001T02



MZB3004T04



MZB3005T06



MZB4001T05

(in mm)

Part Number	MZB1001T02	MZB3004T04	MZB3005T06	MZB4001T05
Size	20(W) x 20(L) x 1.85(H) (Nozzle Height 1.6)	21(W) x 19(L) x 3.4(H) (Nozzle Height 4.5)	19(W) x 19(L) x 2.3(H)	Φ 28 x 5(H) (Each Nozzle Length 6.5)
Flow rate (@0kPa)	1.2L/min (@21Vdc)	0.2L/min (@18Vdc)	0.2L/min (@18Vdc)	1.3L/min (@28Vdc)
Pressure (@0L/min)	2.5kPa (@21Vdc)	60kPa (@19.5Vdc)	60kPa (@19.5Vdc)	-20kPa (@28Vdc)
Resonance frequency	26kHz	23kHz	23kHz	21kHz
Input Voltage (*1)	11.5Vdc to 21Vdc	8Vdc to 19.5Vdc (*2)	8Vdc to 19.5Vdc (*2)	20Vdc to 28Vdc
Operating Temperature range	0°C to 70°C	0°C to 45°C (*3)(*4)	0°C to 45°C (*3)(*4)	5°C to 50°C (*3)(*5)

*The above value shows typical characteristics.

(*1) A drive circuit is required for the operation. Driving circuits are not common. The voltage is the voltage applied to them.

(*2) Only when the back pressure condition is 10kPa or more; it can be driven with a voltage of 18Vdc or more.

(*3) When operated continuously, sufficient performance may not be demonstrated due to the generation of heat.

(*4) Please use in environments where the temperature of the metal surface (marking surface) is 60°C or less.

(*5) Please use in environments where the temperature of the resin surface is 60°C or less.

- The microblower cannot be used for automobile applications (including accessories). Please refrain from use for automobile applications.
- If the microblower is used for medical applications, Murata requires a special contract to cover the use in the medical application to be agreed upon before the start of mass production.
- Please contact us for other details.

■ Application Examples

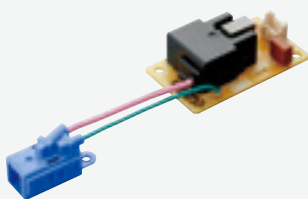
Aroma diffuser, gas/breath suction equipment, blood pressure measuring, breast pump, liquid transfer equipment by air pressure

Ionizer Modules: Ionissimo

High-concentration ion, compact design, ozone control

Ionissimo is an ionizer module with unprecedented compactness and high efficiency, capable of generating a large number of ions owing to Murata's own high-voltage technology and structural design. The ion generator is connected to the driving power supply for modularization and ease of incorporating into equipment.

MHM Series



■ Features

- A large number of ions will be created by the original structure.
- Compact equipment may be designed due to small ionizer element and driving power supply.
- Ozone amounts may be optimized for specific applications by controlling the generation of ozone without changing the number of ions.

■ Applications

Air conditioner, air purifier, static eliminator, vacuum cleaner, etc.

Items	MHM314 Type	MHM305 Type	MHM306 Type	MHM400 Type
Input Voltage (VDC)	+10.8 to 13.2	←	←	←
Power	0.9W	0.4W	0.6W	0.6W
Ion Polarity	Negative	←	←	Positive
Ion Amount (*1)	>20000000pcs/cc (*2)	>20000000pcs/cc	←	←
Ozone Level	0.1mg/H (typ.)	<0.1mg/H	<1.0mg/H	<0.1mg/H
Operating Temp.	-10 to 50°C	←	←	←
Operating Humidity	20 to 80%RH (without dewdrop)	←	←	←

(*1) Measuring distance: 20cm

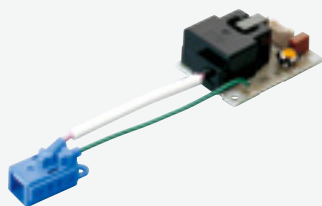
(*2) MHM314's ion amount is around 3 times more than MHM305.

View a demonstration video of Ionissimo Ionizer Modules on our website.

Ozonizer Modules: Ionissimo

By using low-temperature co-fired ceramic substrate (LTCC) for the discharger ozone will be generated stably.

MHM Series



■ Features

- Stable ozone generation.
- MHM501 type can be used under high humidity conditions.
- Small size

■ Applications

Refrigerator, vacuum cleaner, dishwasher, clothes washer, etc.

Items	MHM500 Type	MHM501 Type	MHM502 Type
Input Voltage (VDC)	+11 to 13	←	←
Power	1.0W	1.0W (with heater)	6.0W
Ozone Level	<2.5mg/H	<2.5mg/H	<60mg/H
Operating Temp.	-10 to 50°C	←	←
Operating Humidity	20 to 80%RH (without dewdrop)	20 to 95%RH	20 to 85%RH (without dewdrop)

View a demonstration video of Ionissimo Ozonizer Modules on our website.

RFID Devices

RFID for transferring identification data by wireless communication. The state-of-the-art technology allows IC tags to be attached to places where traditional barcode and QR code technology could suffer from aging. Murata offers a comprehensive range of items required to introduce RFID, from IC tags to high-quality antennas, reader/writers, and software applications. With the complete kits from Murata, RFID is seamlessly and reliably implemented.

HF band RFID tag

Part number	LXMS33HCNG-134	LXMS33HCNK-171	LXMS33HCNL-167	LXMSAPHA08-136	LXMSAPHA17-176
Application	Small product management				
Appearance					
RFID standard	ISO15693 NFC Forum Type5	ISO14443 TypeA NFC Forum Type2		ISO15693 NFC Forum Type5	ISO14443 TypeA NFC Forum Type2
Frequency	13.56MHz				
IC	NXP ICODE SLIX	NXP NTAG210	NXP NTAG212	NXP ICODE SLIX	NXP NTAG213
UID memory	64bit				
NDEF memory	896bit	384bit	1024bit	896bit	1152bit
Size(L x W x H)	3.2 x 3.2 x 0.7 mm	3.2 x 3.2 x 0.75 mm		8.3 x 8.3 x 0.8 mm	
Read range*	20mm	15mm	15mm	42mm	32mm

*Reference

UHF band RFID tag

Part number	LXMS21NCNH-147	LXMSJZNCMF-198	LXMS21ACMF-183	LXMS21ACNP-184	LXMSANAA19-181	LXTBKZMCMG-010
Application	Small product management		Electronic equipment management		Garment management	Metal product management
Appearance						
RFID standard	ISO18000-63 and EPC Global Gen2(v1.2.0)	ISO18000-63 and EPC Global Gen2v2	ISO18000-63 and EPC Global Gen2v2	ISO18000-63 and EPC Global Gen2(v1.2.0)	ISO18000-63 and EPC Global Gen2v2	ISO18000-63 and EPC global Gen2v2
Frequency	865-928MHz				902-928MHz	865-928MHz
IC	NXP UCODE G2iM	Impinj Monza R6	Impinj Monza R6	NXP UCODE 7xm	Impinj Monza R6	Impinj Monza R6P
UID memory	256bit	96bit	96bit	448bit	96bit	128bit
NDEF memory	512bit	NA	NA	2048bit	NA	32bit
Size(L x W x H)	2.0 x 1.25 x 0.55 mm	1.2 x 1.2 x 0.55 mm	2.0 x 1.2 x 0.5 mm		40 x 6 x 0.9 mm	6 x 2.0 x 2.3mm
Read range*	10mm (500mW reader)	10mm (500mW reader)	9m (4W EIRP)	7m (4W EIRP)	2m (4W EIRP)	1.5m (4W EIRP)

*Reference

Note: Monza is a registered trademark of USA-based Impinj, Inc. in the United States and/or in other countries.

Note: ICODE and UCODE are registered trademarks of USA-based NXP Semiconductors N.V. in the United States and/or in other countries.

Femtet, CAE Software

User-Friendly Simulation Software Tailored for a Wide Range of Engineering Challenges

Femtet is a Multiphysics CAE software with multiple functionalities developed by Murata Manufacturing Co, Ltd.

Features

Femtet

Femtet is simulation software based on the finite element method. Its easy operation and comprehensive functionality make stress-free analysis environment possible.

Seven Solvers and Multiphysics

Solves seven major physical phenomena and multiphysics.

Efficient Designing

Capable of batch processing and parametric analysis that are essential for tuning and optimization of design.

VBA macro function is available to realize optimum design.

Comprehensive Functionalities

Equipped with comprehensive modules needed for modeling (CAD), meshing, simulations, and results display, it supports cost-effective simulation activities.

Database Management

Manages databases of materials, boundary conditions, body attributes, and models.

The database can be shared and used among a group of users.

CAD Translator

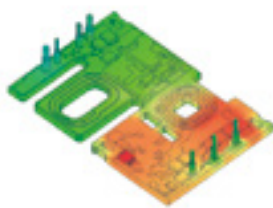
Lets you use the CAD data on hand right away by supporting various kinds of CAD formats to import and export.

Examples

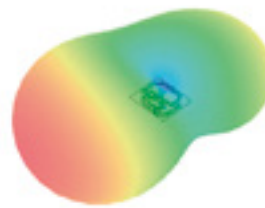
Mechanical Stress



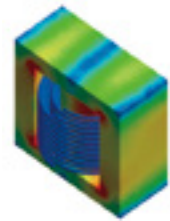
Thermal Conductivity



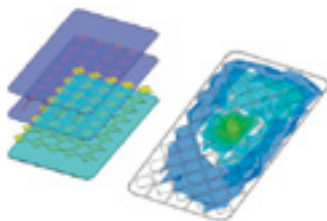
Electromagnetic Waves



Magnetic Fields



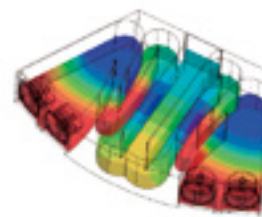
Electric Fields



Piezoelectricity



Acoustic Waves

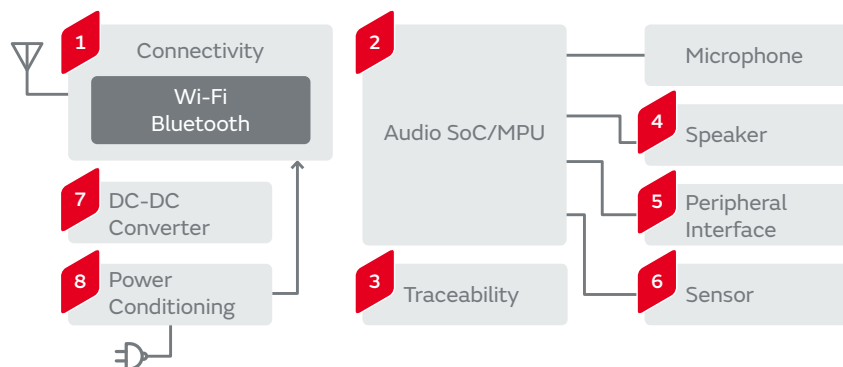


Murata Software

Application Guides



AI speaker (Voice recognition)



1 Connectivity

Microwave Coaxial Connectors with Switch



Chip Multilayer LC Filters
LFC Series



Chip Multilayer Hybrid Baluns
LDB/LDM Series



Chip Multilayer Diplexers
LFD Series



Chip Multilayer Hybrid Couplers
LDC/LDJ Series



Chip Inductors (Chip Coils)
LQP03HQ/LQW18AN Series



Crystal Units
XRC Series



2 Audio SoC/MPU

Crystal Units
XRC Series



MEMS Resonators
WMRAG Series



3 Traceability

RFID Tag
LXMS/LXTB Series



4 Speaker

Frequency Specified
Noise Filters
BLF02 Series



Chip LC Trap Filters
LQZ02HQ Series



5 Peripheral Interface

Chip Common Mode Choke Coils
DLMON/NFP0Q Series



8 Power Conditioning

Thermistors
NCP03/NXR Series



Chip Ferrite Beads
BLM18/21 Series



Chip Common Mode
Choke Coils
DLW5AT/5BT Series



6 Sensor

Pyroelectric Infrared Sensors
IRA-S Series



Ultrasonic Sensors
MA40 Series



7 DC-DC Converter

Power Inductors
DFEC Series



Power Inductors
DFES/LQH3NP Series



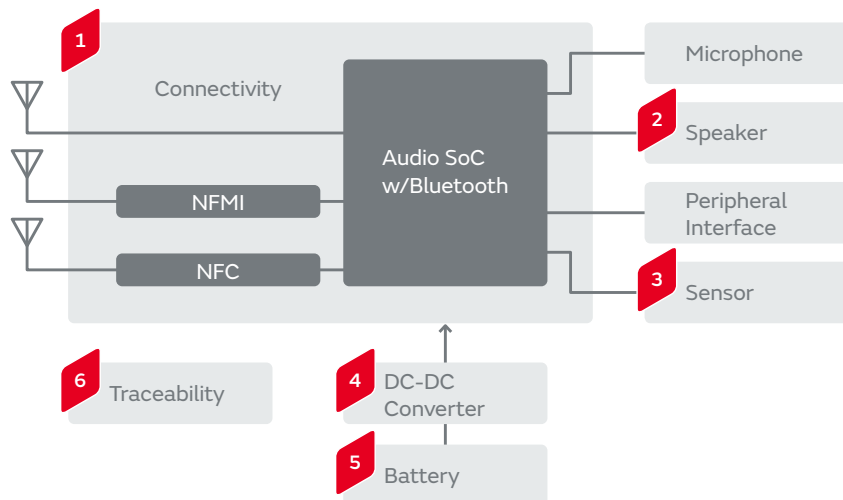
General
Purpose

Chip Multilayer Ceramic Capacitors for General Purpose

GRM Series

High Frequency Filter Circuit/Coupling/Decoupling/For Step-up

Hearable



1 Connectivity

RF Inductors
LQP02HQ/LQW15AN Series



Microwave Coaxial Cable Connectors
Microwave Coaxial Connectors with Switch



Chip Multilayer LC Filters
LF Series



Chip Multilayer Hybrid Baluns
LDB/LDM Series



Chip Multilayer Diplexers
LFD Series



Chip Multilayer Hybrid Couplers
LDC/LDJ Series



Chip LC Trap Filters
LQZ02HQ Series



Frequency Specified Noise Filters
BLF02RD Series



NFC Antennas
FLAN Series



Crystal Units
XRC Series



MEMS Resonators
WMRAG Series



2 Speaker

Chip LC Trap Filters
LQZ02HQ Series



Frequency Specified Noise Filters
BLF02 Series



3 Sensor

Thermistors
NCP03/FTN Series



4 DC-DC Converter

Power Inductors
DFE18SAN Series



5 Battery

Thermistors
NCP03/FTN Series



6 Traceability

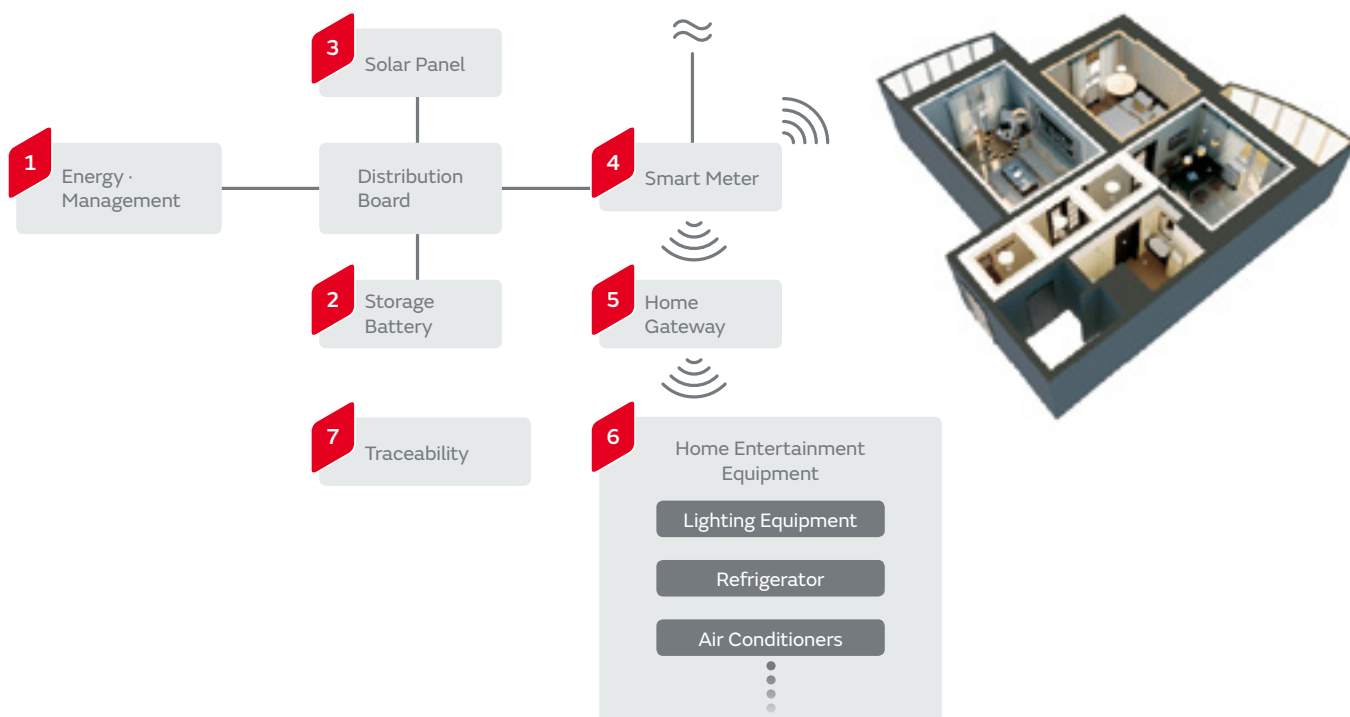
RFID Tag
LXMS/LXTB Series



General
Purpose

Chip Multilayer Ceramic Capacitors for General Purpose GRM Series High Frequency Filter Circuit/Coupling/Decoupling/For Step-up

HEMS



1 Energy · Management

Ceramic Resonators CERALOCK CST Series 	Crystal Units XRC Series 
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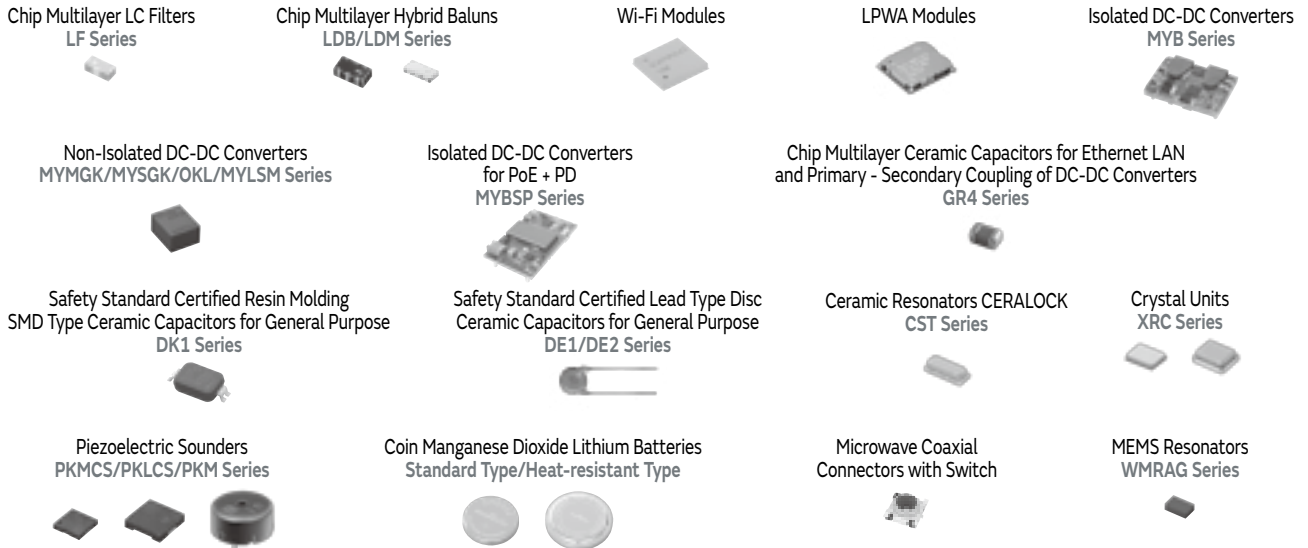
2 Storage Battery

Thermistors PRF/PRG/PTG/NCU Series 	Isolated DC-DC Converters MYB Series 	
Non-Isolated DC-DC Converters MYMGK/MYSGK/OKL/MYLSM Series 	Chip Multilayer Ceramic Capacitors for General Purpose GR/GA Series 	
Safety Standard Certified Resin Molding SMD Type Ceramic Capacitors for General Purpose DK1 Series 	Safety Standard Certified Lead Type Disc Ceramic Capacitors for General Purpose DE1/DE2 Series 	
Energy Storage Module Model IJ1101M Series 	BMU (Battery Management Unit) IJ8101C Series 	BMU-HUB IJ1101K Series 

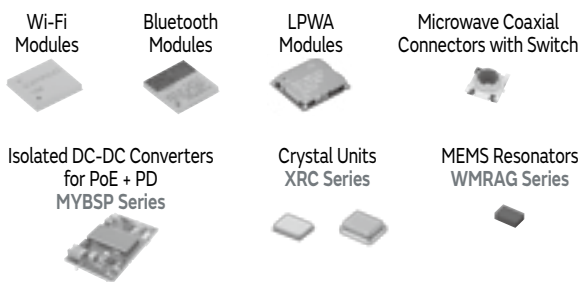
3 Solar Panel

Isolated DC-DC Converters MYB Series 
Non-Isolated DC-DC Converters MYMGK/MYSGK/OKL/MYLSM Series 
Chip Multilayer Ceramic Capacitors for General Purpose GR/GA Series 

4 Smart Meter



5 Home Gateway



6 Home Entertainment Equipment

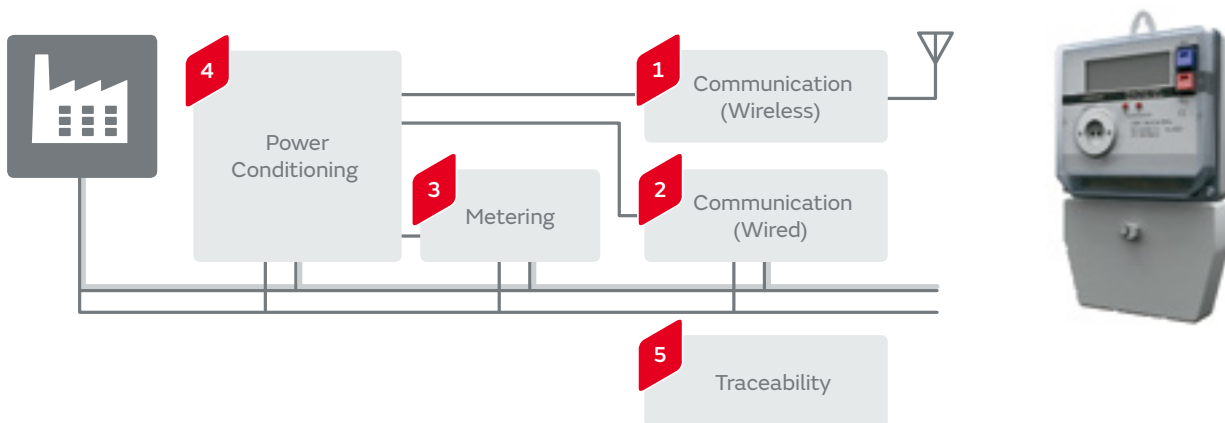


7 Traceability

RFID Tag
LXMS/LXTB Series

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

Smartmeter



1 Communication (Wireless)

Wi-Fi Modules	LPWA Modules	Chip Multilayer LC Filters LF Series	Chip Multilayer Hybrid Baluns LDB/LDM Series	Microwave Coaxial Connectors with Switch
ESD Protection Devices LXES Series	Thermistors NCP/PRF/PRG/NCU Series	Crystal Units XRC Series	Chip Inductors (Chip Coils) LQW/LQP/LQG Series	MEMS Resonators WMRAG Series

2 Communication (Wired)

Chip Multilayer Ceramic Capacitors for General Purpose GR/GA Series	Safety Standard Certified Resin Molding SMD Type Ceramic Capacitors for General Purpose DK1 Series
Safety Standard Certified Lead Type Disc Ceramic Capacitors for General Purpose DE1/DE2 Series	Leaded MLCC for General Purpose RDE Series
Thermistors NCP/PRF/PRG/NCU Series	Ceramic Resonators CERALOCK CST Series
Crystal Units XRC Series	ESD Protection Devices LXES Series

3 Metering

Chip Common Mode Choke Coils/ Common Mode Noise Filters DLW/DLP/NFP Series	Thermistors NCP/PRF/PRG/NCU Series
Ceramic Resonators CERALOCK CST Series	Crystal Units XRC Series
Piezoelectric Sounders PKMCS/PKLCSS/PKM Series	Magnetic Sensors (AMR Sensors) MR Series
MEMS Resonators WMRAG Series	

4 Power Conditioning

Non-Isolated
DC-DC Converters
MYMGK/MYSGK/
OKL/MYSLM Series



Isolated DC-DC Converters
for PoE + PD
MYBSP Series



Chip Multilayer
Ceramic Capacitors
for General Purpose
GR/GA Series



Safety Standard Certified Resin
Molding SMD Type Ceramic
Capacitors for General Purpose
DK1 Series



Safety Standard Certified Lead Type Disc
Ceramic Capacitors for General Purpose
DE1/DE2 Series



Leaded MLCC
for General Purpose
RDE Series



Chip Inductors (Chip Coils)
LQH Series



Thermistors
NCP/PRF/PRG/NCU Series



Polymer Aluminum
Electrolytic Capacitors
ECAS/ECNS Series



Coin Manganese Dioxide Lithium Batteries
Standard Type/Heat-resistant Type



5 Traceability

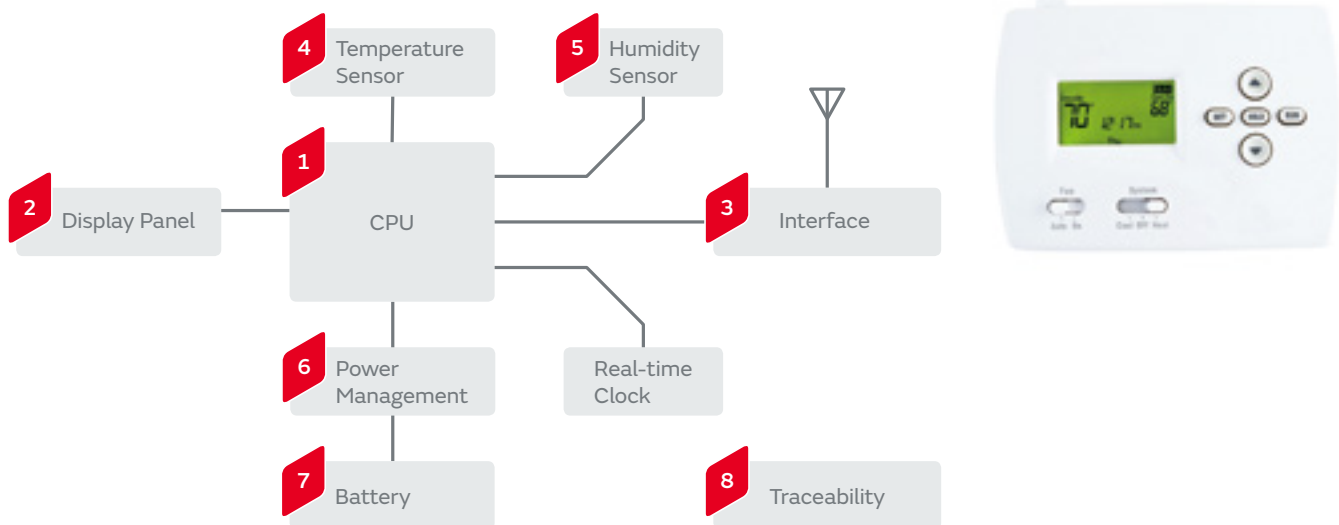
RFID Tag
LXMS/LXTB Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

Thermostat



1 CPU

Low ESL Chip Multilayer Ceramic Capacitors for General Purpose LLL/LLA/LLM Series	Polymer Aluminum Electrolytic Capacitors ECAS/ECNS Series	Ceramic Resonators CERALOCK CST Series
Crystal Units XRC Series	Thermistors NCP/PRF Series	MEMS Resonators WMRAG Series

2 Display Panel

Metal Terminal Type Multilayer Ceramic Capacitors for General Purpose KRM Series	Polymer Aluminum Electrolytic Capacitors ECAS/ECNS Series
Ceramic Resonators CERALOCK CST Series	Piezoelectric Sounders PKMCS/PKLCS/PKM Series
	Thermistors NCP/PRF Series

3 Interface

Bluetooth Modules	LPWA Modules	Wi-Fi Modules
Crystal Units XRC Series	Ceramic Resonators CERALOCK CST Series	Chip Inductors (Chip Coils) LQM/LQH/LQB Series
ESD Protection Devices LXES Series	Microwave Coaxial Connectors with Switch	MEMS Resonators WMRAG Series

5 Humidity Sensor

Ceramic Resonators CERALOCK CST Series	Thermistors NCP/PRF/PRG/PTG Series

4 Temperature Sensor

Ceramic Resonators CERALOCK CST Series	Thermistors NCP/PRF/PRG/PTG Series

6 Power Management

Chip Multilayer Ceramic Capacitors for General Purpose GR/GA Series	Safety Standard Certified Resin Molding SMD Type Ceramic Capacitors for General Purpose DK1 Series
	Safety Standard Certified Lead Type Disc Ceramic Capacitors for General Purpose DE1/DE2 Series
Thermistors NCP/PRF/PRG Series	Ceramic Resonators CERALOCK CST Series

7

Battery

Thermistors
NCP/PRF/PRG Series



8

Traceability

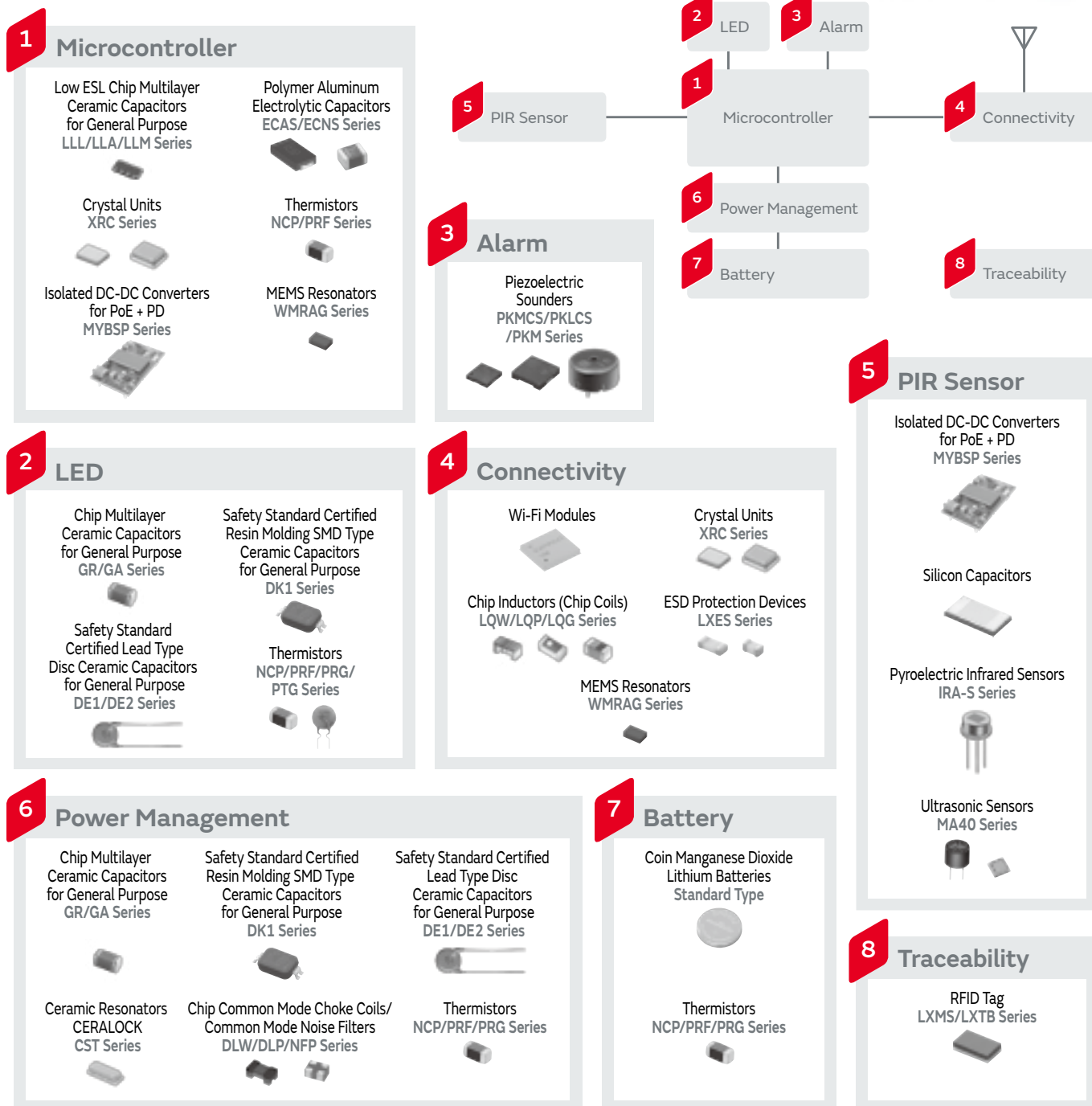
RFID Tag
LXMS/LXTB Series



General Purpose

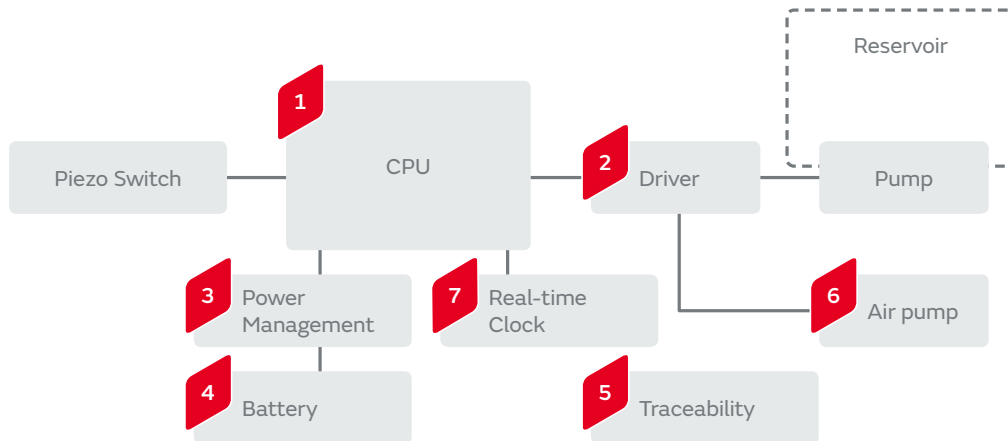
Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

Human Detection



Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

Air Dispenser



1 CPU

Low ESL Chip Multilayer Ceramic Capacitors for General Purpose
LLL/LLA/LLM Series



Polymer Aluminum Electrolytic Capacitors
ECAS/ECNS Series



Ceramic Resonators
CERALOCK CST Series



Crystal Units
XRC Series



Thermistors
NCP/PRF Series



2 Driver

Thermistors
NCP/NXRT/PRF Series



3 Power Management

Chip Multilayer Ceramic Capacitors for General Purpose
GR/GA Series



Safety Standard Certified Resin Molding SMD Type Ceramic Capacitors for General Purpose
DK1 Series



Safety Standard Certified Lead Type Disc Ceramic Capacitors for General Purpose
DE1/DE2 Series



Ceramic Resonators CERALOCK
CST Series



Thermistors
NCP/PRF Series



4 Battery

Thermistors
NXR/PRF/PRG Series



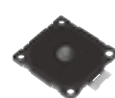
5 Traceability

RFID Tag
LXMS/LXTB Series



6 Air pump

Microblowers



7 Real-time Clock

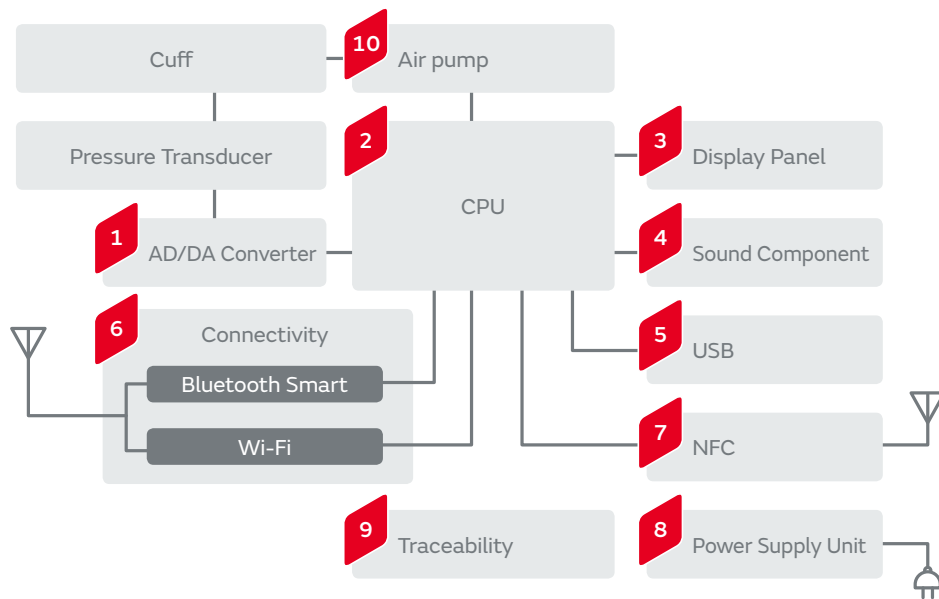
MEMS Resonators
WMRAG Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

Blood Pressure Monitor



1 AD/DA Converter

Chip Ferrite Beads
BLM Series

Thermistors
NCP Series



2 CPU

Ceramic Resonators
CERALOCK
CST Series

Thermistors
NCP/NXR Series



4 Sound Component

Piezoelectric Sounders
PKMCS/PKLCS/PKM Series



3 Display Panel

3 Terminals Low ESL Chip
Multilayer Ceramic Capacitors
for General Purpose
NFM Series

Chip Ferrite Beads
BLM Series

Ceramic Resonators
CERALOCK
CST Series

Crystal Units
XRC Series

Thermistors
NCP Series



5 USB

Ceramic Resonators
CERALOCK
CST Series

Crystal Units
XRC Series

ESD Protection Devices
LXES Series

Thermistors
PRG Series



6 Connectivity

ESD Protection Devices
LXES Series

Bluetooth Smart Modules
LBCA/LBMA Series

Wi-Fi Modules

Crystal Units
XRC Series

Thermistors
PRG Series

MEMS Resonators
WMRAG Series



7 NFC

NFC Antennas
FLAN Series

Crystal Units
XRC Series

Chip Ferrite Beads
BLM Series

Chip Inductors (Chip Coils)
LQW18C/LQM18J Series

ESD Protection Devices
LXES Series



8 Power Supply Unit

Thermistors
NCP Series

Thermistors
PRF/PRG Series

Coin Manganese Dioxide Lithium Batteries
Standard Type

Isolated DC-DC Converters for PoE + PD
MYBSP Series

Non-Isolated DC-DC Converters
MYMGK/MYSGK/
OKL/MYLSM Series



9

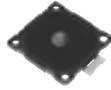
Traceability

RFID Tag
LXMS/LXTB Series

10

Air pump

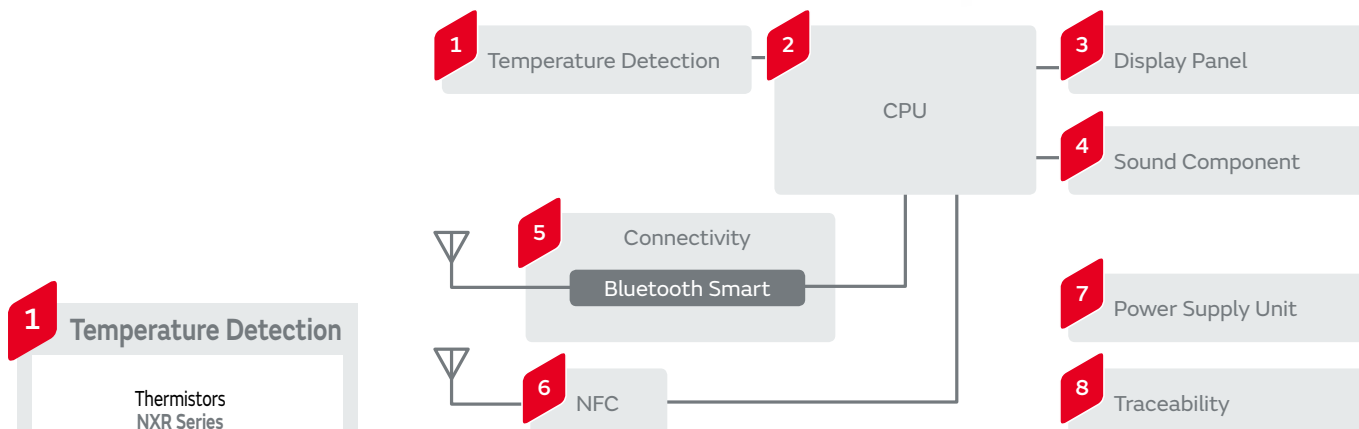
Microblowers



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

Thermometer



1 Temperature Detection

Thermistors
NXR Series

2 CPU

Ceramic Resonators CERALOCK
CST Series

3 Display Panel

Thermistors
NCP Series

4 Sound Component

Piezoelectric Sounders
PKLCS/PKMCS Series

5 Connectivity

Bluetooth Modules
LBCA/LBMA Series

Crystal Units
XRC Series

MEMS Resonators
WMRAG Series

6 NFC

NFC Antennas
FLAN Series

Crystal Units
XRC Series

Chip Ferrite Beads
BLM Series

Chip Inductors (Chip Coils)
LQW18C/LQM18J Series

ESD Protection Devices
LXES Series

7 Power Supply Unit

Coin Manganese Dioxide
Lithium Batteries
Standard Type

Alkaline Manganese
Batteries

8 Traceability

RFID Tag
LXMS/LXTB Series

General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

Blood Glucose Meter



1 AD/DA Converter

Chip Ferrite Beads
BLM Series

Thermistors
NCP Series

2 CPU

Ceramic Resonators CERALOCK
CST Series

Thermistors
NCP/NXR Series

4 Sound Component

Piezoelectric Sounders
PKLCS/PKMC5 Series

6 Connectivity

Bluetooth Smart Modules
LBGA/LBMA Series

Wi-Fi Modules

Crystal Units
XRC Series

Thermistors
PRG Series

MEMS Resonators
WMRAG Series

General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose

High Q Chip Multilayer Ceramic Capacitors for General Purpose

Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose

3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose

Polymer Aluminum Electrolytic Capacitors

Chip Inductors (Chip Coils)

Chip Inductors (Chip Coils)

Chip Ferrite Beads

Feed Through Chip EMI Filters

Chip Common Mode Choke Coils/Common Mode Noise Filters

GRM Series

GJM Series

GRJ Series

NFM Series

ECAS/ECNS Series

LQW/LQP/LQG Series

LQM/LQH/DFE Series

BLM/NFZ Series

NFE Series

DLW/DLP/NFP Series

High Frequency Filter Circuit/Coupling/Decoupling/For Step-up

High Frequency Filter Circuit

Coupling/Decoupling/For Step-up

Noise Suppression

Smoothing/Transient Backup

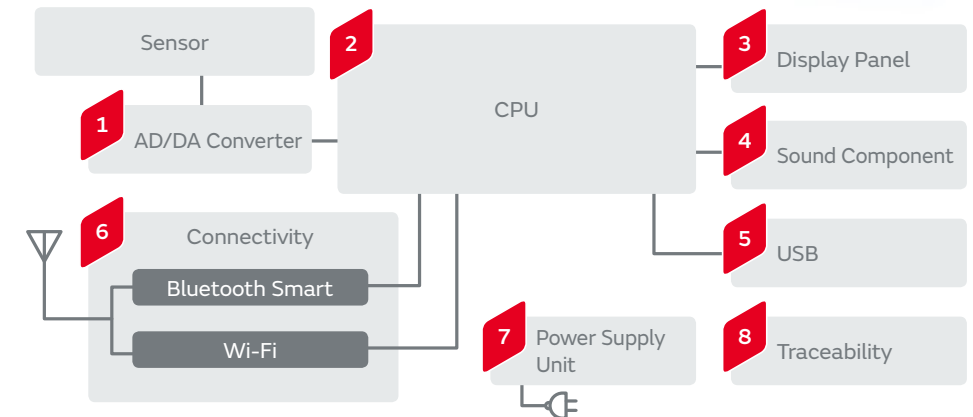
High Frequency Circuit-Impedance Matching/Resonance

Voltage Conversion

Noise Suppression

Noise Suppression

Noise Suppression



3 Display Panel

3 Terminals Low ESL Chip
Multilayer Ceramic Capacitors
for General Purpose
NFM Series

Chip Ferrite Beads
BLM Series

Ceramic Resonators
CERALOCK
CST Series

Crystal Units
XRC Series

Thermistors
NCP Series

5 USB

Ceramic Resonators CERALOCK
CST Series

Crystal Units
XRC Series

Thermistors
PRG Series

7 Power Supply Unit

Coin Manganese Dioxide
Lithium Batteries
Standard Type

Isolated DC-DC Converters
for PoE + PD
MYBSP Series

Non-Isolated
DC-DC Converters
MYMGK/MYSGK/
OKL/MYLSM Series

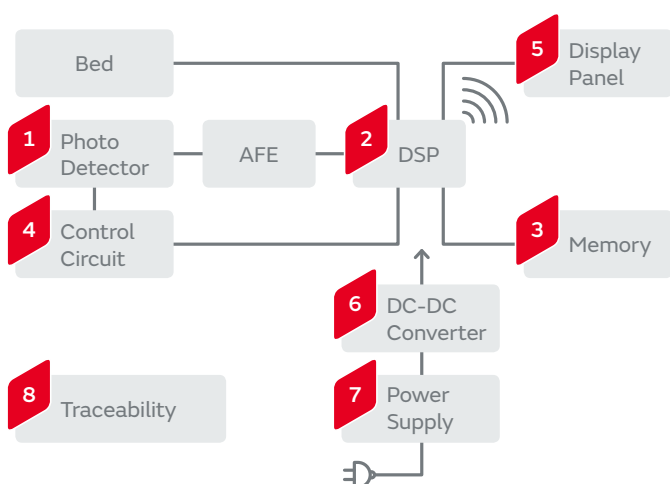
Thermistors
NCP Series

Thermistors
PRF/PRG Series

8 Traceability

RFID Tag
LXMS/LXTB Series

Diagnostic Imaging Apparatus



1 Photo Detector

Thermistors
NCP/PRF Series



2 DSP

Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



3 Memory

Isolated
DC-DC Converters
MYB Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/
OKL/MYLSM Series



4 Control Circuit

Isolated DC-DC Converters
MYB Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/MYLSM Series



Ceramic Resonators CERALOCK
CST Series



5 Display Panel

Metal Terminal Type Multilayer Ceramic Capacitors
for General Purpose
KRM Series



Ceramic Resonators
CERALOCK
CST Series



Piezoelectric Sounders
PKMCS/PKLCS/PKM Series



Isolated DC-DC Converters
for PoE + PD
MYBSP Series



Thermistors
PRF/PRG Series



6 DC-DC Converter

Metal Terminal Type Multilayer Ceramic Capacitors
for General Purpose
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS/ECNS Series



Thermistors
NCP/PRF Series



7 Power Supply

Chip Multilayer Ceramic Capacitors for General Purpose
GR/GA Series



Safety Standard Certified Resin Molding SMD Type Ceramic Capacitors for General Purpose
DK1 Series



Safety Standard Certified Lead Type Disc Ceramic Capacitors for General Purpose
DE1/DE2 Series



Ceramic Resonators CERALOCK
CST Series



Thermistors
NCP/PRF Series



8 Traceability

RFID Tag
LXMS/LXTB Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

Automotive



Powertrain/Safety

1 ECU

2 AT

3 Auxilliary Motors

4 TPMS

5 ABS/ESC

6 Headlamp

7 EPS

8 IMU

9 Fuel Injection System

1 ECU

Gyro Sensors
SCC Series



Metal Terminal Type
Multilayer Ceramic Capacitors
for Automotive
KCM Series



Chip Multilayer Ceramic
Capacitors for Automotive
GCM Series



Soft Termination Chip
Multilayer Ceramic Capacitors
for Automotive
GCJ Series



AgPd Termination Conductive
Glue Mounting Chip Multilayer
Ceramic Capacitors for Automotive
GCG Series



Ni Plating + Pd Plating Termination
Conductive Glue Mounting Chip Multilayer
Ceramic Capacitors for Automotive
GCB Series



150°C/175°C/200°C Operation
Leaded MLCC for Automotive
RH Series



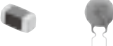
Ceramic Resonators
CERALOCK
CST Series



Crystal Units
XRC Series



Thermistors
PRF/PTG/NCU Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



High Reliability Common Mode Choke Coils
DLW31SH/DLW32SH/
DLW43SH/DLW43MH Series



Silicon Capacitors



2 AT

Accelerometers
SCA Series



Metal Terminal Type
Multilayer Ceramic Capacitors
for Automotive
KCM Series



Ceramic Resonators
CERALOCK
CST Series



Crystal Units
XRC Series



Thermistors
PRF/PTG/NCU Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



3 Auxiliary Motors

Metal Terminal Type
Multilayer Ceramic Capacitors
for Automotive
KCM Series



150°C/175°C/200°C Operation
Leaded MLCC for Automotive
RH Series



Ceramic Resonators
CERALOCK
CST Series



Large-current
Common Mode Choke Coils
PLT10HH/PLT5BP Series



Thermistors
PRF/PTG/NCU Series



Crystal Units
XRC Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



4 TPMS

Shock Sensors
For Tire Pressure Monitoring
System, PKGS Series



Ceramic Filters CERAFIL
SFEFC Series



Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



Pressure Sensor Elements
SCB10H Series



Thermistors
PRF/NCU Series



Antenna Coil
SA3M08 Series



Coin Manganese Dioxide Lithium Batteries
Heat-resistant Type



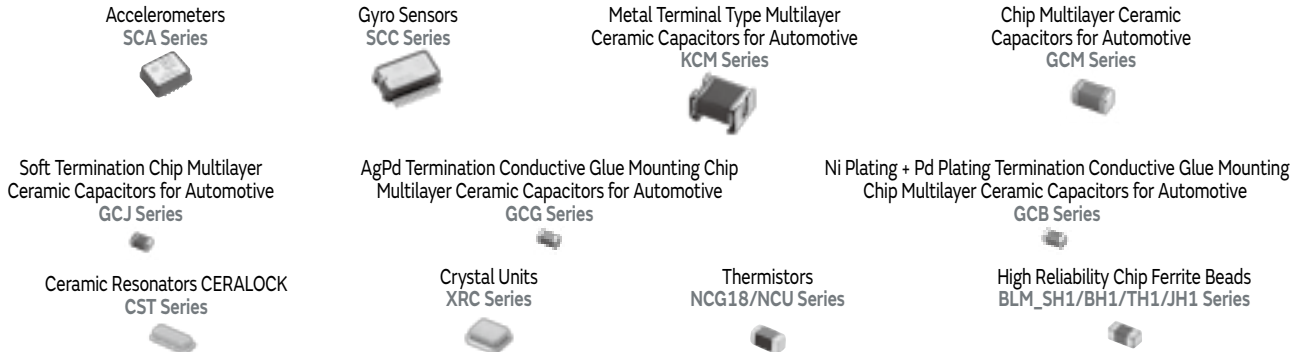
High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



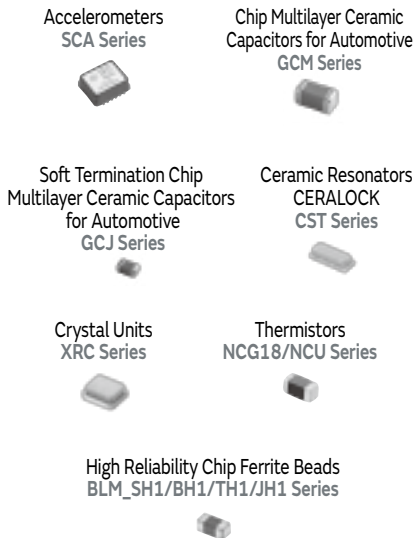
High Reliability Chip Inductors
LQG15HH Series



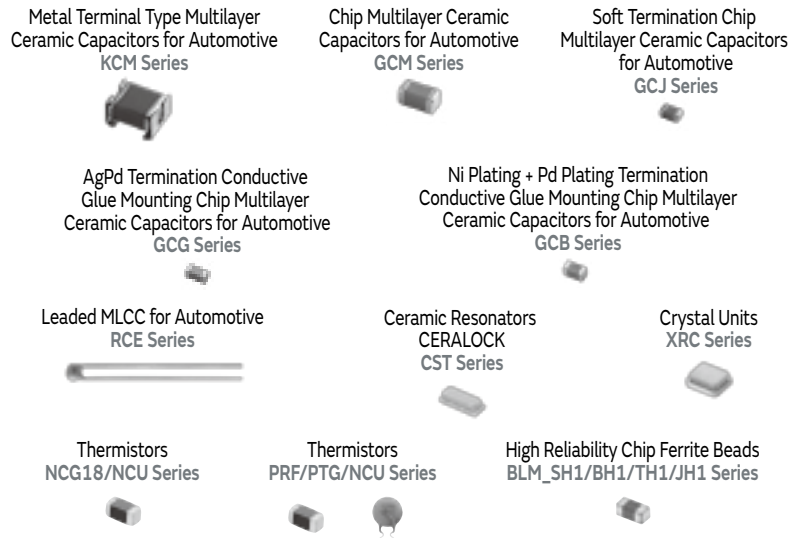
5 ABS/ESC



6 Headlamp



7 EPS



8 IMU



9 Fuel Injection System



General Purpose (High Reliability)	Chip Multilayer Ceramic Capacitors for Automotive	GCM Series	Coupling/Decoupling	150°C
	Ni Plating + Pd Plating Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive	GCB Series	Coupling/Decoupling	125°C
	Leaded MLCC for Automotive	RCE Series	Noise Suppression/Decoupling	125°C
	150°C/175°C/200°C Operation Leaded MLCC for Automotive	RH Series	Noise Suppression/Decoupling	150°C 175°C 200°C
	3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for Automotive/Feed Through Noise Filters	NFM_H/NFE_H Series	Noise Suppression	125°C
	Chip Inductors (Chip Coils)	LQH32PH/LQH44PH/LQH43PH/LQH5BPH Series	Voltage Conversion	125°C
	Chip Inductors (Chip Coils)	LQG15HH Series	Impedance Matching/Choke	125°C
	Chip Ferrite Beads	BLM_SH/BLM_BH/BLE_SH Series	Noise Suppression	125°C
	Chip Common Mode Choke Coils	DLW31SH/DLW32SH/DLW43SH/DLW43MH/DLW5ATH/DLW5BTH Series	Common Mode Noise Suppression	125°C

125°C 125°C max. 150°C 150°C max. 175°C 175°C max. 200°C 200°C max.



HEV/PHEV/EV

1

Charger

2

BMS

3

Electrically-Driven Compressor

4

Electric Pump

5

Inverter

6

DC-DC Converter

1 Charger

Metal Terminal Type Multilayer Ceramic Capacitors for Automotive KCM Series



Chip Multilayer Ceramic Capacitors for Automotive GCM Series



Soft Termination Chip Multilayer Ceramic Capacitors for Automotive GCJ Series



Safety Standard Certified Lead Type Disc Ceramic Capacitors for Automotive DE6 Series



High Temperature Film Capacitors for Automotive FH Series



Ceramic Resonators CERALOCK CST Series



Crystal Units XRC Series



Large-current Common Mode Choke Coils PLT10HH/PLT5BP Series



Thermistors PRF/PTG/NCU Series



High Reliability Chip Ferrite Beads BLM_SH1/BH1/TH1/JH1 Series



2 BMS

Metal Terminal Type Multilayer Ceramic Capacitors for Automotive KCM Series



Chip Multilayer Ceramic Capacitors for Automotive GCM Series



Soft Termination Chip Multilayer Ceramic Capacitors for Automotive GCJ Series



AgPd Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive GCG Series



Ni Plating + Pd Plating Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive GCB Series



Ceramic Resonators CERALOCK CST Series



Crystal Units XRC Series



Thermistors PRF/PTG/NCU Series



High Reliability Chip Ferrite Beads BLM_SH1/BH1/TH1/JH1 Series



3 Electrically-Driven Compressor

Metal Terminal Type Multilayer Ceramic Capacitors for Automotive KCM Series



Chip Multilayer Ceramic Capacitors for Automotive GCM Series



Soft Termination Chip Multilayer Ceramic Capacitors for Automotive GCJ Series



AgPd Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive GCG Series



Ni Plating + Pd Plating Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive GCB Series



Thermistors PRF/PTG/NCU Series



High Temperature Film Capacitors for Automotive FH Series



Ceramic Resonators CERALOCK CST Series



Crystal Units XRC Series



High Reliability Chip Ferrite Beads BLM_SH1/BH1/TH1/JH1 Series



4 Electric Pump

Metal Terminal Type Multilayer Ceramic Capacitors for Automotive KCM Series



Chip Multilayer Ceramic Capacitors for Automotive GCM Series



Soft Termination Chip Multilayer Ceramic Capacitors for Automotive GCJ Series



AgPd Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive GCG Series



Large-current Common Mode Choke Coils PLT10HH/PLT5BP Series



Thermistors PRF/PTG/NCU Series



High Temperature Film Capacitors for Automotive FH Series



Ceramic Resonators CERALOCK CST Series



Crystal Units XRC Series



High Reliability Chip Ferrite Beads BLM_SH1/BH1/TH1/JH1 Series



5 Inverter

Metal Terminal Type Multilayer Ceramic Capacitors for Automotive
KCM Series



Chip Multilayer Ceramic Capacitors for Automotive
GCM Series



Soft Termination Chip Multilayer Ceramic Capacitors for Automotive
GCJ Series



AgPd Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive
GCG Series



Ni Plating + Pd Plating Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive
GCB Series



150°C/175°C/200°C Operation Leaded MLCC for Automotive
RH Series



Large-current Common Mode Choke Coils
PLT10HH/PLT5BP Series



Thermistors
PRF/PTG/NCU Series



High Temperature Film Capacitors for Automotive
FH Series



Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



6 DC-DC Converter

Metal Terminal Type Multilayer Ceramic Capacitors for Automotive
KCM Series



Chip Multilayer Ceramic Capacitors for Automotive
GCM Series



Soft Termination Chip Multilayer Ceramic Capacitors for Automotive
GCJ Series



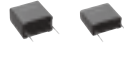
AgPd Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive
GCG Series



Ni Plating + Pd Plating Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive
GCB Series



High Temperature Film Capacitors for Automotive
FH Series



Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



Large-current Common Mode Choke Coils
PLT10HH/PLT5BP Series



Thermistors
PRF/PTG/NCU Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



General Purpose

AEC-Q 200 Compliant Chip Multilayer Ceramic Capacitors for Infotainment
Chip Inductors (Chip Coils)
Chip Inductors (Chip Coils)
Chip Ferrite Beads
EMI Suppression Filters EMIFIL
Chip Common Mode Choke Coils

GRT Series
LQW Series
LQM/LQH/DFE Series
BLM/NFZ Series
NFL/NFE Series
DLW Series

Coupling/Decoupling
Matching/High Frequency Choke
Voltage Conversion
Noise Suppression
Noise Suppression
Common Mode Noise Suppression

General Purpose (High Reliability)

Chip Multilayer Ceramic Capacitors for Automotive
Ni Plating + Pd Plating Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive
Leaded MLCC for Automotive
150°C/175°C/200°C Operation Leaded MLCC for Automotive
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for Automotive/Feed Through Noise Filters
Chip Inductors (Chip Coils)
Chip Inductors (Chip Coils)
Chip Ferrite Beads
Chip Common Mode Choke Coils

GCM Series
GCB Series
RCE Series
RH Series
NFM_H/NFE_H Series
LQH32PH/LQH44PH/LQH43PH/LQH5BPH Series
LQG15HH Series
BLM_SH/BLM_BH/BLM_SH Series
DLW31SH/DLW32SH/DLW43SH/DLW43MH/DLW5ATH/DLW5BTH Series

Coupling/Decoupling
Coupling/Decoupling
Noise Suppression/Decoupling
Noise Suppression/Decoupling
Noise Suppression
Voltage Conversion
Impedance Matching/Choke
Noise Suppression
Common Mode Noise Suppression

125°C 125°C max. 150°C 150°C max. 175°C 175°C max. 200°C 200°C max.

Information/Comfort/Accessory

1 Navigation/
Infotainment

2 Remote Keyless Entry

3 Meter/HUD

4 Power Seat/
Power Mirror

5 Parking Assist



1 Navigation/Infotainment

Accelerometers
SCA Series



Gyro Sensors
SCC Series



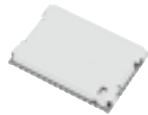
Ceramic Filters CERAFIL
SFECF Series



Piezoelectric Sounders
PKLCS/PKMCS Series



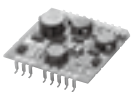
Bluetooth Modules



Wi-Fi Modules



DC-DC Converters



Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



Thermistors
PRF/PRG/PTG/NCU Series



Chip Multilayer Diplexers
LFD Series



Chip Multilayer LC Filters
LF Series



Chip Multilayer Hybrid Baluns
LDB/LDM Series



Chip Multilayer Hybrid Couplers
LDC/LDJ Series



Chip Ferrite Beads
BLM Series



2 Remote Keyless Entry

Ceramic Filters CERAFIL
SFECF Series



Ceramic Resonators CERALOCK
CST Series



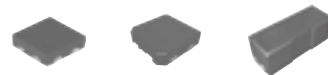
Crystal Units
XRC Series



Piezoelectric Sounders
PKLCS/PKMCS Series



Antenna Coils
SA3D14/SA3D12/SA3M08 Series



Coin Manganese Dioxide Lithium Batteries
Standard Type



Chip Inductors (Chip Coils)
LQW/LQP/LQG Series

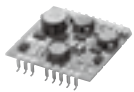


Chip Ferrite Beads
BLM Series



3 Meter/HUD

DC-DC Converters



Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



Thermistors
PRF/PTG/NCU Series



Chip Ferrite Beads
BLM Series



Piezoelectric Sounders
PKLCS/PKMCS Series



4 Power Seat/Power Mirror

Piezoelectric Sounders
PKLCS/PKMCS Series



Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



Thermistors
PRF/PTG/NCU Series



Chip Ferrite Beads
BLM Series



5 Parking Assist

Gyro Sensors
SCC Series



Ultrasonic Sensors
MA58 Series



Piezoelectric Sounders
PKLCS/PKMCS Series



Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



Thermistors
PRF/PTG/NCU Series



Chip Ferrite Beads
BLM Series



General Purpose

AEC-Q 200 Compliant Chip Multilayer Ceramic Capacitors for Infotainment
Chip Inductors (Chip Coils)
Chip Inductors (Chip Coils)
Chip Ferrite Beads
EMI Suppression Filters EMIFIL
Chip Common Mode Choke Coils

GRT Series
LQW Series
LQM/LQH/DFE Series
BLM/NFZ Series
NFL/NFE Series
DLW Series

Coupling/Decoupling
Matching/High Frequency Choke
Voltage Conversion
Noise Suppression
Noise Suppression
Common Mode Noise Suppression

General Purpose (High Reliability)

Chip Multilayer Ceramic Capacitors for Automotive	GCM Series	Coupling/Decoupling	150°C
Ni Plating + Pd Plating Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive	GCB Series	Coupling/Decoupling	
Leaded MLCC for Automotive	RCE Series	Noise Suppression/Decoupling	125°C
150°C/175°C/200°C Operation Leaded MLCC for Automotive	RH Series	Noise Suppression/Decoupling	150°C 175°C 200°C
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for Automotive/Feed Through Noise Filters	NFM_H/NFE_H Series	Noise Suppression	125°C
Chip Inductors (Chip Coils)	LQH32PH/LQH44PH/LQH43PH/LQH5BPH Series	Voltage Conversion	125°C
Chip Inductors (Chip Coils)	LQG15HH Series	Impedance Matching/Choke	125°C
Chip Ferrite Beads	BLM_SH/BLM_BH/BLM_SH Series	Noise Suppression	125°C
Chip Common Mode Choke Coils	DLW31SH/DLW32SH/DLW43SH/DLW43MH/DLW5ATH/DLW5BTH Series	Common Mode Noise Suppression	125°C

125°C 125°C max. 150°C 150°C max. 175°C 175°C max. 200°C 200°C max.

Bike/EV Bike

Electromotive

1

Charger/Battery

2

Inverter

3

DC-DC Converter

Electric Installation

4

Accelerometer
for Fuel Cut

5

Headlamp

6

Fuel Injection System



1

Charger/Battery

Lithium Ion
Storage Modules



Metal Terminal Type Multilayer
Ceramic Capacitors for Automotive
KCM Series



Chip Multilayer Ceramic
Capacitors for Automotive
GCM Series



Soft Termination Chip Multilayer
Ceramic Capacitors for Automotive
GCJ Series



Safety Standard Certified
Lead Type Disc Ceramic
Capacitors for Automotive
DE6 Series



Ceramic Resonators
CERALOCK
CST Series



Crystal Units
XRC Series



Large-current Common Mode Choke Coils
PLT10HH/PLT5BP Series



Thermistors
PRF/PTG/NCU Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



2

Inverter

Chip Multilayer Ceramic
Capacitors for Automotive
GCM Series



Soft Termination Chip Multilayer
Ceramic Capacitors for Automotive
GCJ Series



AgPd Termination Conductive
Glue Mounting Chip Multilayer
Ceramic Capacitors for Automotive
GCG Series



Ni Plating + Pd Plating Termination
Conductive Glue Mounting Chip Multilayer
Ceramic Capacitors for Automotive
GCB Series



150°C/175°C/200°C Operation
Leaded MLCC for Automotive
RH Series



Large-current
Common Mode Choke Coils
PLT10HH/PLT5BP Series



Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



Thermistors
PRF/PTG/NCU Series



3

DC-DC Converter

DC-DC Converters
MYPMA Series



Metal Terminal Type Multilayer
Ceramic Capacitors for Automotive
KCM Series



Chip Multilayer Ceramic
Capacitors for Automotive
GCM Series



Soft Termination Chip Multilayer
Ceramic Capacitors for Automotive
GCJ Series



AgPd Termination Conductive
Glue Mounting Chip Multilayer
Ceramic Capacitors for Automotive
GCG Series



Ni Plating + Pd Plating Termination
Conductive Glue Mounting Chip Multilayer
Ceramic Capacitors for Automotive
GCB Series



Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



Large-current Common Mode Choke Coils
PLT10HH/PLT5BP Series



Thermistors
PRF/PTG/NCU Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



4 Accelerometer for Fuel Cut

Accelerometers SCA Series 	Gyro Sensors SCC Series 	Metal Terminal Type Multilayer Ceramic Capacitors for Automotive KCM Series 	Chip Multilayer Ceramic Capacitors for Automotive GCM Series 
Soft Termination Chip Multilayer Ceramic Capacitors for Automotive GCJ Series 	AgPd Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive GCG Series 	Ni Plating + Pd Plating Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive GCB Series 	
Ceramic Resonators CERALOCK CST Series 	Crystal Units XRC Series 	Thermistors NCG18/NCU Series 	High Reliability Chip Ferrite Beads BLM_SH1/BH1/TH1/JH1 Series 

5 Headlamp

Accelerometers SCA Series 	Gyro Sensors SCC Series 
Chip Multilayer Ceramic Capacitors for Automotive GCM Series 	Soft Termination Chip Multilayer Ceramic Capacitors for Automotive GCJ Series 
Ceramic Resonators CERALOCK CST Series 	Crystal Units XRC Series 
Thermistors NCG18/NCU Series 	High Reliability Chip Ferrite Beads BLM_SH1/BH1/TH1/JH1 Series 

6 Fuel Injection System

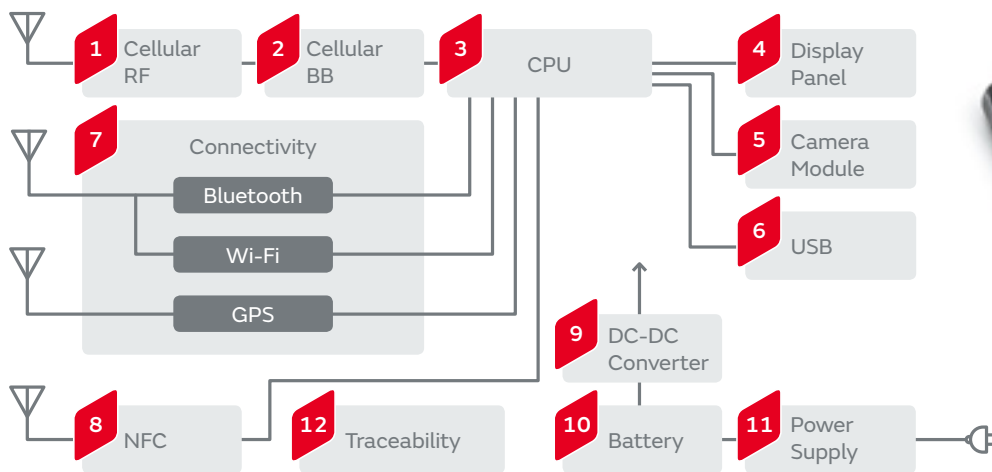
Metal Terminal Type Multilayer Ceramic Capacitors for Automotive KCM Series 	Chip Multilayer Ceramic Capacitors for Automotive GCM Series 
Soft Termination Chip Multilayer Ceramic Capacitors for Automotive GCJ Series 	AgPd Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive GCG Series 
Ni Plating + Pd Plating Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive GCB Series 	Ceramic Resonators CERALOCK CST Series 
Crystal Units XRC Series 	Thermistors PRF/PTG/NCU Series 
	High Reliability Chip Ferrite Beads BLM_SH1/BH1/TH1/JH1 Series 

General Purpose	AEC-Q 200 Compliant Chip Multilayer Ceramic Capacitors for Infotainment	GRT Series	Coupling/Decoupling
	Chip Inductors (Chip Coils)	LQW Series	Matching/High Frequency Choke
	Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
	Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
	EMI Suppression Filters EMIFIL	NFL/NFE Series	Noise Suppression
	Chip Common Mode Choke Coils	DLW Series	Common Mode Noise Suppression

General Purpose (High Reliability)	Chip Multilayer Ceramic Capacitors for Automotive	GCM Series	Coupling/Decoupling	150°C
	Ni Plating + Pd Plating Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive	GCB Series	Coupling/Decoupling	
	Leaded MLCC for Automotive	RCE Series	Noise Suppression/Decoupling	125°C
	150°C/175°C/200°C Operation Leaded MLCC for Automotive	RH Series	Noise Suppression/Decoupling	150°C 175°C 200°C
	3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for Automotive/Feed Through Noise Filters	NFM_H/NFE_H Series	Noise Suppression	125°C
	Chip Inductors (Chip Coils)	LQH32PH/LQH44PH/LQH43PH/LQH5BPH Series	Voltage Conversion	125°C
	Chip Inductors (Chip Coils)	LQG15HH Series	Impedance Matching/Choke	125°C
	Chip Ferrite Beads	BLM_SH/BLM_BH/BLE_SH Series	Noise Suppression	125°C
	Chip Common Mode Choke Coils	DLW31SH/DLW32SH/DLW43SH/DLW43MH/DLW5ATH/DLW5BTH Series	Common Mode Noise Suppression	125°C

125°C 125°C max. 150°C 150°C max. 175°C 175°C max. 200°C 200°C max.

Smart Phones



1 Cellular RF

- SAW Duplexers SAY Series
- SAW Filters SAF Series
- Chip Multilayer LC Filters LF Series
- Chip Multilayer Diplexers LFD Series
- Chip Multilayer Hybrid Baluns LDB/LDM Series
- Chip Multilayer Hybrid Dividers LDD Series
- Chip Multilayer Hybrid Couplers LDC/LDJ Series
- High-Frequency Matching Transformers SMST Series
- Microwave Coaxial Cable Connectors
- Microwave Coaxial Connectors with Switch
- Chip Inductors (Chip Coils) LQW/LQP Series
- ESD Protection Devices LXES Series
- Band-Selectable Phase Adjustment Device (B-SPADE)
- Thermistors NCP/PRF Series

2 Cellular BB

- 3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose NFM Series
- Chip Common Mode Choke Coils/ Common Mode Noise Filters DLW/DLP/NFP Series
- Frequency Specified Noise Filters BLF Series
- Chip LC Trap Filters LQZ02HQ Series
- Thermistors NCP/PRF Series

3 CPU

- Crystal Units XRC Series
- Chip Ferrite Beads BLM Series
- 3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose NFM Series
- Silicon Capacitors
- Thermistors NCP/PRF Series

4 Display Panel

- Ceramic Resonators CERALOCK CST Series
- EMI Suppression Filters EMIFIL NFA Series
- ESD Protection Devices LXES Series
- Chip Common Mode Choke Coils/ Common Mode Noise Filters DLW/DLP/NFP Series
- Thermistors NCP/PRF Series

5 Camera Module

- Chip Multilayer Ceramic Capacitors for Camera Flash Circuit Only GR7 Series
- Chip Ferrite Beads BLM Series
- ESD Protection Devices LXES Series
- Thermistors NCP/PRF Series

6 USB

Chip Common Mode Choke Coils/
Common Mode Noise Filters
DLW/DLP/NFP/DLM Series



Chip Ferrite Beads
BLM Series



ESD Protection Devices
LXES Series



Thermistors
NCP/PRF Series



7 Connectivity

Chip Multilayer Diplexers
LFD Series



Chip Multilayer Hybrid Couplers
LDC/LDJ Series



Bluetooth Modules



Wi-Fi Modules



Bluetooth - Wi-Fi Combo Modules



SAW Filters
SAF Series



Chip Multilayer LC Filters
LF Series



Chip Multilayer Hybrid Baluns
LDB/LDM Series



Microwave Coaxial Cable Connectors
Microwave Coaxial Connectors with Switch



ESD Protection Devices
LXES Series



Thermistors
NCP/PRF Series



Crystal Units
XRC Series



8 NFC

NFC Antennas
FLAN Series



Crystal Units
XRC Series



Chip Ferrite Beads
BLM Series



Chip Inductors (Chip Coils)
LQW18C/LQM18J Series



Variable Capacitors
LXRW Series



ESD Protection Devices
LXES Series



9 DC-DC Converter

Chip Multilayer Ceramic Capacitors
on Interposer Board for General Purpose
ZRB Series



Metal Terminal Type Multilayer Ceramic Capacitors
for General Purpose
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS/ECNS Series



Thermistors
NCP/PRF Series



10 Battery

Thermistors
NCP/PRF/PRG Series



12 Traceability

RFID Tag
LXMS/LXTB Series



11 Power Supply

Chip Multilayer
Ceramic Capacitors
for General Purpose
GR/GA Series



Safety Standard Certified Resin
Molding SMD Type Ceramic
Capacitors for General Purpose
DK1 Series



Safety Standard Certified Lead Type Disc
Ceramic Capacitors for General Purpose
DE1/DE2 Series



Chip Inductors (Chip Coils)
LQM/LQH/DFE Series



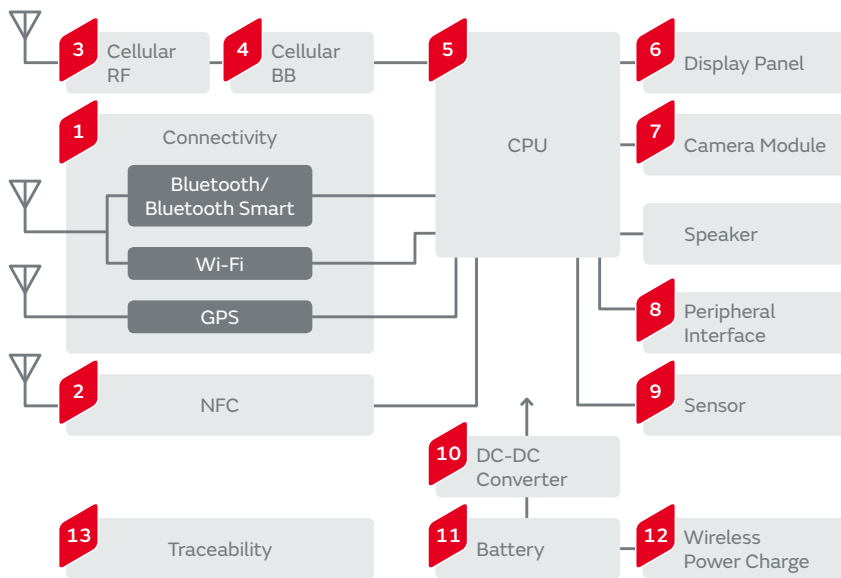
MEMS Resonators
WMRAG Series



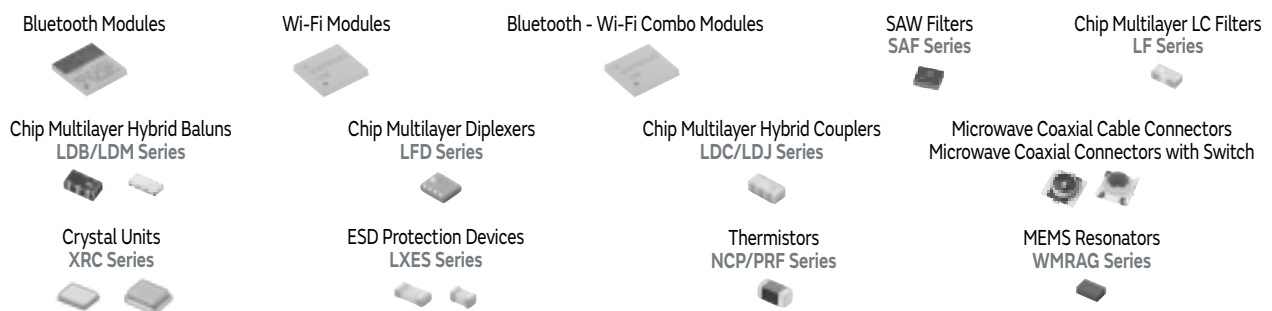
General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

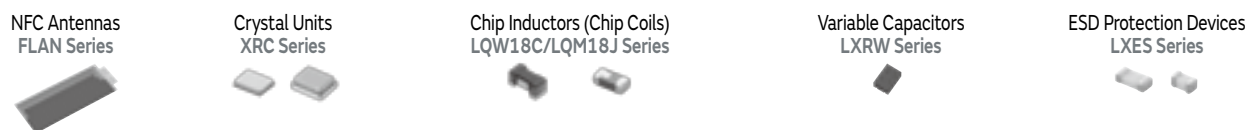
Wearable Devices



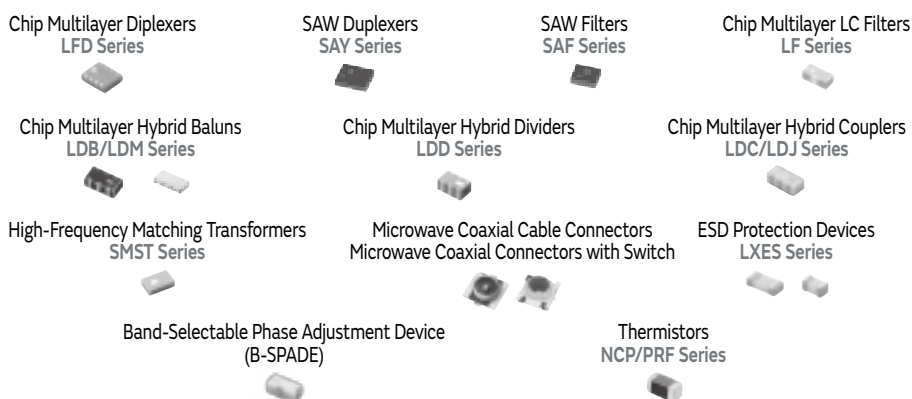
1 Connectivity



2 NFC



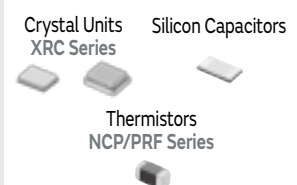
3 Cellular RF



4 Cellular BB



5 CPU



6 Display Panel

Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



ESD Protection Devices
LXES Series



Thermistors
NCP/PRF Series



7 Camera Module

Chip Multilayer Ceramic Capacitors
for Camera Flash Circuit Only
GR7 Series



ESD Protection Devices
LXES Series



Thermistors
NCP/PRF Series



8 Peripheral Interface

Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



Chip Common Mode Choke Coils/
Common Mode Noise Filters
DLW/DLP/NFP/DLM Series



ESD Protection Devices
LXES Series



Thermistors
NCP/PRF Series



9 Sensor

Thermistors
NCP/PRF Series



10 DC-DC Converter

Chip Multilayer Ceramic Capacitors
on Interposer Board
for General Purpose
ZRB Series



Metal Terminal Type
Multilayer Ceramic Capacitors
for General Purpose
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS/ECNS Series



Thermistors
NCP Series



11 Battery

Coin Manganese Dioxide
Lithium Batteries
Standard Type



Thermistors
NCP/PRF/PRG Series



12 Wireless Power Charge

LW Reversed Low ESL Chip
Multilayer Ceramic Capacitors
for General Purpose
LLL Series



Thermistors
NCP/PRF Series



13 Traceability

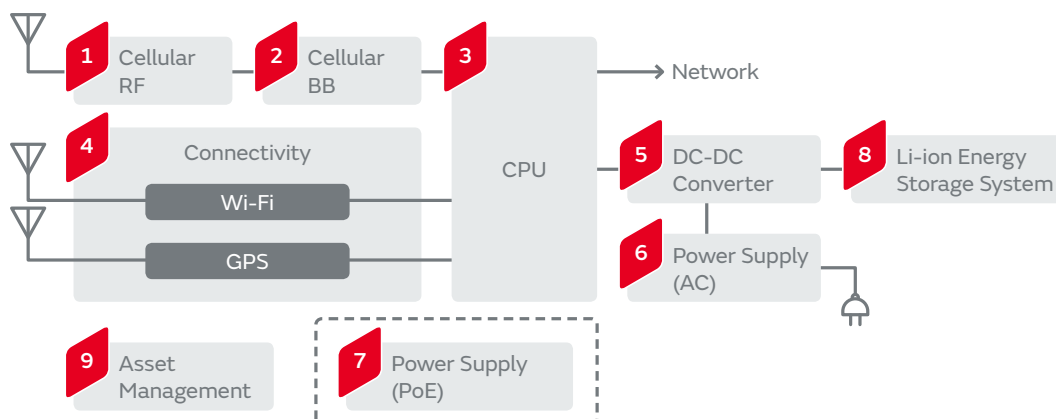
RFID Tag
LXMS/LXTB Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression
Piezoelectric Sounders	PKLCS/PKMCS Series	Sound Component

Base Stations



1 Cellular RF

Chip Multilayer Diplexers
LFD Series



Chip Multilayer LC Filters
LF Series



Chip Multilayer Hybrid Baluns
LDB/LDM Series



Chip Multilayer Hybrid Couplers
LDC/LDJ Series



Chip Inductors (Chip Coils)
LQW/LQP/LQG Series



ESD Protection Devices
LXES Series



Thermistors
PRF Series



Precision TCXO
XTCLH/XNCLH Series



Silicon Capacitors



Single-Layer Microchip Capacitors
CLB Series



Thin Film Circuit Substrates (RUSUB)
RU Series



MEMS Resonators
WMRAG Series



2 Cellular BB

3 Terminals Low ESL Chip
Multilayer Ceramic Capacitors
for General Purpose
NFM Series



Chip Common Mode Choke Coils/
Common Mode Noise Filters
DLW/DLP/NFP Series



Precision TCXO
XTCLH/XNCLH Series



Thermistors
PRF Series



3 CPU

Crystal Units
XRC Series



Chip Ferrite Beads
BLM Series



3 Terminals Low ESL Chip
Multilayer Ceramic Capacitors
for General Purpose
NFM Series



Thermistors
PRF Series



4 Connectivity

Wi-Fi Modules



Chip Multilayer LC Filters
LF Series



Chip Multilayer Hybrid Baluns
LDB/LDM Series



Chip Multilayer Diplexers
LFD Series



Chip Multilayer Hybrid Couplers
LDC/LDJ Series



ESD Protection Devices
LXES Series



Thermistors
PRF Series



Crystal Units
XRC Series



5 DC-DC Converter

Isolated DC-DC Converters
MYB Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/MYLSM Series



Metal Terminal Type Multilayer Ceramic Capacitors
for General Purpose
KRM Series



Polymer Aluminum Electrolytic Capacitors
ECAS/ECNS Series



Thermistors
PRF Series



6 Power Supply (AC)

Chip Multilayer
Ceramic Capacitors
for General Purpose
GR/GA Series



Safety Standard Certified Resin Molding
SMD Type Ceramic Capacitors
for General Purpose
DK1 Series



Safety Standard Certified Lead Type Disc
Ceramic Capacitors for General Purpose
DE1/DE2 Series



Chip Inductors (Chip Coils)
LQM/LQH/DFE Series



7 Power Supply (PoE)

Chip Multilayer
Ceramic Capacitors
for General Purpose
GR/GA Series



Metal Terminal Type
Multilayer Ceramic Capacitors
for General Purpose
KRM Series



Crystal Units
XRC Series



Chip Inductors (Chip Coils)
LQM/LQH/DFE Series



Isolated DC-DC Converters
for PoE + PD
MYBSP Series



8 Li-ion Energy Storage System

Energy Storage Module Model
IJ1101M Series



BMU (Battery Management Unit)
IJ8101C Series



BMU-HUB
IJ1101K Series



9 Asset Management

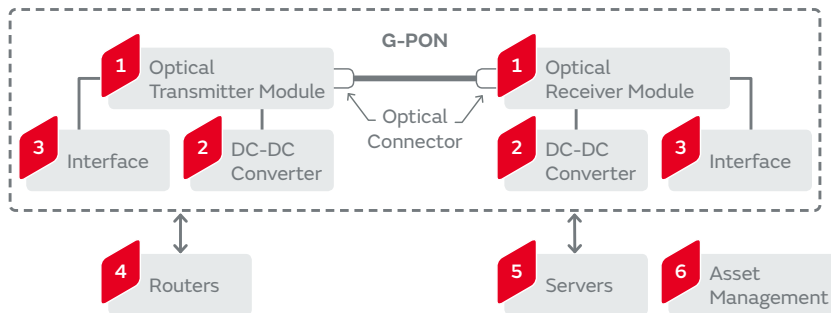
RFID Tag
LXTB Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression
Coin Manganese Dioxide Lithium Batteries	Standard Type/Heat-resistant Type	Battery Backup

G-PON



1 Optical Transmitter Module/Optical Receiver Module

Wire Bonding Mount Multilayer Microchip Capacitors for General Purpose
GMA Series



Single-Layer Microchip Capacitors
CLB Series



Wire Bonding/AuSn Soldering Mount Chip Multilayer Ceramic Capacitors for General Purpose
GMD Series



Thin Film Circuit Substrates (RUSUB)
RU Series



Silicon Capacitors



2 DC-DC Converter

Isolated DC-DC Converters
MYB Series



Isolated DC-DC Converters for PoE + PD
MYBSP Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/MYLSM Series



Polymer Aluminum Electrolytic Capacitors
ECAS/ECNS Series



Thermistors
PRF Series



3 Interface

Low ESL Chip Multilayer Ceramic Capacitors for General Purpose
LLL/LLA/LLM Series



Chip Common Mode Choke Coils/ Common Mode Noise Filters
DLW/DLP/NFP/DLM Series



ESD Protection Devices
LXES Series



4 Routers

Low ESL Chip Multilayer Ceramic Capacitors for General Purpose
LLL/LLA/LLM Series



Wire Bonding Mount Multilayer Microchip Capacitors for General Purpose
GMA Series



Crystal Units
XRC Series



Thin Film Circuit Substrates (RUSUB)
RU Series



Chip Multilayer Ceramic Capacitors for General Purpose
GR/GA Series



Wire Bonding/AuSn Soldering Mount Chip Multilayer Ceramic Capacitors for General Purpose
GMD Series



Single-Layer Microchip Capacitors
CLB Series



Precision TCXO
XTCLH/XNCLH Series



5 Servers

Polymer Aluminum Electrolytic Capacitors
ECAS/ECNS Series



Crystal Units
XRC Series



6 Asset Management

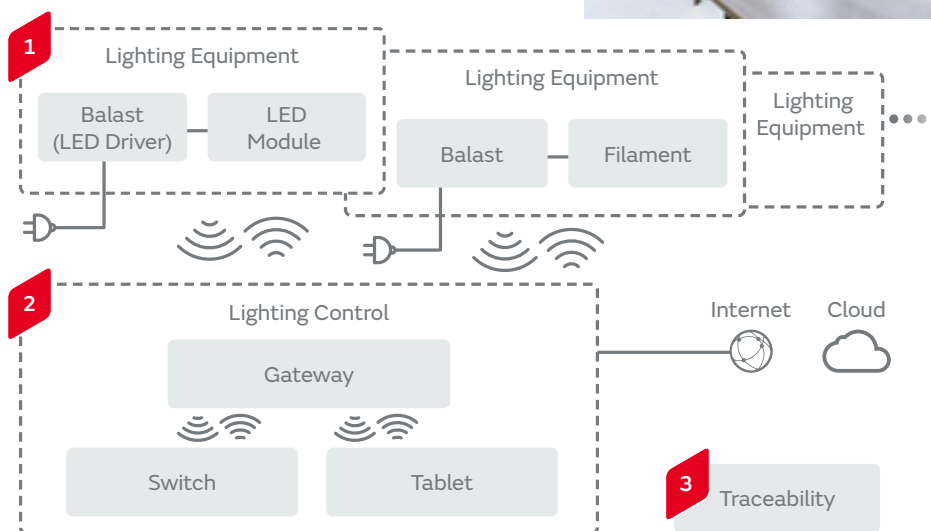
RFID Tag
LXTB Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression
Coin Manganese Dioxide Lithium Batteries	Standard Type/Heat-resistant Type	Battery Backup

Lighting



1 Lighting Equipment

Balast for LED Lighting



Safety Standard Certified Resin Molding SMD Type Ceramic Capacitors for General Purpose DK1 Series



Wi-Fi Modules



Thermistors NCP/PRF/PRG/PTG Series



Piezoelectric Sounders PKLCS/PKMCS Series



Chip Multilayer Ceramic Capacitors for General Purpose GR/GA Series



Safety Standard Certified Lead Type Disc Ceramic Capacitors for General Purpose DE1/DE2 Series



LPWA Modules



Microwave Coaxial Connectors with Switch



Crystal Units XRC Series



2 Lighting Control

Wi-Fi Modules



Ceramic Resonators CERALOCK CST Series



Pyroelectric Infrared Sensors IRA-S Series



LPWA Modules



Isolated DC-DC Converters for PoE + PD MYBSP Series



Ultrasonic Sensors MA40 Series



Crystal Units XRC Series



Microwave Coaxial Connectors with Switch



MEMS Resonators WMRAG Series



3 Traceability

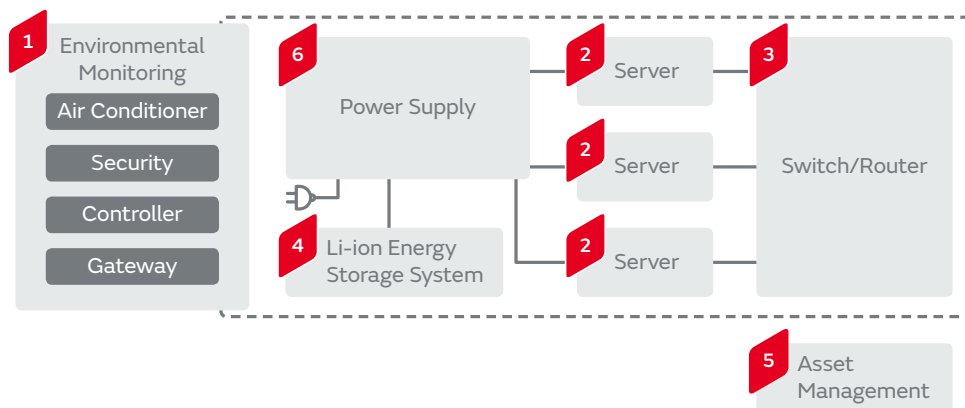
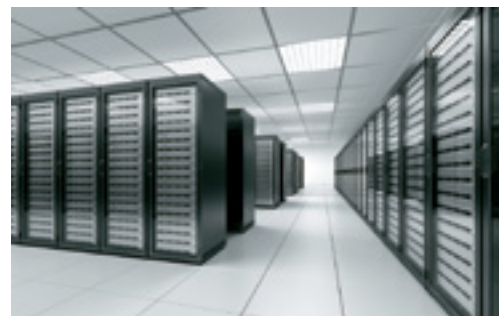
RFID Tag LXMS/LXTB Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

Data Center



1 Environmental Monitoring

Wi-Fi Modules



LPWA Modules



Magnetic Sensors (AMR Sensors)
MR Series



Thermistors
NCU Series



MEMS Resonators
WMRAG Series



2 Server

Isolated DC-DC Converters
MYB Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/MYLSM Series



Polymer Aluminum Electrolytic Capacitors
ECAS/ECNS Series



Crystal Units
XRC Series



3 Switch/Router

Isolated DC-DC Converters
MYB Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/
MYLSM Series



Low ESL Chip Multilayer
Ceramic Capacitors
for General Purpose
LLL/LLA/LLM Series



Chip Multilayer
Ceramic Capacitors
for General Purpose
GR/GA Series



Wire Bonding Mount Multilayer
Microchip Capacitors
for General Purpose
GMA Series



Wire Bonding/AuSn Soldering Mount
Chip Multilayer Ceramic Capacitors
for General Purpose
GMD Series



Chip Common Mode Choke Coils/
Common Mode Noise Filters
DLW/DLP/NFP Series



Crystal Units
XRC Series



Silicon Capacitors



Precision TCXO
XTCLH/XNCLH Series



Single-Layer Microchip Capacitors
CLB Series



Thin Film Circuit Substrates (RUSUB)
RU Series



4 Li-ion Energy Storage System

Energy Storage Module Model
IJ1101M Series



BMU
(Battery Management Unit)
IJ8101C Series



BMU-HUB
IJ1101K Series



5 Asset Management

RFID Tag
LXTB Series



6 Power Supply

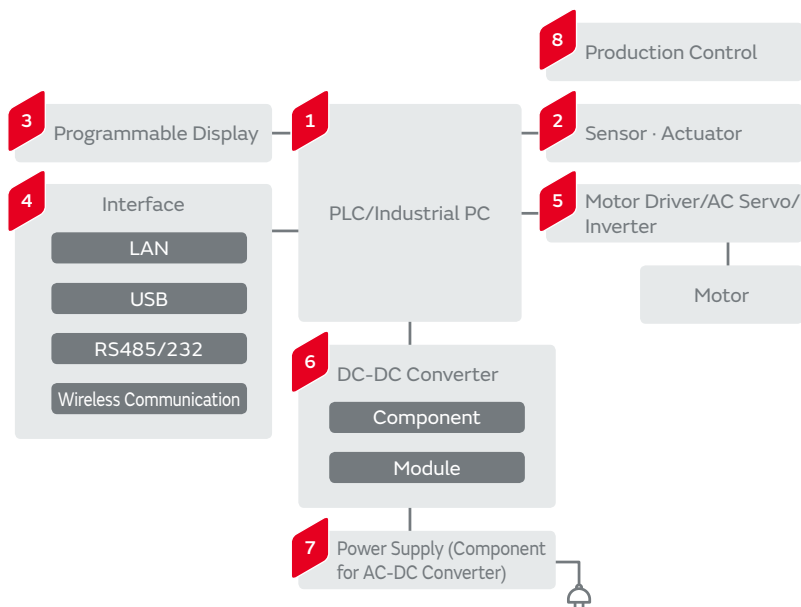
AC-DC Power Supplies 1U Front End



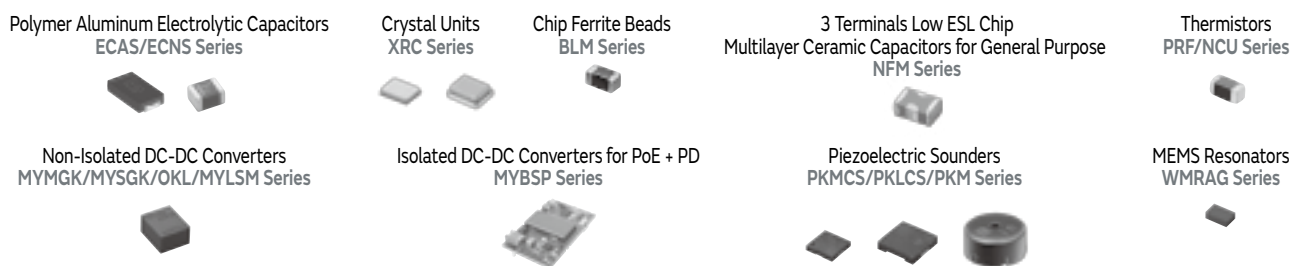
General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression
Coin Manganese Dioxide Lithium Batteries	Standard Type/Heat-resistant Type	Battery Backup

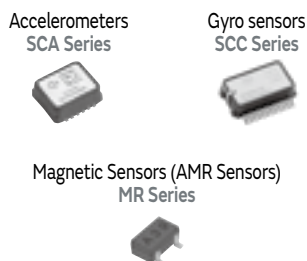
Industrial Automation



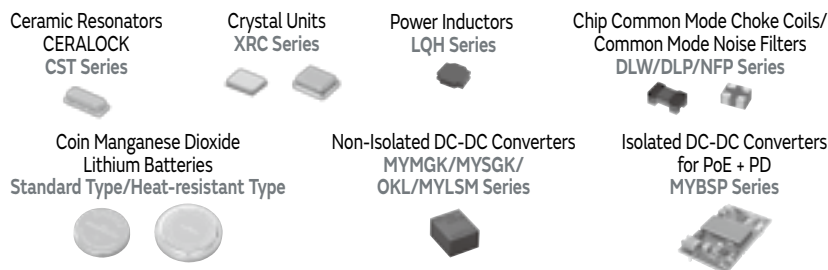
1 PLC/Industrial PC



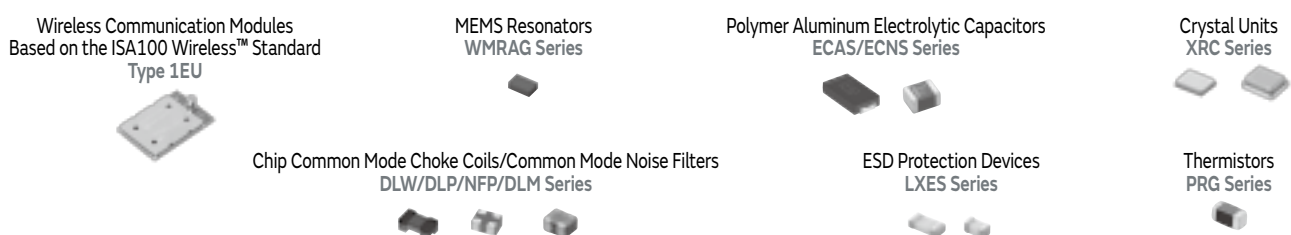
2 Sensor · Actuator



3 Programmable Display



4 Interface (LAN · USB · RS485/232 · Wireless Communication)



5 Motor Driver/AC Servo/Inverter

Chip Multilayer Ceramic Capacitors for General Purpose
GR/GA Series



Large-current Common Mode Choke Coils
PLT10/PLT5B/DLW5A/DLW5B/UCMH Series



Ceramic Resonators CERALOCK
CST Series



Thermistors
PRF/PTG Series



Crystal Units
XRC Series



MEMS Resonators
WMRAG Series



6 DC-DC Converter (Module · Component)

Isolated DC-DC Converters
MYB Series



Polymer Aluminum
Electrolytic Capacitors
ECAS/ECNS Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/MYLSM Series



Power Inductors
LQH Series



Metal Terminal Type Multilayer
Ceramic Capacitors for General Purpose
KRM Series



Thermistors
PRF/NCU Series



7 Power Supply (Component for AC-DC Converter)

Chip Multilayer Ceramic Capacitors for General Purpose
GR/GA Series



Safety Standard Certified Resin Molding
SMD Type Ceramic Capacitors
for General Purpose
DK1 Series



Safety Standard Certified Lead Type
Disc Ceramic Capacitors
for General Purpose
DE1/DE2 Series



Ceramic Resonators CERALOCK
CST Series



Thermistors
PRF/NCU Series



8 Production Control

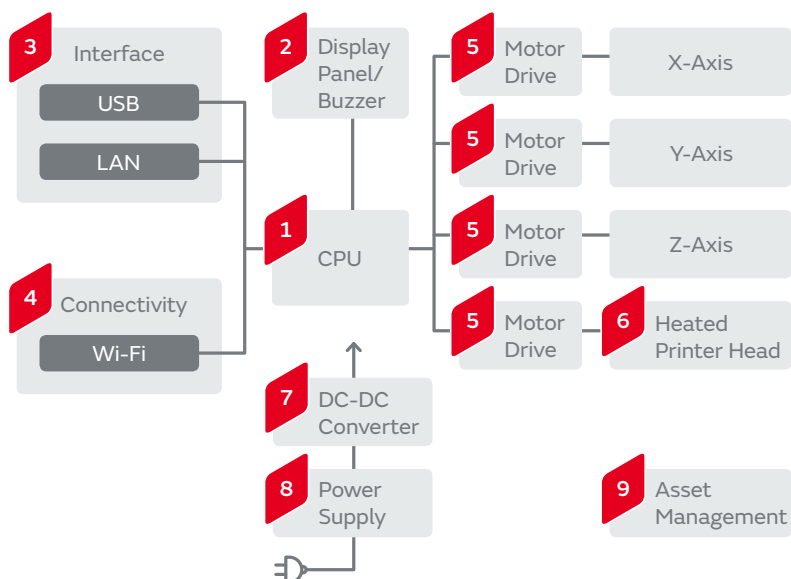
RFID Tag
LXMS/LXTB Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression
Piezoelectric Sounders	PKLCS/PKMCS Series	Sound Component

3D Printer



1 CPU

Isolated DC-DC Converters
MYB Series



Polymer Aluminum
Electrolytic Capacitors
ECAS/ECNS Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/MYLSM Series



Crystal Units
XRC Series



Ceramic Resonators CERALOCK
CST Series



Thermistors
NCP/PRF Series



2 Display Panel/Buzzer

Ceramic Resonators CERALOCK
CST Series



Piezoelectric Sounders
PKMCS/PKLCS/
PKM Series



MEMS Resonators
WMRAG Series



3 Interface

Polymer Aluminum
Electrolytic Capacitors
ECAS/ECNS Series



Crystal Units
XRC Series



Chip Common Mode Choke Coils/
Common Mode Noise Filters
DLW/DLP/NFP/DLM Series



ESD Protection Devices
LXES Series



Thermistors
PRG Series



4 Connectivity

Wi-Fi Modules



Crystal Units
XRC Series



Chip Inductors (Chip Coils)
LQW/LQP/LQG Series



ESD Protection Devices
LXES Series



5 Motor Drive

Isolated DC-DC Converters
MYB Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/MYLSM Series



Chip Multilayer Ceramic
Capacitors for General Purpose
GR/GA Series



Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



Large-current Common Mode Choke Coils
PLT10HH/PLT5BPH/DLW5ATN/UCMH Series



Thermistors
PRF/PTG Series



6 Heated Printer Head

Thermistors
NCP/PRF Series



7 DC-DC Converter

Metal Terminal Type Multilayer
Ceramic Capacitors for General Purpose
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS/ECNS Series



Isolated DC-DC Converters
for PoE + PD
MYBSP Series



Thermistors
NCP/PRF Series



8 Power Supply

Chip Multilayer Ceramic Capacitors
for General Purpose
GR/GA Series



Safety Standard Certified Resin
Molding SMD Type Ceramic
Capacitors for General Purpose
DK1 Series



Safety Standard Certified Lead Type Disc
Ceramic Capacitors for General Purpose
DE1/DE2 Series



Thermistors
NCP/PRF/PRG Series



9 Asset Management

RFID Tag
LXTB Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

Application Guides Electronic POS



5 DC-DC Converter

Metal Terminal Type
Multilayer Ceramic Capacitors
for General Purpose
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS/ECNS Series



Power Inductors
LQH/DEM/DFE Series



Thermistors
NCP/PRF Series



Isolated DC-DC Converters
for PoE + PD
MYBSP Series



6 Battery

Thermistors
NCP/PRF/PRG Series



7 Power Supply

Chip Multilayer
Ceramic Capacitors
for General Purpose
GR/GA Series



Safety Standard Certified Resin Molding
SMD Type Ceramic Capacitors
for General Purpose
DK1 Series



Safety Standard Certified Lead Type Disc
Ceramic Capacitors for General Purpose
DE1/DE2 Series



Thermistors
NCP/PRF/PRG Series



8 RFID Reader/Writer(HF)

Crystal Units
XRC Series



9 RFID Reader/Writer(UHF)

Crystal Units
XRC Series



Isolated DC-DC Converters
for PoE + PD
MYBSP Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression
Coin Manganese Dioxide Lithium Batteries	Standard Type	Battery Backup

Heavy Duty Vehicles



Safety

1

ECU

2

TPMS

3

ABS/ESC

4

Headlamp

Comfort/Information

5

Fine Navigation

6

Power Seat/
Power Mirror

7

Cabin Leveling

Operation

8

Motor Grader/Blade Control

9

Forklift/Container Handling

Safety

1

ECU

Accelerometers
SCA Series



Gyro Sensors
SCC Series



Metal Terminal Type Multilayer
Ceramic Capacitors for Automotive
KCM Series



Chip Multilayer Ceramic
Capacitors for Automotive
GCM Series



Soft Termination Chip Multilayer
Ceramic Capacitors for Automotive
GCJ Series



AgPd Termination Conductive Glue Mounting
Chip Multilayer Ceramic Capacitors for Automotive
GCG Series



Ceramic Resonators
CERALOCK
CST Series



Crystal Units
XRC Series



Ni Plating + Pd Plating Termination Conductive Glue Mounting
Chip Multilayer Ceramic Capacitors for Automotive
GCB Series



Leaded MLCC for Automotive
RH/RCE Series



Thermistors
PRF/PTG/NCU Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



2

TPMS

Shock Sensors
For Tire Pressure
Monitoring System,
PKGS Series



Pressure Sensor
Elements
SCB10H Series



Thermistors
PRF/NCU Series



Ceramic Filters
CERAFIL
SFECE Series



Ceramic Resonators
CERALOCK
CST Series



Crystal Units
XRC Series



Coin Manganese Dioxide
Lithium Batteries
Heat-resistant Type



High Reliability
Chip Inductors
LQG15HH Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



3

ABS/ESC

Accelerometers
SCA Series



Gyro Sensors
SCC Series



Metal Terminal Type Multilayer
Ceramic Capacitors for Automotive
KCM Series



Chip Multilayer Ceramic Capacitors
for Automotive
GCM Series



Soft Termination Chip Multilayer
Ceramic Capacitors for Automotive
GCJ Series



AgPd Termination Conductive
Glue Mounting Chip Multilayer
Ceramic Capacitors for Automotive
GCG Series



Ni Plating + Pd Plating Termination
Conductive Glue Mounting Chip Multilayer
Ceramic Capacitors for Automotive
GCB Series



Ceramic Resonators
CERALOCK
CST Series



Crystal Units
XRC Series



Thermistors
NCG18/NCU Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



4

Headlamp

Chip Multilayer Ceramic
Capacitors for Automotive
GCM Series



Soft Termination Chip Multilayer
Ceramic Capacitors for Automotive
GCJ Series



Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



Thermistors
NCG18/NCU Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



Comfort/Information

5 Fine Navigation

Accelerometers
SCA Series



Gyro Sensors
SCC Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



Ceramic Resonators
CERALOCK
CST Series



Crystal Units
XRC Series



6 Power Seat/Power Mirror

Piezoelectric Sounders
PKLCS/PKMCS Series



Ceramic Resonators
CERALOCK
CST Series



Crystal Units
XRC Series



Thermistors
PRF/PTG/NCU Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



7 Cabin Leveling

Accelerometers
SCA Series



Gyro Sensors
SCC Series



Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



Operation

8 Motor Grader/Blade Control

Accelerometers
SCA Series



Gyro Sensors
SCC Series



Crystal Units
XRC Series



Ceramic Resonators CERALOCK
CST Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



9 Forklift/Container Handling

Accelerometers
SCA Series



Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



High Reliability Chip Ferrite Beads
BLM_SH1/BH1/TH1/JH1 Series



General Purpose

AEC-Q 200 Compliant Chip Multilayer Ceramic Capacitors for Infotainment
Chip Inductors (Chip Coils)
Chip Inductors (Chip Coils)
Chip Ferrite Beads
EMI Suppression Filters EMIFIL
Chip Common Mode Choke Coils

GRT Series
LQW Series
LQM/LQH/DFE Series
BLM/NFZ Series
NFL/NFE Series
DLW Series

Coupling/Decoupling
Matching/High Frequency Choke
Voltage Conversion
Noise Suppression
Noise Suppression
Common Mode Noise Suppression

General Purpose (High Reliability)

Chip Multilayer Ceramic Capacitors for Automotive
Ni Plating + Pd Plating Termination Conductive Glue Mounting Chip Multilayer Ceramic Capacitors for Automotive
Leaded MLCC for Automotive
150°C/175°C/200°C Operation Leaded MLCC for Automotive
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for Automotive/Feed Through Noise Filters
Chip Inductors (Chip Coils)
Chip Inductors (Chip Coils)
Chip Ferrite Beads
Chip Common Mode Choke Coils

GCM Series
RCE Series
RH Series
LQH32PH/LQH44PH/LQH43PH/LQH5BPH Series
LQG15HH Series
BLM_SH/BLM_BH/BLM_BLE_SH Series

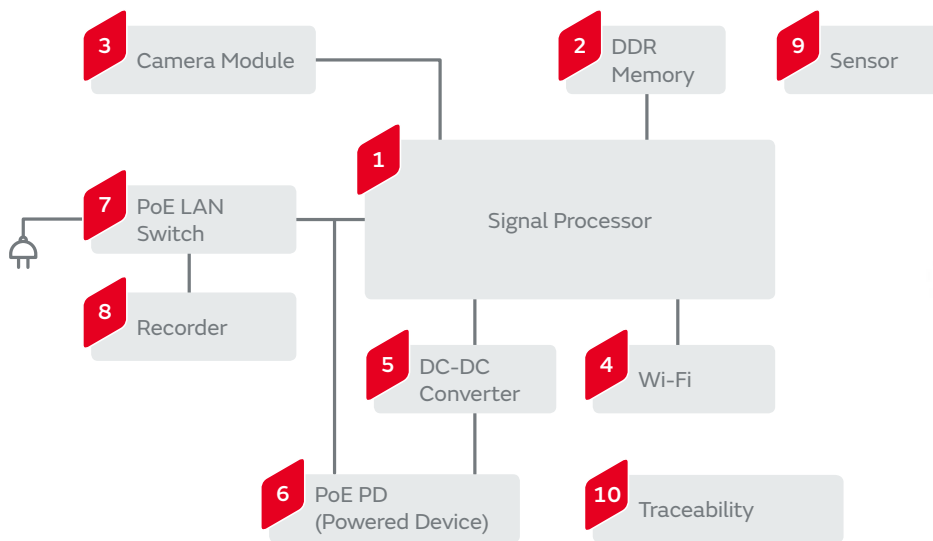
GCB Series
NFM_H/NFE_H Series

Coupling/Decoupling
Coupling/Decoupling
Noise Suppression/Decoupling
Noise Suppression/Decoupling
Noise Suppression
Voltage Conversion
Impedance Matching/Choke
Noise Suppression
Common Mode Noise Suppression

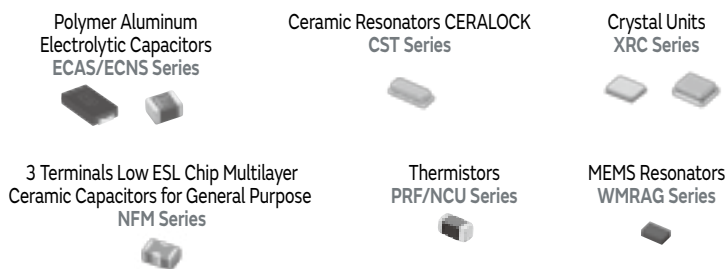
150°C
125°C
125°C
150°C 175°C 200°C
125°C
125°C
125°C
125°C
125°C

125°C 125°C max. 150°C 150°C max. 175°C 175°C max. 200°C 200°C max.

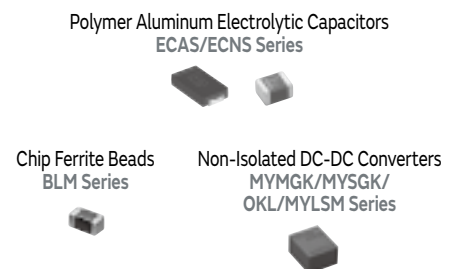
Security Camera



1 Signal Processor



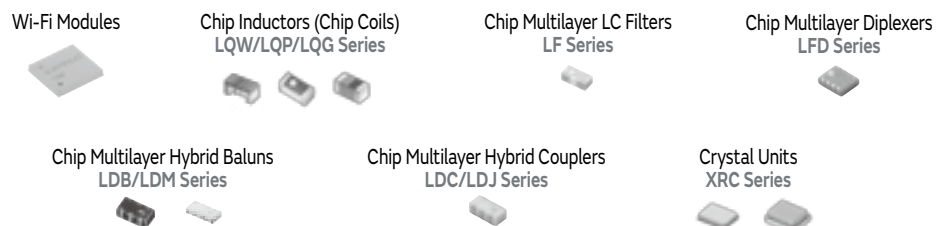
2 DDR Memory



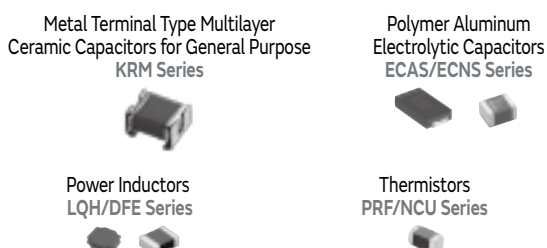
3 Camera Module



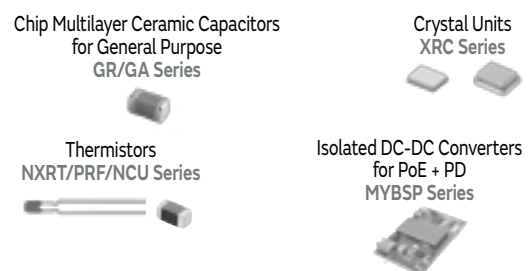
4 Wi-Fi



5 DC-DC Converter



6 PoE PD (Powered Device)



7 PoE LAN Switch

Chip Multilayer
Ceramic Capacitors
for General Purpose
GR/GA Series



Safety Standard Certified Resin Molding SMD Type
Ceramic Capacitors for General Purpose
DK1 Series



Safety Standard Certified Lead Type
Disc Ceramic Capacitors for General Purpose
DE1/DE2 Series



Metal Terminal Type
Multilayer Ceramic Capacitors
for General Purpose
KRM Series



Crystal Units
XRC Series



Thermistors
NXRT/PRF/NCU Series



Isolated DC-DC Converters for PoE + PD
MYBSP Series



8 Recorder

Polymer Aluminum Electrolytic Capacitors
ECAS/ECNS Series



Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



Thermistors
PRF/NCU Series



9 Sensor

Pyroelectric Infrared Sensors
IRA-S Series



Ultrasonic Sensors
MA40 Series



10 Traceability

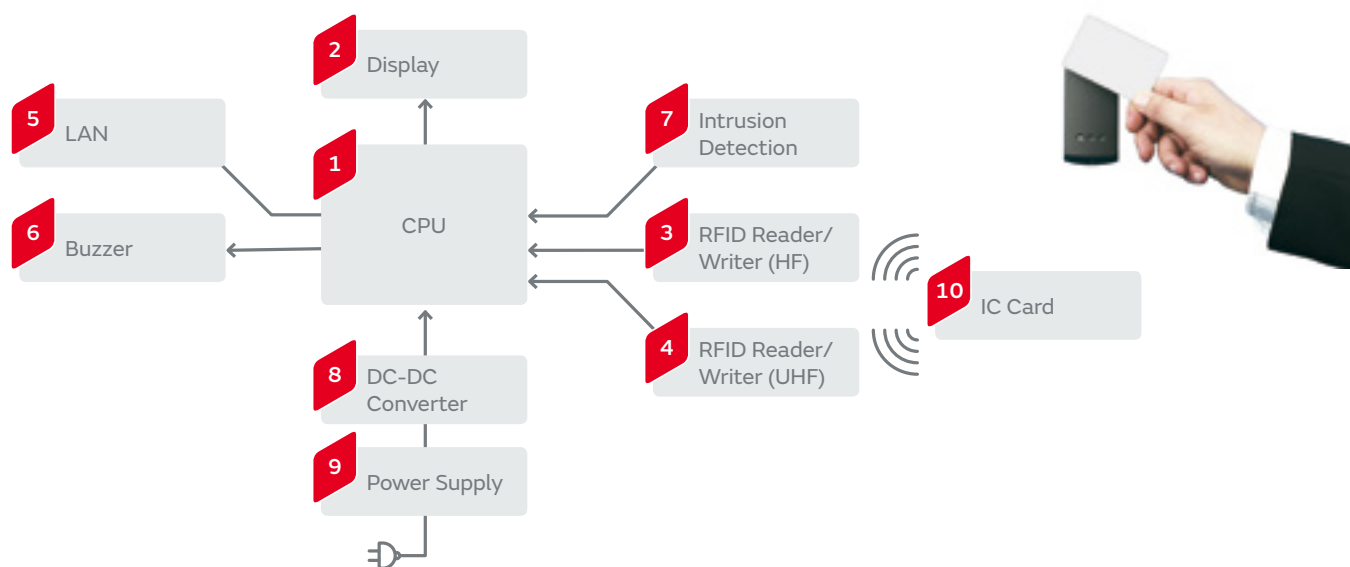
RFID Tag
LXMS/LXTB Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression
Coin Manganese Dioxide Lithium Batteries	Standard Type/Heat-resistant Type	Battery Backup

Entrance and Exit Management System



1 CPU

Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/MYLSM Series

Ceramic Resonators CERALOCK
CST Series

Crystal Units
XRC Series

2 Display

Ceramic Resonators CERALOCK
CST Series

ESD Protection Devices
LXES Series

Thermistors
NCP/PRF Series

3 RFID Reader/Writer (HF)

Crystal Units
XRC Series

4 RFID Reader/Writer (UHF)

Crystal Units
XRC Series

5 LAN

Polymer Aluminum
Electrolytic Capacitors
ECAS/ECNS Series

Crystal Units
XRC Series

ESD Protection Devices
LXES Series

Thermistors
PRG Series

6 Buzzer

Piezoelectric Sounders
PKMCS/PKLCS/PKM Series

7 Intrusion Detection

Ultrasonic Sensors
MA40 Series

Magnetic Sensors (AMR Sensors)
MR Series

Pyroelectric Infrared Sensors
IRA-S Series

8 DC-DC Converter

Polymer Aluminum
Electrolytic Capacitors
ECAS/ECNS Series



Metal Terminal Type
Multilayer Ceramic Capacitors
for General Purpose
KRM Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/MYLSM Series



Isolated DC-DC Converters
for PoE + PD
MYBSP Series



Thermistors
NCP/PRF Series



9 Power Supply

Chip Multilayer Ceramic Capacitors
for General Purpose
GR/GA Series



Safety Standard Certified Resin Molding
SMD Type Ceramic Capacitors
for General Purpose
DK1 Series



Safety Standard Certified Lead Type Disc
Ceramic Capacitors for General Purpose
DE1/DE2 Series



Ceramic Resonators CERALOCK
CST Series



Thermistors
NCP/PRF Series



10 IC Card

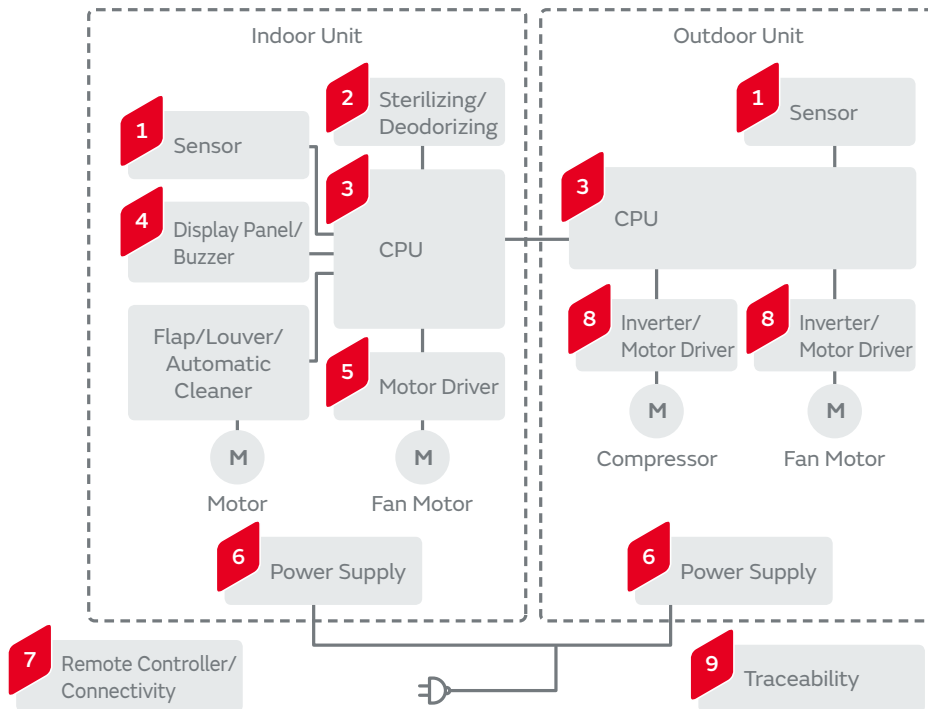
RFID Tag
LXMS/LXTB Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

Air Conditioner



1 Sensor

- Ultrasonic Sensors MA40 Series
- Thermistors NCP/NXR/PRF Series
- Magnetic Sensors (AMR Sensors) MR Series
- Pyroelectric Infrared Sensors IRA-S Series

2 Sterilizing/Deodorizing

- Ionizer Modules Ionissimo MHM300 Series
- Ozonizer Modules Ionissimo MHM500 Series
- High Voltage Resistors MHR Series

3 CPU

- Ceramic Resonators CERALOCK CST Series
- MEMS Resonators WMRAG Series
- Non-Isolated DC-DC Converters MYMGK/MYSGK/OKL/MYLSM Series

4 Display Panel/Buzzer

- Ceramic Resonators CERALOCK CST Series
- Piezoelectric Sounders PKMCS/PKLCS/PKM Series

5 Motor Driver

- Thermistors NCP/NXR/PRF Series

6 Power Supply

- Chip Multilayer Ceramic Capacitors for General Purpose GR/GA Series
- Safety Standard Certified Resin Molding SMD Type Ceramic Capacitors for General Purpose DK1 Series
- Safety Standard Certified Lead Type Disc Ceramic Capacitors for General Purpose DE1/DE2 Series
- Thermistors PTG Series

7

Remote Controller/Connectivity

Bluetooth Modules



Wi-Fi Modules



LPWA Modules


Microwave Coaxial Connectors
with Switch

Crystal Units
XRC Series

Ceramic Resonators CERALOCK
CST Series

Piezoelectric Sounders
PKMCS/PKLCS/PKM Series

MEMS Resonators
WMRAG Series


8

Inverter/Motor Driver

Ceramic Resonators CERALOCK
CST Series

Thermistors
NCP/NXR/PRF Series


9

Traceability

RFID Tag
LXMS/LXTB Series

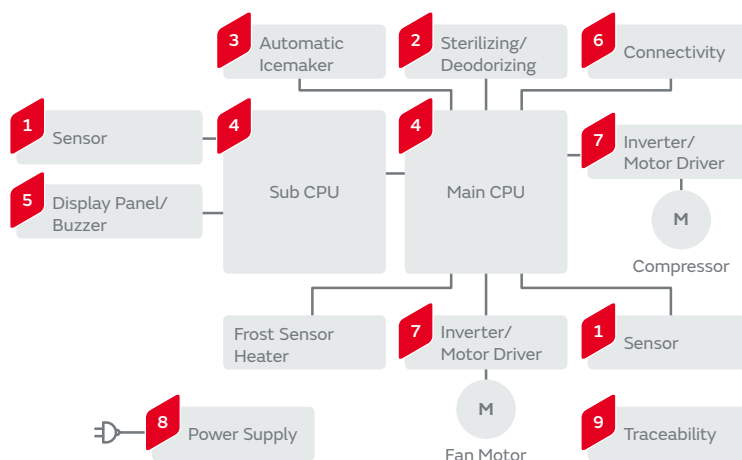
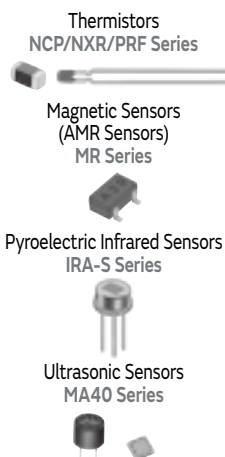

General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

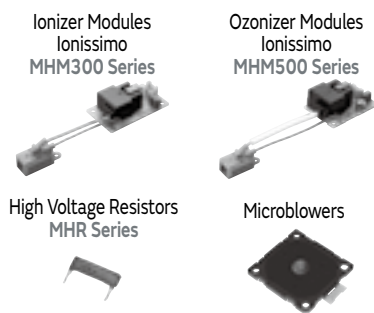
Refrigerator



1 Sensor



2 Sterilizing/Deodorizing



3 Automatic Icemaker



4 CPU



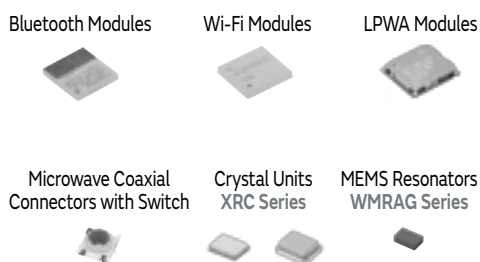
5 Display Panel/Buzzer



7 Inverter/Motor Driver



6 Connectivity



8 Power Supply



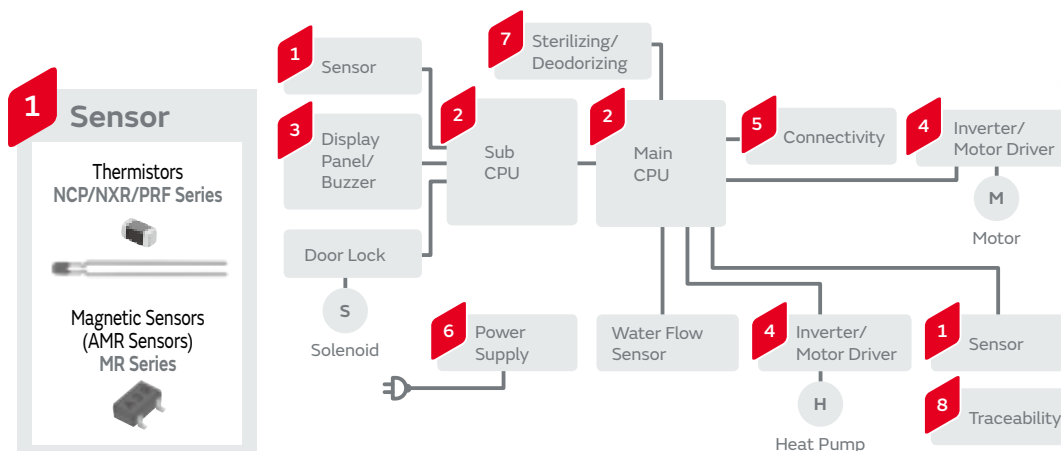
9 Traceability



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

Washing Machine



2 CPU

Ceramic Resonators
CERALOCK
CST Series

Non-Isolated DC-DC Converters
MYMGK/MYSGK/
OKL/MYLSM Series

MEMS Resonators
WMRAG Series

3 Display Panel/Buzzer

Ceramic Resonators
CERALOCK
CST Series

Piezoelectric Sounders
PKMCS/PKLCS/PKM Series

4 Inverter/Motor Driver

Thermistors
NCP/NXR/PRF Series

Ceramic Resonators
CERALOCK
CST Series

5 Connectivity

Bluetooth
Modules

Wi-Fi
Modules

LPWA
Modules

Microwave Coaxial
Connectors with Switch

Crystal Units
XRC Series

MEMS Resonators
WMRAG Series

6 Power Supply

Chip Multilayer
Ceramic Capacitors
for General Purpose
GR/GA Series

Safety Standard Certified Resin
Molding SMD Type Ceramic
Capacitors for General Purpose
DK1 Series

Safety Standard Certified Lead
Type Disc Ceramic Capacitors
for General Purpose
DE1/DE2 Series

Thermistors
PTG Series

7 Sterilizing/Deodorizing

Ozonizer Modules
Ionissimo
MHM500 Series

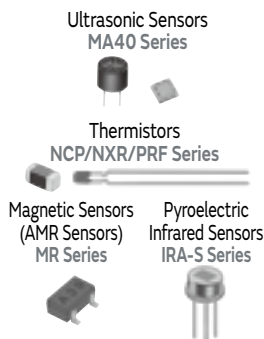
8 Traceability

RFID Tag
LXMS/LXTB Series

General Purpose	Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
	High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
	Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
	3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
	Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
	Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
	Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
	Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
	Feed Through Chip EMI Filters	NFE Series	Noise Suppression
	Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression
	Coin Manganese Dioxide Lithium Batteries	Standard Type	Battery Backup

Air Purifier

1 Sensor



2 Sterilizing/Deodorizing

Ionizer Modules Ionissimo
MHM300 Series



Ozonizer Modules Ionissimo
MHM500 Series

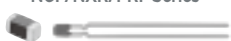


High Voltage Resistors
MHR Series

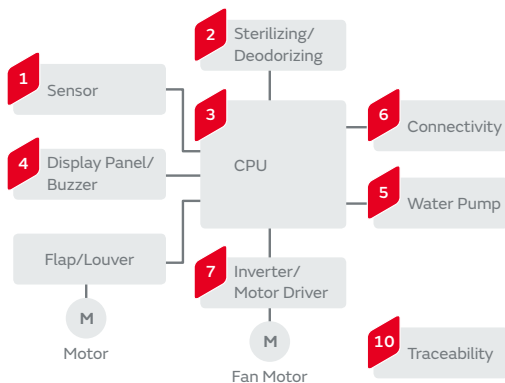


7 Inverter/Motor Driver

Thermistors
NCP/NXR/PRF Series



Ceramic Resonators CERALOCK
CST Series



3 CPU

Ceramic Resonators
CERALOCK
CST Series



Non-Isolated
DC-DC Converters
MYMGK/MYSGK/
OKL/MYLSM Series



MEMS Resonators
WMRAG Series



4 Display Panel/Buzzer

Ceramic Resonators
CERALOCK
CST Series



Piezoelectric Sounders
PKMCS/PKLCS/
PKM Series



5 Water Pump

Microblowers



6 Connectivity

Bluetooth Modules



Wi-Fi Modules



LPWA Modules



Microwave Coaxial
Connectors with Switch



Crystal Units
XRC Series



MEMS Resonators
WMRAG Series

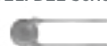


8 Power Supply

Chip Multilayer
Ceramic Capacitors
for General Purpose
GR/GA Series



Safety Standard Certified
Lead Type Disc Ceramic Capacitors
for General Purpose
DE1/DE2 Series



Safety Standard Certified Resin Molding
SMD Type Ceramic Capacitors
for General Purpose
DK1 Series



Thermistors
PTG Series



9 Remote Controller

Ceramic Resonators
CERALOCK
CST Series



Piezoelectric Sounders
PKMCS/PKLCS/PKM Series



10 Traceability

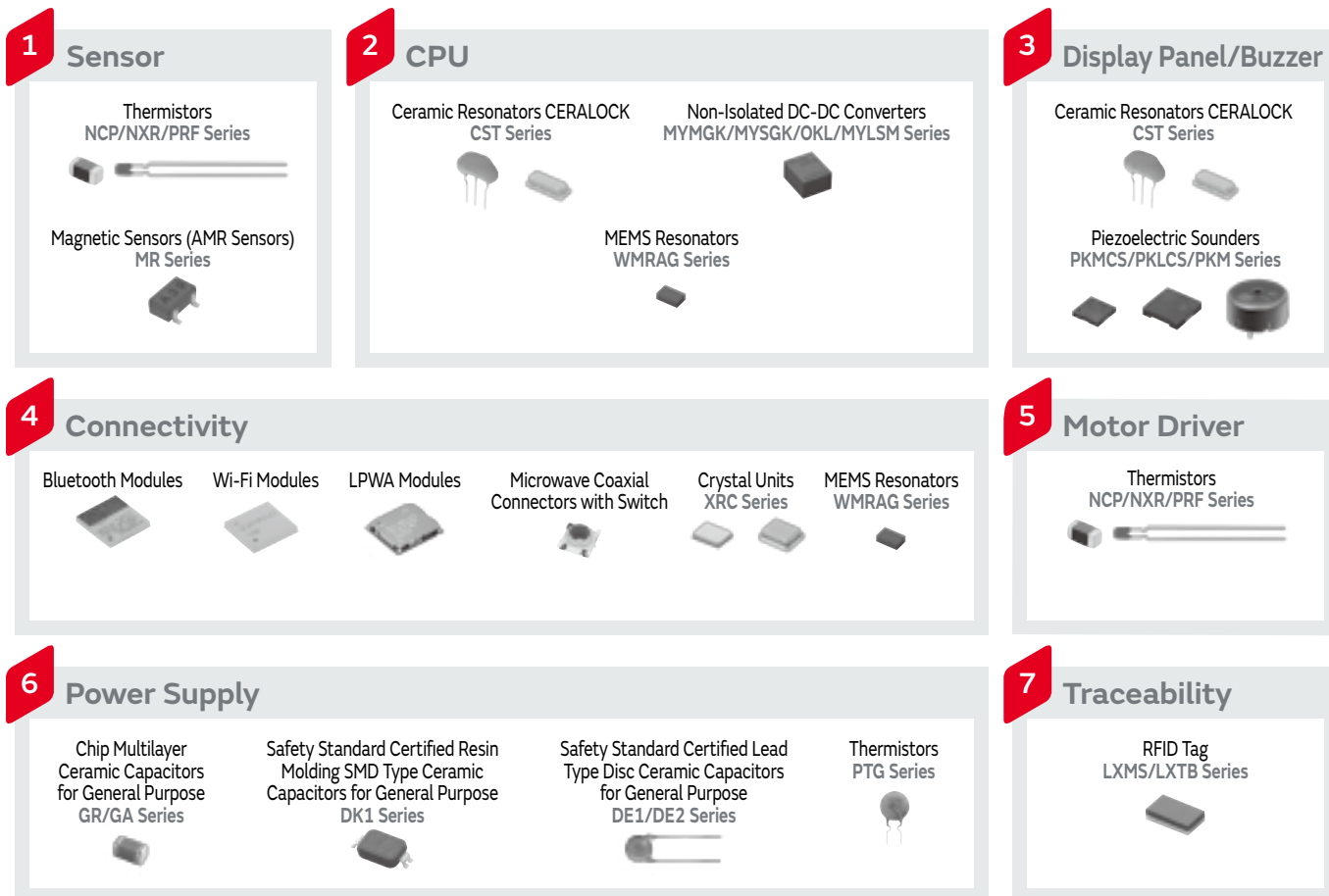
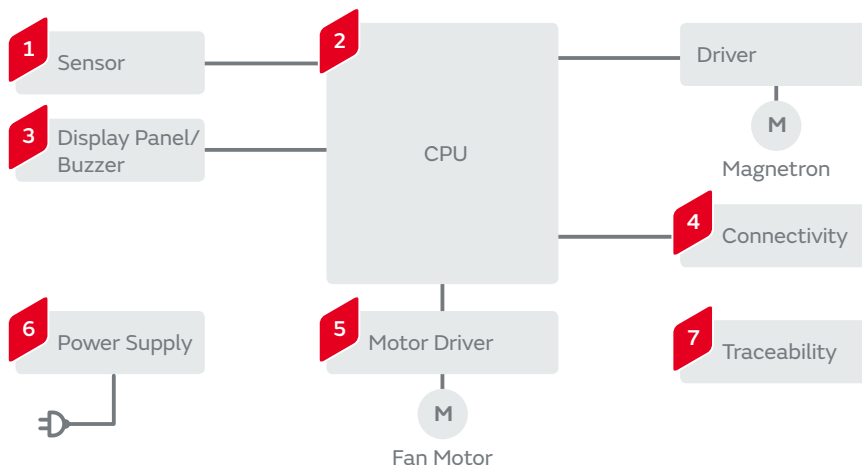
RFID Tag
LXMS/LXTB Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression
Coin Manganese Dioxide Lithium Batteries	Standard Type	Battery Backup

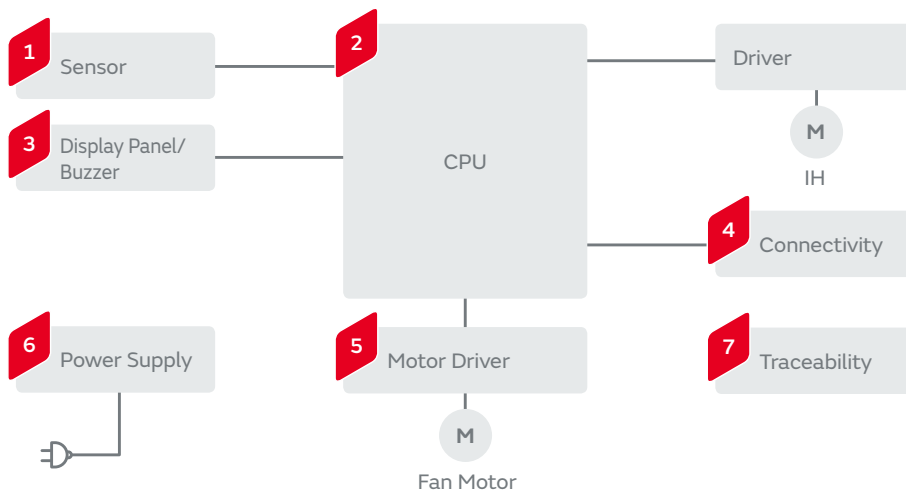
Microwave Oven



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

IH Rice Cooker



1 Sensor

- Thermistors
NCP/NXR/PRF Series
- Magnetic Sensors
(AMR Sensors)
MR Series

3 Display Panel/Buzzer

- Ceramic Resonators CERALOCK
CST Series
- Piezoelectric Sounders
PKMCS/PKLS/PKM Series

4 Connectivity

- Bluetooth Modules
- Wi-Fi Modules
- LPWA Modules
- Microwave Coaxial
Connectors with Switch
- Crystal Units
XRC Series
- MEMS Resonators
WMRAG Series

2 CPU

- Ceramic Resonators
CERALOCK
CST Series
- Non-Isolated
DC-DC Converters
MYMGK/MYSGK/
OKL/MYLSM Series
- MEMS Resonators
WMRAG Series

6 Power Supply

- Chip Multilayer Ceramic Capacitors
for General Purpose
GR/GA Series
- Safety Standard Certified Resin
Molding SMD Type Ceramic
Capacitors for General Purpose
DK1 Series
- Safety Standard Certified
Lead Type Disc Ceramic
Capacitors for General Purpose
DE1/DE2 Series
- Thermistors
PTG Series

5 Motor Driver

- Thermistors
NCP/NXR/PRF Series

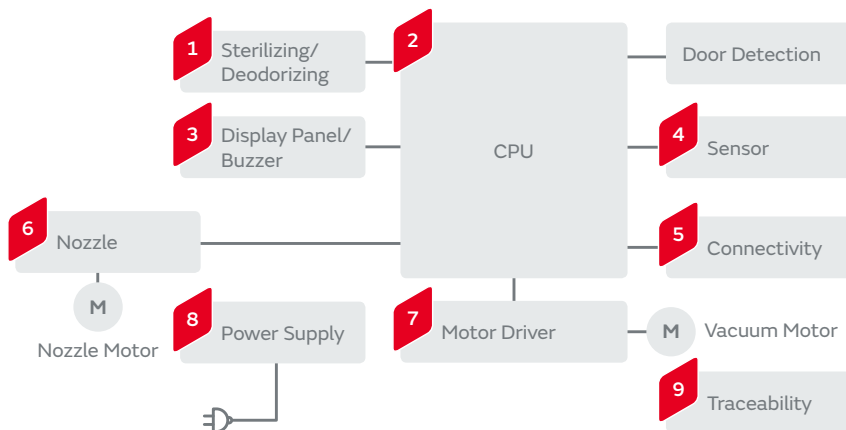
7 Traceability

- RFID Tag
LXMS/LXTB Series

General Purpose

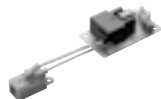
Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression
Coin Manganese Dioxide Lithium Batteries	Standard Type	Battery Backup

Vacuum Cleaner



1 Sterilizing/Deodorizing

Ionizer Modules Ionissimo
MHM300 Series



High Voltage Resistors
MHR Series



2 CPU

Ceramic Resonators
CERALOCK
CST Series



MEMS Resonators
WMRAG Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/MYLSM Series

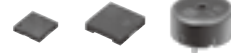


3 Display Panel/Buzzer

Ceramic Resonators CERALOCK
CST Series



Piezoelectric Sounders
PKMCS/PKLCs/PKM Series



4 Sensor

Ultrasonic Sensors
MA40 Series



Thermistors
NCP Series



Magnetic Sensors
(AMR Sensors)
MR Series



5 Connectivity

Bluetooth
Modules



Wi-Fi
Modules



LPWA
Modules



MEMS Resonators
WMRAG Series



Microwave Coaxial
Connectors with Switch



Crystal Units
XRC Series



6 Nozzle

Thermistors
PTG Series



7 Motor Driver

Thermistors
NCP/NXP/PRF Series



8 Power Supply

Chip Multilayer
Ceramic Capacitors
for General Purpose
GR/GA Series



Safety Standard Certified Resin
Molding SMD Type Ceramic
Capacitors for General Purpose
DK1 Series



Safety Standard Certified
Lead Type Disc Ceramic
Capacitors for General Purpose
DE1/DE2 Series



Thermistors
PTG Series



9 Traceability

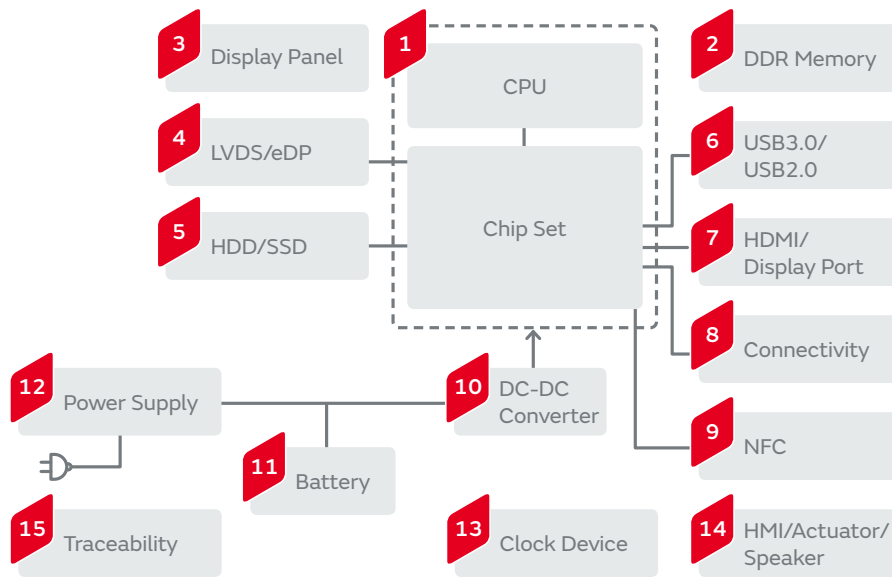
RFID Tag
LXMS/LXTB Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

Tablet Terminators



1 CPU/Chip Set



2 DDR Memory



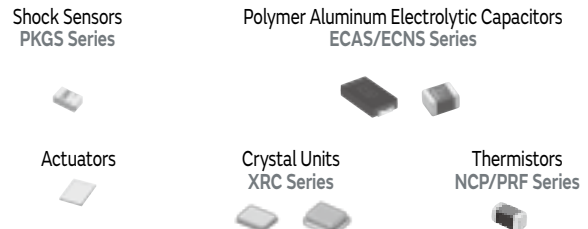
3 Display Panel



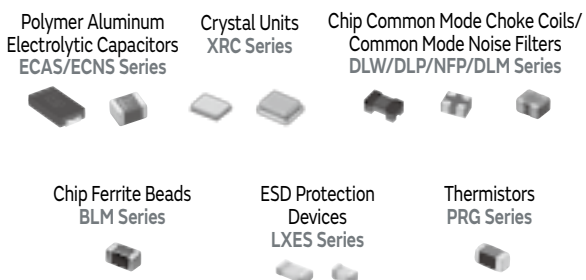
4 LVDS/eDP



5 HDD/SSD



6 USB3.0/USB2.0



7 HDMI/Display Port



8 Connectivity

Bluetooth Modules



Wi-Fi Modules



Bluetooth - Wi-Fi Combo Modules



SAW Filters
SAF Series



Chip Multilayer LC Filters
LF Series



Chip Multilayer Hybrid Baluns
LDB/LDM Series



Chip Multilayer Diplexers
LFD Series



Chip Multilayer Hybrid Couplers
LDC/LDJ Series



Microwave Coaxial Cable
Connectors/Microwave Coaxial
Connectors with Switch



Crystal Units
XRC Series



ESD Protection Devices
LXES Series



MEMS Resonators
WMRAG Series



9 NFC

NFC Antennas
FLAN Series



Crystal Units
XRC Series



Chip Ferrite Beads
BLM Series



Chip Inductors (Chip Coils)
LQW18C/LQM18J Series



Variable Capacitors
LXRW Series



ESD Protection Devices
LXES Series



10 DC-DC Converter

Metal Terminal Type Multilayer
Ceramic Capacitors for General Purpose
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS/ECNS Series



Chip Multilayer Ceramic Capacitors
on Interposer Board for General Purpose
ZRB Series



Thermistors
NCP/PRF Series



11 Battery

Ceramic Resonators CERALOCK
CST Series



Thermistors
NXR/PRF/PRG Series



12 Power Supply

Chip Multilayer Ceramic Capacitors
for General Purpose
GR/GA Series



Safety Standard Certified Lead Type
Disc Ceramic Capacitors for General Purpose
DE1/DE2 Series



Safety Standard Certified Resin Molding SMD Type
Ceramic Capacitors for General Purpose
DK1 Series



Ceramic Resonators CERALOCK
CST Series



Thermistors
NCP/PRF Series



13 Clock Device

Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



14 HMI/Actuator/Speaker

ESD Protection Devices
LXES Series



15 Traceability

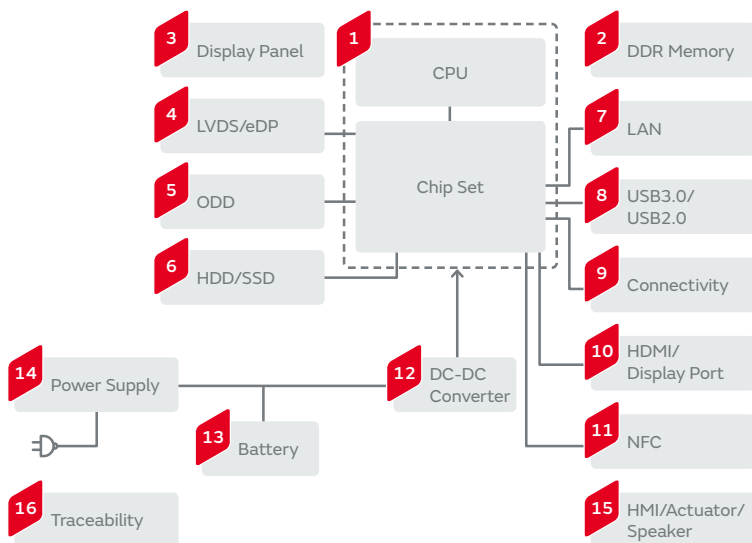
RFID Tag
LXMS/LXTB Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

Notebook Computers



1 CPU/Chip Set

Low ESL Chip Multilayer Ceramic Capacitors for General Purpose
LLL/LLA/LLM Series



Crystal Units
XRC Series



3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose
NFM Series



Silicon Capacitors



Polymer Aluminum Electrolytic Capacitors
ECAS/ECNS Series



Chip Ferrite Beads
BLM Series



Thermistors
NCP/PRF Series



MEMS Resonators
WMRAG Series



2 DDR Memory

Polymer Aluminum Electrolytic Capacitors
ECAS/ECNS Series



Chip Ferrite Beads
BLM Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/MYLSM Series



3 Display Panel

Metal Terminal Type Multilayer Ceramic Capacitors for General Purpose
KRM Series



Ceramic Resonators
CERALOCK CST Series



Power Inductors
LQH Series



Thermistors
PRF/PRG Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/MYLSM Series



4 LVDS/eDP

ESD Protection Devices
LXES Series



Thermistors
NCP/PRF Series



6 HDD/SSD

Shock Sensors
PKGS Series



Polymer Aluminum Electrolytic Capacitors
ECAS/ECNS Series



Actuators



Crystal Units
XRC Series



Thermistors
NCP/PRF Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/MYLSM Series



5 ODD

Ceramic Resonators
CERALOCK CST Series



Crystal Units
XRC Series



Thermistors
NCP Series



7 LAN

Chip Multilayer Ceramic Capacitors for Ethernet LAN and Primary-secondary Coupling of DC-DC converters
GR4 Series



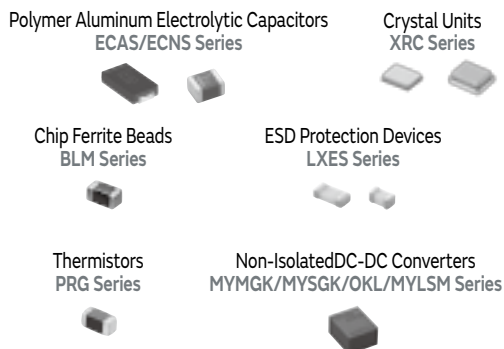
Chip Common Mode Choke Coils/
Common Mode Noise Filters
DLW/DLP/NFP/DLM Series



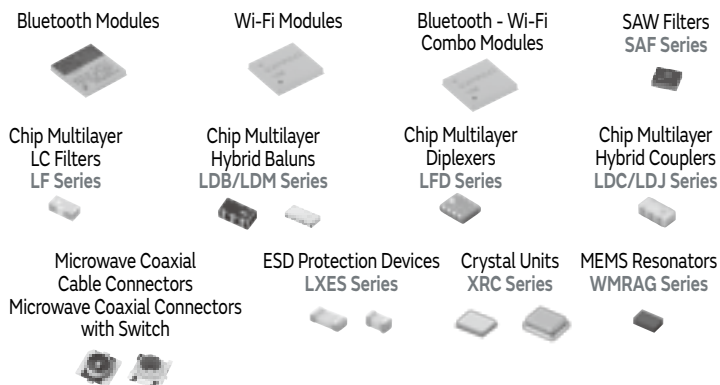
Crystal Units
XRC Series



8 USB3.0/USB2.0



9 Connectivity



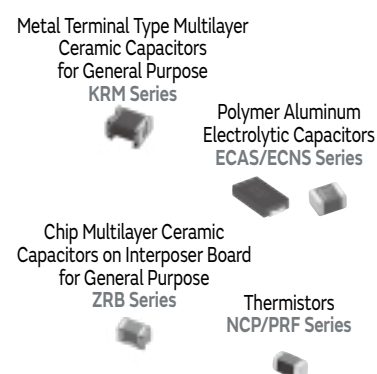
10 HDMI/Display Port



11 NFC



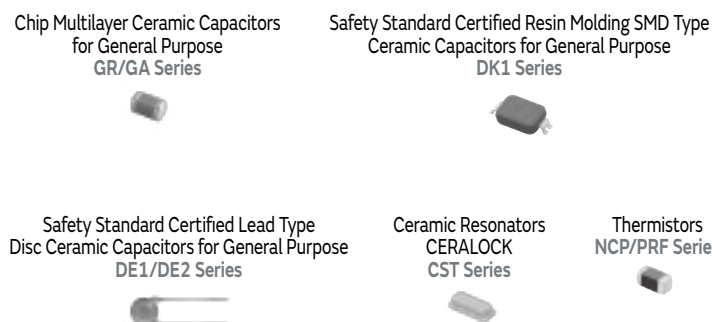
12 DC-DC Converter



13 Battery



14 Power Supply



15 HMI/Actuator/Speaker



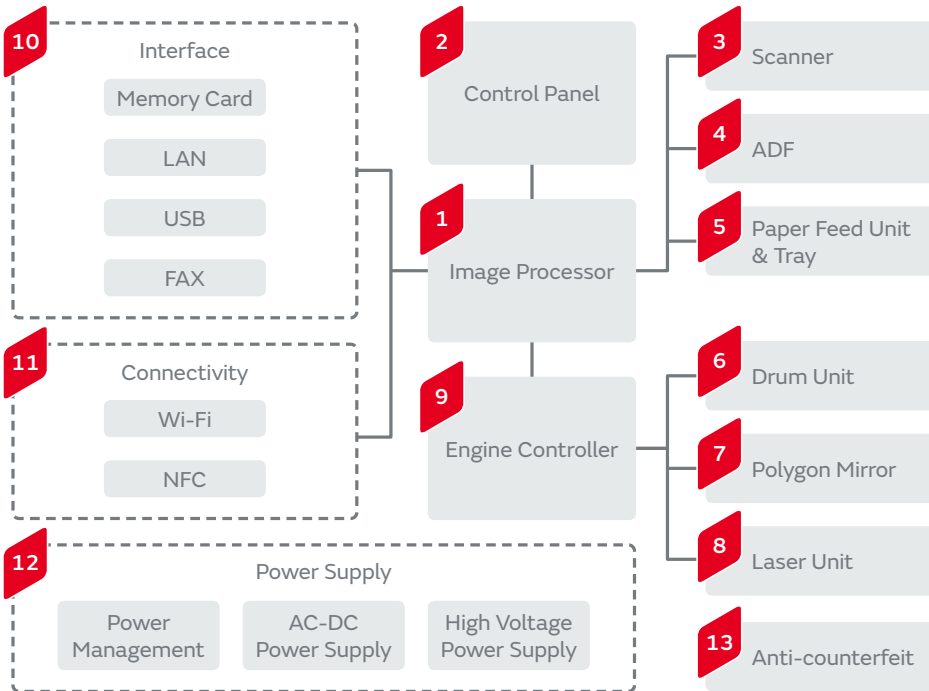
16 Traceability



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression
Coin Manganese Dioxide Lithium Batteries	Standard Type	Battery Backup

MFP (Multi Function Printer/Product/Peripheral)



1 Image Processor

Isolated DC-DC Converters
MYB Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/MYLSM Series



Low ESL Chip Multilayer Ceramic
Capacitors for General Purpose
LLL/LLA/LLM Series



Polymer Aluminum Electrolytic Capacitors
ECAS/ECNS Series



Crystal Units
XRC Series



Thermistors
NCP/PRF Series



2 Control Panel

Metal Terminal Type
Multilayer Ceramic Capacitors
for General Purpose
KRM Series



Ceramic Resonators
CERALOCK
CST Series



Crystal Units
XRC Series



Polymer Aluminum
Electrolytic Capacitors
ECAS/ECNS Series



Piezoelectric Sounders
PKMCS/PKLCS/PKM Series



Chip Common Mode Choke Coils/
Common Mode Noise Filters
DLW/DLP/NFP Series



Thermistors
NCP/PRF Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/
OKL/MYLSM Series



Isolated DC-DC Converters
for PoE + PD
MYBSP Series



MEMS Resonators
WMRAG Series



3 Scanner

Ultrasonic
Sensors
MA300 Series



4 ADF

Accelerometers
SCA Series



Ultrasonic
Sensors
MA300 Series



5 Paper Feed Unit & Tray

Magnetic Sensors (AMR Sensors)
MR Series



6 Drum Unit

Thermistors
NCP/PRF Series



7 Polygon Mirror

Accelerometers
SCA Series



8 Laser Unit

Thermistors
NCP/PRF Series



9 Engine Controller

Chip Multilayer Ceramic
Capacitors for General Purpose
GR/GA Series



Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



Thermistors
PRF/PTG Series



Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/MYLSM Series



10 Interface

Polymer Aluminum Electrolytic Capacitors
ECAS/ECNS Series



Crystal Units
XRC Series



Chip Common Mode Choke Coils/
Common Mode Noise Filters
DLW/DLP/NFP/DLM Series



ESD Protection Devices
LXES Series



Thermistors
PRF Series



11 Connectivity

Wi-Fi Modules



NFC Antennas
FLAN Series



Crystal Units
XRC Series



Chip Inductors (Chip Coils)
LQW/LQP/LQG Series



ESD Protection Devices
LXES Series



MEMS Resonators
WMRAG Series



12 Power Supply

Chip Multilayer Ceramic
Capacitors for General Purpose
GR/GA Series



Safety Standard Certified Resin Molding
SMD Type Ceramic Capacitors
for General Purpose
DK1 Series



Safety Standard Certified Lead Type
Disc Ceramic Capacitors
for General Purpose
DE1/DE2 Series



High Voltage Resistors
MHR Series



Large-current Common Mode Choke Coils
PLT10HH/PLT5BPH/DLW5A/DLW5B/UCMH Series



13 Anti-counterfeit

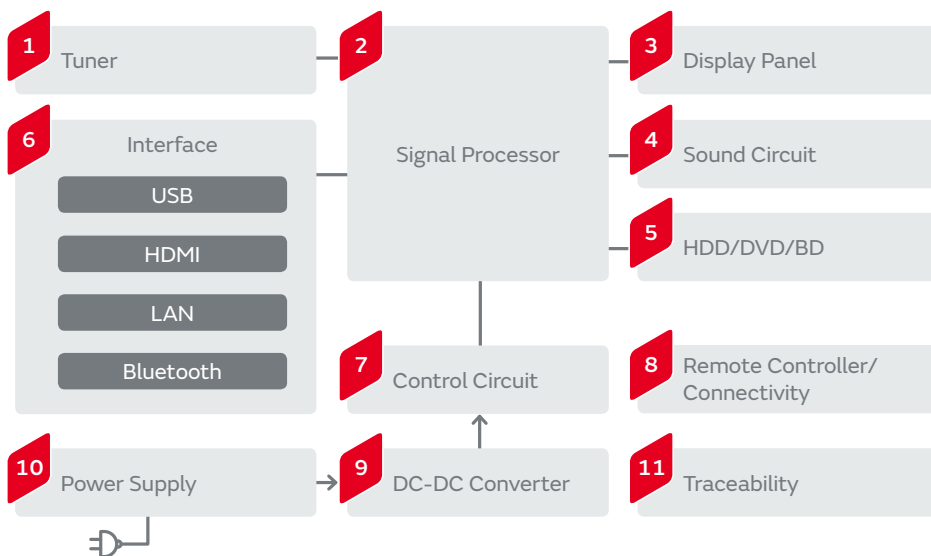
RFID Tag
LXMS/LXTB Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression
Coin Manganese Dioxide Lithium Batteries	Standard Type	Battery Backup

Televisions



1 Tuner

Microchip Transformers (Baluns) DXP18B Series
 Crystal Units XRC Series
 Chip Inductors (Chip Coils) LQW Series
 ESD Protection Devices LXES Series

3 Display Panel

Non-Isolated DC-DC Converters MYMGK/MYSGK/OKL/MYLSM Series
 Metal Terminal Type Multilayer Ceramic Capacitors for General Purpose KRM Series
 Chip Multilayer Ceramic Capacitors on Interposer Board for General Purpose ZRB Series
 Polymer Aluminum Electrolytic Capacitors ECAS/ECNS Series
 Chip Common Mode Choke Coils/ Common Mode Noise Filters DLW/DLP/NFP Series
 Power Inductors LQH Series
 Thermistors NCP/PRF Series

2 Signal Processor

Polymer Aluminum Electrolytic Capacitors ECAS/ECNS Series
 Ceramic Resonators CERALOCK CST Series
 Crystal Units XRC Series
 3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose NFM Series
 NFC Antennas FLAN Series
 Thermistors NCP/PRF Series
 MEMS Resonators WMRAG Series

4 Sound Circuit

Chip Common Mode Choke Coils DLW/DLP Series

5 HDD/DVD/BD

Polymer Aluminum Electrolytic Capacitors ECAS/ECNS Series
 Ceramic Resonators CERALOCK CST Series
 Crystal Units XRC Series
 Thermistors NCP/PRF Series
 Non-Isolated DC-DC Converters MYMGK/MYSGK/OKL/MYLSM Series

6 Interface

Bluetooth Modules



Bluetooth Smart Modules



Polymer Aluminum Electrolytic Capacitors
ECAS/ECNS Series



Ceramic Resonators CERALOCK
CST Series



Crystal Units
XRC Series



Chip Common Mode Choke Coils/
Common Mode Noise Filters
DLW/DLP/NFP/DLM Series



ESD Protection Devices
LXES Series



Thermistors
PRG Series



7 Control Circuit

Bluetooth Modules



Ceramic Resonators CERALOCK
CST Series



8 Remote Controller/Connectivity

Bluetooth Modules



Wi-Fi Modules



Bluetooth Smart Modules



MEMS Resonators
WMRAG Series



Ceramic Resonators CERALOCK
CST Series



Piezoelectric Sounders
PKMCS/PKLCS/PKM Series



ESD Protection Devices
LXES Series



Crystal Units
XRC Series



Chip Inductors (Chip Coils)
LQW/LQP/LQG/LQB Series



9 DC-DC Converter

Metal Terminal Type Multilayer Ceramic Capacitors
for General Purpose
KRM Series



Polymer Aluminum Electrolytic Capacitors
ECAS/ECNS Series



Power Inductors
LQH Series



Thermistors
NCP/PRF Series



10 Power Supply

Chip Multilayer Ceramic
Capacitors for General Purpose
GR/GA Series



Safety Standard Certified Resin
Molding SMD Type Ceramic
Capacitors for General Purpose
DK1 Series



Safety Standard Certified
Lead Type Disc Ceramic
Capacitors for General Purpose
DE1/DE2 Series



Thermistors
NCP/PRF/PTG Series



11 Traceability

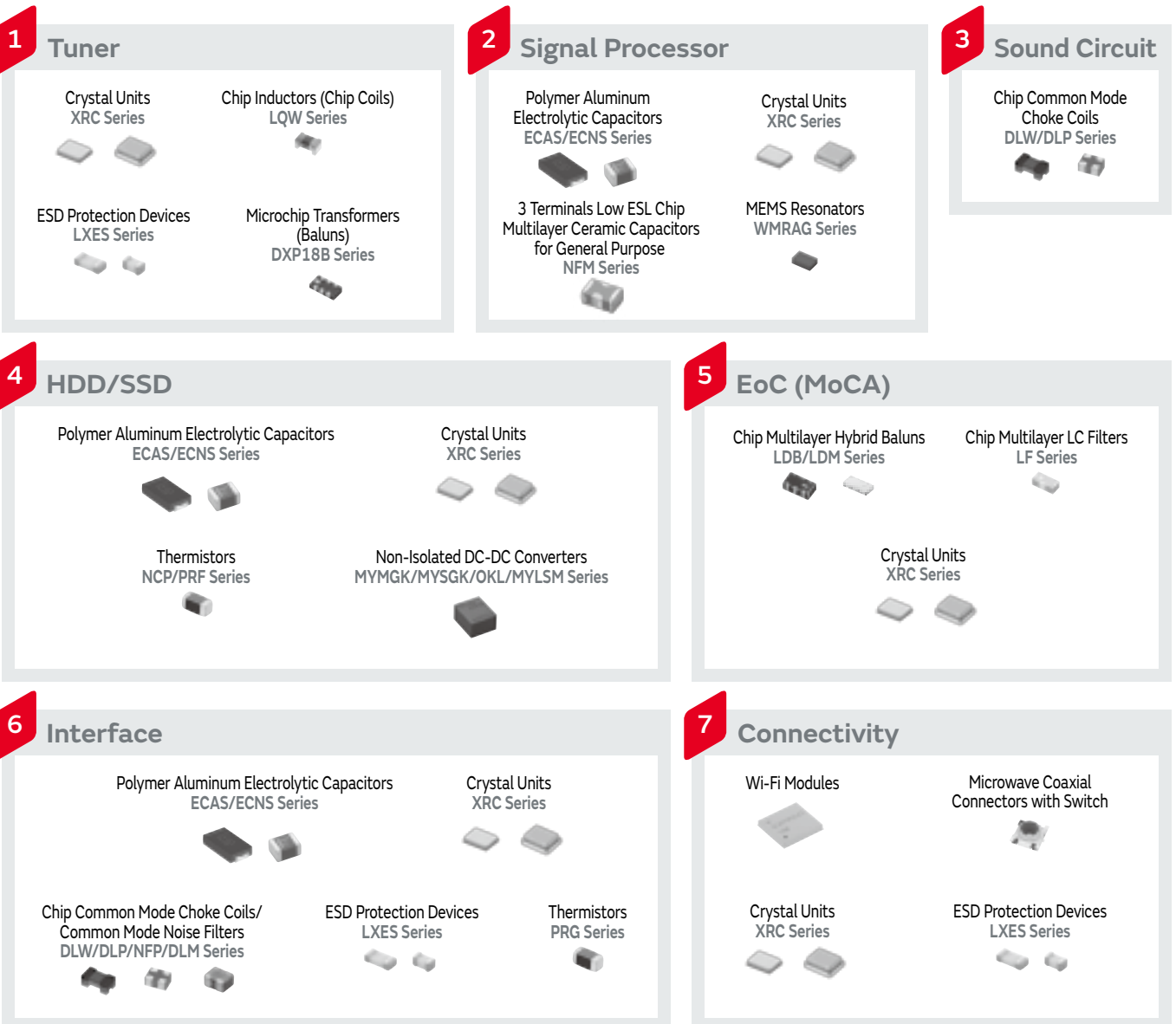
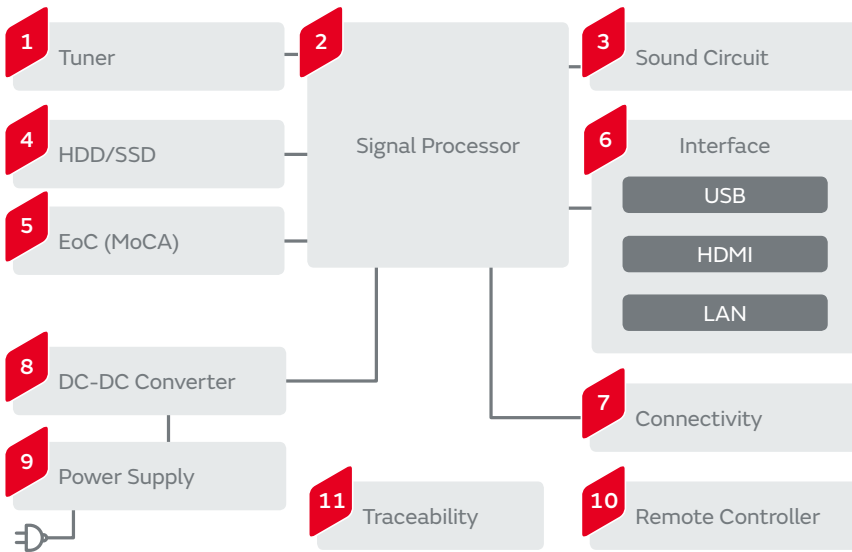
RFID Tag
LXMS/LXTB Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression

Set-top Box



8 DC-DC Converter

Non-Isolated DC-DC Converters
MYMGK/MYSGK/OKL/MYLSM Series



Chip Multilayer Ceramic Capacitors
on Interposer Board for General Purpose
ZRB Series



Power Inductors
LQH/DFE Series



Metal Terminal Type Multilayer
Ceramic Capacitors for General Purpose
KRM Series



Polymer Aluminum Electrolytic Capacitors
ECAS/ECNS Series



Thermistors
NCP/PRF Series



9 Power Supply

Chip Multilayer
Ceramic Capacitors
for General Purpose
GR/GA Series



Safety Standard Certified
Lead Type Disc Ceramic Capacitors
for General Purpose
DE1/DE2 Series



Safety Standard Certified Resin
Molding SMD Type Ceramic
Capacitors for General Purpose
DK1 Series



Thermistors
NCP/PRF/PTG Series



10 Remote Controller

Crystal Units
XRC Series



Ceramic Resonators CERALOCK
CST Series



Piezoelectric Sounders
PKMCS/PKLCS/PKM Series



11 Traceability

RFID Tag
LXMS/LXTB Series



General Purpose

Chip Multilayer Ceramic Capacitors for General Purpose	GRM Series	High Frequency Filter Circuit/Coupling/Decoupling/For Step-up
High Q Chip Multilayer Ceramic Capacitors for General Purpose	GJM Series	High Frequency Filter Circuit
Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose	GRJ Series	Coupling/Decoupling/For Step-up
3 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose	NFM Series	Noise Suppression
Polymer Aluminum Electrolytic Capacitors	ECAS/ECNS Series	Smoothing/Transient Backup
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance
Chip Inductors (Chip Coils)	LQM/LQH/DFE Series	Voltage Conversion
Chip Ferrite Beads	BLM/NFZ Series	Noise Suppression
Feed Through Chip EMI Filters	NFE Series	Noise Suppression
Chip Common Mode Choke Coils/Common Mode Noise Filters	DLW/DLP/NFP Series	Noise Suppression
Coin Manganese Dioxide Lithium Batteries	Standard Type	Battery Backup

SimSurfing

The best partner
for your circuit
design



SimSurfing is a web application which allows circuit designers to see our components' characteristics data, and to select the one that best suits the requirement.

View and download data

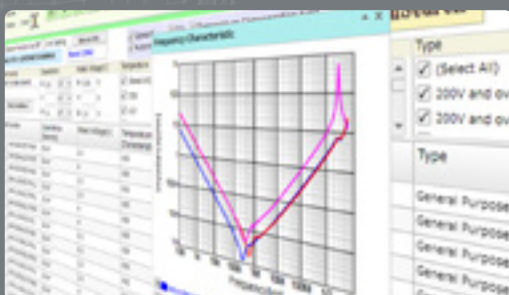
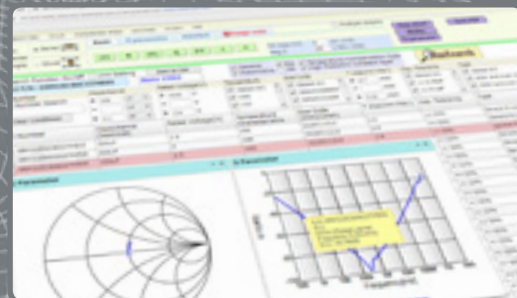
You can see various characteristics graphs for our products with easy operation, or download data files including s-parameter, spice models, etc.

Simulate circuit conditions

Simsurfing includes advanced equivalent circuit models which show the characteristics data close to actual measurement (for some components including MLCC & RF inductors).

Compare characteristics

Easily compare characteristics data on the same graph.



For more information about SimSurfing visit
www.murata.com/tool/simsurfing
or visit the SimSurfing site directly at
ds.murata.co.jp/simsurfing/?lcid=en-us

muRata

INNOVATOR IN ELECTRONICS

K70E.pdf

Dec.12,2019

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