

MURATA PRODUCTS Lineup 2016



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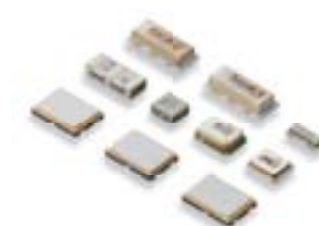
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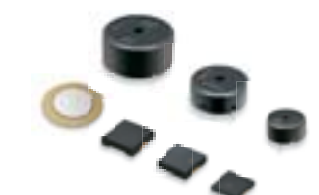
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Capacitors

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

Summary

Using Murata's unique material technology, we offer a variety of capacitors covering a wide range of voltages. 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.

Lineup

- Ceramic Capacitors (SMD, lead type, mold type)
- Polymer Aluminum Electrolytic Capacitors
- Ceramic Trimmer Capacitors ● Supercapacitors (EDLC)



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

WEB Product Search Engine



1 Search by part number

The applicable capacitors can be searched by alphanumeric characters.



2 Search by specifications

Capacitors can be searched by various specifications, such as the capacitance, rated voltage, and temperature characteristics.



3 Search by features

The applicable capacitors can be searched by the shape, maximum operating temperature, applications, benefits, and mounting.



4 Search in the lineup

Capacitors applicable to the conditions can be searched from the lineup of each series.



5 Cross reference

The Murata part number applicable to the assumed specification can be searched using a competitor's part number for chip monolithic ceramic capacitors.



Search result

The number of cases applicable to the current search conditions is always displayed in real time.

Click each search condition button to display the menu. The search results will change in real time with the selected conditions.



Clicking the "Current search conditions" opens a menu, and the filtered conditions can be checked.

The results can be sorted by clicking the ▲ button of the search results items.

Clicking the product name opens the details page, and more detailed information can be acquired.

A simple specification sheet can be downloaded without opening the details page.

The icons clearly indicate the status and the features of the product.

Icons

	For applications that do not require a particular reliability, such as general equipment.
	Powertrain/Safety for Automotive Products used for applications (running, turning, stopping, and safety devices) that particularly concern human life, such as in devices for automobiles.
	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
	Safety Standard Certified Product Products that acquired safety standard certification IEC60384-14 and products based on the Electrical Appliance and Material Safety Law of Japan.
	LXW dimension: products of 0.6X0.3 mm or less
	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.
	Product of 10 to 40kV rated voltage
	Over 220μF
	No DC bias characteristics Polymer capacitor is no capacitance change with DC bias due to aluminum oxidized film for dielectric.
	Product for bonding Since gold is used for the external electrodes, the capacitor can be mounted by die bonding/wire bonding.

Capacitors

Product Lineup

			Safety standard	Ultra-compact	High Q	Low ESL	Fail safe	Deflecting crack	Soldering crack	Anti-noise	Ultrahigh-voltage	Large Cap	Effective Cap	Bonding	Specific Applications
General	GRM	P5													
	GRM	P10													For LCD backlight only
	GA2	P11													
	GA3	P12													
	GJM	P8													
	GMA	P9													
	GMD	P9													
	GQM	P9													
	GRJ	P10													
	GR3	P11													
	GR4	P11													For communication / information devices
	GR7	P11													Limited to camera flashes
	KRM	P12													
	KR3	P13													
	LLA	P8													
	LLL	P7													
	LLM	P8													
	LLR	P8													
	DE1	P20													
	DE2	P20													
	DEJ	P21													
	DHR	P21													
	RDE	P18													
	DHK	P24													
	DHS	P23													
	ECAS	P24													
Power-train	GCM	P13													
AEC-Q200	GCD	P15													
	GCE	P15													
	GCG	P16													
	GCJ	P14													
	GC3	P16													
	KCM	P17													
	KC3	P17													
	DE6	P23													
	RCE	P21													
	RH	P22													
Medical Device	GCH	P17													For Implanted Medical Devices

Chip Monolithic Ceramic Capacitors For General Purpose

For General Purpose

Temperature Compensating Type



GRM

General

Ultra-compact

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	
GRM02	0.4X0.2 <01005>	50			17pF	100pF								
		35				100pF								
		25			18pF	220pF								
		16	0.20pF			220pF								
		10				56pF	220pF							
		6.3				56pF	220pF							
GRM03	0.6X0.3 <0201>	100	0.10pF		15pF									
		50	0.10pF			220pF								
GRM15	1.0X0.5 <0402>	100	0.10pF			100pF								
		50	0.10pF				1000pF							
		10					1200pF	4700pF						
GRM18	1.6X0.8 <0603>	100		0.50pF			1500pF							
		50		0.50pF				10000pF						
		10					5600pF	22000pF						
GRM21	2.0X1.25 <0805>	250			10pF			5600pF						
		200			10pF			5600pF						
		100				100pF		3300pF						
		50					1200pF	47000pF						
		10						56000pF	0.10μF					
GRM31	3.2X1.6 <1206>	2k			10pF	68pF								
		1k			10pF		1000pF							
		630			10pF		4700pF							
		500			10pF		4700pF							
		250					390pF	22000pF						
		200						2700pF	10000pF					
		100						1800pF	22000pF					
		50							12000pF	0.10μF				
		25								0.12μF				
		16								0.12μF				
GRM32	3.2X2.5 <1210>	2k				82pF	220pF							
		1k					1200pF	2200pF						
		630					1200pF	10000pF						
		500					1200pF	10000pF						
		250						27000pF	47000pF					
GRM42	4.5X2.0 <1808>	3.15k			10pF	100pF								
GRM43	4.5X3.2 <1812>	1k					2700pF	4700pF						
		630						12000pF	22000pF					
		500						12000pF	22000pF					
GRM55	5.7X5.0 <2220>	1k					5600pF	10000pF						
		630						27000pF	47000pF					
		500						27000pF	47000pF					

Capacitors

■ High Dielectric Constant Type



GRM

General

Ultra-compact

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
GRM02	0.4X0.2 <01005>	16				100pF	1000pF						
		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	0.10μF						
		16					2200pF	0.10μF					
		10					4700pF	0.22μF					
		6.3					4700pF	0.22μF					
		4						0.22μF					
GRM15	1.0X0.5 <0402>	100				220pF	4700pF						
		50				220pF	0.10μF						
		35						0.22μF	1.0μF				
		25					2200pF	2.2μF					
		16					3300pF	2.2μF					
		10					15000pF	4.7μF					
		6.3						0.10μF	4.7μF				
		4						0.10μF	10μF				
GRM18	1.6X0.8 <0603>	250				220pF	2200pF						
		200				220pF	2200pF						
		100				220pF	0.10μF						
		50				220pF	2.2μF						
		35						2.2μF	4.7μF				
		25					10000pF	10μF					
		16						0.15μF	10μF				
		10						0.33μF	10μF				
		6.3							4.7μF	22μF			
		4							10μF	22μF			
GRM21	2.0X1.25 <0805>	500				1000pF	10000pF						
		250				1000pF	22000pF						
		200				1000pF	22000pF						
		100					10000pF	0.47μF					
		50					10000pF	4.7μF					
		35						2.2μF	10μF				
		25						68000pF	22μF				
		16						0.33μF	22μF				
		10						2.2μF	47μF				
		6.3							10μF	100μF			
		4							10μF	100μF			
		2.5								47μF	100μF		
GRM31	3.2X1.6 <1206>	1k				470pF	10000pF						
		630				1000pF	22000pF						
		500					15000pF	47000pF					
		250					15000pF	0.10μF					
		200					15000pF	0.10μF					
		100						0.47μF	2.2μF				
		50						0.47μF	10μF				
		35							10μF				
		25						0.33μF	22μF				

Continued on the following page. ↗

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	
GRM31	3.2X1.6 <1206>	16									4.7μF	22μF		
		10									22μF	47μF		
		6.3									22μF	150μF		
		4									47μF	220μF		
		2.5									150μF	220μF		
GRM32	3.2X2.5 <1210>	1k					6800pF	22000pF						
		630					22000pF	47000pF						
		500					68000pF	0.10μF						
		250					68000pF	0.22μF						
		200					68000pF	0.22μF						
		100							1.0μF	4.7μF				
		80								4.7μF				
		63									10μF			
		50								4.7μF	10μF			
		35									10μF			
		25									10μF	22μF		
		16									22μF	47μF		
		10									47μF	100μF		
		6.3									47μF	100μF		
		4										100μF		
GRM43	4.5X3.2 <1812>	1k					33000pF	47000pF						
		630					68000pF	0.10μF						
		500						0.15μF	0.22μF					
		250						0.15μF	0.47μF					
		200						0.15μF	0.47μF					
GRM55	5.7X5.0 <2220>	1k					68000pF	0.10μF						
		630						0.15μF	0.22μF					
		500						0.33μF	0.47μF					
		250						0.33μF	1.0μF					
		200						0.33μF	1.0μF					

Low ESL Type

LW Reversed Type



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			
LLL18	0.8X1.6 <0306>	50					2200pF	4700pF					
		25					10000pF	22000pF					
		16					22000pF	47000pF					
		10						0.10μF	0.22μF				
		4							0.22μF	2.2μF			
LLL1U	0.6X1.0 <02404>	4								4.3μF			
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				
LLL31	1.6X3.2 <0612>	4							1.0μF	2.2μF			
		50					10000pF	0.10μF					
		25					47000pF	0.47μF					

Continued on the following page. ↗

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	
LLL31	1.6X3.2 <0612>	16							0.22μF	1.0μF				
		10							0.47μF	2.2μF				
		6.3								2.2μF	10μF			

■ Controlled ESR Type



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

■ 8 Terminal Type



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				
LLA31	3.2X1.6 <1206>	16						0.22μF	1.0μF				
		10						0.47μF	2.2μF				
		6.3						1.0μF	2.2μF				

■ 10 Terminal Type



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>	6.3							0.22μF	0.47μF			
		4								1.0μF			
LLM31	3.2X1.6 <1206>	16							0.10μF	0.22μF			
		10								0.47μF			
		6.3									2.2μF		

■ High Q Type for High Frequency



GJM

General

Ultra-compact

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>	50	0.20pF		3.9pF									
		25	0.20pF		33pF									
GJM15	1.0X0.5 <0402>	50	0.10pF		47pF									

High Q Type for High Frequency and High Power



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								
		100		1.0pF	6.8pF								
		50			7.0pF	100pF							
GQM21	2.0X1.25 <0805>	250		1.0pF	100pF								
		100		1.0pF	18pF								
		50			20pF	100pF							
GQM22	2.8X2.8 <1111>	500		1.0pF	100pF								

Product for Bonding/AuSn Soldering



GMD

General Ultra-compact 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							0.12μF	0.47μF			

Top & Bottom Electrode Type for Bonding



GMA

General Ultra-compact 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	
GMA05	0.5X0.5 <0202>	100				100pF		1000pF						
		25					1500pF	4700pF						
		10						6800pF	22000pF					
		6.3							0.10μF					
GMA08	0.8X0.8 <0303>	100					1500pF	6800pF						
		25						10000pF	22000pF					
		10						33000pF	0.10μF					
		6.3								0.47μF				
GMA0D	0.38X0.38 <015015>	10					1000pF	10000pF						

Capacitors

Resin External Electrode Type



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
GRJ18	1.6X0.8 <0603>	100					1000pF		0.10μF				
		50					1000pF		0.22μF				
		25						47000pF		1.0μF			
		16								0.47μF			
		6.3								2.2μF	4.7μF		
GRJ21	2.0X1.25 <0805>	250					1000pF		22000pF				
		100				220pF				1.0μF			
		50				470pF				1.0μF			
		25								1.0μF	2.2μF		
		16									4.7μF		
GRJ31	3.2X1.6 <1206>	10									10μF		
		1k				470pF		10000pF					
		630					1000pF		22000pF				
		250						15000pF		0.10μF			
		100							0.10μF	1.0μF			
GRJ32	3.2X2.5 <1210>	50							0.10μF	4.7μF			
		25								2.2μF	10μF		
		16								2.2μF	10μF		
		10									10μF	22μF	
		6.3										22μF	
GRJ32	3.2X2.5 <1210>	1k						6800pF	22000pF				
		630						22000pF	47000pF				
		250						68000pF	0.22μF				
		100								2.2μF	4.7μF		
		50									4.7μF	10μF	
GRJ43	4.5X3.2 <1812>	25									10μF		
		16										22μF	
		10										22μF	
		6.3											47μF
		1k						33000pF	47000pF				
GRJ55	5.7X5.0 <2220>	630						68000pF	0.10μF				
		250							0.15μF	0.47μF			
		1k						68000pF	0.10μF				
GRJ55	5.7X5.0 <2220>	630						0.15μF	0.22μF				
		250							0.33μF	1.0μF			

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>	3.15k			5.0pF	47pF							

High Effective Capacitance & High Ripple Resistance



GR3

General

Anti-noise

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	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	0.27μF			
		450							0.22μF	0.56μF			
		250							0.47μF	1.0μF			

For Ethernet LAN & Primary-secondary Coupling of DC-DC Converters



GR4

General

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

For Camera Flash Units Only



GR7

General

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
GR721	2.0X1.25 <0805>	350						10000pF	27000pF				
GR731	3.2X1.6 <1206>	350						10000pF	47000pF				

Safety Standard Certified

The Electrical Appliance and Material Safety Law of Japan



GA2

General

Safety standard

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (V)	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				

Continued on the following page. ↗

Capacitors

■ Type GF (IEC60384-14 Y2, X1/Y2 Class)



GA3

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		1000pF						
GA352	5.7X2.8 <2211>	AC250 (r.m.s.)				100pF		1500pF					
GA355	5.7X5.0 <2220>	AC250 (r.m.s.)					1800pF		4700pF				

■ Type GD (IEC60384-14 Y3 Class)



GA3

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		1500pF						
GA343	4.5X3.2 <1812>	AC250 (r.m.s.)					1800pF		4700pF				

■ Type GB (UL, IEC60384-14 X2 Class)



GA3

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				

■ Metal Terminal Type

■ High Effective Capacitance



KRM

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	
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	1k						68000pF	0.22μF					
		630							0.15μF	0.47μF				
		250								0.68μF	2.2μF			
		100									4.7μF	22μF		
		63									4.7μF	22μF		
		50									4.7μF	33μF		
		35									10μF	47μF		
		25									15μF	68μF		

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High Effective Capacitance & High Ripple Resistance



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			

Chip Monolithic Ceramic Capacitors For Automotive

For Automotive (General Purpose)

Temperature Compensating Type



GCM

Power-train

AEC-Q200

Ultra-compact

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		1.0pF		100pF							
GCM15	1.0X0.5 <0402>	50		1.0pF		470pF							
GCM18	1.6X0.8 <0603>	100		1.0pF		1500pF							
		50		1.0pF		3900pF							
GCM21	2.0X1.25 <0805>	250				100pF		5600pF					
		100				100pF		3300pF					
		80						15000pF		22000pF			
		63						15000pF		22000pF			
		50					1000pF		22000pF				
GCM31	3.2X1.6 <1206>	1k			10pF		1000pF						
		630				10pF		4700pF					
		250				10pF		15000pF					
		100						1800pF		10000pF			
		80								33000pF			
		63								33000pF			
		50						3900pF		56000pF			
GCM32	3.2X2.5 <1210>	1k					1200pF		2200pF				
		630						1200pF		10000pF			
GCM43	4.5X3.2 <1812>	1k						2700pF		4700pF			
		630						12000pF		22000pF			
GCM55	5.7X5.0 <2220>	1k						5600pF		10000pF			
		630							27000pF		47000pF		

High Dielectric Constant Type



GCM

Power-train

AEC-Q200

Ultra-compact

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	1500pF						
		16					2200pF 3300pF						
		10					4700pF 10000pF						

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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
GCM15	1.0X0.5 <0402>	100				220pF	4700pF						
		50				220pF	0.10μF						
		25					10000pF	47000pF					
		16					33000pF	0.22μF					
		10						0.47μF	1.0μF				
GCM18	1.6X0.8 <0603>	100				1000pF	22000pF						
		50				1000pF	0.22μF						
		25					33000pF	1.0μF					
		16						0.10μF	1.0μF				
		6.3							2.2μF				
GCM21	2.0X1.25 <0805>	100					6800pF	1.0μF					
		50					33000pF	1.0μF					
		35						0.68μF	4.7μF				
		25						0.15μF	4.7μF				
		16						0.68μF	4.7μF				
		10							2.2μF	10μF			
		6.3							10μF	22μF			
GCM31	3.2X1.6 <1206>	100						0.10μF	2.2μF				
		50						0.33μF	4.7μF				
		25							2.2μF	10μF			
		16							4.7μF	10μF			
		10								10μF	22μF		
		6.3									22μF		
GCM32	3.2X2.5 <1210>	100								4.7μF			
		50							1.0μF	10μF			
		35								10μF			
		25								4.7μF	10μF		
		16								10μF	22μF		
		10									22μF		
		6.3									47μF		

Resin External Electrode Type



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						10000pF	0.47μF				
		10							0.12μF	0.22μF			
		6.3								2.2μF	4.7μF		
GCJ21	2.0X1.25 <0805>	250					1000pF	22000pF					
		100				220pF	1.0μF						
		50				330pF	1.0μF						
		35						0.12μF	0.47μF				
		25				470pF	2.2μF						
		16						0.27μF	4.7μF				
		10							2.2μF	10μF			
GCJ31	3.2X1.6 <1206>	1k					1000pF	10000pF					
		630					1000pF	22000pF					
		250						15000pF	0.10μF				

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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	
GCJ31	3.2X1.6 <1206>	100							0.10μF	1.0μF				
		50							0.10μF	4.7μF				
		35							0.56μF	1.0μF				
		25							0.10μF	10μF				
		16							1.0μF	10μF				
		10								6.8μF	22μF			
		6.3									22μF			
GCJ32	3.2X2.5 <1210>	1k						15000pF	22000pF					
		630						6800pF	47000pF					
		250						68000pF	0.22μF					
		100							2.2μF	4.7μF				
		50							4.7μF	10μF				
		25								4.7μF				
		16									22μF			
GCJ43	4.5X3.2 <1812>	1k						33000pF	47000pF					
		630						33000pF	0.10μF					
		250							0.15μF	0.47μF				
GCJ55	5.7X5.0 <2220>	1k						68000pF	0.10μF					
		630							0.10μF	0.22μF				
		250							0.33μF	1.0μF				

Specially Designed Product to Reduce Shorts



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					1000pF	0.10μF						
		50					1000pF	0.10μF						

Specially Designed Product to Reduce Shorts & Resin Electrode Product



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					1000pF	0.10μF						
		50					1000pF	0.10μF						

Capacitors

Conductivity Adhesive Compatible Type

Temperature Compensating Type



GCG



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>	50			10pF		2200pF						
GCG21	2.0X1.25 <0805>	50				100pF	10000pF						

High Dielectric Constant Type



GCG



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			220pF	0.22μF							
		25			1000pF	0.47μF							
		16					68000pF	1.0μF					
		6.3							2.2μF				
GCG21	2.0X1.25 <0805>	100					10000pF						
		50				10000pF	0.47μF						
		25				10000pF	1.0μF						
		16						0.33μF	4.7μF				
GCG31	3.2X1.6 <1206>	50						0.15μF	0.33μF				
		25						0.15μF	4.7μF				
		16							0.68μF	4.7μF			
GCG32	3.2X2.5 <1210>	25								3.3μF	10μF		

High Effective Capacitance & High Ripple Resistance



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	0.27μF			
		450							0.22μF	0.56μF			
		250							0.47μF	1.0μF			

Metal Terminal Type

High Effective Capacitance



KCM



Series	LXW (mm)	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	68μF		

High Effective Capacitance & High Ripple Resistance



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	0.56μF			
		450							0.22μF	1.2μF			
		250							0.47μF	2.2μF			

Chip Monolithic Ceramic Capacitors For Medical Devices

For Implanted Medical Devices

Temperature Compensating Type



GCH



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		1.0pF			470pF						
GCH18	1.6X0.8 <0603>	100		1.0pF			1500pF						
		50		1.0pF			3300pF						
GCH21	2.0X1.25 <0805>	100				100pF	3300pF						
		50					1000pF	22000pF					
GCH31	3.2X1.6 <1206>	100					2200pF	10000pF					
		50					4700pF	47000pF					

High Dielectric Constant Type



GCH



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>	100				220pF		4700pF						
		50				220pF			0.10μF					

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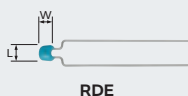
Capacitors

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	
GCH15	1.0X0.5 <0402>	25						10000pF	47000pF					
		16						47000pF	0.22μF					
		10							0.10μF					
GCH18	1.6X0.8 <0603>	100					1000pF	0.10μF						
		50					1000pF	0.22μF						
		25						47000pF	1.0μF					
		16						0.10μF	1.0μF					
		10								2.2μF				
		6.3								2.2μF				
GCH21	2.0X1.25 <0805>	100						10000pF	1.0μF					
		50						47000pF	1.0μF					
		35							1.0μF	4.7μF				
		25							0.22μF	4.7μF				
		16							1.0μF	4.7μF				
		10								2.2μF	10μF			
		6.3									10μF			
GCH31	3.2X1.6 <1206>	100							0.10μF	1.0μF				
		50							0.47μF	2.2μF				
		25								2.2μF	4.7μF			
		16								4.7μF	10μF			
		10									10μF			
GCH32	3.2X2.5 <1210>	100								2.2μF				
		50								1.0μF	4.7μF			
		25									4.7μF			
		16										10μF		
		10										22μF		
		6.3											47μF	

Lead Type Ceramic Capacitors For General Purpose

Radial Lead Type

Temperature Compensating Type



RDE

General

Deflecting crack

Soldering crack

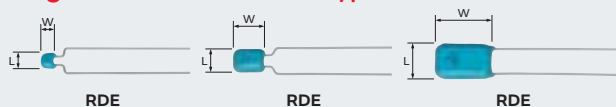
Anti-noise

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
RDE5C	4.0X3.5	100		1.0pF	1500pF								
		50		1.0pF	3900pF								
	4.5X3.5	100				1800pF	3300pF						
		50				4700pF	22000pF						
	5.0X3.5	100		1.0pF	3300pF								
		50		1.0pF	22000pF								
	5.5X4.0	100				3900pF	22000pF						
		50				27000pF	0.10μF						
RDE7U	4.5X3.5	250				100pF	4700pF						
	5.5X4.0	1k			10pF	1000pF							
		630			10pF	4700pF							
		250				6800pF	22000pF						
	5.5X5.0	1k				1500pF	2200pF						

Continued on the following page. ↗

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
RDE7U	5.5X5.0	630						6800pF	10000pF					
		250						33000pF	47000pF					
	7.5X5.5	1k						3300pF	4700pF					
		630						15000pF	22000pF					
	7.5X8.0	1k						6800pF	10000pF					
		630						33000pF	47000pF					
	7.7X13.0	1k							20000pF					
		630								94000pF				

High Dielectric Constant Type



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	
RDEC7	4.0X3.5	25							0.22μF	1.0μF				
	4.5X3.5	25								2.2μF				
	5.0X3.5	25							0.22μF	2.2μF				
	5.5X4.0	50									4.7μF			
		25								4.7μF	10μF			
	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						
		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		0.1μF						
		25						0.1μF						
	4.5X3.5	500				1000pF		10000pF						
		250				1000pF		22000pF						
		100						33000pF	0.47μF					
		50						0.15μF	0.47μF					
	5.0X3.5	100				220pF		0.47μF						
		50				220pF		0.47μF						
		25						0.1μF						
	5.5X4.0	1k				470pF		10000pF						
		630				1000pF		22000pF						
		500						15000pF	47000pF					
		250						33000pF	0.10μF					

Continued on the following page. ↗

Capacitors

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

Disc Type (Safety Standard Certified Type)



DE2/DE1/DEJ

■ Type KY (Basic Insulation Type) - IEC60384-14 X1/Y2 Class

General Safety standard

Series	D (mm)	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
DE21X	8.0	AC250 (r.m.s.)			10pF	68pF							
DE2B3	7.0 to 8.0	AC300 (r.m.s.)				100pF	680pF						
	7.0 to 8.0	AC250 (r.m.s.)				100pF	680pF						
DE2E3	7.0 to 10.0	AC300 (r.m.s.)					1000pF	4700pF					
	7.0 to 10.0	AC250 (r.m.s.)					1000pF	4700pF					
DE2F3	14.0	AC300 (r.m.s.)						10000pF					
	14.0	AC250 (r.m.s.)						10000pF					

■ Type KX (Reinforced Insulation Type) - IEC60384-14 X1/Y1 Class

General Safety standard

Series	D (mm)	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
DE11X	9.0	AC250 (r.m.s.)			10pF	68pF							
DE1B3	7.0 to 8.0	AC300 (r.m.s.)				100pF	680pF						
	7.0 to 8.0	AC250 (r.m.s.)				100pF	680pF						
DE1E3	7.0 to 12.0	AC300 (r.m.s.)					1000pF	4700pF					
	7.0 to 12.0	AC250 (r.m.s.)					1000pF	4700pF					

Continued on the following page. ↗

The Electrical Appliance and Material Safety Law of Japan

General Safety standard

Series	D (mm)	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
DEJE3	7.0 to 11.0	AC250 (r.m.s.)					1000pF	4700pF					
DEJF3	8.0 to 11.0	AC250 (r.m.s.)					4700pF	10000pF					

Disc Type (Ultra-high-voltage)



DHR

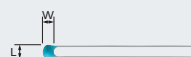
General Deflecting crack Soldering crack Ultrahigh-voltage

Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
DHR4E	8.0 to 18.0	15k				100pF	1000pF						
	8.0 to 16.0	12k				100pF	1000pF						
	8.0 to 15.0	10k				100pF	1000pF						
DHRB3	8.0 to 18.0	15k				100pF	1000pF						
	8.0 to 16.0	12k				100pF	1000pF						
	8.0 to 15.0	10k				100pF	1000pF						

Lead Type Ceramic Capacitors For Automotive

Powertrain/Safety (AEC-Q200)

Temperature Compensating Type



RCE

Powertrain AEC-Q200 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	
RCE5C	3.6X3.5	100		1.0pF	1500pF									
		50		1.0pF	3900pF									
	4.0X3.5	100				1800pF 3300pF								
		50				4700pF 22000pF								
	5.5X4.0	100				3900pF 10000pF								
		50				27000pF 0.10μF								
RCE7U	4.0X3.5	250				100pF	4700pF							
		1k			10pF	1000pF								
		630			10pF	4700pF								
		250					6800pF 10000pF							
	5.5X5.0	1k					1500pF	2200pF						
		630					6800pF 10000pF							
	7.5X5.5	1k					3300pF 4700pF							
		630					15000pF 22000pF							
	7.5X8.0	1k					6800pF 10000pF							
		630					33000pF 47000pF							
	7.7X13.0	1k						20000pF						
		630						94000pF						

Continued on the following page. ↗

Capacitors

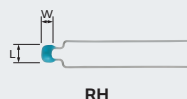
■ High Dielectric Constant Type



Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
RCEC7	5.5X5.0	100								1.5μF	2.2μF			
	5.5X7.5	100									4.7μF			
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	1k					1000pF	10000pF						
		630					1000pF	22000pF						
		250						33000pF	0.10μF					
		100							0.15μF	1.0μF				
		50								0.68μF	2.2μF			
		25								1.5μF	4.7μF			
	5.5X5.0	1k						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	1k						33000pF	47000pF					
		630						68000pF	0.10μF					
		250							0.33μF	0.47μF				
	7.5X7.5	250								0.68μF	1.0μF			
	7.5X8.0	1k						68000pF	0.10μF					
		630							0.15μF	0.22μF				
	7.5X12.5	250									2.2μF			
	7.7X13.0	1k								0.22μF				
		630									0.47μF			

■ Powertrain/Safety (AEC-Q200) 150°C Max.

■ Temperature Compensating Type

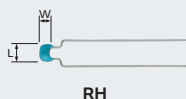


Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
RHE5G	3.6X3.5	100				100pF	1500pF						
		50				100pF	3900pF						
	4.0X3.5	100					1800pF 3300pF						
		50					4700pF 10000pF						

Continued on the following page. ↗

Capacitors

■ High Dielectric Constant Type



RH



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				

■ Safety Standard Certified for Automotive

■ Type KJ -IEC60384-14 X1/Y2 Class



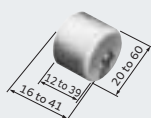
DE6



Series	D (mm)	Rated Voltage (V)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
DE6B3	8.0 to 9.0	AC300 (r.m.s.)				100pF	680pF							
DE6E3	7.0 to 12.0	AC300 (r.m.s.)					1000pF	4700pF						

High Voltage Ceramic Capacitors

■ Ultra-high-voltage



DHS

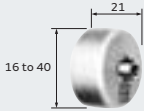
(in mm)



Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
DHS4E	-	40k				140pF		2000pF						
		30k				190pF		2700pF						
		20k				280pF		4000pF						
		15k				370pF		5300pF						
		10k				560pF		8000pF						
DHSF4	-	40k				340pF		2700pF						
		30k				460pF		3600pF						
		20k				600pF		4800pF						

Capacitors

High Voltage AC Rated Type



DHK

(in mm)

General

Ultrahigh-voltage

Series	LXW (mm)	Rated Voltage (V)	Capacitance Range (F)										
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ
DHK3V	-	AC10k (r.m.s.)				100pF	1000pF						

Polymer Aluminum Electrolytic Capacitors



ECAS

General

Large Cap

Effective Cap

Series	LxW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
ECASD	7.3X4.3	16									6.8μF	47μF		
		12.5									10μF	100μF		
		10									10μF	150μF		
		6.3									10μF	330μF		
		4										68μF	330μF	
		2										100μF	560μF	

Trimmer Capacitors

Trimmer Capacitors are variable capacitance capacitors, used for adjusting characteristics of electronic equipment.

Mounting Method	Soldering Method	Series	Max. Height	Size (WXL)	Rated Voltage	Operating Temperature Range	Remarks
Surface Mounting	Reflow Soldering Methods	 TZR1	0.9mm max.	1.5X1.7mm	25V	-25 to 85°C	
		 TZY2	1.25mm max.	2.5X3.2mm	25V	-25 to 85°C	
		 TZC3	1.7mm max.	3.2X4.5mm	100V	-25 to 85°C	
		 TZW4	2.6mm max.	4.2X5.2mm	250V	-55 to 125°C	for High Frequency Power
		 TZB4_AA	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	
		 TZB4_BA	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	
	Flow Soldering Methods	 TZB4_AB	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	with Cover Film
		 TZB4_BB	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	with Cover Film

Please refer to p. 72 for Supercapacitors (EDLC).



Detailed Catalogs

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



- Chip Monolithic Ceramic Capacitors Cat. No. C02E
- Chip Monolithic Ceramic Capacitors for Automotive Cat. No. C03E
- Safety Standard Certified Ceramic Capacitors/ High Voltage Ceramic Capacitors Cat. No. C85E
- Ceramic Trimmer Capacitors Cat. No. T13E
- Polymer Aluminum Electrolytic Capacitors Cat. No. C90E
- Radial Lead Type Monolithic Ceramic Capacitors Cat. No. C49E
- High Performance Supercapacitors (EDLC) DMF Series Cat. No. O83E
- High Performance Supercapacitors (EDLC) DMT Series Cat. No. O84E

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 material, 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 ●AC Line Filters ●Ferrite Cores



Noise Suppression Filters (Chip Ferrite Bead)

		Series	Size Code inch (mm)	Max. Rated Current (mA)	Impedance (Ω) at 100MHz						Effective Frequency Range (Hz) (For Reference Only)							
					10	100			1000		10k	100k	1M	10M	100M	1G	10G	
For General Band Noise	Universal Type [Power Lines / Signal Lines]	 BLM02AX	01005 (0402)	750	10	70	120	240										
		 BLM03AX	0201 (0603)	1000	10	80	120	240	600	1000								
		 BLM15AX	0402 (1005)	1740	10	30	70	120	220	600	1000							
	For General Signal Lines	 BLM03AG	0201 (0603)	-	10	80 70	120	240	600	1000								
		 BLM15AG	0402 (1005)	-	10	70	120	220	600	1000								
		 BLM18AG	0603 (1608)	-				220 120 150	330	470 600	1000							
		 BLM21AG	0805 (2012)	-				220 120 150	330	470 700 900 600 800	1000							
		 BLM18TG	0603 (1608)	-				120	220	600	1000							
		 BLA2AA (4 circuits array)	0804 (2010)	-				120	220	600	1000							
		 BLA31AG (4 circuits array)	1206 (3216)	-	30	60	120	220	600	1000								
		Signal Lines Type	 BLM02BX*	01005 (0402)	-		120	150	240									
			 BLM03BX	0201 (0603)	-						1800 1000							
	 BLM03B		0201 (0603)	-	10	22	33 47	56 80 75	120	240	600 470							
	 BLM15B		0402 (1005)	-	5	10	22	33 47	75	120	220	240	600 470	1800 1000				
	 BLM18B		0603 (1608)	-	5	10	22	75 47 60	140 120 150	200 250 220 300	330 420 470	600 1000	1500 2200 1800 2500					
	 BLM21B		0805 (2012)	-	5			75 60	200 250 120 150	330 420 220 300	470 501 600 350	1500 2200 2200 2700	1000 1800 2250					
	 BLA2AB (4 circuits array)		0804 (2010)	-	10	22	47	75	120	220	600 470	1000						
	 BLA31BD (4 circuits array)		1206 (3216)	-					120	220	600 470	1000						
	For Digital Interface Lines		 BLM18RK	0603 (1608)	-					120	220	600 470	1000					
			 BLM21RK	0805 (2012)	-					120	220	600 470	1000					

* 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 Products/EMI Suppression Filters

		Series	Size Code inch (mm)	Max. Rated Current (mA)	Impedance (Ω) at 100MHz			Effective Frequency Range (Hz) (For Reference Only)						
					10	100	1000	10k	100k	1M	10M	100M	1G	10G
For General Band Noise	Power Lines Type	BLM02PX*	01005 (0402)	1100	10(1.1A)22(0.75A) 60(0.5A) 33(0.55A)									
		BLM03PX*	0201 (0603)	1800	33(1.5A) 22(1.8A) 80(1A)									
		BLM03PG	0201 (0603)	900	33(0.75A) 22(0.9A)									
		BLM15P*	0402 (1005)	3000	33(3A) 80(1.5A/2.3A) 180(1.5A) 220(1.4A) 470(1A) 10(1A) 30(2.2A) 60(1.7A/2.5A) 120(1.3A/2A) 330(1.2A) 600(0.9A)									
		BLM18PG*	0603 (1608)	3000	33(3A) 120(2A) 220(1.4A) 470(1A) 30(1A) 60(0.5A) 180(1.5A) 330(1.2A)									
		BLM21PG*	0805 (2012)	6000	30(4A) 22(6A) 60(3.5A) 120(3A) 330(1.5A)									
		BLM31PG*	1206 (3216)	6000	50(3.5A) 33(6A) 120(3.5A) 390(2A) 600(1.5A)									
		BLM41PG*	1806 (4516)	6000	75(3.5A) 60(6A) 180(3.5A) 470(2A) 1000(1.5A)									
		BLM18SN* (Low DC Resistance Type)	0603 (1608)	8000	22(8A)									
		BLM18KG* (Low DC Resistance Type)	0603 (1608)	6000	30(5A) 26(6A) 70(3.5A) 100(3A) 220(2.2A) 470(1.5A) 120(3A) 330(1.7A) 600(1.3A)									
		BLM18SG* (Low DC Resistance Type)	0603 (1608)	6000	70(4A) 220(2.5A) 120(3A) 330(1.5A)									
		BLE32PN	1220 (3225)	10000	30(10A)									
For GHz Band Noise	Universal Type [Power Lines / Signal Lines]	BLM03EB*	0201 (0603)	600	25(0.6A) 50(0.4A)									
		BLM15EG*	0402 (1005)	1500	220(0.7A) 120(1.5A)									
		BLM15EX*	0402 (1005)	1800	220(1.3A) 120(1.8A) 330(1.1A) 470(0.95A)									
		BLM18EG*	0603 (1608)	2000	120(2A) 330(0.5A) 470(0.5A) 100(2A) 220(2A/1A) 390(0.5A) 600(0.5A)									
		BLM18HE*	0603 (1608)	800	1000(0.6A) 600(0.8A) 1500(0.5A)									
	Signal Lines Type	BLM03HG	0201 (0603)	-			1000 600 1200							
		BLM03HD	0201 (0603)	-			330 470 1000							
		BLM03HB	0201 (0603)	-		190								
		BLM15HG	0402 (1005)	-			600 1000							
		BLM15HD	0402 (1005)	-			600 1000 1800							
		BLM15HB	0402 (1005)	-		120 220								
		BLM18HG	0603 (1608)	-			600 470 1000							
		BLM18HD	0603 (1608)	-			600 470 1000							
		BLM18HB	0603 (1608)	-		120 220 330								
		BLM18HK	0603 (1608)	-			330 600 470 1000							
		BLM15GG	0402 (1005)	-		220 470								
		BLM15GA	0402 (1005)	-	75									
		BLM18GG	0603 (1608)	-		470								

Noise Suppression Filters (Chip 3 Terminal Capacitor)

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Capacitance (F)							Effective Frequency Range (Hz) (For Reference Only)						
				10p	100p	1000p	10000p	0.1μ	1μ	10μ	10k	100k	1M	10M	100M	1G	10G
Signal Lines Type	 NFM15CC	0402 (1005)	-				2200	22000									
	 NFM18CC	0603 (1608)	-				470 2200	1000	22000								

* 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 Products/EMI Suppression Filters

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Capacitance (F)							Effective Frequency Range (Hz) (For Reference Only)						
				10p	100p	1000p	10000p	0.1μ	1μ	10μ	10k	100k	1M	10M	100M	1G	10G
Signal Lines Type	 NFM21CC	0805 (2012)	-			470	2200										
	 NFM3DCC	1205 (3212)	-			470	2200										
	 NFM41CC	1806 (4516)	-			470	2200										
	 NFA31CC (4 circuits array)	1206 (3216)	-			470	2200										
Power Lines Type	 NFM15PC	0402 (1005)	2000					47000	0.22	1.0	7.5						
	 NFM18PS	0603 (1608)	2000					0.1	0.47	4.3	9.1						
	 NFM18PC	0603 (1608)	4000						1.0								
	 NFM21PS	0805 (2012)	4000						0.47								
	 NFM21PC	0805 (2012)	6000						0.22	1.0	4.7						
	 NFM3DPC*	1205 (3212)	2000				22000		0.1	0.47	2.2						
	 NFM31PC	1206 (3216)	6000														
	 NFM31KC*	1206 (3216)	10000				10000	22000									
	 NFM41PC	1806 (4516)	6000						0.2	1.5							
Universal Type [Power Lines / Signal Lines]	 NFE31PT	1206 (3216)	6000			470	2200										
	 NFE61PT	2706 (6816)	2000			100	360	1000									

Noise Suppression Filters (Chip LC/RC Filter)

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Cut-off Frequency (MHz)							Effective Frequency Range (Hz) (For Reference Only)						
				10			100			500	10k	100k	1M	10M	100M	1G	10G
Signal Lines Type	 NFL15ST	0402 (1005)	-					150	200	300	500						
	 NFL18ST	0603 (1608)	-				50	70	100	200	300	500					
	 NFL18SP	0603 (1608)	-					150	200	300	500						
	 NFL21SP	0805 (2012)	-								500						
	 NFA18SL (4 circuits array)	0603 (1608)	-	10	20		50	70	100	150	200	300	400				
	 NFA18SD (4 circuits array)	0603 (1608)	-				50		130	180	220	300	350	480			
	 NFA21SL (4 circuits array)	0805 (2012)	-							280	310						
	 NFW31SP	1206 (3216)	-				50	80		200	300	330					
	 NFR21GD	0805 (2012)	-	10	20		50	100	150	200	300	500					
	 NFA31GD (4 circuits array)	1206 (3216)	-														

Noise Suppression Filters (Chip EMIFIL®)

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Impedance (Ω) at 1MHz							Effective Frequency Range (Hz) (For Reference Only)						
				1		10		100		1000	10k	100k	1M	10M	100M	1G	10G
Signal Lines Type	 NFZ5BBW_LN10	2020(5050)	-			29	6.7	10	14	22	45	61	140				
Universal Type [Power Lines / Signal Lines]	 NFZ2HBM_10	1008 (2520)	1200			29	6.1	11	24	60							
	 NFZ32BW_10*	1210 (3225)	2550			7.4	15	32	42	70	150	290	620				
	 NFZ32BW_11*	1210 (3225)	2900			6.8	9.8	19	31	65	150						
						3.3	8.4	12	21	52	100						

* 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 Products/EMI Suppression Filters

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Impedance (Ω) at 100MHz				Effective Frequency Range (Hz) (For Reference Only)							
				100				1000	10k	100k	1M	10M	100M	1G	10G
Signal Lines Type	 NFZ32SW_10	1210 (3225)	-		300			900							
Universal Type [Power Lines / Signal Lines]	 NFZ18SM_10	0603 (1608)	1250	120											
	 NFZ2MSM_10	0806 (2016)	4000	100	180	300	600								

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Impedance (Ω) at 900MHz			Impedance (Ω) at 1.7GHz			Effective Frequency Range (Hz) (For Reference Only)						
				100	1000	5000	100	1000	5000	10k	100k	1M	10M	100M	1G	10G
Signal Lines Type	 NFZ15SG_10	0402 (1005)	-		1500 770	4600 2600		1200 900	1800 1450							
	 NFZ15SG_11	0402 (1005)	-	150 100	330		250 160	540								

Noise Suppression Filters (Chip Common Mode Choke Coil)

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Common Mode Impedance (Ω) at 10MHz			Effective Frequency Range (Hz) (For Reference Only)					
				100	500	1000	100k	1M	10M	100M	1G	10G
Signal Lines Type	For Audio Lines	 DLM11G	0504 (1210)	-		600						
	For Ultra-High-Speed Signal Lines	 DLMQSN	025020 (0605)	-	90							
		 DLMONS	03025 (0806)	-	90							
		 DLM11S	0504 (1210)	-	45 90							
		 DLP0QSA	025020 (0605)	-	15 7	35						
		 DLPONSC	03025 (0806)	-	28 90							
		 DLPONSN	03025 (0806)	-	35 90 67 120							
		 DLPONSA	03025 (0806)	-	15 7							
		 DLP11SN	0504 (1210)	-	67 90 120 160	240 200 280 330						
		 DLP11SA	0504 (1210)	-	35 90 67							
		 DLP11RN	0504 (1210)	-	45							
		 DLP11RB	0504 (1210)	-	15 40							
		 DLP11TB	0504 (1210)	-	80							
		 DLP31S	1206 (3216)	-	120	220	550					
		 DLP1NDN (2 circuits array)	05025 (1506)	-	35 90 67							
		 DLP2ADA (2 circuits array)	0804 (2010)	-	35 90 67							
		 DLP2ADN (2 circuits array)	0804 (2010)	-	90 120 160 67 200 280	240						
		 DLP31DN (2 circuits array)	1206 (3216)	-	90 130 200 320 440							
		 DLW21S	0805 (2012)	-	90 67 120 180 260 370 500	490 920						
		 DLW21H	0805 (2012)	-	90 67 120 180							
		 DLW31SN	1206 (3216)	-	90 160 260	600 1000 2200						
		 DLW43SH	1812 (4532)	-								
Universal Type [Power Lines / Signal Lines]	 DLW44S*	1515 (4040)	3100	100	250 400	850 2200 1700 2400						
	 DLW5AH/DLW5BS*	2014 (5036)/2020 (5050)	5000		190 350 500 800 1500 4000							
	 DLW5AT*/DLW5BT*	2014 (5036)/2020 (5050)	6000	50 110 100 150	230 250 330 400 500 850 1100 1400 2700							

* 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 Products/EMI Suppression Filters

	Series	Size Code inch (mm)	Max. Rated Current (mA)	Common Mode Impedance (Ω) at 10MHz				Effective Frequency Range (Hz) (For Reference Only)					
				100	200	300	500	100k	1M	10M	100M	1G	10G
Large Current Type for Automotive Available	 PLT5BP*	2020(5050)	-	100	200	300	500						
	 PLT10H*	-	-	45 100			400 500						

Noise Suppression Filters (Block Type)

		Series	Height (mm)	Rated Voltage (Vdc)	Rated Current (A)	Effective Frequency Range (Hz) (For Reference Only)						
						10k	100k	1M	10M	100M	1G	10G
Power Lines Type	SMD Type	 BNX022*	3.1	50	10							
		 BNX023*	3.1	100	15							
		 BNX024*	3.5	50	15							
		 BNX025*	3.5	25	15							
		 BNX026*	3.5	50	15							
		 BNX027*	3.5	16	15							
		 BNX028*	3.5	16	15							
		 BNX029*	3.5	6.3	15							
	Lead Type	 BNX002	13 max.	50	10							
		 BNX003	13 max.	150	10							
		 BNX005	13.5 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.

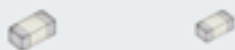
For automotive grade products, please refer to the catalog C51E, "EMI Suppression Filters (for DC)/Chip Inductors for Automotive."

ESD Protection Devices

Support ESD protection for various kinds of electronic devices.

Ceramic ESD Protection Devices LXES_A Series

Applying Murata's original ceramic technology for excellent ESD suppression performance and ultra-small capacitance value.



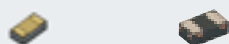
Silicon ESD Protection Devices LXES_B Series

Applying accumulated design technology for excellent ESD suppression performance.



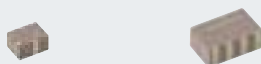
Silicon ESD Protection Devices LXES_T Series

Applying accumulated design technology for excellent ESD suppression performance.



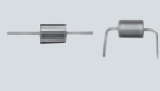
ESD Protection Devices with Common Mode Choke Coil LXES_D Series

Applying Murata's original ceramic technology for excellent ESD suppression performance, small capacitance value, and common mode filter performance.



Noise Suppression Products/EMI Suppression Filters

Noise Suppression Filters (Lead Type), Others

	Series										Effective Frequency Range (Hz) (For Reference Only) 10k 100k 1M 10M100M 1G 10G					
Lead Type EMIFIL®	 BLL18AG	 BL01	 BL02		 BL03	 DSS1	 DSN6	 DSN9(H)	 DSS6	 DST9(H)						
EMIGUARD®	 VFC2H	 VFR3V	 VFS6V		 VFS9V											
AC Line Filters	Common Mode Choke Coil	 PLA10AN	 PLA10AH		 PLH10AN											
	Hybrid Common Mode Choke Coil	 PLY10AN	 PLY10AH		 PLY17BN											
Common Mode Choke Coils	 PLT09H															
Microwave Absorbers	 EA10	 EA20/21/30														
Ferrite Core	 FSRH	 FSRB	 FSRC		 FSSA											

Detailed Catalogs

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



- SMD/BLOCK Type EMI Suppression Filters EMIFIL® Cat. No. C31E
- EMI Suppression Filters (for DC)/Chip Inductors for Automotive Cat. No. C51E
- EMI Suppression Filters (Lead Type EMIFIL®) Cat. No. C30E
- EMI Suppression Filters (EMIFIL®) for AC Power Lines Cat. No. C09E
- Noise Suppression by EMIFIL® Digital Equipment Application Manual Cat. No. C33E
- Noise Suppression by EMIFIL® Application Guide Application Manual Cat. No. C35E
- Application Manual for Power Supply Noise Suppression and Decoupling for Digital ICs Cat. No. C39E
- Ferrite Core for EMI Suppression Microwave Absorber Cat. No. O63E

Inductors (Coils)

Broad lineup of Chip Inductors and Power Inductors

Summary

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, and realized small size and high-performance inductors. We offer an extensive lineup of inductors for power supplies to high frequency.

Lineup

- RF Inductors ●RF Inductors/For Power Lines
- For Power Lines/General Circuit Inductors



Inductors (Coils)

<http://psearch.en.murata.com/inductor/partnumber/>

WEB Product Search Engine

1 Search by part number

The applicable inductors can be searched by alphanumeric characters.



2 Search by specifications

Inductors can be searched by various specifications, such as the Inductance, DC Resistance, and Rated Current.



3 Search in the lineups

Inductors applicable to the conditions can be searched from the lineup of each series.



Lineup chart-in Series page



4 Search by competitor's part number (Cross reference)

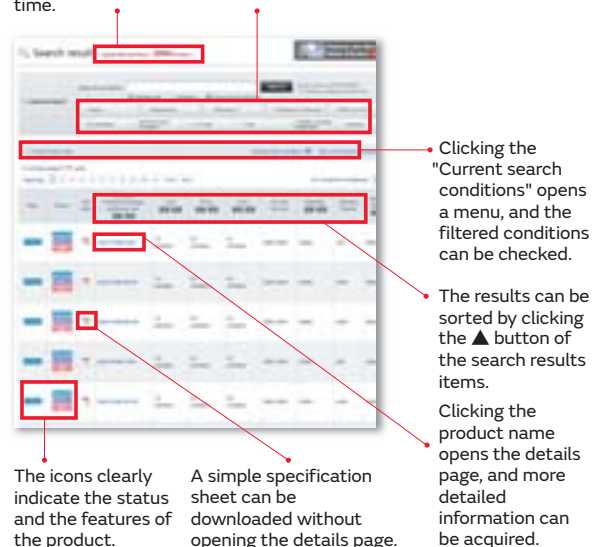
The Murata part number applicable to the assumed specification can be searched by the competitor's part number for the Inductors.



Search result

The number of cases applicable to the current search conditions is always displayed in real time.

Click each search condition button to display the menu. The search results will change in real time with the selected conditions.



RF Inductors

Film Type LQP Series

The film inductors in the LQP series have a different set of features, since micromachining of the coil patterns is enabled by forming the electrodes using a photolithography technique. The inductors can have smaller sizes and high Q characteristics, while at the same time the series offers a lineup of inductors with inductance values that both deviate minimally and are finely graded. The lineup consists of a wide range of inductors in the 0201/0603 size, which is becoming the mainstream, and in the 01005/0402 size, which is the smallest in the industry, both sizes support the trend toward miniaturized sizes. These inductors are used in the matching and resonance circuits of RF units that require miniaturized sizes, minimal tolerance in inductance, and finely graded inductance levels. They are also used in choke circuits that demand miniaturized sizes and low Rdc.



Features

- Ultra-miniature size
- High Q value and small size

The feature of the film type is also the Q factor, which is higher than the monolithic method that is adopted by other companies in the same industry. Murata offers the film type in the small 0201/0603 size and the 01005/0402 size. (Figure 1)

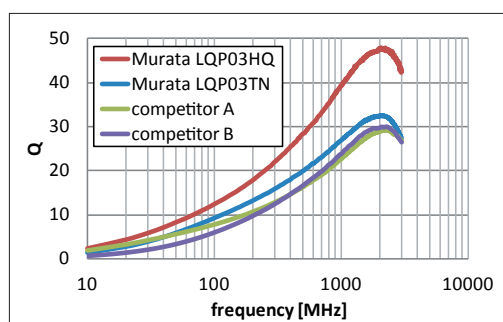


Figure 1: Comparison of Q Characteristics between 0603 Size, LQP03 Series and Monolithic Products of Other Companies (both 10 nH)

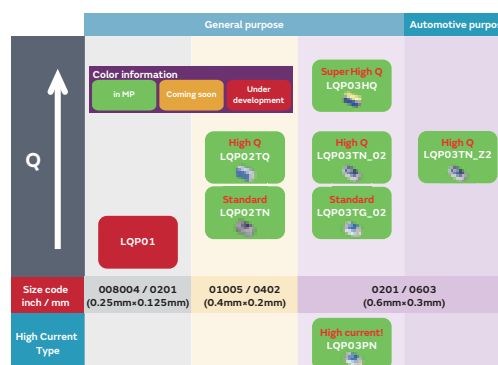


Figure 2: Lineup of Small Products

- Minimal tolerance in inductance, finely graded inductance levels

The tolerance between the monolithic structure and the film structure products of high frequency coils and L value lineup are shown in the following table. Compared with the monolithic type, the position accuracy of the film type is more accurate when forming the coil. Therefore, there is less variation in the L value, which allows for less tolerance and tighter steps.

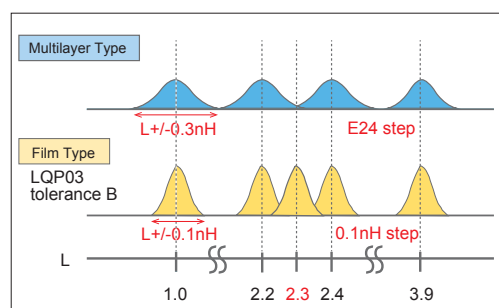


Figure 3: Step and Tolerance of Inductance

Uses and Applications

- Matching circuits of power amplifiers, RF matching circuits that require small sizes, minimal tolerance in inductance and high Q

Continued on the following page. ↗

General

Series	Size Code inch (mm)	Applications	Inductance (H)										Rated Current Range
			0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m		
LQP	01005 (0402)	General	0.2nH			39nH							90mA to 990mA
	0201 (0603)	General	0.1nH				270nH					50mA to 1.4A	
	0402 (1005)	General		1nH			33nH					60mA to 400mA	
	0603 (1608)	General		1.3nH			100nH					50mA to 300mA	

Automotive

Series	Size Code inch (mm)	Applications	Inductance (H)										Rated Current Range
			0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m		
LQP	0201 (0603)	Infotainment	0.6nH	120nH								80mA to 850mA	

Multilayer Type LQG Series

The multilayer structure of the LQG series enables a smaller shape and lower cost than a wound structure.

While the Q factor is lower than that of the wire wound structure, the multilayer structure provides good overall balance between the L value tolerance, rated current, size, price, and other characteristics, enabling use in a wide range of applications.

The multilayer structure is suitable for various applications such as RF circuit matching, choke, and resonance for mobile communication equipment.

Based on the long market results, this product realizes high reliability to meet automotive market demands.



Features

- Lineup with a wide range of inductance values
- Higher reliability

Uses and Applications

- Matching circuits of RF units, choke circuits

Selection Tool

Applications	size code in inch(mm)	0402(1005)		0603(1608)	
		High Q		High Q	
		LQG15WH		LQG18HH	
		LQG15HH			
Z: For Automotive Infotainment		High Q		High Q	
		LQG15WZ		LQG15HZ	
S,N: General		LQG15HS		LQG18HN	

LQG series selection chart

General

Series	Size Code inch (mm)	Applications	Inductance (H)										Rated Current Range
			0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m		
LQG	0402 (1005)	General		1nH	270nH								110mA to 1A
	0603 (1608)	General		1.2nH	100nH								350mA to 1.1A

Automotive

Series	Size Code inch (mm)	Applications	Inductance (H)										Rated Current Range
			0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m		
LQG	0402 (1005)	Infotainment		1nH		270nH							110mA to 1.2A
		PowerTrain		1nH		270nH							110mA to 1.2A
	0603 (1608)	PowerTrain		1.2nH		270nH							200mA to 1.1A

Inductors (Coils)

RF Inductors/For Power Lines

Wire Wound Type LQW Series

The wire wound inductors in the LQW series feature a high Q value. Inductors with high Q values are used in the matching circuits of RF units because their high Q values give them excellent attenuation characteristics inside the pass band of the filters. They are also frequently used in the matching applications of antennas for maintaining the transmission and reception sensitivity of the antennas. Furthermore, since they have low Rdc characteristics, they are also employed in choke circuits in which high current levels flow.



Features

- Two types of structure are available for various applications (Figure 1)
- Extremely high Q (Quality factor) value

The frequency characteristics of the Q are shown in the graph by structure (wire wound, monolithic) of high frequency coil 1005 size. As shown in Figure 2, the feature of the wire wound type is the very high Q factor compared with the monolithic type.

- Large currents can be supported

	Wound inductor for high frequency	Wound inductor for power lines / general circuits
Structure	Non-magnetic core 	Magnetic core 
Features	Owing to its thick coil wire rather than film type or multilayer type inductors, it gains very high Q values.	The process of winding on a magnetic core enables the gain inductance and impedance efficiently. According to this advantage, this product can be used as a high current, high performance noise filter.
Application	RF matching circuits or antenna matching circuits, which require high Q characteristics.	- Noise suppression in power lines - Radiation noise suppression in audio lines - NFC circuits

Figure 1: Features of Each Wound Inductor

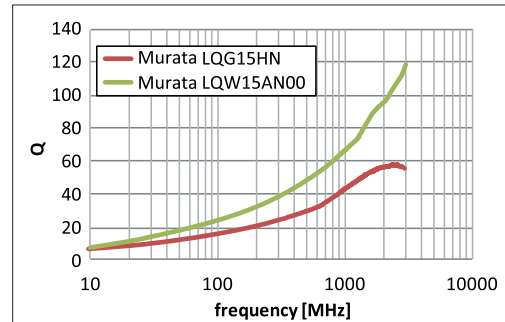
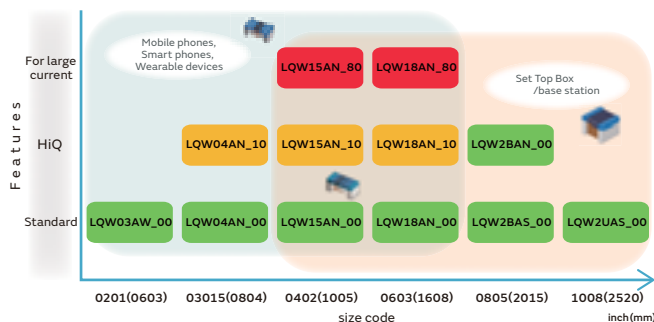


Figure 2: Comparison of Q Characteristics between Monolithic LQG15 Series and Wire Wound LQW15 Series (both 2.7 nH)

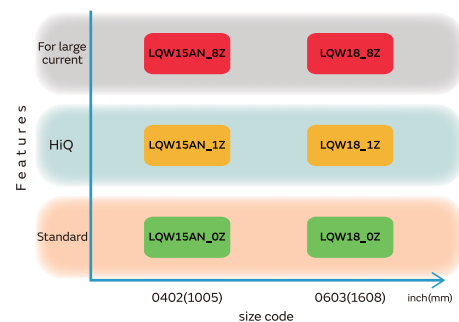
Uses and Applications

- RF matching circuits requiring Q value characteristics, choke circuits that support large currents levels, antenna matching circuits

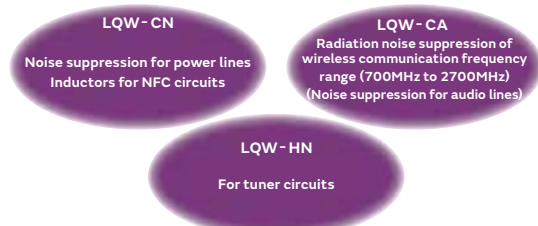
Selection Tool



Selection chart of non-magnetic core wound inductors for general applications



Selection chart of non-magnetic core wound inductors for automotive applications



Classification of RF circuits non-magnetic core wound inductors

Continued on the following page. ↗

General

Series	Size Code inch (mm)	Applications	Inductance (H)										Rated Current Range
			0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m		
LQW	0201 (0603)	General		1nH	16nH								230mA to 900mA
	03015 (0804)	General		1.1nH	510nH								140mA to 990mA
	0402 (1005)	General		1.3nH	2000nH								110mA to 3.15A
	0603 (1608)	General		1.6nH	650nH								75mA to 3.2A
	0805 (2012)	General			470nH	2200nH							75mA to 160mA
	0805 (2015)	General		2.7nH	820nH								160mA to 3.8A
	1008 (2520)	General			12nH	4700nH							260mA to 1A
	1206 (3216)	General			8.8nH	100nH							230mA to 750mA

Automotive

Series	Size Code inch (mm)	Applications	Inductance (H)										Rated Current Range
			0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m		
LQW	0402 (1005)	Infotainment		1.3nH	120nH								110mA to 3.15A
	0603 (1608)	Infotainment		1.6nH	470nH								75mA to 3.2A

For Power Lines/General Circuit Inductors

Multilayer Type LQM Series

The monolithic inductor consists of a sintered alternately layered ceramic material and coil conductor. Compared with the wound structure, small sizes/low profiles are possible. Along with the progression of the high frequency of switching frequencies, the required inductance of the monolithic inductor for power inductors where mobile phones are the main market tends to be deteriorating, and cases where the monolithic inductor can be applied are expected to increase further.



Features

- Ideal for small size/low profile areas
- Magnetic shielded structure

Uses and Applications

- Mobile phones, digital cameras, TVs, HDD, game machines

Wire Wound Type LQH Series

The wire wound inductor consists of a copper wire spirally wound around the ferrite core. Most wire wound inductors for power circuits are coated with various resins over the copper wire wound around the ferrite core. The purpose of the coating resin is to improve the strength of the product. The merits of using a wire wound product are demonstrated when used in large current areas and high inductance areas. The applicable markets vary from mobile phones to TVs and digital cameras.



Features

- Lineup of various sizes
- Can be used for high inductance values, and is ideal for power supply booster circuits.

Uses and Applications

- Mobile phones, digital cameras, TVs, HDD, game machines

Chip Inductors -Series Lineup by Chip Size

Size Code	inch (mm)	0603 (1608)	0805 (2012)	0806 (2016)	1008 (2520)	1212 (3030)	1206 (3216)	1210 (3225)	1812 (4532)	1515 (4040)	2020 (5050)	2220 (5750)	2525 (6363)
Multilayer Type (Ferrite Core)		LQM18	LQM21	LQM2M	LQM2H		LQM31	LQM32					
Wire wound Type (Ferrite Core)				LQH2M	LQH2H	LQH3N	LQH31	LQH32	LQH43	LQH44	LQH5B	LQH55	LQH66

Continued on the following page. ↗

Inductors (Coils)

General (Multilayer Type LQM Series)

Series	Size Code inch (mm)	Thickness (mm/max.)	Applications	Inductance (H)										Rated Current Range
				0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m		
LQM	0603 (1608)	Less than 1.0	General				0.047μH		10μH					15mA to 1.4A
		1.0 to 1.2	General					1μH	3.3μH					1.05A
	0805 (2012)	Less than 1.0	General				0.24μH		2.2μH					600mA to 2.4A
		1.0 to 1.2	General				0.1μH		10μH					15mA to 2.4A
		Greater than 1.2	General					2.7μH	47μH					7mA to 120mA
	0806 (2016)	Less than 1.0	General				0.24μH		2.2μH					1.1A to 2.6A
		1.0 to 1.2	General				0.16μH		4.7μH					1A to 4A
	1008 (2520)	Less than 1.0	General				0.24μH		2.2μH					1.3A to 3A
		1.0 to 1.2	General				0.24μH		4.7μH					800mA to 3.3A
	1206 (3216)	Less than 1.0	General				0.47μH		4.7μH					700mA to 1.4A
1210 (3225)	1.0 to 1.2	General						1μH					1.8A	

General (Wire Wound Type LQH Series)

Series	Size Code inch (mm)	Thickness (mm/max.)	Applications	Inductance (H)										Rated Current Range		
				0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m				
LQH	0806 (2016)	Less than 1.0	General				0.33μH					82μH			90mA to 1.13A	
	1008 (2520)	1.0 to 1.2	General				0.47μH					100μH			130mA to 2.75A	
		Greater than 1.2	General					2.2μH		4.7μH				800mA to 1.25A		
	1212 (3030)	1.0 to 1.2	General				0.47μH					250μH			130mA to 2.86A	
		Greater than 1.2	General					1μH					100μH			240mA to 2.15A
	1206 (3216)	Greater than 1.2	General				0.054μH					100μH			45mA to 970mA	
	1210 (3225)	Greater than 1.2	General				0.15μH					560μH			40mA to 2.9A	
	1515 (4040)	1.0 to 1.2	General					0.68μH					47μH			380mA to 2.5A
		Greater than 1.2	General					0.51μH					470μH			145mA to 4.5A
	1812 (4532)	Greater than 1.2	General					0.56μH					2400μH			25mA to 3.3A
	2020 (5050)	Greater than 1.2	General					0.47μH					150μH			630mA to 4.6A
	2220 (5750)	Greater than 1.2	General					0.12μH					10000μH			50mA to 6A
2525 (6363)	Greater than 1.2	General					0.27μH					10000μH			50mA to 6A	

Automotive (Multilayer Type LQM Series)

Series	Size Code inch (mm)	Thickness (mm/max.)	Applications	Inductance (H)										Rated Current Range
				0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m		
LQM	0805 (2012)	Less than 1.0	Infotainment				0.47μH		2.2μH					600mA to 1.1A
		1.0 to 1.2	Infotainment				0.47μH		4.7μH				800mA to 1.3A	
			PowerTrain						2.2μH				800mA	
	0806 (2016)	1.0 to 1.2	Infotainment				0.47μH		4.7μH			1.1A to 1.6A		
	1008 (2520)	Less than 1.0	Infotainment						0.56μH			1.5A		
		1.0 to 1.2	Infotainment				0.47μH		4.7μH			800mA to 1.8A		

Continued on the following page. ↗

Automotive (Wire Wound Type LQH Series)

Series	Size Code inch (mm)	Thickness (mm/max.)	Applications	Inductance (H)										Rated Current Range
				0.1n	1n	10n	100n	1μ	10μ	100μ	1m	10m		
LQH	0806 (2016)	Less than 1.0	Infotainment				0.33μH	82μH					150mA to 1.13A	
	1008 (2520)	1.0 to 1.2	Infotainment				0.47μH	22μH				430mA to 2.75A		
	1212 (3030)	1.0 to 1.2	Infotainment				0.47μH	47μH				460mA to 2.86A		
	1206 (3216)	Greater than 1.2	Infotainment			0.054μH	0.88μH					180mA to 920mA		
	1210 (3225)	Greater than 1.2	Infotainment				0.47μH	330μH				60mA to 2.9A		
			PowerTrain			0.15μH	22μH				250mA to 2.9A			
	1515 (4040)	1.0 to 1.2	Infotainment				0.68μH	47μH				410mA to 2.5A		
	1812 (4532)	Greater than 1.2	Infotainment				1μH	2200μH				30mA to 3.3A		
			PowerTrain			1μH	220μH				240mA to 3.3A			
2020 (5050)	Greater than 1.2	Infotainment				0.47μH	22μH				1.05A to 4A			

Effective Use of Power Inductors

The product group of Murata's inductors for power circuits consists of the wire wound type and the monolithic type. For the applications of power inductors, Murata has prepared the "Murata Power Inductor Selection Tool," which can calculate and display the performance of inductors based on actual use conditions.

The application of power inductors greatly contributes to the loss of inductors in the conversion efficiency of a set.

The loss of inductors can also be estimated in the frequency and current values actually used, by using the "Murata Power Inductor Selection Tool." The inductors mounted in sets that increase the conversion efficiency of a power supply to the maximum can easily be selected.

URL: <http://www.murata.com/products/inductor/chip/learn/apply/power>

Detailed Catalogs

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



- Chip Inductors (Chip Coils)
- EMI Suppression Filters (for DC)/Chip Inductors for Automotive

Cat. No. O05E

Cat. No. C51E

Resistors

Full lineup for various applications

Summary

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

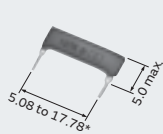
Lineup

- High Voltage Resistors

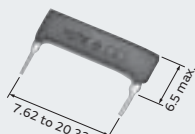


High Voltage Resistors

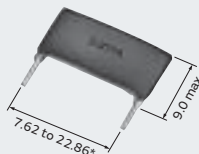
Featuring thick-film resistors, the Murata MHR series of high-voltage resistors is available in compact and thin SIP packages. Variants with small deviations are also available on request.



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 9	10 to 16	0.6 to 1.3
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

- Crystal Units ●Crystal Oscillators
- Ceramic Resonators CERALOCK®



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.



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

Detailed Catalogs

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



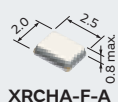
- Ceramic Resonators (CERALOCK®)
- Ceramic Resonator (CERALOCK®) Application Manual
- Crystal Units/Crystal Oscillators

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

Crystal Units

The Crystal Unit realizes highly accurate frequency-based high-grade quartz crystal elements. We offer a wide lineup including Crystal Units using Murata's proven package technology for small digital devices, automotive, etc.

For Automotive



XCHA-F-A

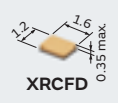


XRCGB-F-A

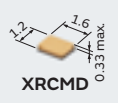
(in mm)

Series	Seal	Frequency (MHz)																Frequency Shift by Temperature (ppm max.)	Operating Temperature Range (°C)
		1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100		
XRCHA-F-A	Resin										16.0000±100ppm						24.0000±100ppm	±100	-40 to 125
XRCGB-F-A	Resin										24.0000±30ppm						29.9999±30ppm	±35	-40 to 125
											30.0000±50ppm						48.0000±50ppm	±65	-40 to 125

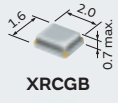
For Consumer/Industrial



XRCFD



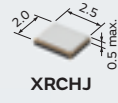
XRCMD



XRCGB



XRCHH



XRCHJ



XCHA



XRCJH



XRCJK



XRCLH



XRCLK

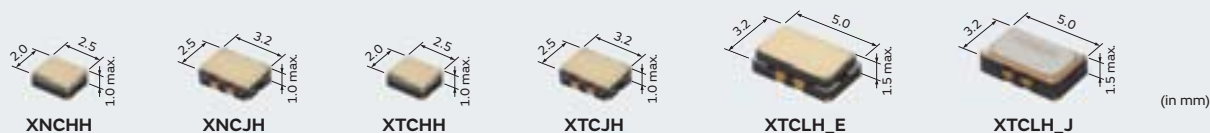
(in mm)

Series	Seal	Frequency (MHz)												Frequency Shift by Temperature (ppm max.)	Operating Temperature Range (°C)				
		1	2	3	4	5	6	7	8	9	10	20	30			40	50	70	100
XRCFD	Metal										24.0000±10ppm		31.9999±10ppm					±10	-20 to 70
XRCMD	Metal										32.0000±10ppm		48.0000±10ppm					±10	-20 to 70
XRCGB-F-P	Resin										24.0000±20ppm		32.0000±20ppm					±20	-30 to 85
XRCGB-F-M	Resin										24.0000±30ppm		32.0000±30ppm					±40	-30 to 85
											33.8688±45ppm		50.0000±45ppm					±40	-30 to 85
XRCGB-F-L	Resin										24.0000±100ppm		50.0000±100ppm					±50	-30 to 85
XRCGB-F-Z	Resin										24.0000±100ppm		50.0000±100ppm					±100	-40 to 105
XRCHH	Metal										16.0000±10ppm		52.0000±10ppm					±15	-30 to 85
XRCHJ	Seam										16.0000±10ppm		52.0000±10ppm					±15	-30 to 85
XRCHA-F-L	Resin										16.0000±100ppm		23.9999±100ppm					±100	-30 to 85
XRCHA-F-Z	Resin										16.0000±100ppm		23.9999±100ppm					±100	-40 to 105
XRCJH	Metal										13.0000±10ppm		52.0000±10ppm					±15	-30 to 85
XRCJK	Seam										12.0000±10ppm		52.0000±10ppm					±15	-30 to 85
XRCLH	Metal										10.0000±10ppm		52.0000±10ppm					±15	-30 to 85
XRCLK	Seam										10.0000±10ppm		52.0000±10ppm					±15	-30 to 85

Crystal Oscillators

We offer a varied lineup of Crystal Oscillators using highly reliable crystal units, circuit engineering, superior temperature compensation method and measurement fostered by our long experience and activity.

For Consumer/Industrial

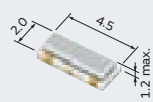


Series	Type	VC Function	Frequency (MHz)										Frequency Shift by Temperature (ppm max.)	Frequency Aging (ppm max./year)	Operating Temperature Range (°C)
			1	5	10	20	30	40	50	70	100				
XNCHH	TTS27NSC-A7	-	10.0000±1ppm							52.0000±1ppm	±0.5	±1.0	-30 to 85		
XNCJH	TTS18NSH-A7	-	10.0000±1ppm							52.0000±1ppm	±0.5	±1.0	-30 to 85		
XTCHH	TTS27VSC-A7	●	10.0000±1ppm							52.0000±1ppm	±0.5	±1.0	-30 to 85		
XTCJH	TTS18VSH-A7	●	10.0000±1ppm							52.0000±1ppm	±0.5	±1.0	-30 to 85		
XTCLH_E	TTS14VSE-A13	●	10.0000±1ppm						40.0000±1ppm	±0.5	±1.0	-30 to 85			
XTCLH_J	TTS14VSH	●	10.0000±0.5ppm							52.0000±0.5ppm	±0.2	±0.5	-30 to 85		

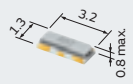
Ceramic Resonators CERALOCK®

Wide product lineup for automotive and consumer applications with SMD and lead package.

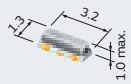
MHz Chip Type for Automotive (Tight Frequency Tolerance)



CSTCR_G15C



CSTCE_G15C

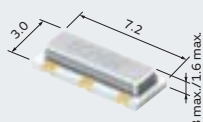


CSTCE_V13C

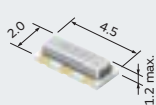
(in mm)

Series	Frequency (MHz)																Frequency Shift by Temperature (% max.)	Operating Temperature Range (°C)	
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100			
CSTCR_G15C		4.00±0.1%								7.99±0.1%								±0.13	-40 to 125
CSTCE_G15C					8.00±0.1%						13.99±0.1%							±0.13	-40 to 125
CSTCE_V13C						14.00±0.1%						20.00±0.1%						±0.13	-40 to 125

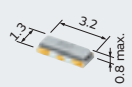
MHz Chip Type for Automotive (Standard Frequency Tolerance)



CSTCC_G_A



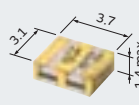
CSTCR_G_B



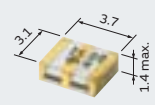
CSTCE_G_A



CSTCE_V_C



CSTCV_X_Q

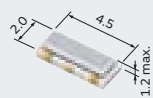


CSACV_X_Q

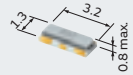
(in mm)

Series	Frequency (MHz)																Frequency Shift by Temperature (% max.)	Operating Temperature Range (°C)			
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100					
CSTCC_G_A	2.00±0.5%				3.99±0.5%												±0.4 (15pF) -0.6/+0.3 (47pF)	-40 to 125			
CSTCR_G_B		4.00±0.5%						7.99±0.5%									±0.15	-40 to 125			
CSTCE_G_A					8.00±0.5%						13.99±0.5%						±0.2	-40 to 125			
CSTCE_V_C								14.00±0.5%						20.00±0.5%			±0.15	-40 to 125			
CSTCV_X_Q											20.01±0.5%						70.00±0.5%			±0.3	-40 to 125
CSACV_X_Q (No built-in load capacitance)											20.01±0.5%						70.00±0.5%			±0.3	-40 to 125

MHz Chip Type for Consumer Electronics (Tight Frequency Tolerance)



CSTCR_G15L



CSTCE_G15L



CSTCE_V13L



CSTCW_X11

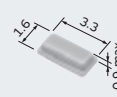
(in mm)

Series	Frequency (MHz)																Frequency Shift by Temperature (% max.)	Operating Temperature Range (°C)	
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100			
CSTCR_G15L		4.00±0.1%								7.99±0.1%								±0.08	0 to 70
CSTCE_G15L				8.00±0.1%						13.99±0.1%								±0.08	0 to 70
CSTCE_V13L						14.00±0.1%					20.00±0.1%							±0.08	0 to 70
CSTCW_X11										20.01±0.1%					48.00±0.1%			±0.1	0 to 70

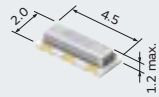
MHz Chip Type for Consumer Electronics (Standard Frequency Tolerance)



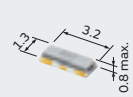
CSTCC_G



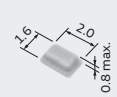
CSACN_G



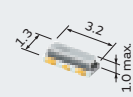
CSTCR_G



CSTCE_G



CSACM_G



CSTCE_V



CSTCW_X

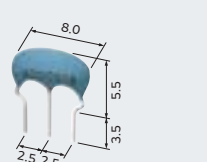


CSACW_X

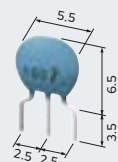
(in mm)

Series	Frequency (MHz)																Frequency Shift by Temperature (% max.)	Operating Temperature Range (°C)
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100		
CSTCC_G	2.00±0.5%							3.99±0.5%									±0.3 (15pF) ±0.4 (47pF)	-20 to 80
CSACN_G (No built-in load capacitance)										6.00±0.5%							-0.25/+0.2	-20 to 85
CSTCR_G		4.00±0.5%								7.99±0.5%							±0.2	-20 to 80
CSTCE_G				8.00±0.5%						13.99±0.5%							±0.2	-20 to 80
CSACM_G (No built-in load capacitance)				8.00±0.5%							12.00±0.5%					-0.25/+0.2	-20 to 85	
CSTCE_V								14.00±0.5%			20.00±0.5%						±0.3	-20 to 80
CSTCW_X								20.01±0.5%			70.00±0.5%					±0.2	-20 to 80	
CSACW_X (No built-in load capacitance)								20.01±0.5%			70.00±0.5%					±0.2	-20 to 80	

MHz Lead Type for Consumer Electronics (Standard Frequency Tolerance)



CSTLS_G



CSTLS_X

(in mm)

Series	Frequency (MHz)																Frequency Shift by Temperature (% max.)	Operating Temperature Range (°C)	
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	70	100			
CSTLS_G		3.40±0.5%									10.00±0.5%							±0.2 (15pF) -0.4/+0.2 (47pF)	-20 to 80
CSTLS_X											16.00±0.5%						70.00±0.5%	±0.2	-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 material, we offer miniaturized filters with excellent properties for advanced digital audio/visual system and communication equipment.

Lineup

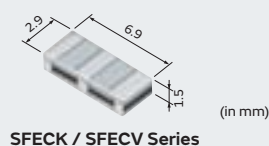
- Ceramic Filters CERAFIL® (Filters, Traps and Discriminators)
- Crystal Filters ● SAW Traps
- SAW Filters for Mobile Communications
- Dielectric Filters GIGAFIL® ● Chip Multilayer LC Filters



Ceramic Filters CERAFIL®

CERAFIL® 10.7MHz Chip Type

Small and lightweight filters for IF in communications or AV equipment using unique piezo-electric 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□	●	-	-

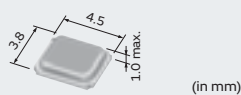
□ is filled with the letter designating the required 3dB bandwidth.



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.



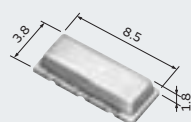
SFSCE Series

Type	Series	3dB Bandwidth (kHz) min.		
		03	04	05
		±500	±400	±325
Wide Bandwidth	SFSCE10M7WF□□	●	●	●

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

CERAFIL® 2.3 to 6.5MHz Chip Type

SFSKA Series has distinctive features such as wide bandwidth and stable filter performance, enabling customers to design smaller products.
SFSKB Series is suitable for low frequency range.



SFSKA Series



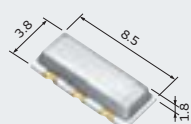
SFSKB Series

(in mm)

Series	Center Frequency (MHz)												3dB Bandwidth (kHz)
	2.3	2.8	3.2	3.8	4.3	4.5	4.8	5.2	5.5	5.7	6.0	6.5	
SFSKA	-	-	-	-	-	●	-	-	●	-	●	●	±60 min.
SFSKB	●	●	●	●	●	-	●	●	-	●	-	-	±75 min.

Ceramic Traps

The TPSKA Series has distinctive features such as high attenuation and high performance group delay time, enabling customers to design smaller products.



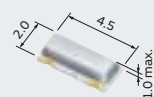
TPSKA Series

(in mm)

Series	Center Frequency (MHz)	Attenuation (dB)
TPSKA	4.500/5.500/6.000/6.500	35 min.

Ceramic Discriminators

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



CDSCB Series

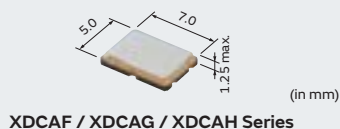
(in mm)

Series	Center Frequency
CDSCB	10.700MHz±30kHz

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 Pole
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 Traps

Wide pass band width, Highly selective attenuation band, high performance, small size, chip size package



SAW Filters and SAW Duplexers must 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.

SAW Filters for Mobile Communications

SAW Duplexers

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



SAYEY Series

SAYFH Series

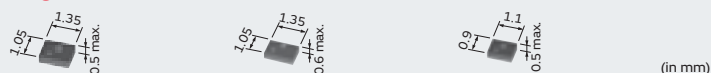
SAYRF Series

(in mm)

RF Filters

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

Single Filter



SAFEA Series

SAFEB Series

SAFFB Series

(in mm)

Dual Filter



SAWEN Series

SAWFD Series

(in mm)

Dielectric Filters GIGAFIL®

Suitable for cellular base stations and other telecom infrastructure systems.

Custom parts within the range below are available upon request.



DFYH Series



DFCH Series

	Series	Frequency Range (MHz)						Number of Resonators	Input Power Range
		100	1000	2000	3000	4000	5000		
Duplexers	DFYH	700	2600					5 to 10	1 to 10W*
RF/IF/Local Filter	DFCH	600	3800					2 to 6	1 to 10W*

*Power depends upon specifications.

Characteristic customization is available. You can contact us also through our website.

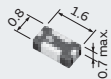
Chip Multilayer LC Filters

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

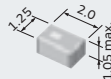
Band Pass Filters



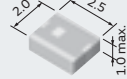
LFB15 Series



LFB18 Series



LFB21 Series



LFB2H Series



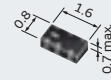
LFB31 Series

(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 Cat. No. P51E
- Ceramic Filters (CERAFIL®)/Crystal Filters Application Manual 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

- Isolators
- Baluns (Chip Multilayer and Wire Wound/Film type)
- Couplers (Chip Multilayer and Film type)
- Chip Multilayer Hybrid Dividers
- Chip Multilayer Diplexers
- Microwave Coaxial Connectors
- Single Layer Microchip Capacitors
- Thin Film Circuit Substrate RUSUB®



Isolators

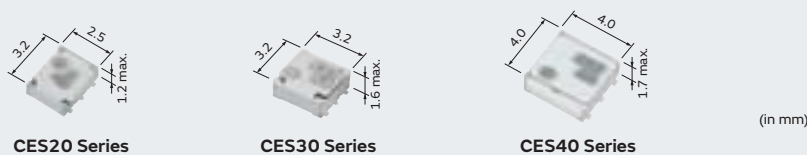
Passing signals in the forward direction and blocking signals in the reverse direction

For Mobile Phones



Series	Adaptive Frequency Range (MHz)				Size (mm)	Rating Power (W)
	100	1000	2000	3000		
CEG23		700	2600		2.0X2.0X1.0 max.	1.2 max.

For Base Stations

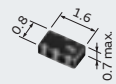


Series	Adaptive Frequency Range (MHz)				Size (mm)	Rating Power (W)
	100	1000	2000	3000		
CES20			1900	2600	3.2X2.5X1.2 max.	5 max.
CES30			1700	2200	3.2X3.2X1.6 max.	5 max.
CES40		800	950		4.0X4.0X1.7 max.	5 max.

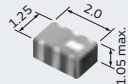
Baluns

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



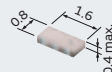
LDB18 Series



LDB21 Series



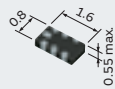
LDM15 Series



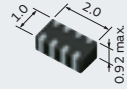
LDM18 Series

(in mm)

Film Type



DXP18B Series



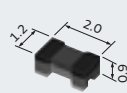
DXP2AB Series

(in mm)

Wire Wound Type



DXW21B Series



DXW21H Series

(in mm)

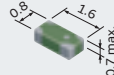
Couplers

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

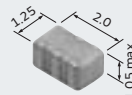
Chip Multilayer Type



LDC15 Series



LDC18 Series



LDC21 Series

*It is available with Integrated LPF for LDC21 Series.

LDC32 Series
(3dB Hybrid)

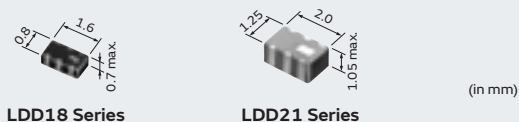
(in mm)

Film Type



Chip Multilayer Hybrid Dividers

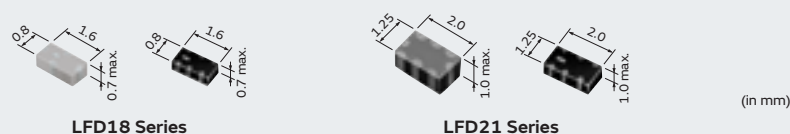
Power divider with a multilayer low pass filter in an ultra-compact package.



Chip Multilayer Diplexers

A diplexer branching low and high band.

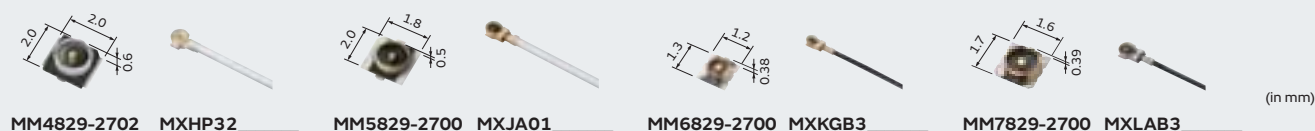
Suitable for band-switching for dual-band system.



Microwave Coaxial Connectors

Microwave Coaxial Cable Connectors

The mating height is only 1.0mm maximum due to our new mechanical design.
Suitable for low profile design.



(in mm)

Type	Receptacle Part Number	Rated Voltage (Vrms)	Frequency Rating (GHz)	Temperature Range	VSWR	Cable Number	Mating Height (mm)
HSC	MM4829-2702	30	to 6	-40 to 85°C	1.3 max. (DC to 3GHz)	MXHP32	1.2 max.
JSC	MM5829-2700	30	to 12	-40 to 85°C	1.3 max. (DC to 3GHz)	MXJA01	1.0 max.
KSC	MM6829-2700	30	to 6	-40 to 85°C	1.3 max. (DC to 3GHz)	MXKGB3	0.8 max.
LSC	MM7829-2700	30	to 6	-40 to 85°C	1.3 max. (DC to 3GHz)	MXLAB3	0.8 max.

Nominal Impedance: 50Ω

Microwave Coaxial Connectors with Switch

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



(in mm)

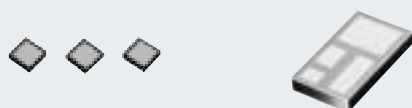
Type	Receptacle Part Number	Rated Voltage (Vrms)	Frequency Rating (GHz)	Temperature Range	VSWR	Standard Measurement Probe Part Number
SWD	MM8430-2610	30	to 6	-40 to 85°C	1.2 max. (DC to 3GHz)	MM126320
SWF	MM8130-2600	30	to 6	-40 to 85°C	1.2 max. (DC to 3GHz)	MXHS83QE3000
SWG	MM8030-2610	30	to 11	-40 to 85°C	1.2 max. (DC to 3GHz)	MM126320
SWH	MM8930-2600	30	to 6	-40 to 85°C	1.2 max. (DC to 3GHz)	MXHQ87WJ3000
SWJ	MM8830-2600	30	to 6	-40 to 85°C	1.2 max. (DC to 3GHz)	MM126515
						MXHQ87PA3000
						MM126715
						MXHQ87PK3000

Nominal Impedance: 50Ω

Single Layer Microchip Capacitors

Very reliable performance and excellent frequency characteristics

Temperature Compensation 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
	CLB05	0.5X0.5	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	0.7X0.5	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	0.9X0.9	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	1.49X0.9	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
	CLB05	0.5X0.5	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	0.7X0.5	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	0.9X0.9	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	1.49X0.9	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.

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	0.5X0.5	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	0.7X0.5	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	0.9X0.9	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	1.49X0.9	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	0.5X0.5	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	0.7X0.5	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	0.9X0.9	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	0.5X0.5	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	0.9X0.9	100			390	680		-55 to 125

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

Detailed Catalogs

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



• High Frequency Single Layer Microchip Capacitors

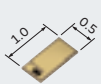
Cat. No. C01E

Thin Film Circuit Substrate RUSUB®

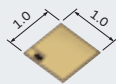
Suitable for photo diode module.

■ Features

- RUSUB® technology provides a single-layer capacitor and thin film resistor formed in one chip. It reduces not only the number of parts to build a device, but also the assembly costs. It will also contribute to making a device smaller.
- The single-layer structure makes its self-resonant frequency higher. It allows stable operation even at a high frequency range.
- The short distance between the capacitor and thin film resistor makes the residue inductance smaller and contributes to attenuating unnecessary noise so the device can work at its best characteristics.
- Since it has a gold electrode, it is feasible to be installed inside a module, and it allows wire-bonding with gold wire.
- AuSn pre-coating finish is also available.
- It is very suitable for APD (Avalanche Photo Diode), because the capacitor has a withstanding voltage of 100V.



RUCYT101 Series



RUCYT201 Series

(in mm)

- Six types of standard samples of RUSUB® C+R (Capacitor + Resistor) are available.
- Custom substrate size, capacity, resistance value, and electrode pattern shape is available upon request.

Part Number	Size (mm) (LXWXT)	Capacitance (pF)	Resistance (Ω)	Temperature Characteristics of Capacitance at -25 to 85°C	Capacitor Rated Voltage (V)	Temperature Coefficient of Resistance (ppm/°C)	Resistor Rated Power (mW/mm ²)
RUCYT101K00009GNTC	1.0X0.5X0.11	100±10%	50±20%	±10%	100	-70±50	100
RUCYT101K00011GNTC	1.0X0.5X0.11	100±10%	100±20%				
RUCYT101K00012GNTC	1.0X0.5X0.11	100±10%	200±20%				
RUCYT201K00010GNTC	1.0X1.0X0.12	200±10%	50±20%				
RUCYT201K00013GNTC	1.0X1.0X0.12	200±10%	100±20%				
RUCYT201K00014GNTC	1.0X1.0X0.12	200±10%	200±20%				



Detailed Catalogs

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



▪ Thin Film Circuit Substrate (RUSUB®)

Cat. No.M04E

Sensors

Sensing elements for various applications

Summary

Using our piezoelectric ceramics and magnetic resistive elements, Murata has developed a range of sensing technologies that can detect heat, infrared, ultrasonic waves, vibration, acceleration, angular velocity, angular rotation, rotation, magnetism, and electrical fields. These products are used in a variety of applications such as white goods, audio/visual electronics, and especially automotive, to name a few, improving the user's experience.

Lineup

●Infrared Sensors ●Ultrasonic Sensors ●Rotary Sensors
●Magnetic Pattern Recognition Sensors ●AMR Sensors
(Magnetic Sensors) ●Shock Sensors ●Accelerometers
●Inclinometers ●Gyro Sensors ●Rotary Position Sensors
●Temperature Sensors (Thermistors)



Product Pickup

Magnetic Pattern Recognition Sensors

Magnetic pattern recognition sensors are suitable for differentiation of bank note types and patterns printed with magnetic ink. Murata's magnetic pattern recognition sensors combine InSb (indium antimonide) magnetoresistive elements with a permanent magnet, enabling weak magnetic information to be easily detected. The features of these sensors are wide dynamic range, wide gap characteristic, and high output, enabling detection of either ferromagnetic or magnetic patterns.



BS05 Series



BS05 Series

Temperature Sensors NTC/PTC Thermistors

NTC/PTC Thermistors are used to detect overheating. Murata offers a variety of thermistor products to meet the demands of various temperatures.



NCP Series



NX Series



PRF Series



PTF Series

For more details on Thermistors, please refer to p. 62.

Detailed Catalogs

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



- MEMS Sensors & Sensing Elements
- Rotary Position Sensors
- Pyroelectric Infrared Sensors
- NTC Thermistors
- POSISTOR® for Circuit Protection

Cat. No. S47E
Cat. No. R51E
Cat. No. S21E
Cat. No. R44E
Cat. No. R90E

Rotary Position Sensors

The output voltage of contact type rotary position sensors are proportional to the rotational angle of a rotor in potentiometer fashion.



SV Series

AMR Sensors (Magnetic Sensors)

AMR sensors are switches that are used for opening and shutting detection in products such as cellular phones, notebook PCs, and digital cameras.

You can choose the best product from our wide range of features such as the direction of the magnetic field detection, the package, the sampling period, and the sensitivity standard.



MR Series

Accelerometers

Accelerometers are based on the company's proprietary 3-D MEMS technology. Accelerometers have excellent performance and reliability in a humid environment and at temperature cycling, making high accuracy acceleration detection possible.



SCA Series

Gyro Sensors

Gyroscope components and combined sensors (including gyroscope and 3 axes accelerometers) based on the company's proven 3-D MEMS technology and highly integrated electronics. High accuracy and high performance sensors are optimum for navigation systems and motion analysis.



SCC 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	IRS Series	 4.9X4.7X2.4	●										●
		IRA Series	 ø9.2 H4.7	●	●	●		●	●	●	●	●	●	●
Ultrasonic	Open Structure Type Ultrasonic Sensors	MA40S4R (for Receiver) MA40S4S (for Transmitter)	 ø9.9 H7.1											●
		MA40H1S	 5.2X5.2X1.15	●	●	●	●	●	●	●	●	●	●	●
	Drip-proof Type Ultrasonic Sensors	MA58MF14-7N (for Dual Use)	 ø14.0 H9.0											
	High Frequency Type Ultrasonic Sensors	MA300D1-1 (for Dual Use)	 ø9.9 H7.3							●	●	●		
Magnetic	Rotary Sensors	FR05CM21AR	 ø12.7 H20											
	Magnetic Pattern Recognition Sensors	BS05 Series	 11.15X8.8X12.5 193.0X16.0X7.5											
	AMR Sensors (Magnetic Sensors)	MR Series	MRMS201A: 2.8X2.9X1.1 MRMS501A: 1.45X1.45X0.55				●	●	●					
Acceleration	Shock Sensors	PKGS Series	 3.2X2.0X1.05						●					
	Accelerometers	SCA Series	 10.48X11.31X5.08											
	Inclinometers	SCA Series	 15.58X11.31X5.08								●			
Angle Velocity	Gyro Sensors	SCC Series SCR Series	 8.5X18.7X4.5											
Angle	Rotary Position Sensors	SV Series	 11X12X2.1	●				●			●	●		
Temperature	NTC Thermistors	Chip Type NCP Series	NCP03: 0.6X0.3X0.3 NCP15: 1.0X0.5X0.5 NCP18: 1.6X0.8X0.8 NCP21: 2.0X1.25X0.85	●	●	●	●	●	●	●	●	●	●	●
		Lead Type NX Series	NXF: ø1.2 L25 to 150 NXR: ø4.0 L10 to 40	●	●				●	●	●	●	●	●
	PTC Thermistors POSISTOR®	Chip Type PRF Series	PRF15: 1.0X0.5X0.5 PRF18: 1.6X0.8X0.8 PRF21: 2.0X1.25X0.9	●	●	●	●	●	●	●	●	●	●	●
		Lead Type PTF Series	ø5.0 max. T4.0 max. ø7.5 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
																					●					Rotary Sensors
																							●	●		Magnetic Pattern Recognition Sensors
	●	●		●	●	●	●			●					●						●	●		●		AMR Sensors (Magnetic Sensors)
																										Shock Sensors
							●														●			●		Accelerometers
																					●					Inclinometers
							●									●					●			●		Gyro Sensors
	●		●				●		●	●	●	●				●	●			●					●	Rotary Position 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, inrush current suppression, and automotive
- PTC Thermistors POSISTOR® for overheat sensing, overcurrent protection, inrush current suppression, and automotive



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



NCP18 Series



NCP21 Series

(in mm)

Series	Size Code inch (mm)	Resistance (25°C) (Ω)	B-Constant (25-50°C) (K)	Permissible Operating Current (25°C) (mA)	Rated Electric Power (25°C) (mW)	Typical Dissipation Constant (25°C) (mW/°C)	Operating Temperature Range (°C)
NCP02	01005 (0402)	10k/100k	3380/4250	0.31/0.01	100	1	-40 to 125
NCP03	0201 (0603)	1.0k to 220k	3500 to 4485	0.06 to 9.5	100	1	-40 to 125
NCP15	0402 (1005)	22 to 470k	3100 to 4500	0.04 to 6.7	100	1	-40 to 125
NCP18	0603 (1608)	100 to 470k	3250 to 4500	0.04 to 3.1	100	1	-40 to 125
NCP21	0805 (2012)	220 to 100k	3500 to 4250	0.14 to 3.0	200	2	-40 to 125

Rated Electric Power shows the required electric power that causes the Thermistor's temperature to rise to 125°C by self heating, at ambient temperature of 25°C.

Detailed Catalogs

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

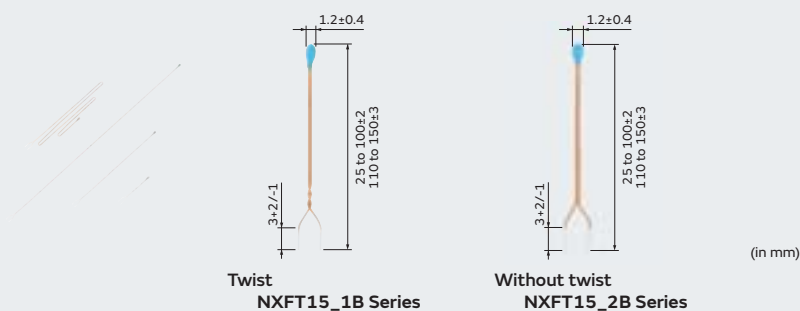


- NTC Thermistors
- POSISTOR® for Circuit Protection

Cat. No. R44E
Cat. No. R90E

Thermo String Type

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



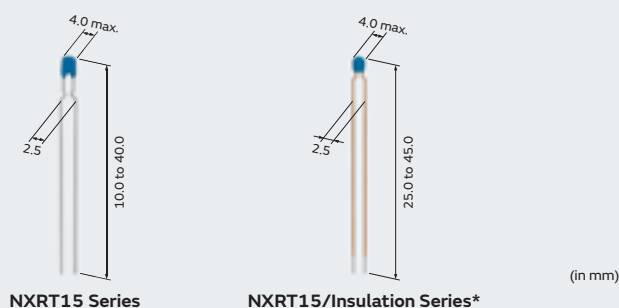
Series	Resistance (25°C) (Ω)	B-Constant (25-50°C) (K)	Operating Current for Sensor (25°C) (mA)	Thermal Time Constant (25°C) (s)	Full Length (mm)	Operating Temperature Range (°C)
NXFT15	10k to 100k	3380 to 4250	0.04 to 0.12	4	25 to 150	-40 to 125

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)	Operating Current for Sensor (25°C) (mA)	Thermal Time Constant (25°C) (s)	Full Length (mm)	Operating Temperature Range (°C)
NXRT15	2k to 100k	3380 to 4250	0.04 to 0.27	4	10 to 40	-40 to 125
NXRT15 (Insulation*)	2k to 100k	3380 to 4250	0.05 to 0.36	4	25 to 50	-40 to 125

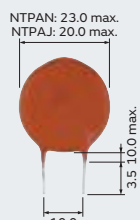
Operating Current for Sensor raises the Thermistor's temperature by 0.1°C.

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

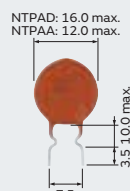
*Insulation: Lead wire insulation type.

NTC Thermistors for Inrush Current Suppression

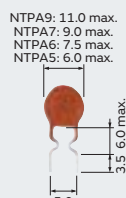
Effectively suppresses surge currents that are generated when switching power regulators are turned on.



NTPAN / J Series



NTPAD / A Series



NTPA5 / 6 / 7 / 9 Series

(in mm)

Series	Resistance (25°C) (Ω)	Permissible Max. Current (25°C) (A)	Permissible Max. Current (55°C) (A)	Thermal Time Constant (25°C) (s)	Permissible Electrolytic Capacitor (100V) (μF)	Operating Temperature Range (°C)
NTPAN / J	3 to 10	2.6 to 5.4	2.2 to 4.7	125 to 135	5000 to 8600	-20 to 160
NTPAD / A	2.2 to 16.0	1.7 to 3.7	1.5 to 3.2	65 to 100	1400 to 2700	-20 to 160
NTPA5 / 6 / 7 / 9	4.0 to 22.0	1.0 to 2.5	0.9 to 2.2	20 to 65	346 to 800	-20 to 160

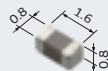
PTC Thermistors POSISTOR® for Overheat Sensing

Chip Type

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



PRF15 Series



PRF18 Series



PRF21 Series

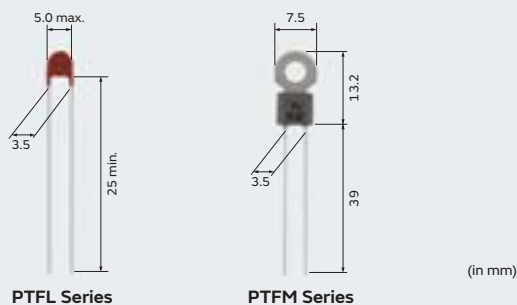
(in mm)

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.

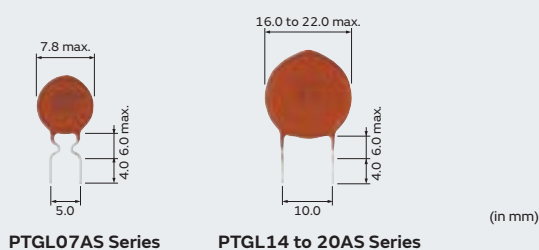


Series	Sensing Temperature Range (TS) (°C)										Maximum Voltage (V)	Resistance (25°C) (max.) (Ω)	Resistance (TS-10°C) (max.) (Ω)	Resistance (TS°C) (min.) (Ω)
	60	70	80	90	100	110	120	130	140	150				
PTF□_471Q	●	●	●	●	●	●	●				16	100	330	470
PTF□_222Q	●	●	●	●	●	●	●				16	330	1.5k	2.2k

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.



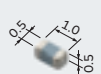
Series	Resistance (25°C) (Ω)	Maximum Voltage (V)	Maximum Inrush Current (A _{o-p})	Maximum Charge Energy (J)	Operating Temperature Range (°C)
PTGL07AS	120 to 200	280	5.66 to 8.46	7.8 (105°C)	-40 to 105
PTGL14 to 20AS	33 to 100	280	13 to 39	56.9 to 181.7 (65 to 85°C)	-20 to 85

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 resistor.



PRG15 Series



PRG18 Series



PRG21 Series

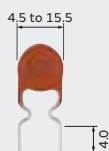
(in mm)

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	78 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	2.2 to 470	0603 (1608)
PRG21	6 to 30	30 to 500	110 to 2000	1.1 to 10	0.2 to 22	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.



(in mm)

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	80 to 180	320 to 710	2.0	2.2 to 10
	30	122 to 685	240 to 1900	0.7 to 7.0	0.8 to 13
	32	30 to 60	140 to 240	1.5	15 to 47
	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 310	135 to 860	0.7 to 5.5	3.7 to 55
	125	30 to 420	75 to 1050	0.3 to 2.0	3.3 to 180
	140	74 to 340	147 to 780	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	78 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-made components utilizing advanced design and high-density packaging technology.

Lineup

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



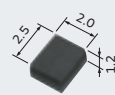
Micro DC-DC Converters

Murata's micro DC-DC converters are small power modules that utilize a unique ferrite substrate with an embedded power inductor, and incorporate the I/O capacitors onto the same package. Ultra-compact size and superior noise suppression make these devices ideal for cellular/smart phones, tablets, wearable devices, communication applications, and portable products.

General Buck Converter



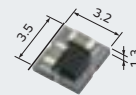
LXDC2HL Series



LXDC2HN Series



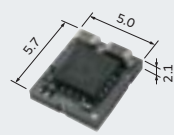
LXDC2UR Series



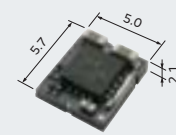
LXDC3EP Series



LXDC2XQ Series



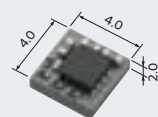
LXDC55F Series



LXDC55K Series

(in mm)

Boost Converter



LXDC44A Series

(in mm)

Buck-Boost



LXDC25C Series

(in mm)

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, low-noise power supplies. Murata provides standard products and customized products, ultra-low-profile products, and products for FPGA.

Non-isolated Type



MPDRX3075
MPDRX3085



MPDRX3125



MPDTY461S
MPDTY462S



MYGTM01210BZN



MYSSM01806BENL



MYUSP3R303FMP



OKL-T/3-W5N-C



OKL-T/6-W12P-C



OKL2-T/12-W5N-C



OKL2-T/12-W12N2-C



OKL2-T/20-W5N-C
OKL2-T/20-W5P-C



OKL2-T/20-W12N2-C
OKL2-T/20-W12P2-C

Part Number	Package	Input Voltage (V)	Nominal Output Power (W)	Output Voltage (V)	Current (A)	Efficiency (%)	Size (mm) LXWXH
MPDRX3075	SMD	6.2 to 13.2	23.6	1.8 to 3.63	6.5	91	17.6X20.2X4.2
MPDRX3085	SMD	6.2 to 13.2	10.7	0.8 to 1.65	6.5	82	17.6X20.2X4.2
MPDRX3125	SMD	3 to 5.5	28.8	0.8 to 1.8	16	86.5	27.8X15.4X4.2
MPDTY461S	SMD	4.5 to 14	94	1.6 to 3.63	26	90.5	33.02X13.46X4.2
MPDTY462S	SMD	4.5 to 14	43	0.75 to 1.65	26	85.5	33.02X13.46X4.2
MYGTM01210BZN	SIL	17 to 40	120	5 to 12	10	97.3	40X40.3X29.2
MYSSM01806BENL	SMD	25 to 40	108	5 to 18	6	96.5	30.2X20.9X12
MYUSP3R303FMP	SMD	3 to 5.5	9.9	0.7 to 3.3	3	94	11X8.5X5.6
OKL-T/3-W5N-C	SMD	2.7 to 5.5	10.9	0.6 to 3.63	3	95.3	12.2X12.2X6.2
OKL-T/6-W12P-C	SMD	4.5 to 14	33	0.591 to 5.5	6	93	12.2X12.2X7.2
OKL2-T/12-W5N-C	SMD	2.4 to 5.5	39.6	0.6 to 3.63	12	94	20.32X11.43X8.55
OKL2-T/12-W12N2-C	SMD	4.5 to 14	60	0.69 to 5.5	12	95	20.32X11.43X8.55
OKL2-T/20-W5N-C	SMD	2.4 to 5.5	66	0.6 to 3.63	20	93.1	33.02X13.46X8.75
OKL2-T/20-W5P-C	SMD	2.4 to 5.5	66	0.6 to 3.63	20	93.1	33.02X13.46X8.75
OKL2-T/20-W12N2-C	SMD	4.5 to 14	100	0.69 to 5.5	20	94	33.02X13.46X8.75
OKL2-T/20-W12P2-C	SMD	4.5 to 14	100	0.69 to 5.5	20	94	33.02X13.46X8.75

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

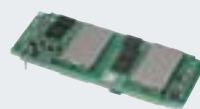
Isolated Type



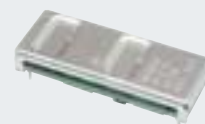
MYBQC01138AZTB



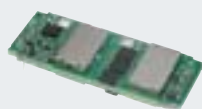
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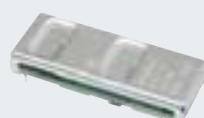
MYBEA01212AZT



MYBEA01212AZTB



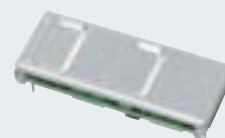
MYBEA01210CZT



MYBEA01210CZTB



MYBEB00520AZT



MYBEB01212AZTB

Part Number	Package	Input Voltage (V)	Nominal Output Power (W)	Output Voltage (V)	Current (A)	Efficiency (%)	Isolation Voltage (VDC)	Footprint (Brick)	Size (mm) LXWXH
MYBQC01138AZTB	Insert	48V (36V to 75V)	400	10.6±6%	38	95	1500	1/4	58.4X36.8X14 max.
MYBQC01138AZTF	Insert	48V (36V to 75V)	400	10.6±6%	38	95	1500	1/4	58.4X36.8X17 max.
MYBEA01212AZT	Insert	48V (36V to 75V)	140	12±3%	12	92.5	1500	1/8	58.4X22.8X9 max.
MYBEA01212AZTB	Insert	48V (36V to 75V)	140	12±3%	12	92.5	1500	1/8	58.4X22.8X9 max.
MYBEA01210CZT	Insert	24V (18V to 36V)	120	12±3%	10	93	1500	1/8	58.4X22.8X9 max.
MYBEA01210CZTB	Insert	24V (18V to 36V)	120	12±3%	10	93	1500	1/8	58.4X22.8X9 max.
MYBEB00520AZT	Insert	48V (36V to 75V)	100	5±3%	20	93	1500	1/8	57X22.8X10 max.
MYBEB01212AZTB	Insert	48V (36V to 75V)	100	12±3%	8.3	92	2250	1/8	58X22.8X12.7 max.

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

High Voltage Transformers



QF Type



QP Type



WP Type



NU Type



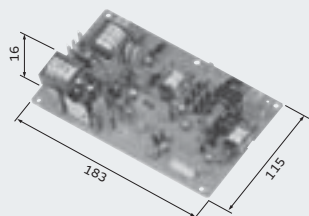
WR Type



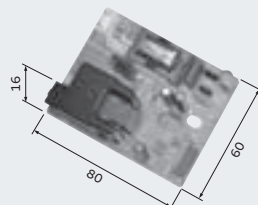
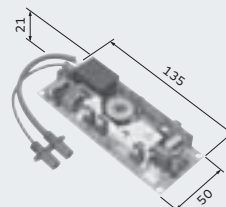
AK Type

Series	Type	Features	Output Voltage Vout	Output Current Iout	Drive Frequency	Dimensions (mm) LXWXH
MSH	QF	Small Size	Max. 6kV	0.3mA	35 to 70kHz	39X24X13
	QP	Standard	Max. 8.5kV	0.4mA	35 to 70kHz	41X26X16
	WP	Low Profile	Max. 8.5kV	0.4mA	35 to 70kHz	44X27X11
	NU	High Power	Max. 8.5kV	1mA	30 to 70kHz	44X27X17
	WR	High Voltage	Max. 13kV	0.5mA	30 to 70kHz	49X25X27
	AK	High Voltage High Power	Max. 10kV	2mA	20 to 70kHz	27X55X26

High Voltage Power Supplies



MPH7000 Series

MPH4000 Series
(for Air Purifier/Air Conditioner)MPL3000 Series
(AC/DC Ballast)

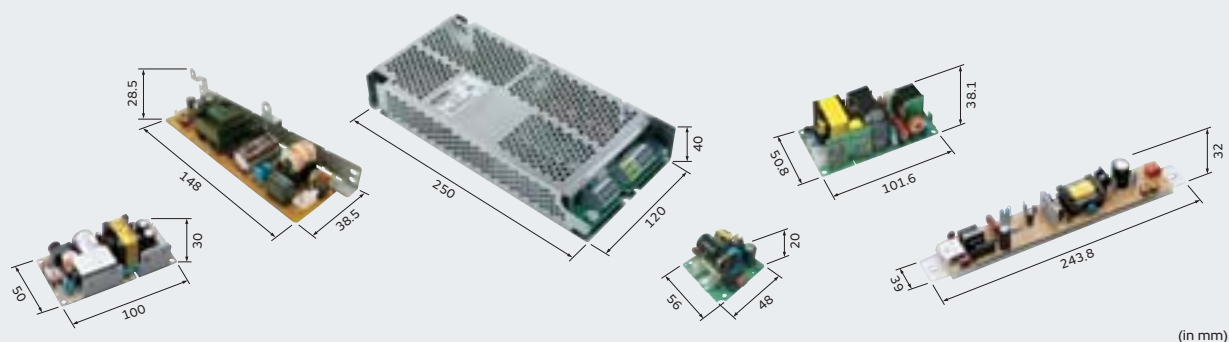
(in mm)

Series	Input Voltage Vin	Power Supply Type		Output Voltage Vout	Output Current Iout	Adjustable Range
MPH7000	24V DC	DC Constant Current		(6kV)	250μA	Iout: 200 to 300μA
		DC Constant Voltage		0.6kV	(1μA)	Vout: 550 to 650kV
		Switching	DC Constant Current	(-1.5kV)	-3μA	Iout: -2 to -4μA
			DC Constant Voltage	1.5kV	(0.5μA)	Vout: 1.4 to 1.6kV
		AC Constant Voltage		1.5kV rms	(250μA rms)	Vout: 1.3 to 1.7kV rms
MPH4000 (for Air Purifier/Air Conditioner)	24V DC	DC Constant Voltage		±6kV	±400μA	-
		DC Constant Current		(±6kV)	±400μA	-

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



Medical Equipment SOHO Equipment Industrial and Measurement Equipment Energy Management Equipment PBX LED Lighting

Applications	Input Voltage	Output Voltage	Safety Standard	EMI Standard	Remarks
Medical Equipment	90 to 264V AC	5V 12V 24V 48V	UL, IEC	CISPR	
SOHO Equipment	90 to 264V AC	5V 12V 24V 48V	UL, IEC	CISPR	Models that provide a power-saving standby mode are also available.
Industrial and Measurement Equipment	90 to 264V AC	24V	UL, IEC	VCCI	150W/300W
Energy Management Equipment	60 to 225V AC	3.3V 24V	UL, IEC	VCCI, CISPR	
PBX	90 to 264V AC	12V 48V	UL, IEC	CISPR	Operating Ambient Temperature 80°C
LED Lighting	90 to 264V AC	24V	IEC, 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. 79.

Energy Devices

Solutions for power lines of low-power devices

Summary

Murata offers various energy devices that can be used for low-power devices such as portable or wearable devices. Murata's supercapacitor (EDLC), having ultra-low ESR and high reliability, can be used as a small auxiliary power supply for peak power assist or backup. Murata's small energy device is a secondary battery having high-rate charge-discharge characteristics and long cycle life. It can be used as a power supply of low-power devices.

Lineup

- Supercapacitors (EDLC)
- Small Energy Device (Lithium Ion Battery)



Supercapacitors (EDLC)

Supercapacitors (EDLC) are energy storage devices with high power density characteristics. Murata has focused its R&D efforts on electrical double layer energy devices, and also established collaboration with the component design and manufacturing firm CAP-XX Limited (CAP-XX). This has led to Murata's development of an Supercapacitor technology resulting in low ESR and high capacitance in a very small package.



DMT3L4R2U224M3DTA0
DMT334R2S474M3DTA0
DMF3Z5R5H474M3DTA0



DMF4B5R5G105M3DTA0

(in mm)

Series	Main Part Number	Thickness (mm)	Capacitance (mF)	Rated Voltage (V)	ESR (mΩ)	Operating Temperature (°C)
DMT (General-Purpose Type)	DMT3L4R2U224M3DTA0	2.0	220	4.2	300	-40 to 85
	DMT334R2S474M3DTA0	3.5	470	4.2	130	-40 to 85
DMF (High Peak Power Type)	DMF3Z5R5H474M3DTA0	3.2	470	5.5 (Peak Voltage)	45	-40 to 70
	DMF4B5R5G105M3DTA0	3.7	1000	5.5 (Peak Voltage)	40	-40 to 70

Detailed Catalogs

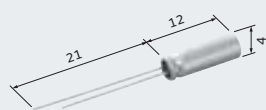
For more details, please refer to our printed catalogs and the PDF catalogs on our website.



- High Performance Supercapacitor (EDLC) DMF Series
Cat. No. O83E
- High Performance Supercapacitor (EDLC) DMT Series
Cat. No. O84E

Small Energy Device (Lithium Ion Battery)

Murata's small energy device is a miniature device with a high energy storage capacity, low ESR, fast charging and discharging and the ability to withstand load fluctuations. It may be used as a secondary battery in the same way as a capacitor. This energy device achieves better charge/discharge characteristics and has an extended service life superior to conventional batteries. Well suited as a power supply for wearable devices or sensor nodes for wireless sensor networks, this device maintains flat voltage characteristics while accommodating a wide range of load characteristics.



(in mm)

UMAC040130A003TA01

Series	Part Number	Nominal Voltage (V)	Charge Voltage (V)	Cut-off Voltage (V)	Nominal Capacity (mAh)	Max. Discharge Current	ESR (mΩ)	Operating Temperature Range (°C)
UMAC (Cylinder Type)	UMAC040130A003TA01	2.3	2.7	1.8	3	30mA (10C)	800	-20 to 70

Sound Components

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

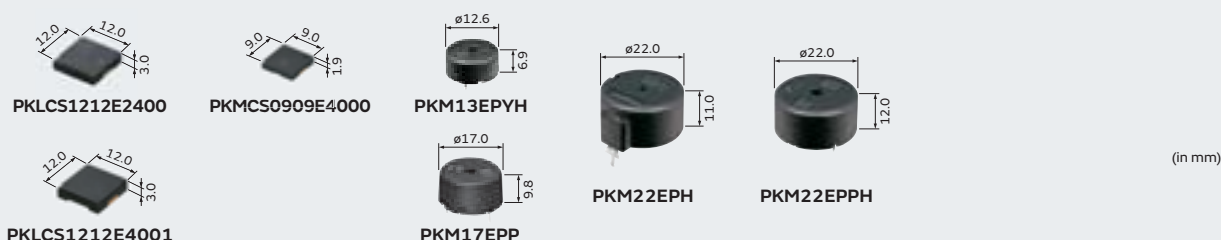
- Piezoelectric Sounders
- Piezoelectric Buzzers
- Piezoelectric Diaphragms



Piezoelectric Sounders

Low power consumption, lightweight

Suitable for office equipment/home appliances/audio equipment



Drive Type	Mounting Type	Main Part Number	Sound Pressure Level (dB)	Measurement Condition of Sound Pressure Level
External Drive	Surface Mounting Type	PKLCS1212E2400-R1	75 min.	±1.5Vo-p, 2.4kHz, square wave, 10cm
		PKLCS1212E4001-R1	75 min.	±1.5Vo-p, 4.0kHz, square wave, 10cm
		PKMCS0909E4000-R1	65 min.	±1.5Vo-p, 4.0kHz, square wave, 10cm
	Pin Type	PKM13EPYH4000-A0	70 min.	±1.5Vo-p, 4.0kHz, square wave, 10cm
		PKM17EPP-2002-B0	70 min.	±3.0Vo-p, 2.0kHz, square wave, 10cm
		PKM22EPH2001	75 min.	±1.5Vo-p, 2.0kHz, square wave, 10cm
		PKM22EPPH2001-B0	70 min.	±1.5Vo-p, 2.0kHz, square wave, 10cm
		PKM22EPPH4007-B0	85 min.	±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)

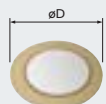
PKB24SPCH

Drive Type	Mounting Type	Main Part Number	Sound Pressure Level (dB)	Measurement Condition of Sound Pressure Level
Self Drive	Pin Type	PKB24SPCH3601-B0	90 min.	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 (2D)
External Drive	7BB-12-9	212.0mm
	7BB-15-6	215.0mm
	7BB-20-6	220.0mm
	7BB-27-4	227.0mm

□: Indicates Metal Plate Diameter and Resonant Frequency Type.

Detailed Catalogs

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



• Piezoelectric Sound Components

Cat. No. P37E

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.

Variable Capacitors

Capacitance value can be adjusted by the tuning voltage.

LXRW_V Series



LXRW0YV Series



LXRW19V Series

(in mm)

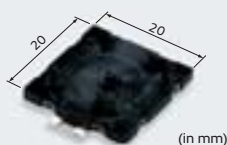
Thin film variable capacitors can carry out the variable of the capacitor by adjusting the tuning voltage. It is designed for use as frequency matching for HF band (13.56MHz).

Micromechatronics

Utilizing the vibration and deformation properties of piezoelectric materials.

Microblowers

Tiny air pumps without a motor



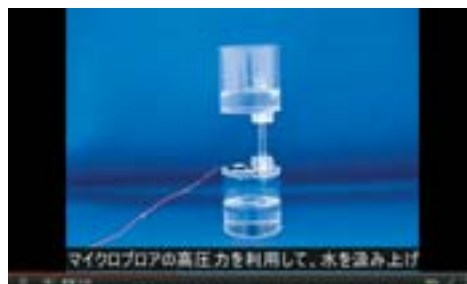
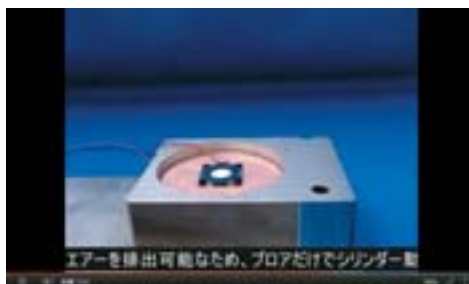
■ Features

Microblowers are designed to function as an air pump, using the ultrasonic vibrations of piezoelectric ceramics, which can generate high pressure air from a thin and extremely compact unit.

■ Applications

Aroma/diffuser, gas & alcohol sensor, air ionizer, amusement, etc.

Part Number	Size	Air Flow	Static Pressure	Voltage of Operation
MZB1001T02	20(W)X20(L)X1.85(H)mm without the nozzle	$\geq 0.7\text{L/min@15Vp-p}$	$\geq 1.42\text{kPa@15Vp-p}$	10 to 20Vp-p



For more details on Microblowers, please refer to our website.

Piezoelectric Actuators

Quick response and high-accuracy position control.



*Please contact us for custom specifications.

■ Features

Piezoelectric actuators employ piezoelectric ceramics, which are widely used for positioning devices.

Ceramic Applied Products

Contribution to high integration and miniaturization requirements of the automotive industry and RF modules.

Low Temperature Co-fired Ceramics (LTCC) Multi-layer Module Boards



LTCC, Low Temperature Co-fired Ceramics, is a multi-layer, glass ceramic substrate that is co-fired with low resistance metal conductors. What makes Murata's LTCC special is our unique "Zero Shrinking Sintering Process," which restricts the ceramic shrinkage to only thickness.

Murata's LTCC multilayer substrates LFC® are useful in a wide range of electronic equipment such as substrates for highly reliable electronic control units equipping vehicles and functional substrates for miniaturized high-frequency modules in cellular phones.

LFC® Series

Murata's LFC® Series LTCC substrate meets high integration and miniaturization requirements necessary for automotive applications.

AWG Series

Utilized in low-profile, small outline RF modules, the AWG Series features ultra-thin ceramic tapes, multiple material tape lamination, and enhanced board strength.



Cat.No. N20E

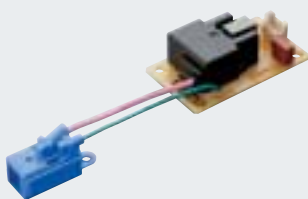
Ionizer Modules Ionissimo®

High-concentration ion, compact design, ozone control

Ionissimo® is an ionizer module with unprecedented compactness and high efficiency, capable of generating the largest number of ions in the industry* 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.

*Surveyed by Murata (as of March 2011)

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

View a demonstration video of Ionizer Modules Ionissimo® 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

- Ozone will be generated stably.
- 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)

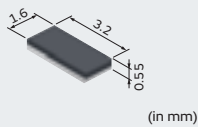
View a demonstration video of Ozonizer Modules Ionissimo® on our website.

RFID Devices

Built-in IC modules for high functional and robust small RFID tags

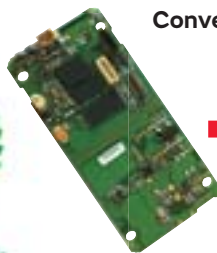
UHF-band MAGICSTRAP®

LXMS31 Series



MAGICSTRAP® can be easily assembled by means of reflow soldering and adhesive (electrically conductive or non-conductive). Even if non-conductive adhesive is used, communication will take place when MAGICSTRAP® is bonded onto the antenna, and the RFID tag will function correctly.

MAGICSTRAP® complies with international standard EPC/gC1G2. It is an ultra-miniature (3.2X1.6X0.55mm) robust package with impedance transformation function. MAGICSTRAP® can be bonded onto the antenna over a wide range ($\pm 500\mu\text{m}$). In addition, MAGICSTRAP® supports wide UHF band (860-960MHz) for worldwide use in a single design.



Conventional PCB



Smart PCB with RFID function

Traceability
"from cradle to grave"

Inventory Control

Anti-Counterfeit

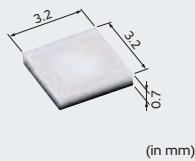
- Standard SMT component
- Compliant with EPC/g C1G2
- Read and Write capability
(ex. write inline test result into user memory)

RFID Devices

Built-in IC modules for high functional and robust small RFID tags

HF-band MAGICSTRAP®

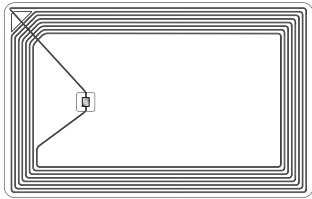
LXMS33 Series



HF-band MAGICSTRAP® is one of the world's smallest HF-band RFID tags (3.2X3.2X0.7mm).

Murata has applied its proprietary multi-layer circuit board technology and high-frequency module technology, with which the successful miniaturization of an RFID tag to one-tenth the size of an RFID tag composed of plane surface, was achieved.

Furthermore, the new RFID product uses a ceramic module structure that makes it highly resistant to the environment and enables it to achieve stable operation under various environmental conditions.



Horizontal

Miniaturization !



Multi-layer

■ Applications

Small appliance/object tracking, management, certification, authentication, etc.

■ Electrical Characteristics

Read range: 15mm
(reader/writer output: 200mW,
antenna size: 35X54mm)



For more details on RFID Devices, please refer to our website.

Wireless Power Transmission Modules

Realization of wireless charging systems

Murata has begun mass production of the capacitive coupling type* of wireless power transmission modules capable of charging at 10W.

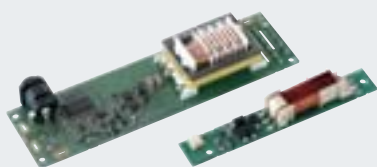
This module makes wireless charging systems a reality. (Wireless charging systems are capable of charging equipment placed on a charging pad without the need for cable connection.)

*Capacitive coupling system

The capacitive coupling system is a method that involves transmitting energy using the electrical fields generated between these electrodes.

Since the electric field is generated between the electrodes, it is also called an electric field coupling system.

LXWS Series



■ Features

- Wide charging area
- Ease of mounting
- No heat generation in the wireless power transmission area



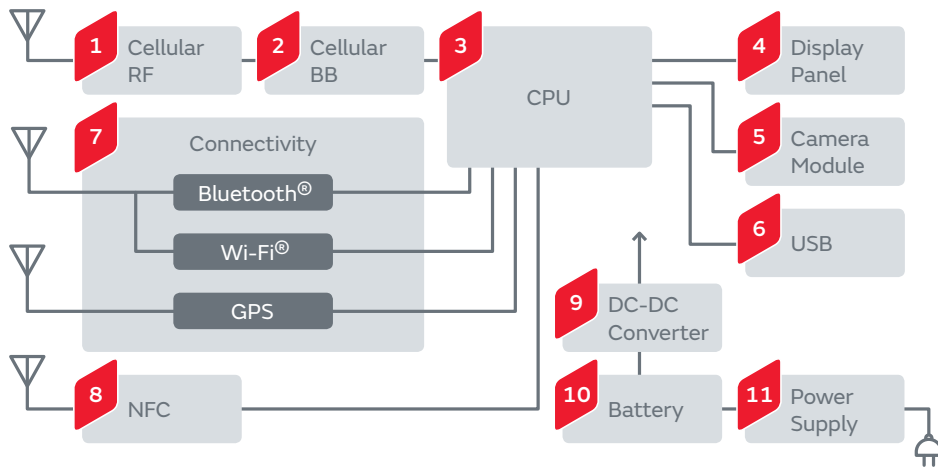
View demonstration videos of Wireless Power Transmission Modules on our website.

Memo

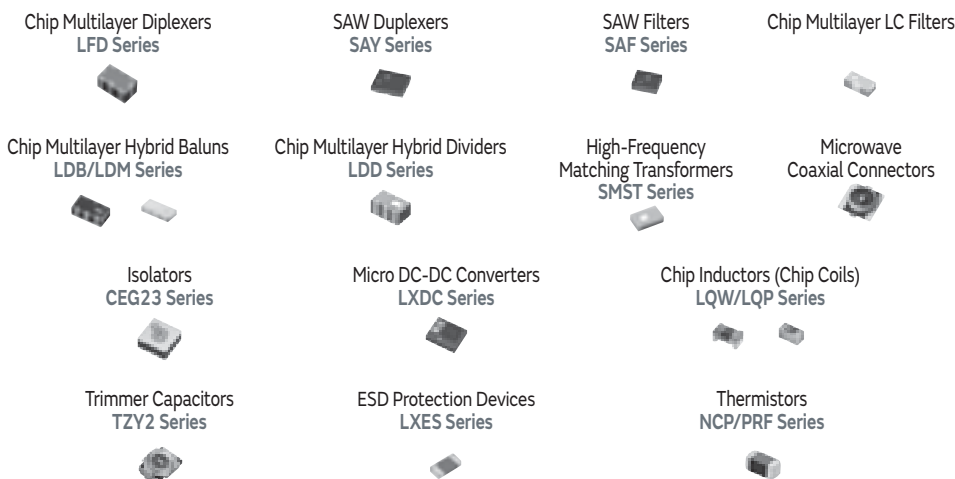
Application Guides



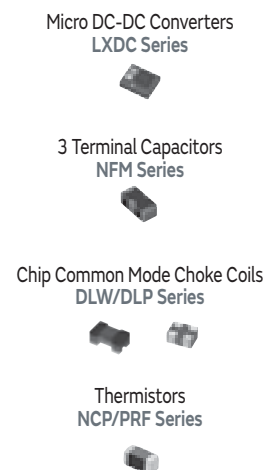
Smart Phones



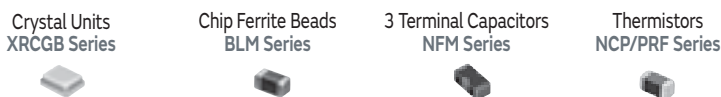
1 Cellular RF



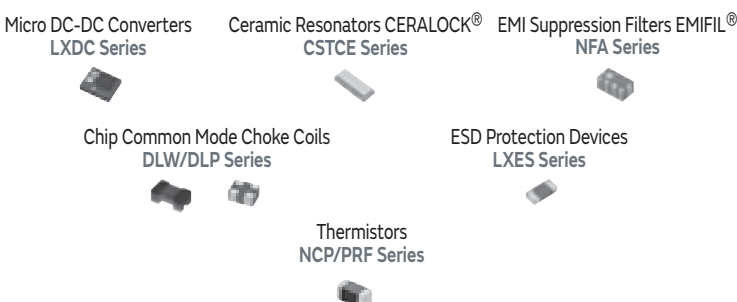
2 Cellular BB



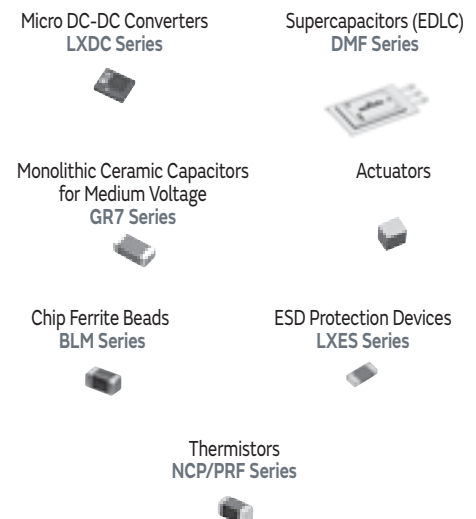
3 CPU



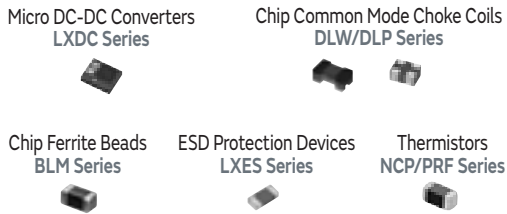
4 Display Panel



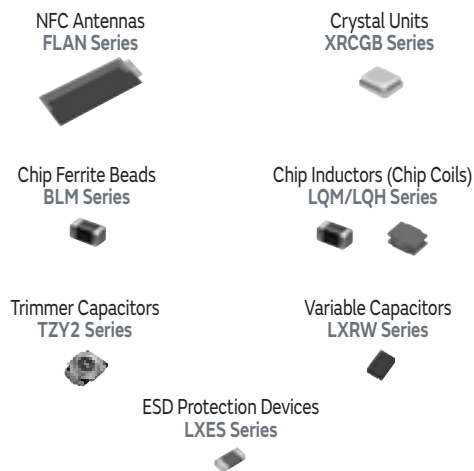
5 Camera Module



6 USB



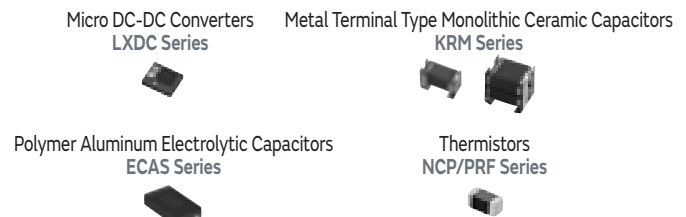
8 NFC



7 Connectivity



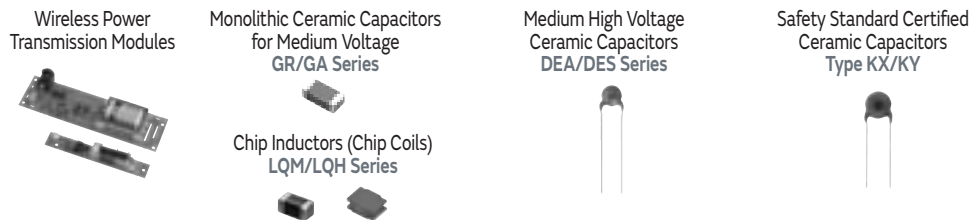
9 DC-DC Converter



10 Battery



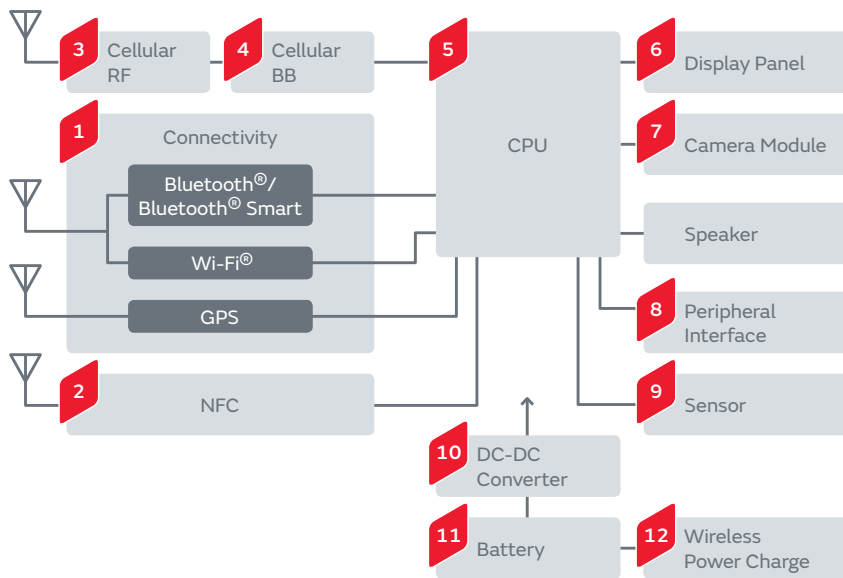
11 Power Supply



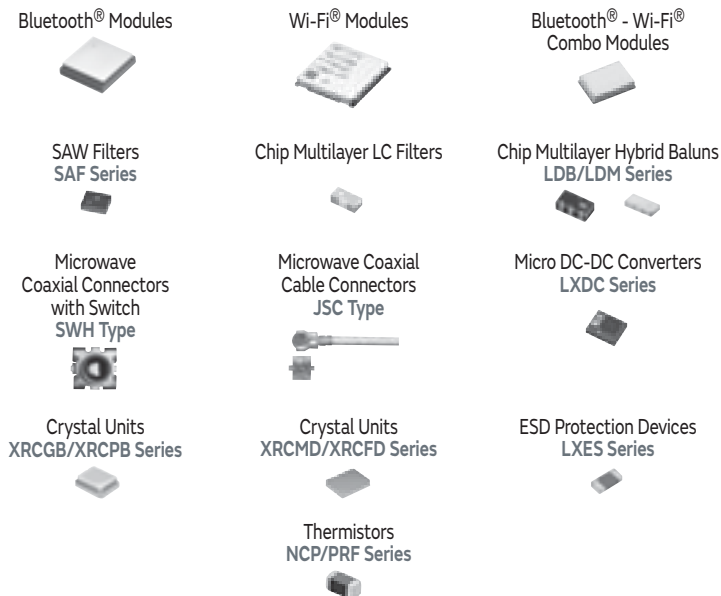
General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQM/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	

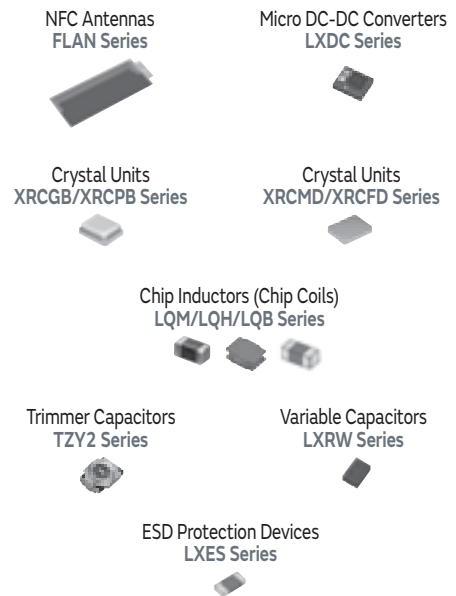
Wearable Devices



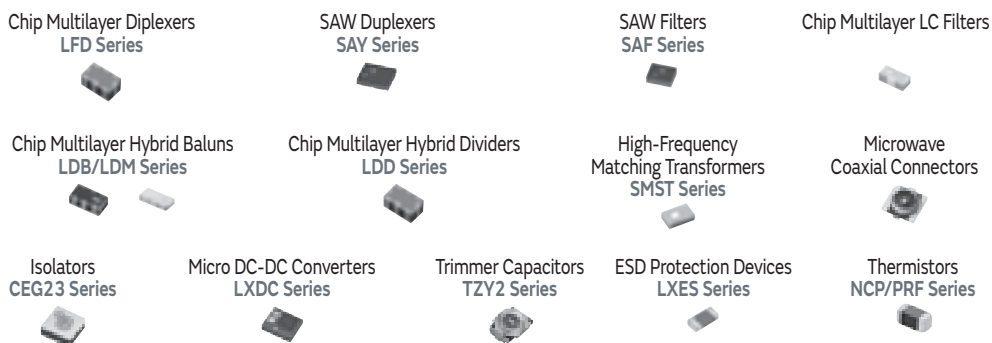
1 Connectivity



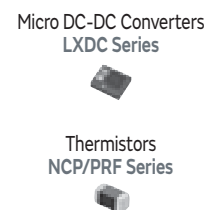
2 NFC



3 Cellular RF



4 Cellular BB



5 CPU

Crystal Units
XRCGB/XRCPB Series



Crystal Units
XRCMD/XRCFD Series



Thermistors
NCP/PRF Series



6 Display Panel

Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCW Series



Ceramic Resonators CERALOCK®
CSACM Series



Crystal Units
XRCGB/XRCPB Series



Crystal Units
XRCMD/XRCFD Series



ESD Protection Devices
LXES Series



Thermistors
NCP/PRF Series



7 Camera Module

Micro DC-DC Converters
LXDC Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR7 Series



Supercapacitors (EDLC)
DMF Series



Actuators



ESD Protection Devices
LXES Series



Thermistors
NCP/PRF Series



8 Peripheral Interface

Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCW Series



Crystal Units
XRCGB/XRCPB Series



Crystal Units
XRCMD/XRCFD Series



Chip Common Mode Choke Coils
DLW/DLP Series



ESD Protection Devices
LXES Series



Thermistors
NCP/PRF Series



9 Sensor

Proximity and
Illuminance Sensors
LT Series



Pressure Sensors
ZPA Series



Shock Sensors
PKGS Series



Thermistors
NCP/PRF Series



10 DC-DC Converter

Micro
DC-DC Converters
LXDC Series



Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Thermistors
NCP Series



11 Battery

Small Energy Devices
UMAC Series



Thermistors
NCP/PRF/PRG Series



12 Wireless Power Charge

Low ESL
Monolithic Ceramic Capacitors
LLL Series



Thermistors
NCP/PRF Series



General Purpose

Monolithic Ceramic Capacitors

GRM/GJM Series

High Frequency Filter Circuit



Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Supercapacitors (EDLC)

DMF/DMT Series

Power Line/Battery Peak Assist



Chip Inductors (Chip Coils)

LQW/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM/NFE Series

Noise Suppression



Chip LC Filter

NFA Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



Thin Type Sandwich Cores

FSSA Series

Noise Suppression



Piezoelectric Sounders

PKMCS Series

Sound component



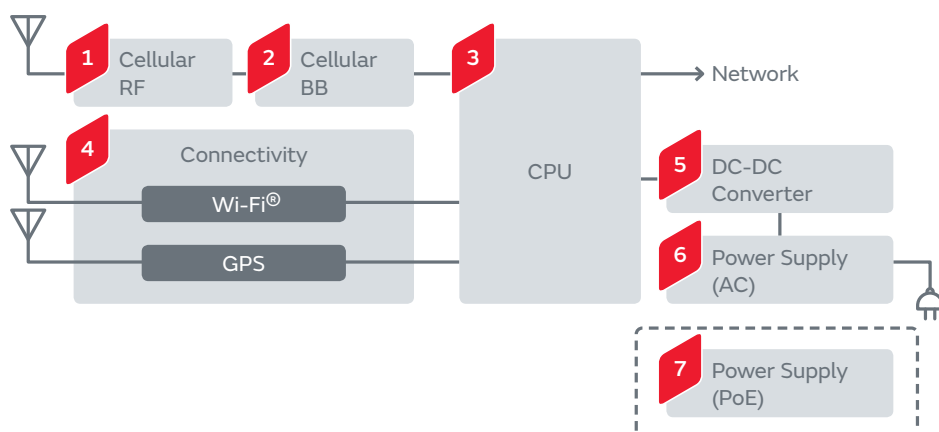
Piezoelectric Diaphragms

7BB Series

Sound component



Base Stations



1 Cellular RF



2 Cellular BB



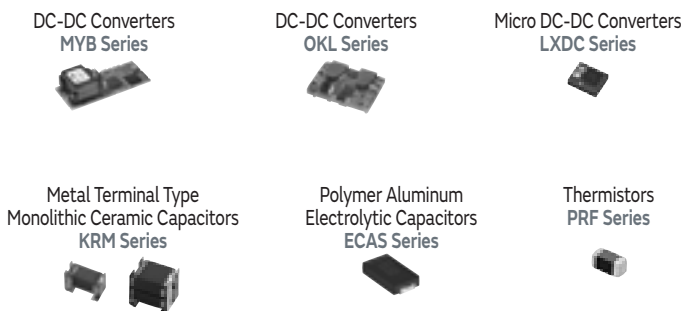
3 CPU



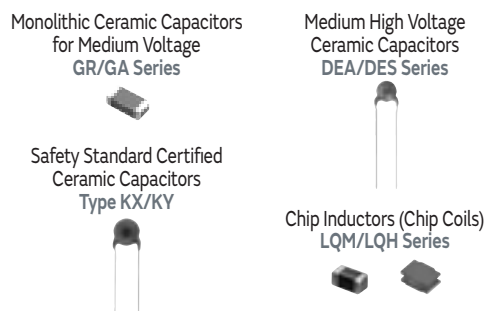
4 Connectivity



5 DC-DC Converter



6 Power Supply (AC)



7

Power Supply (PoE)

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series

Medium High Voltage Ceramic Capacitors
DEA/DES Series

Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series

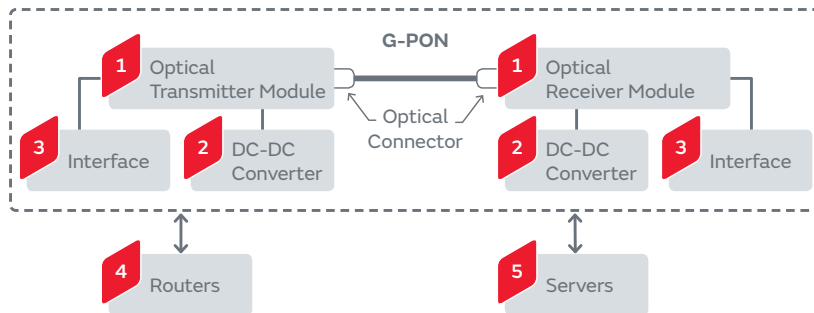
Crystal Units
XRCGB Series

Chip Inductors (Chip Coils)
LQM/LQH Series


General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	

G-PON



1 Optical Transmitter Module/Optical Receiver Module

Monolithic Ceramic Capacitors
(Top & Bottom Electrode
Type for Bonding)
GMA Series



Single Layer Microchip Capacitors
CLB Series



Monolithic Ceramic Capacitors
(Compatible to Bonding
/AuSn Soldering)
GMD Series



Thin Film Circuit Substrate RUSUB®
RUCYT Series



2 DC-DC Converter

DC-DC Converters
MYB Series



DC-DC Converters
OKL Series



Micro DC-DC Converters
LXDC Series



Polymer Aluminum Electrolytic Capacitors
ECAS Series



Thermistors
PRF Series



3 Interface

Low ESL Monolithic Ceramic Capacitors
LLL/LLA/LLM Series



Crystal Units
XRCGB Series



Chip Common Mode Choke Coils
DLW/DLP Series



ESD Protection Devices
LXES Series



4 Routers

Low ESL Monolithic
Ceramic Capacitors
LLL/LLA/LLM Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Monolithic Ceramic Capacitors
(Compatible to Bonding/AuSn Soldering)
GMD Series



Supercapacitors (EDLC)
DMT Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Monolithic Ceramic Capacitors
(Top & Bottom Electrode
Type for Bonding)
GMA Series



Crystal Units
XRCGB Series



Chip Common Mode Choke Coils
DLW/DLP Series



5 Servers

Shock Sensors
PKGS Series



Supercapacitors (EDLC)
DMT Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Crystal Units
XRCGB Series



General Purpose

Monolithic Ceramic Capacitors

GRM/GJM Series

High Frequency Filter Circuit



Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Chip Inductors (Chip Coils)

LQW/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM/NFE Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



Thin Type Sandwich Cores

FSSA Series

Noise Suppression



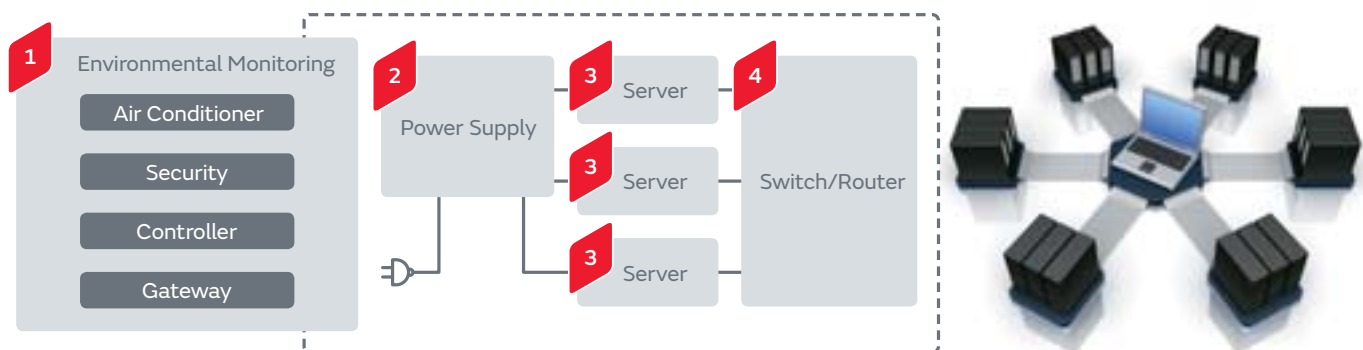
Small Energy Devices

UMAC Series

Battery Backup



Data Center



1 Environmental Monitoring

- Wi-Fi® Modules
- Sub-GHz Modules
- AMR Sensors (Magnetic Sensors) MR Series
- Pressure Sensors ZPA Series
- Shock Sensors PKGS Series
- Thermistors NCP Series

2 Power Supply

- 3-phase PFC Converters MPA Series
- DC-DC Converters for High Voltage Direct Current (HVDC) MPA Series

3 Server

- Shock Sensors PKGS Series
- Isolated DC-DC Converters MYB Series
- Non-isolated DC-DC Converters OKL/MPDR/MPDT Series
- Supercapacitors (EDLC) DMT Series
- Polymer Aluminum Electrolytic Capacitors ECAS Series
- Crystal Units XRCGB Series

4 Switch/Router

- Isolated DC-DC Converters MYB Series
- Non-isolated DC-DC Converters OKL/MPDR/MPDT Series
- Low ESL Monolithic Ceramic Capacitors LLL/LLA/LLM Series
- Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series
- Medium High Voltage Ceramic Capacitors DEA/DES Series
- Monolithic Ceramic Capacitors (Top & Bottom Electrode Type for Bonding) GMA Series
- Monolithic Ceramic Capacitors (Compatible to Bonding /AuSn Soldering) GMD Series
- Crystal Units XRCGB Series
- Supercapacitors (EDLC) DMT Series
- Chip Common Mode Choke Coils DLW/DLP Series

General Purpose	Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
	Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
	Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
	Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
	Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
	Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
	Chip Ferrite Beads	BLM Series	Noise Suppression	
	3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
	Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
	Microwave Absorbers	EA Series	Noise Suppression	
	Ferrite Cores	FS Series	Noise Suppression	
	Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
	Small Energy Devices	UMAC Series	Battery Backup	

Automotive

Powertrain/Safety

1

ECU

2

AT

3

Auxiliary
Motors

4

TPMS

5

ABS/ESC

6

Headlamp

7

EPS

8

Fuel Injection
System



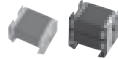
1

ECU

Low Temperature Co-fired
Ceramics (LTCC) Ceramic
Multilayer Substrates LFC®



Metal Terminal Type
Monolithic Ceramic Capacitors
KCM Series



Monolithic Ceramic
Capacitors
GCM/GCJ Series



Monolithic Ceramic Capacitors
for Conductive Glue Mounting
GCG Series



Radial Lead Type
Monolithic Ceramic Capacitors
RH Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCHA-F-A Series



Accelerometers
SCA Series



Gyro Sensors
SCC Series



Thermistors
PRF/PTG Series



2

AT

Low Temperature Co-fired
Ceramics (LTCC) Ceramic
Multilayer Substrates LFC®



Metal Terminal Type Monolithic
Ceramic Capacitors
KCM Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCHA-F-A Series



Accelerometers
SCA Series



Thermistors
PRF/PTG Series



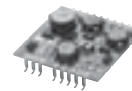
3

Auxiliary Motors

Low Temperature Co-fired
Ceramics (LTCC) Ceramic
Multilayer Substrates LFC®



DC-DC Converters



Metal Terminal Type
Monolithic Ceramic Capacitors
KCM Series



Radial Lead Type
Monolithic Ceramic Capacitors
RH Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Large Current Common Mode Choke Coils
PLT10HH Series



Thermistors
PRF/PTG Series



4

TPMS

Shock Sensors
PKGS Series



Ceramic Filters CERAFIL®
SFECF Series



Ceramic Discriminators
CDSCB Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCHA-F-A Series



Pressure Sensor Elements



Thermistors
PRF Series



5 ABS/ESC

Low Temperature Co-fired
Ceramics (LTCC) Ceramic
Multilayer Substrates LFC®



Metal Terminal Type
Monolithic Ceramic Capacitors
KCM Series



Monolithic Ceramic
Capacitors
GCM/GCJ Series



Monolithic Ceramic Capacitors
for Conductive Glue Mounting
GCG Series



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCHA-F-A Series



Accelerometers
SCA Series



Gyro Sensors
SCC Series



Thermistors
for Conductive Glue Mounting
NCG18 Series



6 Headlamp

Monolithic Ceramic Capacitors
GCM/GCJ Series



Monolithic Ceramic Capacitors
for Conductive Glue Mounting
GCG Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCHA-F-A Series



Thermistors for Conductive Glue Mounting
NCG18 Series



7 EPS

Low Temperature Co-fired
Ceramics (LTCC) Ceramic
Multilayer Substrates LFC®



Metal Terminal Type
Monolithic Ceramic Capacitors
KCM Series



Monolithic Ceramic Capacitors
GCM/GCJ Series



Monolithic Ceramic Capacitors
for Conductive Glue Mounting
GCG Series



Radial Lead Type
Monolithic Ceramic Capacitors
RCE Series



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCHA-F-A Series



Thermistors
for Conductive Glue Mounting
NCG18 Series



Accelerometers
SCA Series



Gyro Sensors
SCC Series



Thermistors
PRF/PTG Series



8 Fuel Injection System

Radial Lead Type Monolithic Ceramic Capacitors
RPF Series



General Purpose (High Reliability)

Monolithic Ceramic Capacitors	GCM Series	Coupling/Decoupling		150°C
Radial Lead Type Monolithic Ceramic Capacitors	RCE Series	Noise Suppression/Decoupling		125°C
Radial Lead Type Monolithic Ceramic Capacitors	RH Series	Noise Suppression/Decoupling		150°C
Chip Inductors (Chip Coils)	LQH32CH Series	Voltage Conversion		105°C
Chip Inductors (Chip Coils)	LQG15HH Series	Impedance Matching/Choke		125°C
Chip Ferrite Beads	BLM_SH Series	Noise Suppression		125°C
3 Terminal Capacitors	NFM_H/NFE_H Series	Noise Suppression		125°C
Chip Common Mode Choke Coils	DLW31SH/DLW43SH Series	Common Mode Noise Suppression		125°C

105°C 105°C max. 125°C 125°C max. 150°C 150°C max.

HEV/PHEV/EV

1

Charger

2

BMS

3

Electrically-Driven
Compressor

4

Electric Pump

5

Inverter

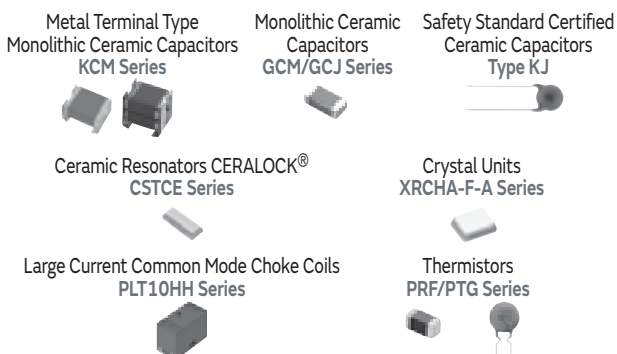
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DC-DC Converter



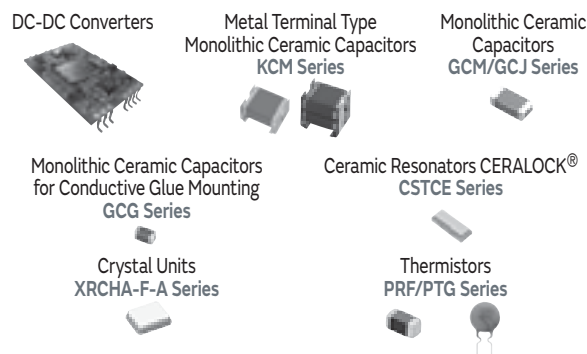
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Charger



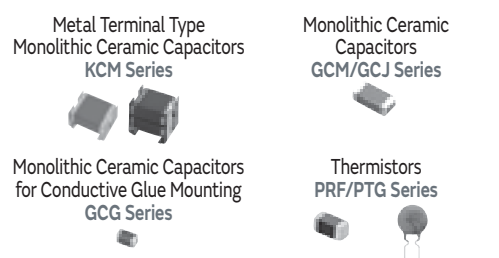
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BMS



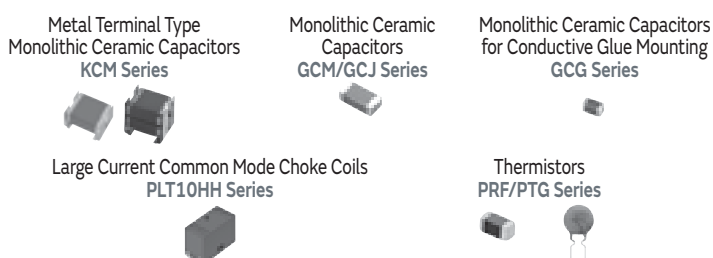
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Electrically-driven Compressor



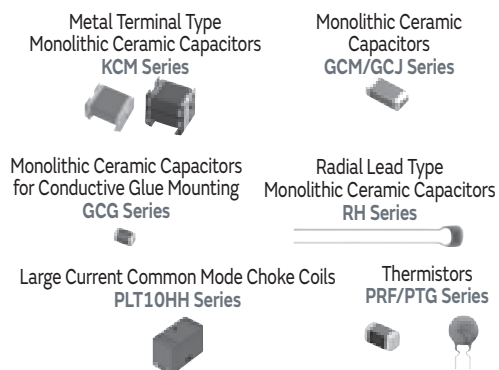
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Electric Pump



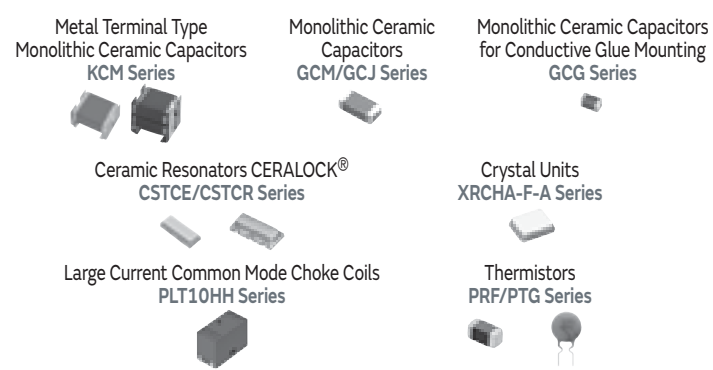
5

Inverter



6

DC-DC Converter



General Purpose (High Reliability)

Monolithic Ceramic Capacitors	GCM Series	Coupling/Decoupling		150°C
Radial Lead Type Monolithic Ceramic Capacitors	RCE Series	Noise Suppression/Decoupling		125°C
Radial Lead Type Monolithic Ceramic Capacitors	RH Series	Noise Suppression/Decoupling		150°C
Chip Inductors (Chip Coils)	LQH32CH Series	Voltage Conversion		105°C
Chip Inductors (Chip Coils)	LQG15HH Series	Impedance Matching/Choke		125°C
Chip Ferrite Beads	BLM_SH Series	Noise Suppression		125°C
3 Terminal Capacitors	NFM_H/NFE_H Series	Noise Suppression		125°C
Chip Common Mode Choke Coils	DLW31SH/DLW43SH Series	Common Mode Noise Suppression		125°C

105°C 105°C max. 125°C 125°C max. 150°C 150°C max.

Information/Comfort/Accessory

1 Navigation/
Infotainment

2 RKE

3 Meter/HUD

4 Power Seat/
Power Mirror

5 Parking Assist



1 Navigation/Infotainment

Rotary Position Sensors
SV Series



Accelerometers
SCA Series



Supercapacitors (EDLC)
DMT Series



Ceramic Filters CERAFIL®
SFEFCF Series



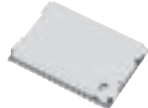
Ceramic Discriminators
CDSCB Series



Piezoelectric Sounders
PKLCS Series



Bluetooth® Modules



Wi-Fi® Modules



DC-DC Converters



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCHA-F-A Series



Thermistors
PRF/PRG/PTG Series



2 RKE

Supercapacitors (EDLC)
DMT Series



Small Energy Devices
UMAC Series



Ceramic Filters CERAFIL®
SFEFCF Series



Ceramic Discriminators
CDSCB Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCHA-F-A Series



Piezoelectric Diaphragms
7BB Series



3 Meter/HUD

Rotary Position Sensors
SV Series



DC-DC Converters



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCHA-F-A Series



Piezoelectric Sounders
PKM/PKLCS Series



Thermistors
PRF/PTG Series



4 Power Seat/Power Mirror

Piezoelectric Sounders
PKLCS Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCHA-F-A Series



Thermistors
PRF/PTG Series



5 Parking Assist

Ultrasonic Sensors
MA Series



Accelerometers
SCA Series



Supercapacitors (EDLC)
DMT Series



Piezoelectric Sounders
PKM/PKLCS Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCHA-F-A Series



Thermistors
PRF/PTG Series



General Purpose

Monolithic Ceramic Capacitors

GRT Series

Coupling/Decoupling



Monolithic Ceramic Capacitors for Medium Voltage

GRM Series

For Snubber



Radial Lead Type Monolithic Ceramic Capacitors

RCE Series

Noise Suppression/Decoupling



Chip Inductors (Chip Coils)

LQM/LQH Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



EMI Suppression Filters EMIFIL®

NFM/NFA/NFL/NFE/NFW/NFR Series

Noise Suppression



Chip Common Mode Choke Coils

DLW Series

Common Mode Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



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
Monolithic Ceramic Capacitors
KCM Series



Monolithic Ceramic Capacitors
GCM/GCJ Series



Safety Standard Certified
Ceramic Capacitors
Type KJ



Ceramic Resonators CERALOCK®
CSTCE Series



Crystal Units
XRCHA-F-A Series



Large Current Common Mode Choke Coils
PLT10HH Series



Thermistors
PRF/PTG Series



2

Inverter

Monolithic
Ceramic Capacitors
GCM/GCJ Series



Monolithic Ceramic Capacitors
for Conductive Glue Mounting
GCG Series



Radial Lead Type
Monolithic Ceramic Capacitors
RH Series



Large Current
Common Mode
Choke Coils
PLT10HH Series



Thermistors
PRF/PTG Series



3

DC-DC Converter

DC-DC Converters



Metal Terminal Type
Monolithic Ceramic Capacitors
KCM Series



Monolithic Ceramic Capacitors
GCM/GCJ Series



Monolithic Ceramic Capacitors
for Conductive Glue Mounting
GCG Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCHA-F-A Series



Large Current Common Mode Choke Coils
PLT10HH Series



Thermistors
PRF/PTG Series

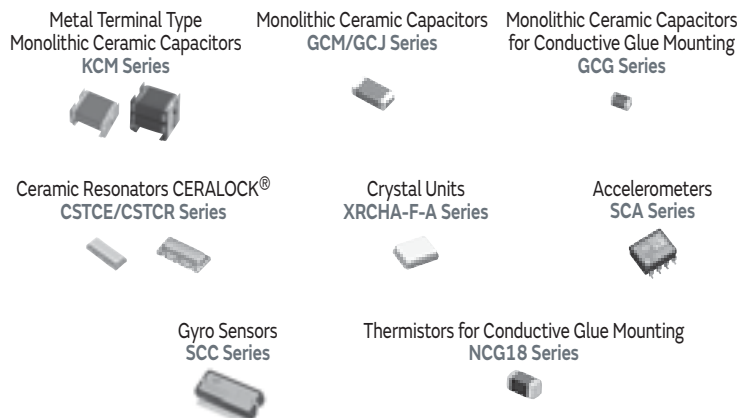


General Purpose (High Reliability)

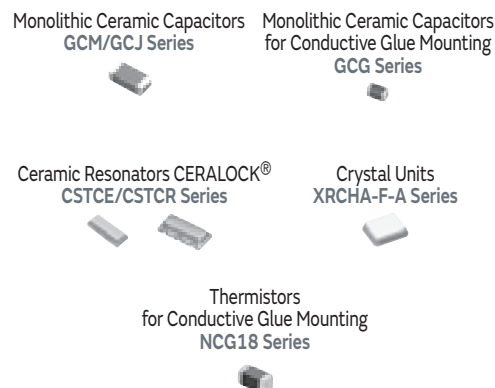
Monolithic Ceramic Capacitors	GCM Series	Coupling/Decoupling		150°C
Radial Lead Type Monolithic Ceramic Capacitors	RCE Series	Noise Suppression/Decoupling		125°C
Radial Lead Type Monolithic Ceramic Capacitors	RH Series	Noise Suppression/Decoupling		150°C
Chip Inductors (Chip Coils)	LQH32CH Series	Voltage Conversion		105°C
Chip Inductors (Chip Coils)	LQG15HH Series	Impedance Matching/Choke		125°C
Chip Ferrite Beads	BLM_SH Series	Noise Suppression		125°C
3 Terminal Capacitors	NFM_H/NFE_H Series	Noise Suppression		125°C
Chip Common Mode Choke Coils	DLW31SH/DLW43SH Series	Common Mode Noise Suppression		125°C

105°C 105°C max. 125°C 125°C max. 150°C 150°C max.

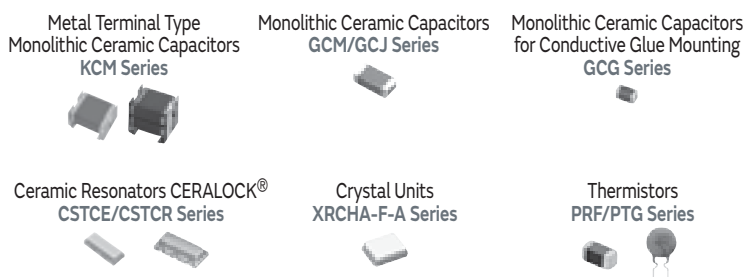
4 Accelerometer for Fuel Cut



5 Headlamp



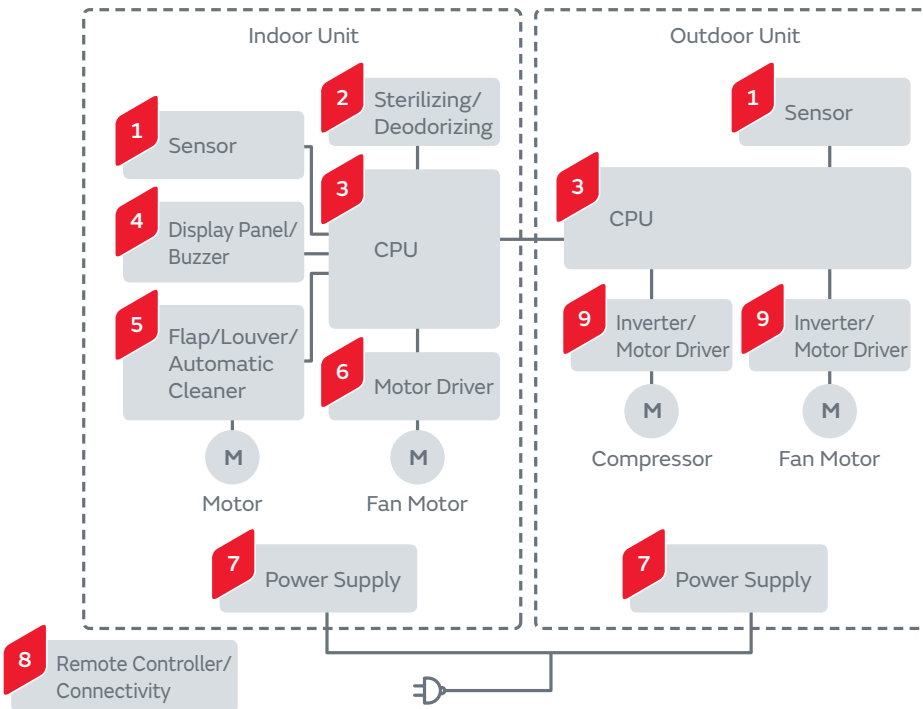
6 Fuel Injection System



General Purpose

Monolithic Ceramic Capacitors	GRT Series	Coupling/Decoupling	
Monolithic Ceramic Capacitors for Medium Voltage	GRM Series	For Snubber	
Radial Lead Type Monolithic Ceramic Capacitors	RCE Series	Noise Suppression/Decoupling	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
EMI Suppression Filters EMIFIL®	NFM/NFA/NFL/NFE/NFW/NFR Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW Series	Common Mode Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	

Air Conditioner



1 Sensor

- Pyroelectric Infrared Sensors IRA Series
- Ultrasonic Sensors MA Series
- Thermistors NCP/NXR/PRF Series

2 Sterilizing/Deodorizing

- Ionizer Modules Ionissimo® MHM300 Series
- High Voltage Power MPH4602 Series
- Ozonizer Modules Ionissimo® MHM500 Series
- High Voltage Resistors MHR Series

3 CPU

- Ceramic Resonators CERALOCK® CSTLS/CSTCE/CSTCR Series

4 Display Panel/Buzzer

- Ceramic Resonators CERALOCK® CSTLS/CSTCE/CSTCR Series
- Piezoelectric Sounders PKM/PKLC Series

5 Flap/Louver/Automatic Cleaner

- Rotary Position Sensors SV Series

6 Motor Driver

- Thermistors NCP/NXR/PRF Series

7 Power Supply

- Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series
- Medium High Voltage Ceramic Capacitors DEA/DES Series
- Safety Standard Certified Ceramic Capacitors Type KX/KY
- Thermistors NTP/PTG Series

8 Remote Controller/Connectivity

Bluetooth® Modules



Wi-Fi® Modules

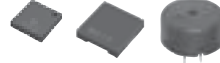


Sub-GHz Modules


Microwave
Coaxial Connectors

Micro DC-DC Converters
LXDC Series

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series

Piezoelectric Sounders
PKMCS/PKLCs/PKM Series

Chip Inductors (Chip Coils)
LQB Series


9 Inverter/Motor Driver

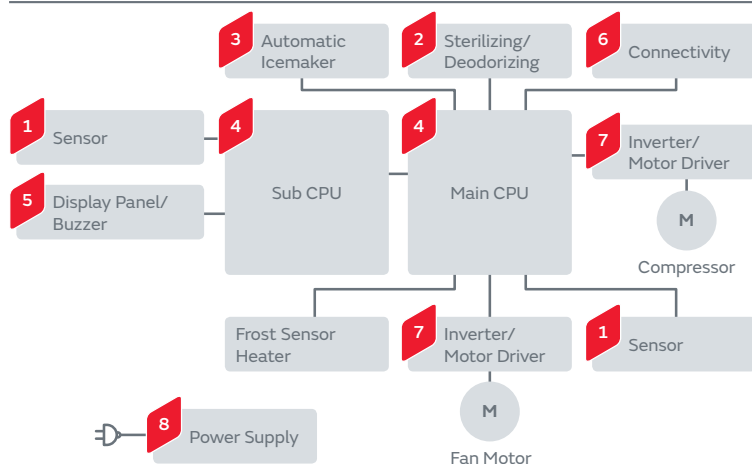
Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series

Thermistors
NCP/NXR/PRF Series

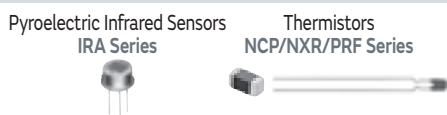

General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

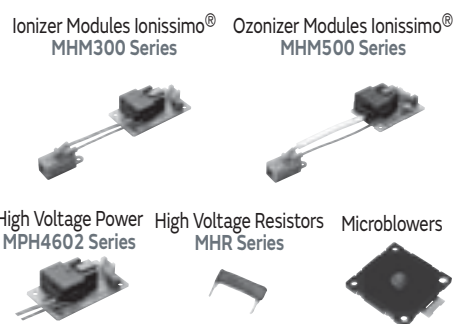
Refrigerator



1 Sensor



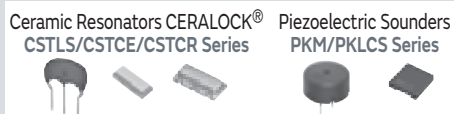
2 Sterilizing/Deodorizing



3 Automatic Icemaker



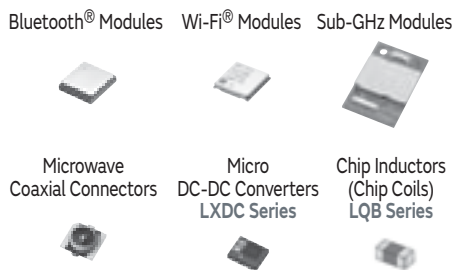
5 Display Panel/Buzzer



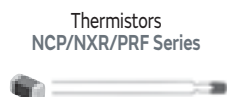
4 CPU



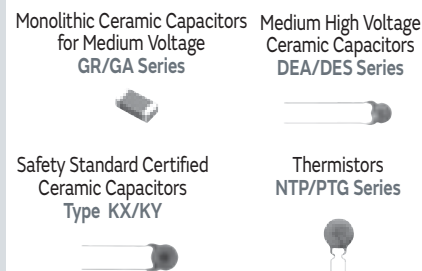
6 Connectivity



7 Inverter/Motor Driver



8 Power Supply



General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQM/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Washing Machine



1 Sensor



2 CPU

3 Display Panel/Buzzer



4 Inverter/Motor Driver

5 Connectivity



6 Power Supply

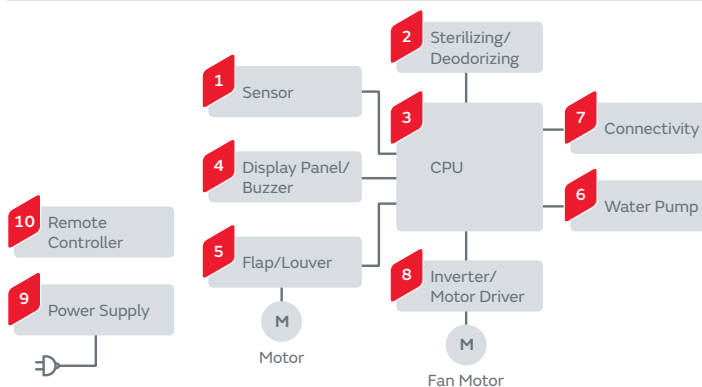


7 Sterilizing/Deodorizing



Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
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Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Air Purifier



1 Sensor

Pyroelectric Infrared Sensors
IRA Series

Ultrasonic Sensors
MA Series

Thermistors
NCP/NXR/PRF Series

2 Sterilizing/Deodorizing

Ionizer Modules
Ionissimo®
MHM300 Series

Ozonizer Modules
Ionissimo®
MHM500 Series

High Voltage Power
MPH4602 Series

High Voltage
Resistors
MHR Series

3 CPU

Micro DC-DC Converters
LXDC Series

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series

4 Display Panel/Buzzer

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series

Piezoelectric Sounders
PKM/PKLC Series

5 Flap/Louver

Rotary Position Sensors
SV Series

6 Water Pump

Microblowers

8 Inverter/Motor Driver

Thermistors
NCP/NXR/PRF Series

7 Connectivity

Bluetooth®
Modules

Wi-Fi®
Modules

Sub-GHz Modules

Microwave
Coaxial Connectors

Chip Inductors
(Chip Coils)
LQB Series

Micro DC-DC Converters
LXDC Series

9 Power Supply

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series

Medium High Voltage
Ceramic Capacitors
DEA/DES Series

Safety Standard Certified
Ceramic Capacitors
Type KX/KY

AC Line Filters
PLA/PLY Series

Thermistors
NTP/PTG Series

10 Remote Controller

Micro DC-DC Converters
LXDC Series

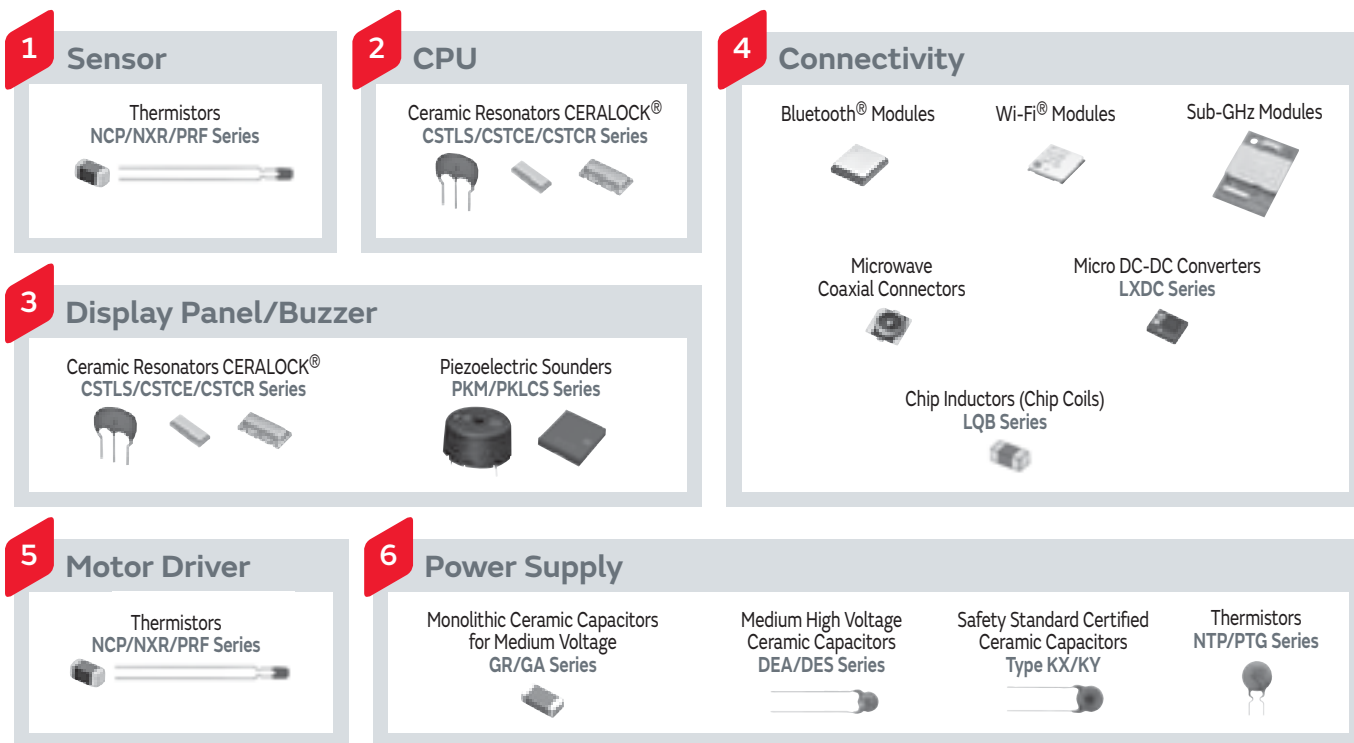
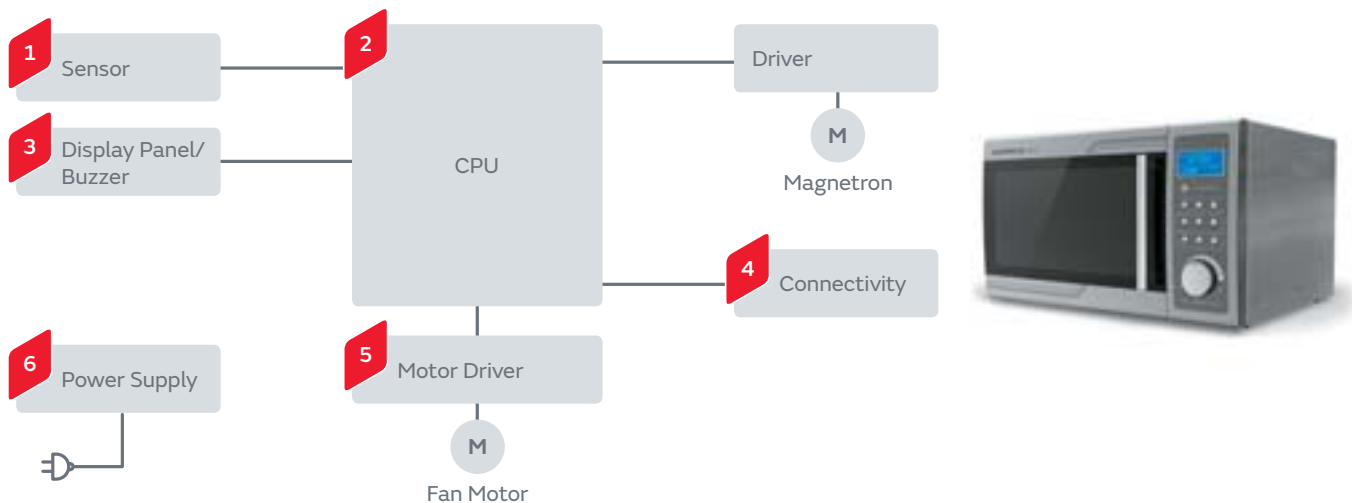
Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series

Piezoelectric Sounders
PKMCS/PKLC Series

General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

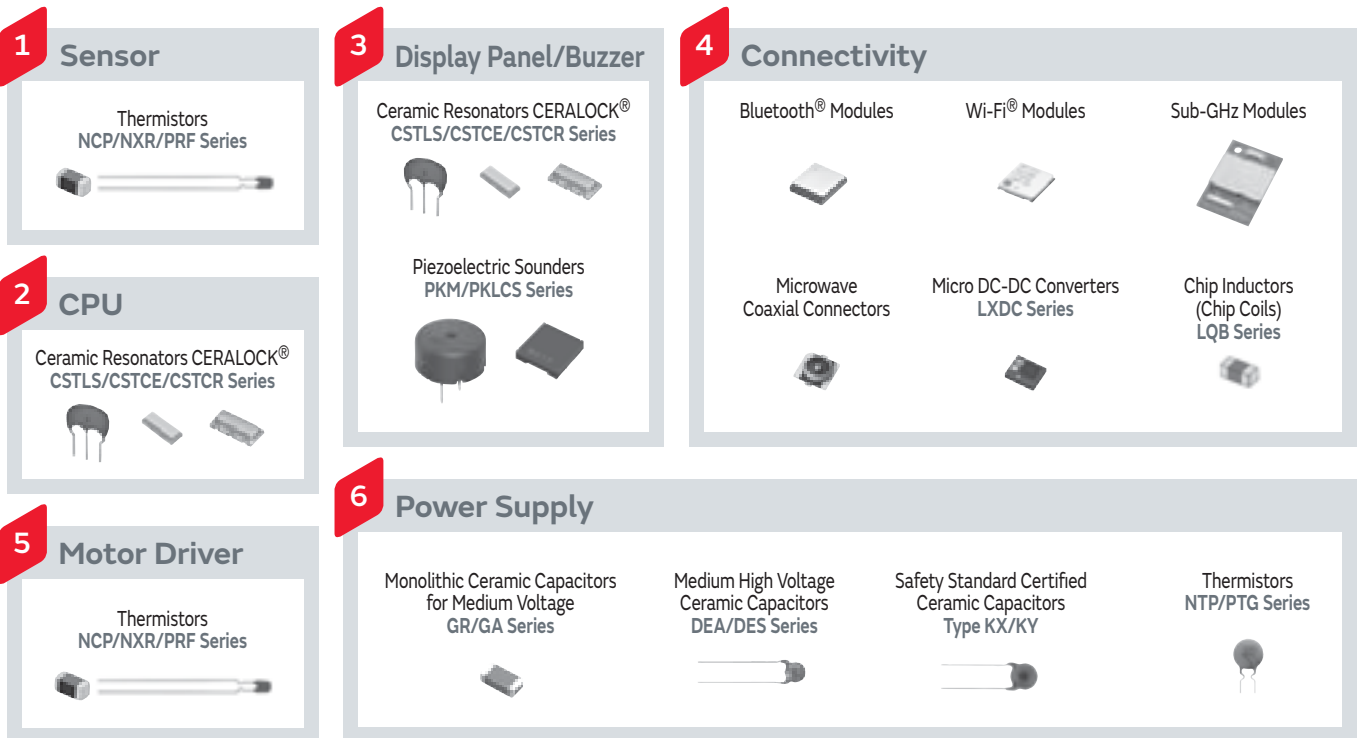
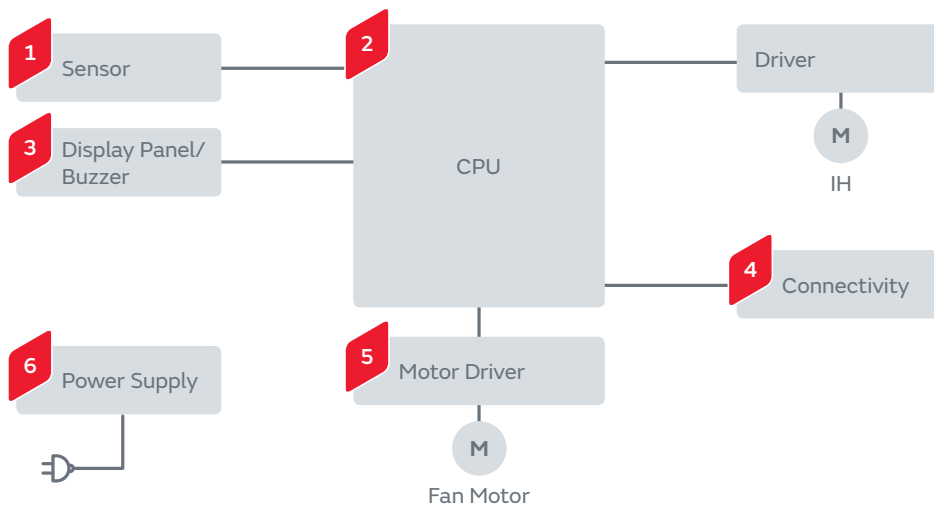
Microwave Oven



General Purpose

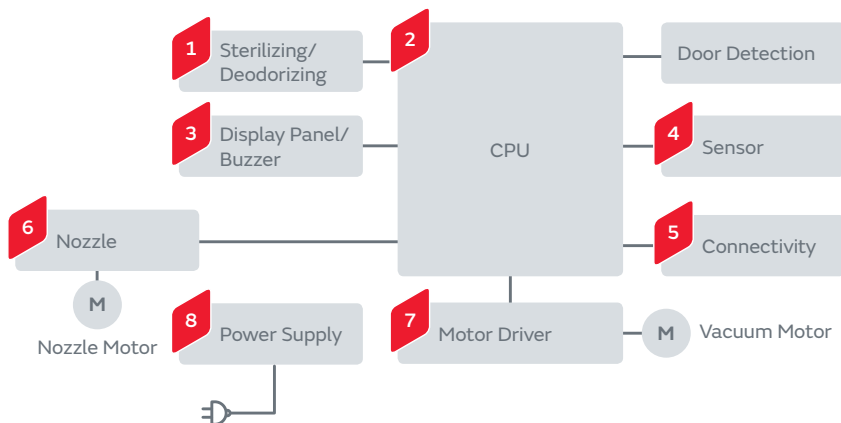
Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
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Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

IH Rice Cooker



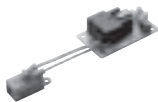
General Purpose	Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
	Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
	Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
	Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
	Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
	Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
	Chip Ferrite Beads	BLM Series	Noise Suppression	
	3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
	Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
	Microwave Absorbers	EA Series	Noise Suppression	
	Ferrite Cores	FS Series	Noise Suppression	
	Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
	Small Energy Devices	UMAC Series	Battery Backup	

Vacuum Cleaner



1 Sterilizing/Deodorizing

Ionizer Modules
Ionissimo®
MHM300 Series



Ozonizer Modules
Ionissimo®
MHM500 Series



High Voltage
Resistors
MHR Series



2 CPU

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series



3 Display Panel/Buzzer

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series



Piezoelectric Sounders
PKM/PKLC Series



4 Sensor

Ultrasonic Sensors
MA Series



Thermistors
NCP Series



5 Connectivity

Bluetooth® Modules



Wi-Fi® Modules



Sub-GHz Modules



Microwave
Coaxial Connectors



Micro DC-DC Converters
LXDC Series



Chip Inductors
(Chip Coils)
LQB Series



6 Nozzle

Thermistors
PTG Series



7 Motor Driver

Thermistors
NCP/NXR/PRF Series



8 Power Supply

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Thermistors
NTP/PTG Series



General Purpose

Monolithic Ceramic Capacitors

GRM/GJM Series

High Frequency Filter Circuit



Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Chip Inductors (Chip Coils)

LQW/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM/NFE Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



Thin Type Sandwich Cores

FSSA Series

Noise Suppression



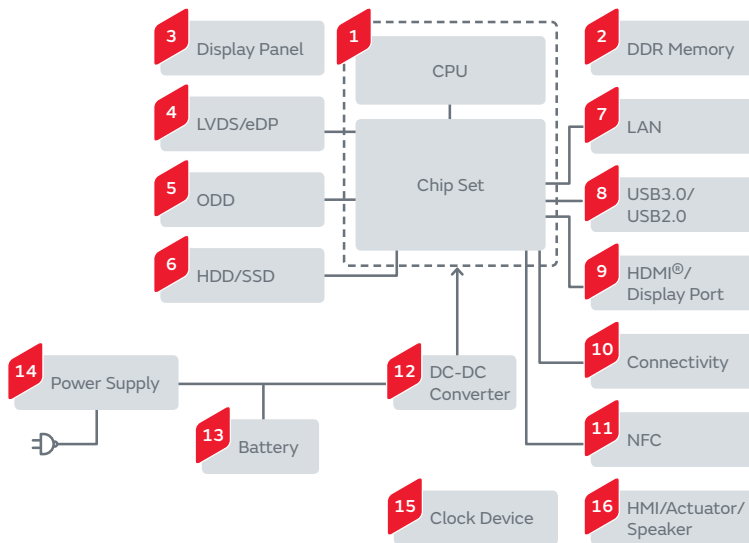
Small Energy Devices

UMAC Series

Battery Backup



Tablet Terminators



1 CPU/Chip Set

Micro DC-DC Converters LXDC Series
Low ESL Monolithic Ceramic Capacitors LLL/LLA/LLM Series
Polymer Aluminum Electrolytic Capacitors ECAS Series
Crystal Units XRCGB Series
Chip Ferrite Beads BLM Series
3 Terminal Capacitors NFM Series
Thermistors NCP/PRF Series

2 DDR Memory

Micro DC-DC Converters LXDC Series
Polymer Aluminum Electrolytic Capacitors ECAS Series
Chip Ferrite Beads BLM Series

3 Display Panel

Metal Terminal Type Monolithic Ceramic Capacitors KRM Series
Ceramic Resonators CERALOCK® CSTCE/CSTCR Series
Power Inductors LQH Series
Thermistors PRF/PRG Series

4 LVDS/eDP

Chip Common Mode Choke Coils DLW/DLP Series
ESD Protection Devices LXES Series
Thermistors NCP/PRF Series

5 ODD

Ceramic Resonators CERALOCK® CSTCW Series
Crystal Units XRCGB Series
Thermistors NCP Series

8 USB3.0/USB2.0

Micro DC-DC Converters LXDC Series
Polymer Aluminum Electrolytic Capacitors ECAS Series
Crystal Units XRCGB Series
Chip Common Mode Choke Coils DLW/DLP Series
Chip Ferrite Beads BLM Series
ESD Protection Devices LXES Series
Thermistors PRG Series

6 HDD/SSD

Shock Sensors PKGS Series
Micro DC-DC Converters LXDC Series
Polymer Aluminum Electrolytic Capacitors ECAS Series
Supercapacitors (EDLC) DMT Series
Actuators PALHRS Series
Crystal Units XRCGB Series
Thermistors NCP/PRF Series

7 LAN

Monolithic Ceramic Capacitors for Medium Voltage GR4 Series
Chip Common Mode Choke Coils DLW/DLP Series

9 HDMI®/Display Port

Chip Common Mode Choke Coils DLW/DLP Series
ESD Protection Devices LXES Series
Thermistors PRG Series

10 Connectivity

Bluetooth® Modules



Wi-Fi® Modules



Bluetooth® - Wi-Fi® Combo Modules


SAW Filters
SAF Series


Chip Multilayer LC Filters


Chip Multilayer Hybrid Baluns
LDB/LDM Series

Microwave
Coaxial Connectors

Microwave Coaxial Connectors
with Switch

Micro DC-DC Converters
LXDC Series

ESD Protection Devices
LXES Series


11 NFC

NFC Antennas
FLAN Series

Micro DC-DC Converters
LXDC Series

Crystal Units
XRCGB Series

Chip Ferrite Beads
BLM Series

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

Trimmer Capacitors
TZY2 Series

Variable Capacitors
LXRW Series

ESD
Protection Devices
LXES Series

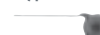

14 Power Supply

Micro DC-DC Converters
LXDC Series

Wireless Power
Transmission Modules

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series

Medium High Voltage
Ceramic Capacitors
DEA/DES Series

Safety Standard Certified
Ceramic Capacitors
Type KX/KY

Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series

Chip Common Mode
Choke Coils
DLW/DLP Series

Thermistors
NCP/NTP/PRF Series


12 DC-DC Converter

Micro DC-DC Converters
LXDC Series

Thermistors
NCP/PRF Series

Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series

Polymer Aluminum Electrolytic Capacitors
ECAS Series


13 Battery

Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series

Thermistors
NXP/PRF/PRG Series


15 Clock Device

Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series

Crystal Units
XRCGB Series


16 HMI/Actuator/Speaker

Pyroelectric
Infrared Sensors
IRS Series

Ultrasonic Sensors
MA Series

ESD
Protection Devices
LXES Series


General Purpose

Monolithic Ceramic Capacitors

GRM/GJM Series

High Frequency Filter Circuit



Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Chip Inductors (Chip Coils)

LQM/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM/NFE Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



Thin Type Sandwich Cores

FSSA Series

Noise Suppression



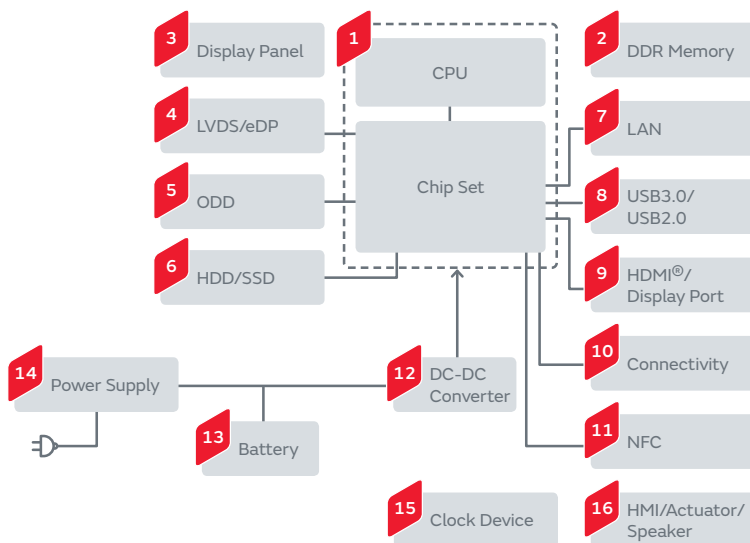
Small Energy Devices

UMAC Series

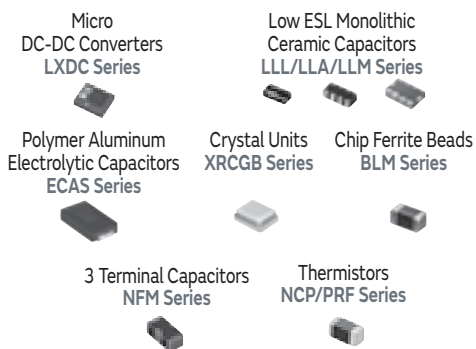
Battery Backup



Notebook Computers



1 CPU/Chip Set



2 DDR Memory



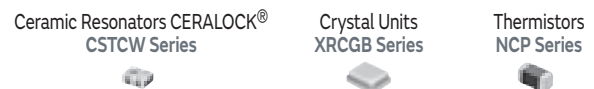
3 Display Panel



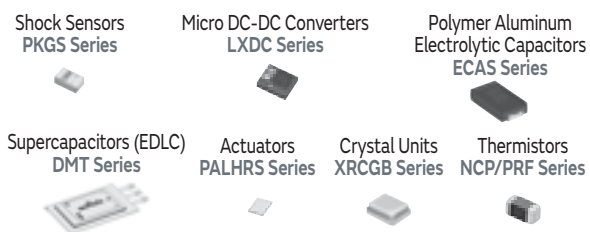
4 LVDS/eDP



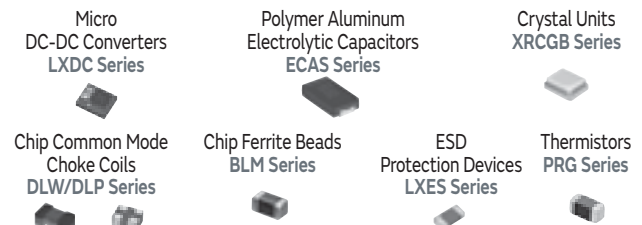
5 ODD



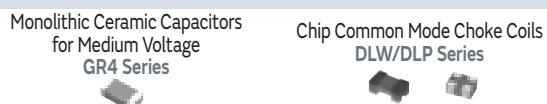
6 HDD/SSD



8 USB3.0/USB2.0



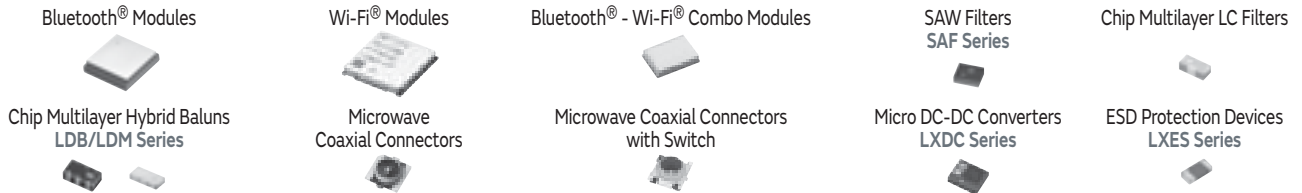
7 LAN



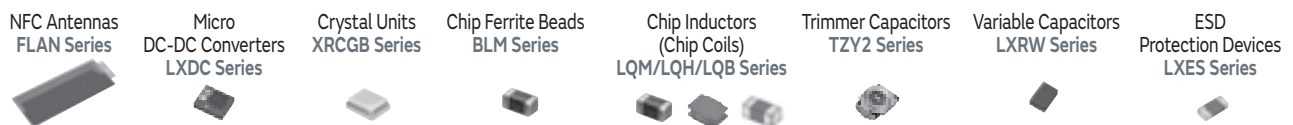
9 HDMI®/Display Port



10 Connectivity



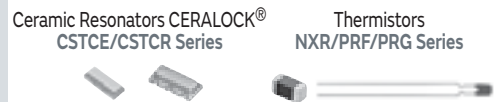
11 NFC



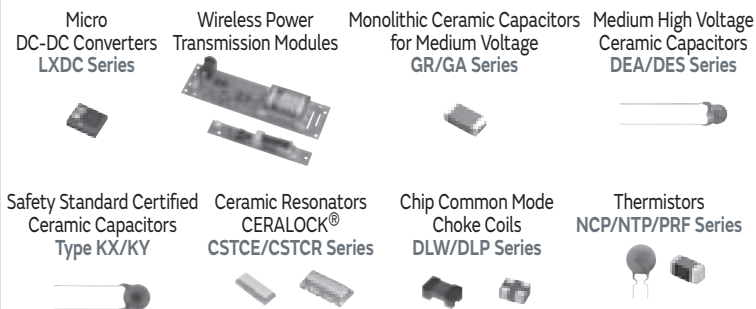
12 DC-DC Converter



13 Battery



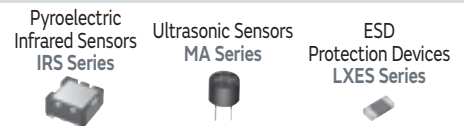
14 Power Supply



15 Clock Device



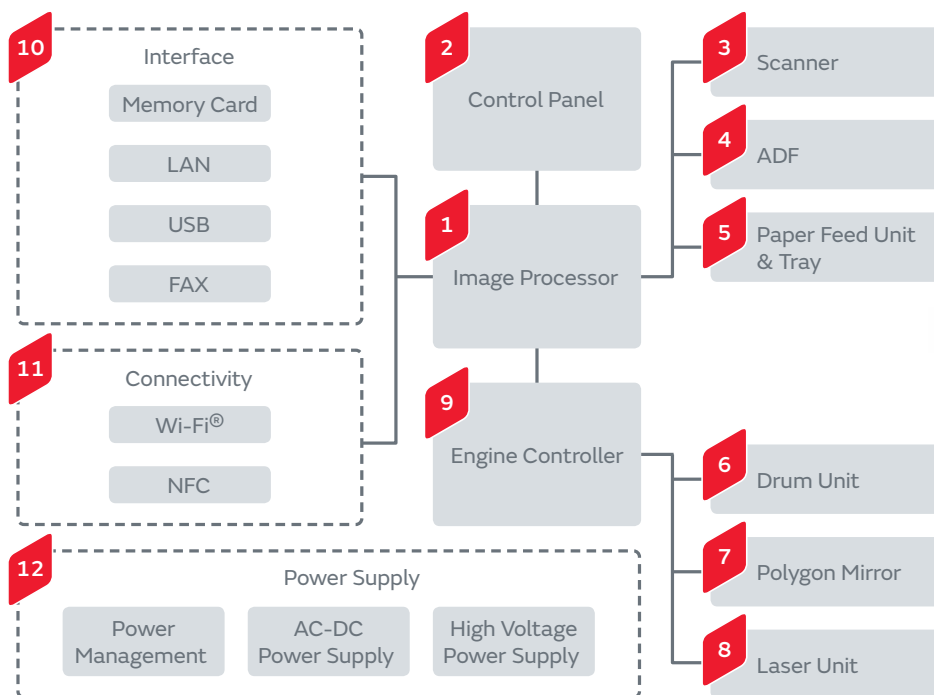
16 HMI/Actuator/Speaker



General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

MFP (Multi Function Printer/Product/Peripheral)

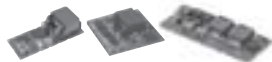


1 Image Processor

Isolated DC-DC Converters
MYB Series



Non-isolated DC-DC Converters
OKL/MPDR/MPDT Series



Micro DC-DC Converters
LXDC Series



Low ESL Monolithic
Ceramic Capacitors
LLL/LLA/LLM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



AMR Sensors (Magnetic Sensors)
MR Series



Crystal Units
XRCGB Series



Thermistors
NCP/PRF Series



2 Control Panel

Rotary Position Sensors
SV Series



Micro DC-DC Converters
LXDC Series



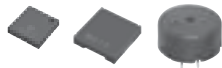
Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Piezoelectric Sounders
PKMCS/PKLC/SPK Series



Chip Common Mode
Choke Coils
DLW/DLP Series



Thermistors
NCP/PRF Series



3 Scanner

Supercapacitors (EDLC)
DMT Series



Ultrasonic Sensors
MA Series



4 ADF

Ultrasonic Sensors
MA Series



Accelerometers
SCA Series



Rotary Position Sensors
SV Series



5 Paper Feed Unit & Tray

AMR Sensors (Magnetic Sensors)
MR Series



Rotary Position Sensors
SV Series



6 Drum Unit

Thermistors
NCP/PRF Series



7 Polygon Mirror

Accelerometers
SCA Series



8 Laser Unit

Thermistors
NCP/PRF Series



9 Engine Controller

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Shock Sensors
PKGS Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB Series



Large Current
Common Mode Choke Coils
PLT10HH Series



Thermistors
PRF/PTG Series



10 Interface

Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Crystal Units
XRCGB Series



Chip Common Mode Choke Coils
DLW/DLP Series



ESD Protection Devices
LXES Series



Thermistors
PRF Series



11 Connectivity

Wi-Fi® Modules



NFC Antennas
FLAN Series



Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB Series



Chip Inductors (Chip Coils)
LQB Series



ESD Protection Devices
LXES Series



12 Power Supply

Micro DC-DC Converters
LXDC Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



AC Line Filters
PLA/PLH/PLY Series



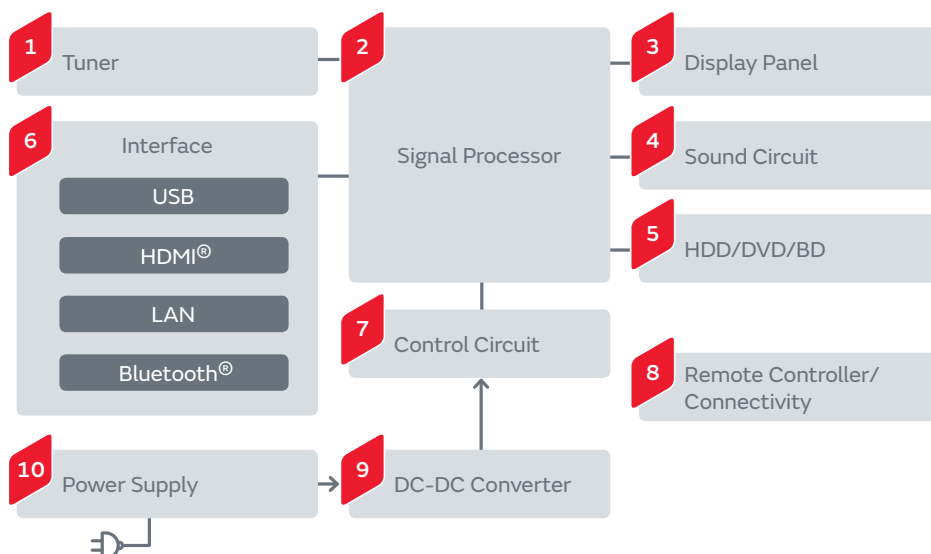
High Voltage Power Supplies
MPH Series



General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Televisions



1 Tuner

Microchip Transformers (Baluns)
DXP18B Series



Chip Inductors (Chip Coils)
LQW Series



Crystal Units
XRCGB Series



ESD Protection Devices
LXES Series



2 Signal Processor

Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB Series



3 Terminal Capacitors
NFM Series



Thermistors
NCP/PRF Series



3 Display Panel

DC-DC Converters
OKL Series



Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



Polymer Aluminum Electrolytic Capacitors
ECAS Series



Chip Common Mode Choke Coils
DLW/DLP Series



Power Inductors
LQH Series



Rotary Position Sensors
SV Series



Thermistors
NCP/PRF Series



5 HDD/DVD/BD

Shock Sensors
PKGS Series



Polymer Aluminum Electrolytic Capacitors
ECAS Series



Ceramic Resonators CERALOCK®
CSTCE Series



Crystal Units
XRCGB Series



Thermistors
NCP/PRF Series



4 Sound Circuit

Chip Common Mode Choke Coils
DLW/DLP Series



6 Interface

Bluetooth® Modules



Bluetooth® Smart Modules



Polymer Aluminum Electrolytic Capacitors
ECAS Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB Series



Chip Common Mode Choke Coils
DLW/DLP Series



ESD Protection Devices
LXES Series



Thermistors
PRG Series



7 Control Circuit

Bluetooth® Modules



Pyroelectric Infrared Sensors
IRS Series



Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



8 Remote Controller/Connectivity

Bluetooth® Modules



Wi-Fi® Modules



Bluetooth® Smart Modules



Shock Sensors
PKGS Series



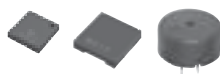
Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Piezoelectric Sounders
PKMCS/PKLCS/PKM Series



ESD Protection Devices
LXES Series



Chip Inductors (Chip Coils)
LQB Series



9 DC-DC Converter

Micro DC-DC Converters
LXDC Series



Metal Terminal Type Monolithic Ceramic Capacitors
KRM Series



Polymer Aluminum Electrolytic Capacitors
ECAS Series



Power Inductors
LQH Series



Thermistors
NCP/PRF Series



10 Power Supply

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



AC Line Filters
PLA/PLY Series



Thermistors
NCP/NTP/PRF/PTG Series



General Purpose

Monolithic Ceramic Capacitors

GRM/GJM Series

High Frequency Filter Circuit



Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Chip Inductors (Chip Coils)

LQM/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM/NFE Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



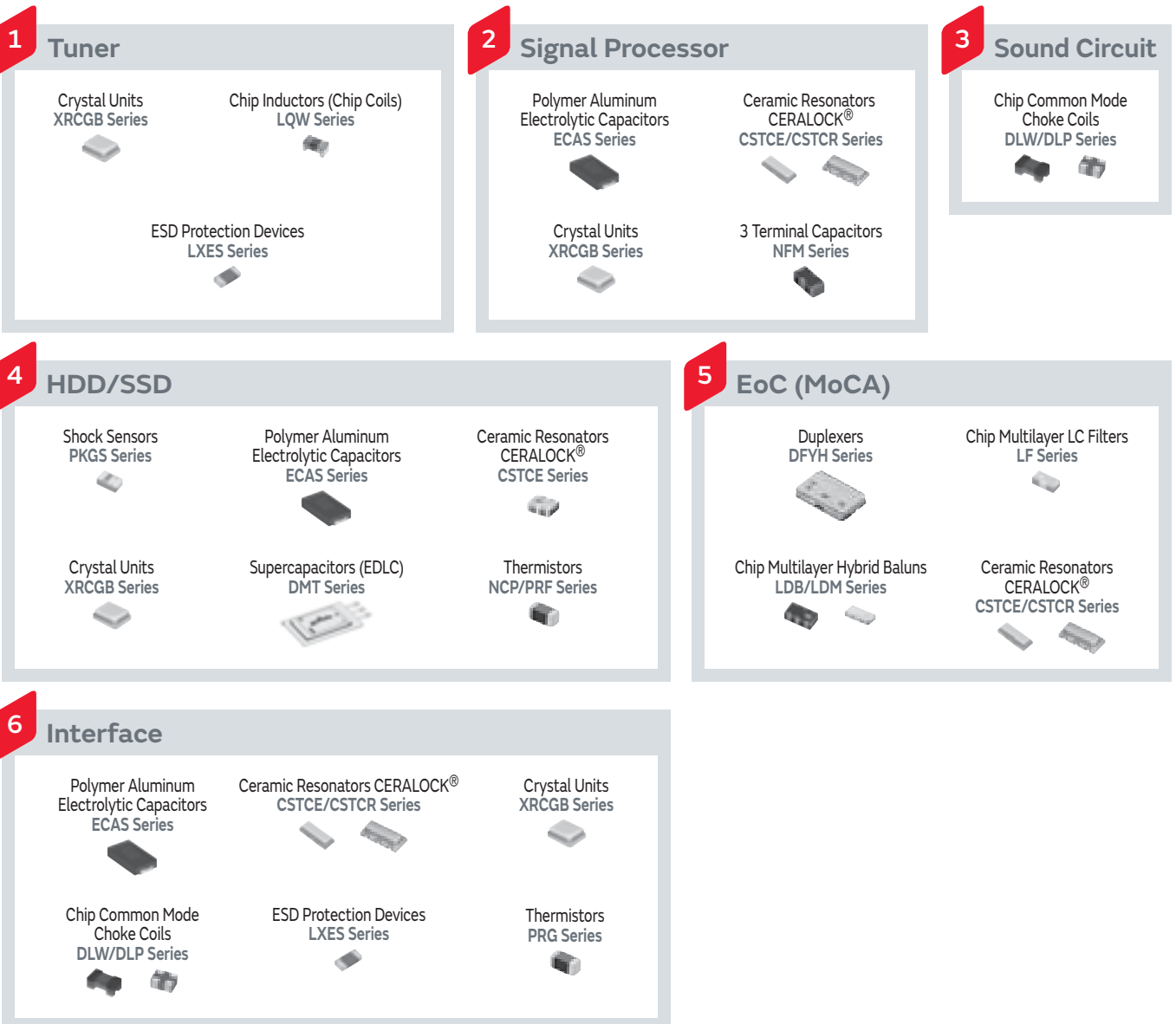
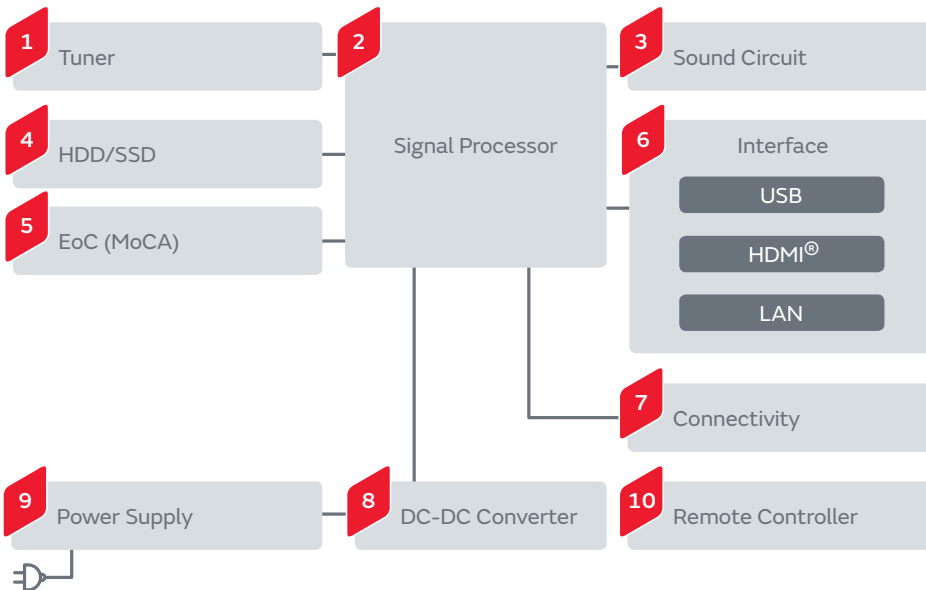
Thin Type Sandwich Cores

FSSA Series

Noise Suppression



Set-top Box



7 Connectivity

Wi-Fi® Modules



Microwave Coaxial Connectors



Microwave Coaxial Connectors with Switch


Micro DC-DC Converters
LXDC Series

Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series

Chip Inductors
(Chip Coils)
LQB Series

ESD Protection Devices
LXES Series


8 DC-DC Converter

DC-DC Converters
OKL Series

Micro DC-DC Converters
LXDC Series

Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series

Polymer Aluminum
Electrolytic Capacitors
ECAS Series

Power Inductors
LQH Series

Thermistors
NCP/PRF Series


9 Power Supply

Monolithic
Ceramic Capacitors
for Medium Voltage
GR/GA Series

Medium High Voltage
Ceramic Capacitors
DEA/DES Series

Safety Standard Certified
Ceramic Capacitors
Type KX/KY

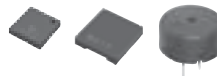
AC Line Filters
PLA/PLY Series

Thermistors
NCP/NTP/PRF/PTG Series


10 Remote Controller

Micro DC-DC Converters
LXDC Series

Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series

Piezoelectric Sounders
PKMCS/PKLCs/PKM Series

Trimmer Capacitors
TZY2 Series


General Purpose

Monolithic Ceramic Capacitors

GRM/GJM Series

High Frequency Filter Circuit



Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Chip Inductors (Chip Coils)

LQW/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM/NFE Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



Thin Type Sandwich Cores

FSSA Series

Noise Suppression



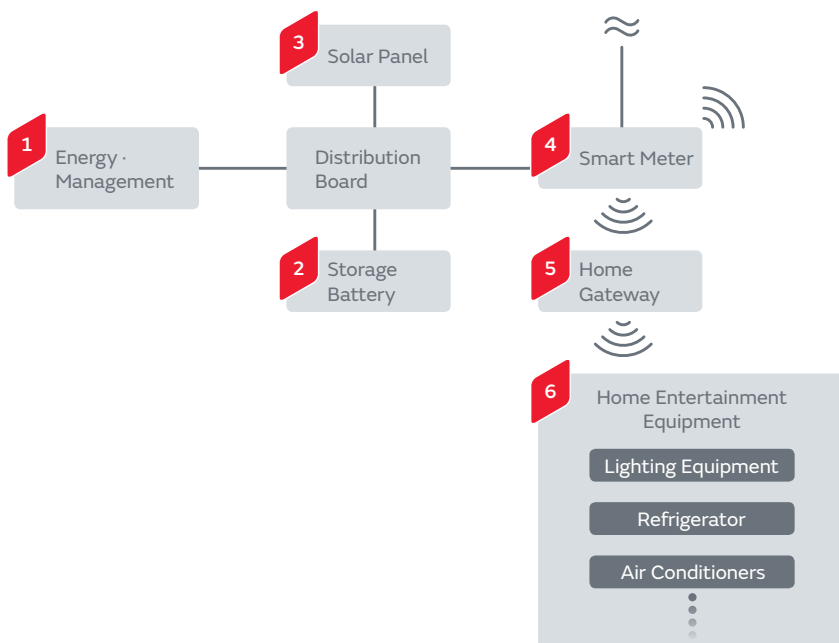
Small Energy Devices

UMAC Series

Battery Backup



HEMS



1 Energy · Management

Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB Series



Topics



Introduction of Examples as Energy System

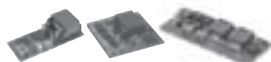
<http://www.murata.com/en-global/about/newsroom/news/product/power/2013/0426>

2 Storage Battery

Isolated DC-DC Converters
MYB Series



Non-isolated DC-DC Converters
OKL/MPDR/MPDT Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Thermistors
NCP/NTP/PRF/PRG/PTG Series



Micro DC-DC Converters
LXDC Series



Small Energy Devices
UMAC Series



3 Solar Panel

Isolated
DC-DC Converters
MYB Series



Non-isolated
DC-DC Converters
OKL/MPD Series



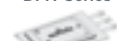
Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Micro DC-DC Converters
LXDC Series



Supercapacitors (EDLC)
DMT Series



4 Smart Meter

Chip Multilayer LC Filters
LF Series



Chip Multilayer Hybrid Baluns
LDB/LDM Series



Wi-Fi® Modules



Sub-GHz Modules



Isolated DC-DC Converters
MYB Series



Non-isolated DC-DC Converters
OKL/MPD Series



Supercapacitors (EDLC)
DMF/DMT Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR4 Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



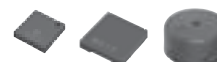
Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Crystal Units
XRCGB Series



Piezoelectric Sounders
PKMCS/PKLCS/PKM Series



5 Home Gateway

Wi-Fi® Modules



Bluetooth® Modules



Sub-GHz Modules



6 Home Entertainment Equipment

Bluetooth® Modules



Wi-Fi® Modules



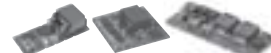
Sub-GHz Modules


Ultrasonic Sensors
MA Series

Shock Sensors
PKGS Series

AMR Sensors (Magnetic Sensors)
MR Series

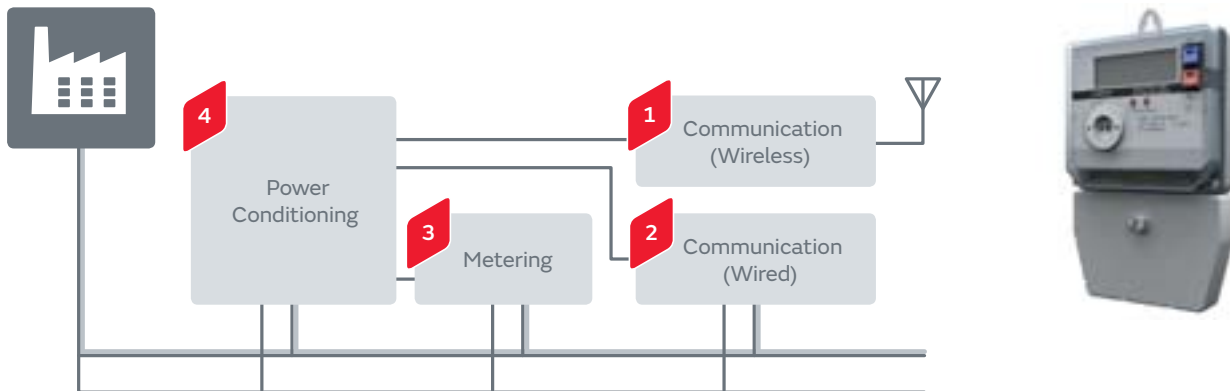
Isolated DC-DC Converters
MYB Series

Non-isolated DC-DC Converters
OKL/MPDR/MPDT Series

Crystal Units
XRCGB Series


General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	

Smartmeter



1 Communication (Wireless)

Wi-Fi® Modules



Sub-GHz Modules



Chip Multilayer LC Filters
LF Series



Chip Multilayer Hybrid Baluns
LDB/LDM Series



Microwave Coaxial
Connectors



Microwave Coaxial
Connectors with Switch



RFID Modules with I²C
Interface MAGICSTRAP®
LXMS Series



ESD Protection Devices
LXES Series



Thermistors
NCP/PRF/PRG Series



2 Communication (Wired)

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



Monolithic Ceramic Capacitors
for Medium Voltage
GR3/GR4 Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Radial Lead Type
Monolithic Ceramic Capacitors
RDE Series



Thermistors
NCP/PRF/PRG Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB Series



ESD Protection Devices
LXES Series



SAW Filters
SF/RF Series



3 Metering

Chip Common Mode
Choke Coils
DLW/DLP Series



Thermistors
NCP/PRF/PRG Series



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB Series



4 Power Conditioning

Non-isolated
DC-DC Converters
OKL/MPD Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR3/GR4 Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Radial Lead Type
Monolithic Ceramic Capacitors
RDE Series



Chip Inductors (Chip Coils)
LQH Series



AC Line Filters
PLA Series



Thermistors
NCP/PRF/PRG Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Supercapacitors (EDLC)
DMF/DMT Series

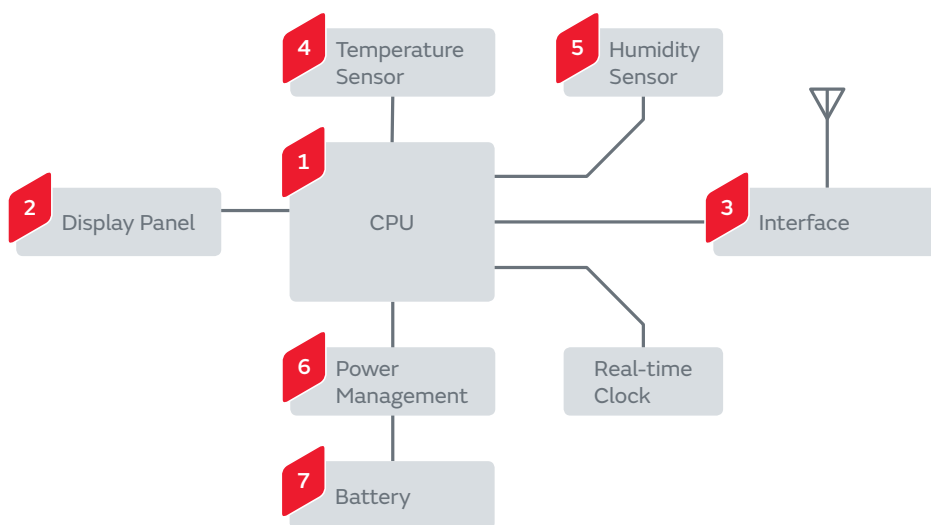


Micro DC-DC Converters
LXDC Series



Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	  
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	 
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	 
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	 
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Thermostat



1 CPU

Low ESL Monolithic
Ceramic Capacitors
LLL/LLA/LLM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB Series



Thermistors
NCP/PRF Series



2 Display Panel

Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Thermistors
NCP/PRF Series



3 Interface

Wi-Fi® Modules



Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB Series



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



ESD Protection Devices
LXES Series



4 Temperature Sensor

Thermistors
NCP/NTP/PRF/PRG/PTG Series



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB Series



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



5 Humidity Sensor

Thermistors
NCP/NTP/PRF/PRG/PTG Series



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB Series



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



6

Power Management

Micro DC-DC Converters
LXDC Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Piezoelectric Sounders
PKMCS/PKLCs/PKM Series



Thermistors
NCP/PRF/PRG Series



7

Battery

Thermistors
NCP/PRF/PRG Series



Micro DC-DC Converters
LXDC Series



Supercapacitors (EDLC)
DMF Series



Small Energy Devices
UMAC Series



General Purpose

Monolithic Ceramic Capacitors

GRM/GJM Series

High Frequency Filter Circuit



Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Chip Inductors (Chip Coils)

LQW/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM/NFE Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



Thin Type Sandwich Cores

FSSA Series

Noise Suppression



Human Detection



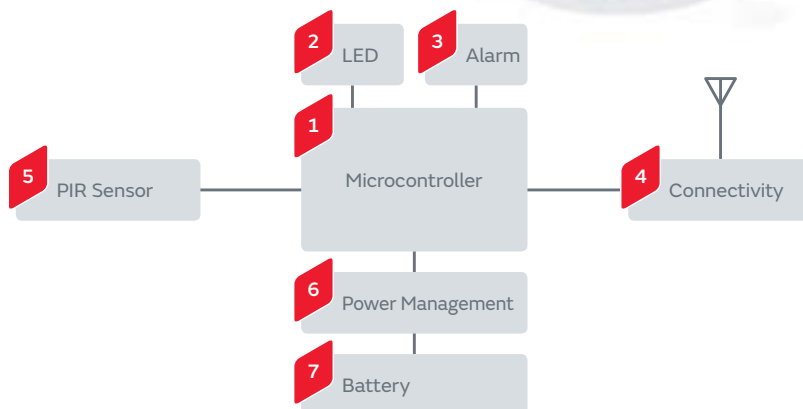
1 Microcontroller

Low ESL Monolithic Ceramic Capacitors LLL/LLA/LLM Series

Polymer Aluminum Electrolytic Capacitors ECAS Series

Crystal Units XRCGB Series

Thermistors NCP/PRF Series



2 LED

Supercapacitors (EDLC) DMF Series

Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series

Medium High Voltage Ceramic Capacitors DEA/DES Series

Safety Standard Certified Ceramic Capacitors Type KX/KY

Thermistors NCP/NTP/PRF/PRG/PTG Series

AC Line Filters PLA/PLH/PLY Series

3 Alarm

Piezoelectric Sounders PKMCS/PKLCs/PKM Series

4 Connectivity

Wi-Fi® Modules

Micro DC-DC Converters LXDC Series

Ceramic Resonators CERALOCK® CSTCE/CSTCR Series

Crystal Units XRCGB Series

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

ESD Protection Devices LXES Series

5 PIR Sensor

Pyroelectric Infrared Sensors IRA Series

6 Power Management

Micro DC-DC Converters LXDC Series

Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series

Medium High Voltage Ceramic Capacitors DEA/DES Series

Safety Standard Certified Ceramic Capacitors Type KX/KY

Ceramic Resonators CERALOCK® CSTCE/CSTCR Series

Chip Common Mode Choke Coils DLW/DLP Series

Thermistors NCP/PRF/PRG Series

7 Battery

Small Energy Devices UMAC Series

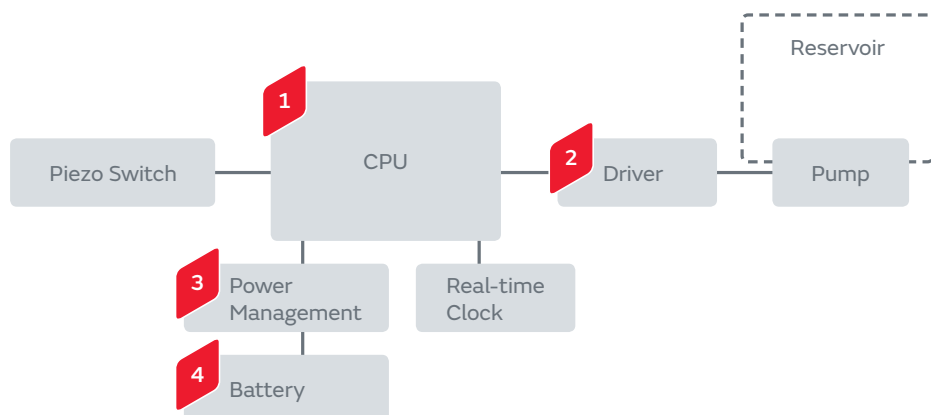
Micro DC-DC Converters LXDC Series

Thermistors NCP/PRF/PRG Series

General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	

Air Dispenser



1 CPU

Low ESL Monolithic
Ceramic Capacitors
LLL/LLA/LLM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB Series



Thermistors
NCP/PRF Series



2 Driver

Thermistors
NCP/NXRT/NTP/PRF Series



3 Power Management

Micro
DC-DC Converters
LXDC Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Thermistors
NCP/NTP/PRF Series



4 Battery

Supercapacitors (EDLC)
DMT Series



Thermistors
NXRT/PRF/PRG Series



Small Energy Devices
UMAC Series



General Purpose

Monolithic Ceramic Capacitors

GRM/GJM Series

High Frequency Filter Circuit



Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Chip Inductors (Chip Coils)

LQW/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM/NFE Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



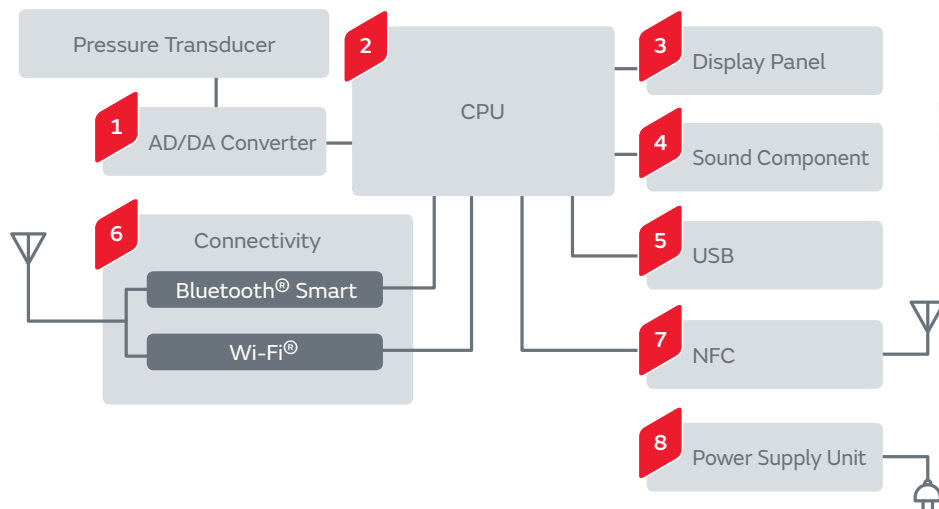
Thin Type Sandwich Cores

FSSA Series

Noise Suppression



Blood Pressure Monitor



1 AD/DA Converter

Chip Ferrite Beads
BLM Series



Thermistors
NCP Series



2 CPU

Ceramic Resonators CERALOCK®
CSTCR-G-L/CSTCE-G-L/CSTCE-V Series



Thermistors
NCP/NXR Series



3 Display Panel

3 Terminal Capacitors
NFM/NFE Series



Chip Ferrite Beads
BLM Series



Thermistors
NCP Series



4 Sound Component

Piezoelectric Sounders
PKMCS/PKLCs/PKM Series



5 USB

Micro
DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCR-G-L/CSTCE-G-L/CSTCE-V-L/CSTCW-X Series



Crystal Units
XRCGB Series



ESD Protection Devices
LXES Series



Thermistors
PRG Series



6 Connectivity

ESD Protection Devices
LXES Series



Micro DC-DC Converters
LXDC Series



Bluetooth® Smart Modules



Wi-Fi® Modules



Ceramic Resonators CERALOCK®
CSTCR-G-L/CSTCE-G-L/CSTCE-V-L/CSTCW-X Series



Crystal Units
XRCGB Series



Thermistors
PRG Series



7 NFC

NFC Antennas
FLAN Series



Micro DC-DC Converters
LXDC Series



Crystal Units
XRCGB Series



Chip Ferrite Beads
BLM Series



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



Trimmer Capacitors
TZY2 Series



ESD Protection Devices
LXES Series



8 Power Supply Unit

Thermistors
NCP Series



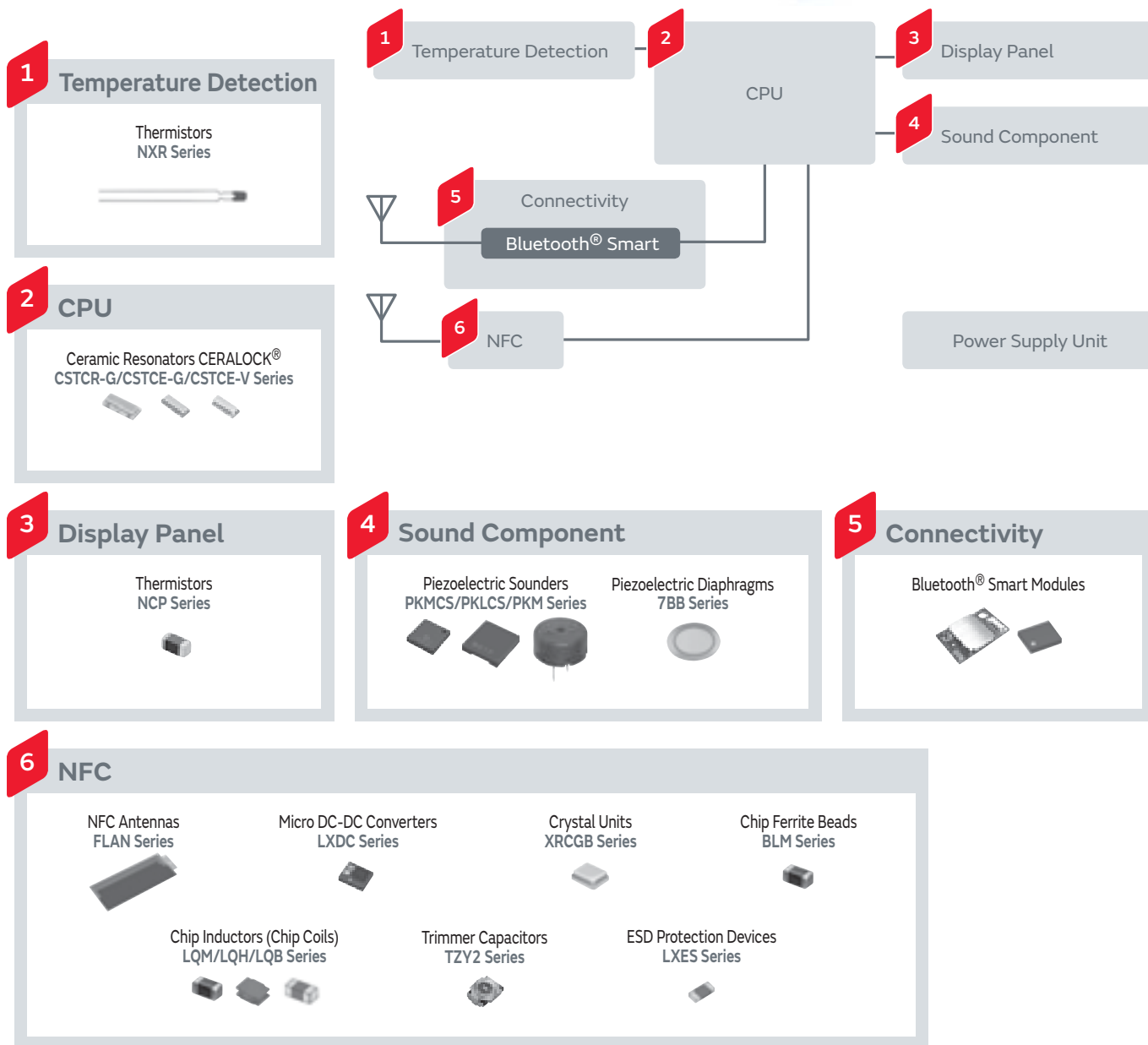
Thermistors
PRF/PRG Series



General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQM/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Supercapacitors (EDLC)	DMT Series	Power Line/Battery Peak Assist	
Small Energy Devices	UMAC Series	Battery Backup	

Thermometer



General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Blood Glucose Meter



1 AD/DA Converter

Chip Ferrite Beads
BLM Series



Thermistors
NCP Series

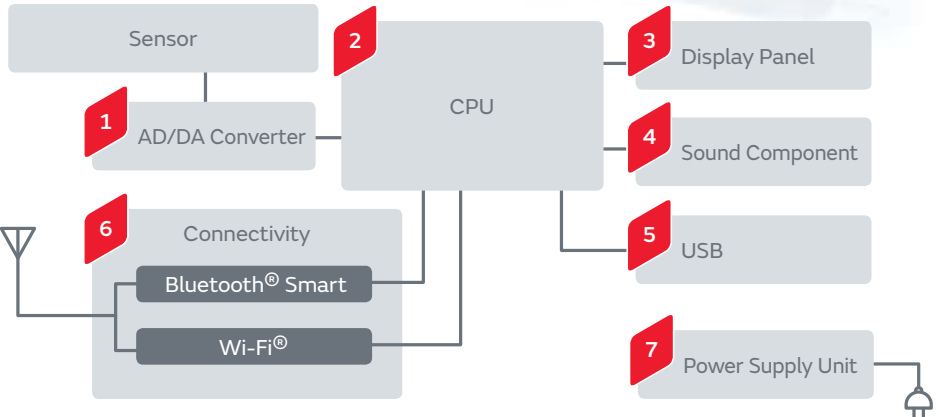


2 CPU

Ceramic Resonators CERALOCK®
CSTCR-G/CSTCE-G/CSTCE-V Series



Thermistors
NCP/NXR Series



3 Display Panel

3 Terminal Capacitors
NFM Series



Chip Ferrite Beads
BLM Series

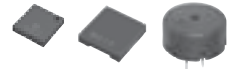


Thermistors
NCP Series



4 Sound Component

Piezoelectric Sounders
PKMCS/PKLCs/PKM Series



Piezoelectric Diaphragms
7BB Series



5 USB

Ceramic Resonators CERALOCK®
CSTCR-G-L/CSTCE-G-L/CSTCE-V-L/CSTCW-X Series



Crystal Units
XRCGB Series



Thermistors
PRG Series



6 Connectivity

Bluetooth® Smart Modules



Wi-Fi® Modules



Ceramic Resonators CERALOCK®
CSTCR-G-L/CSTCE-G-L/CSTCE-V-L/CSTCW-X Series



Crystal Units
XRCGB Series



Thermistors
PRG Series



7 Power Supply Unit

Thermistors
NCP Series



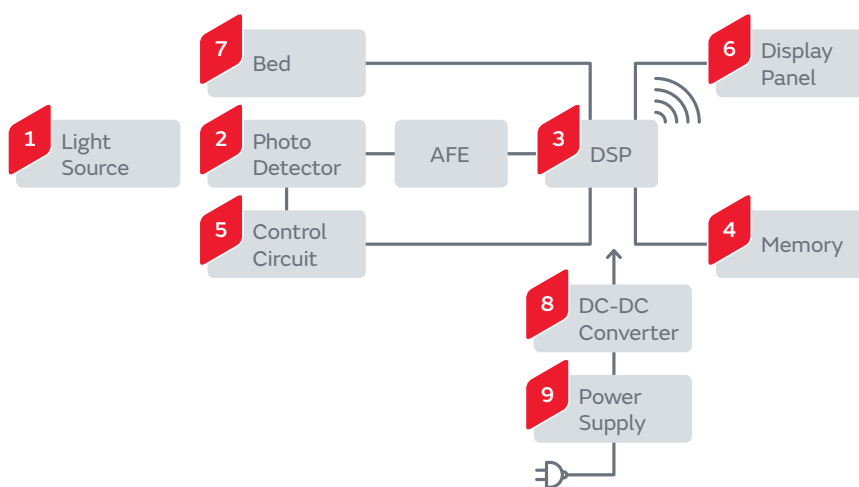
Thermistors
PRF/PRG Series



General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Supercapacitors (EDLC)	DMT Series	Power Line/Battery Peak Assist	
Small Energy Devices	UMAC Series	Battery Backup	

Diagnostic Imaging Apparatus



1 Light Source

High Voltage Ceramic Capacitors
DHS/DHK Series



2 Photo Detector

Thermistors
NCP/PRF Series



3 DSP

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series



Crystal Units
XRCGB Series

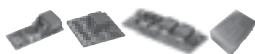


4 Memory

Isolated DC-DC Converters
MYB Series



Non-isolated DC-DC Converters
OKL/MPDR/MPDT/MYS Series



Micro DC-DC Converters
LXDC Series



Supercapacitors (EDLC)
DMT Series



Small Energy Devices
UMAC Series

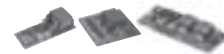


5 Control Circuit

Isolated DC-DC Converters
MYB Series



Non-isolated DC-DC Converters
OKL/MPDR/MPDT Series



Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



6 Display Panel

Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Thermistors
PRF/PRG Series



7 Bed

Inclinometers
SCA100T/103T Series



8 DC-DC Converter

Micro DC-DC Converters
LXDC Series



Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Thermistors
NCP/PRF Series



9

Power Supply

Medical Standards-Compliant
AC-DC Converters
MVAD/MVAB Series



Micro DC-DC Converters
LXDC Series



Supercapacitors (EDLC)
DMT Series



Monolithic
Ceramic Capacitors
for Medium Voltage
GR/GA Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Thermistors
NCP/NTP/PRF Series



General Purpose

Monolithic Ceramic Capacitors

GRM/GJM Series

High Frequency Filter Circuit



Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Chip Inductors (Chip Coils)

LQW/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM/NFE Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



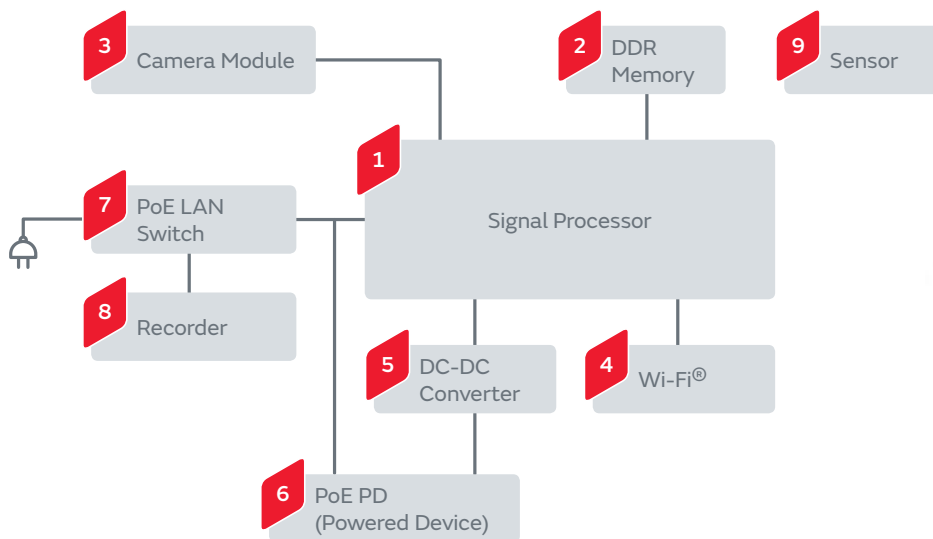
Thin Type Sandwich Cores

FSSA Series

Noise Suppression



Security Camera



1 Signal Processor

Polymer Aluminum Electrolytic Capacitors ECAS Series



Ceramic Resonators CERALOCK® CSTCE/CSTCR Series



Crystal Units XRCGB Series



3 Terminal Capacitors NFM Series



Thermistors NCP/PRF Series



2 DDR Memory

Micro DC-DC Converters LXDC Series



Polymer Aluminum Electrolytic Capacitors ECAS Series



Chip Ferrite Beads BLM Series



3 Camera Module

Supercapacitors (EDLC) DMT Series



Crystal Units XRCGB Series



Chip Ferrite Beads BLM Series



4 Wi-Fi®

Wi-Fi® Modules



Micro DC-DC Converters LXDC Series



Chip Inductors (Chip Coils) LQB Series



5 DC-DC Converter

Micro DC-DC Converters LXDC Series



Metal Terminal Type Monolithic Ceramic Capacitors KRM Series



Polymer Aluminum Electrolytic Capacitors ECAS Series



Power Inductors LQH Series



Thermistors NCP/PRF Series



6 PoE PD (Powered Device)

Micro DC-DC Converters LXDC Series



Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series



Medium High Voltage Ceramic Capacitors DEA/DES Series



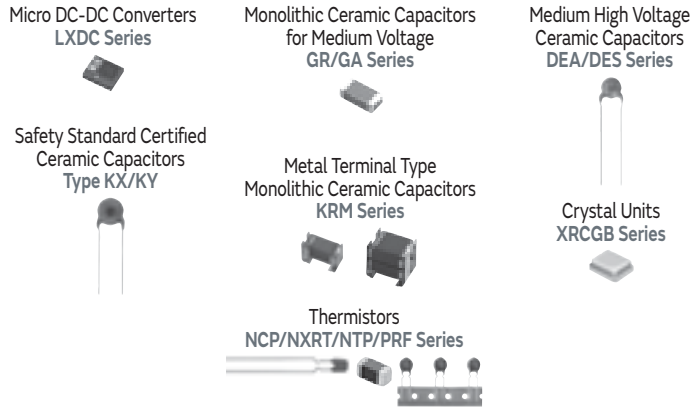
Crystal Units XRCGB Series



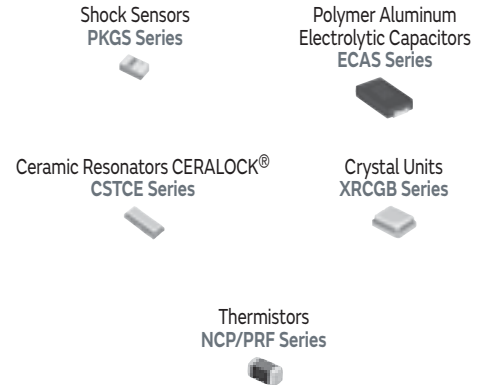
Thermistors NCP/NXRT/NTP/PRF Series



7 PoE LAN Switch



8 Recorder



9 Sensor

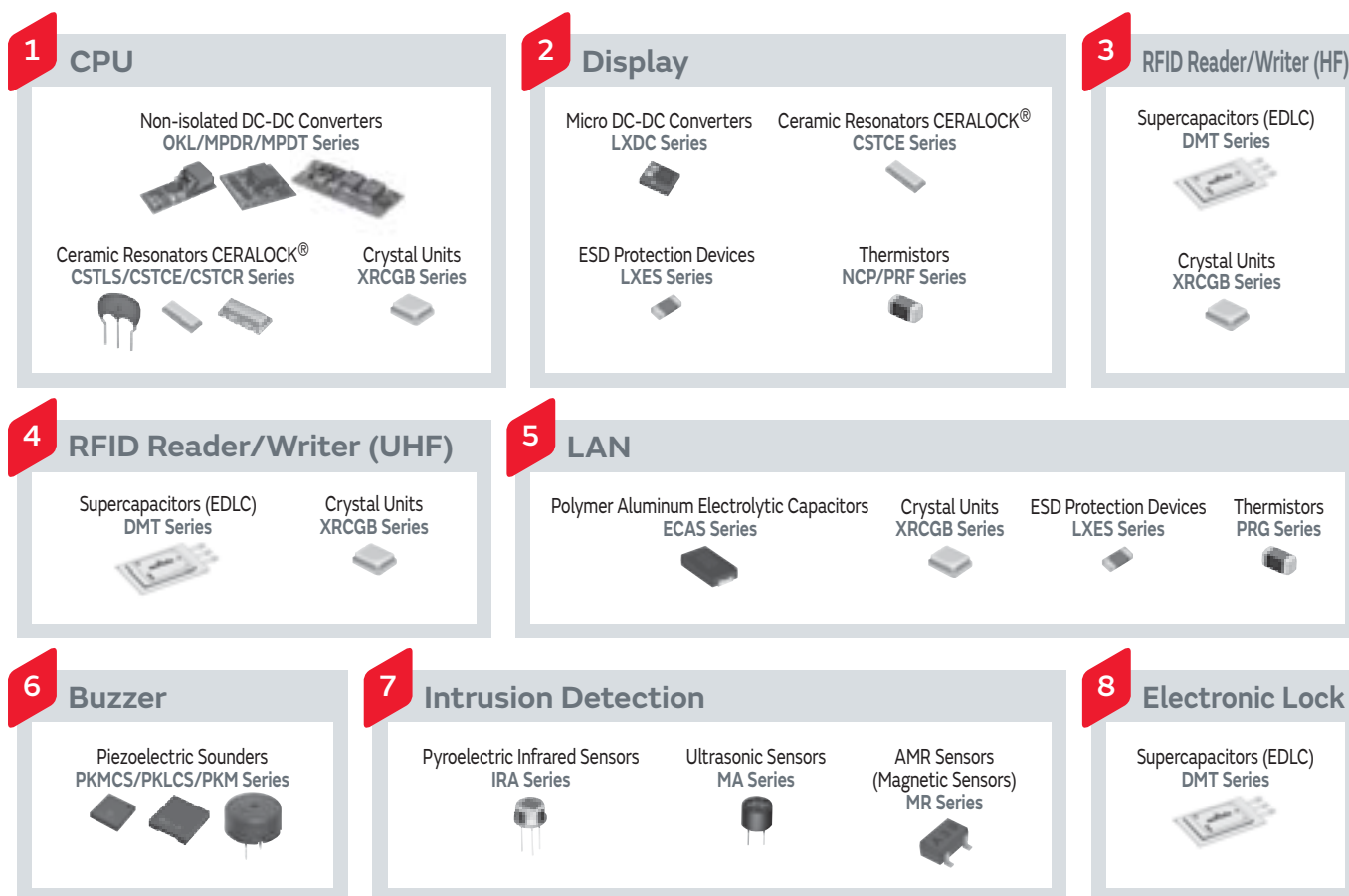
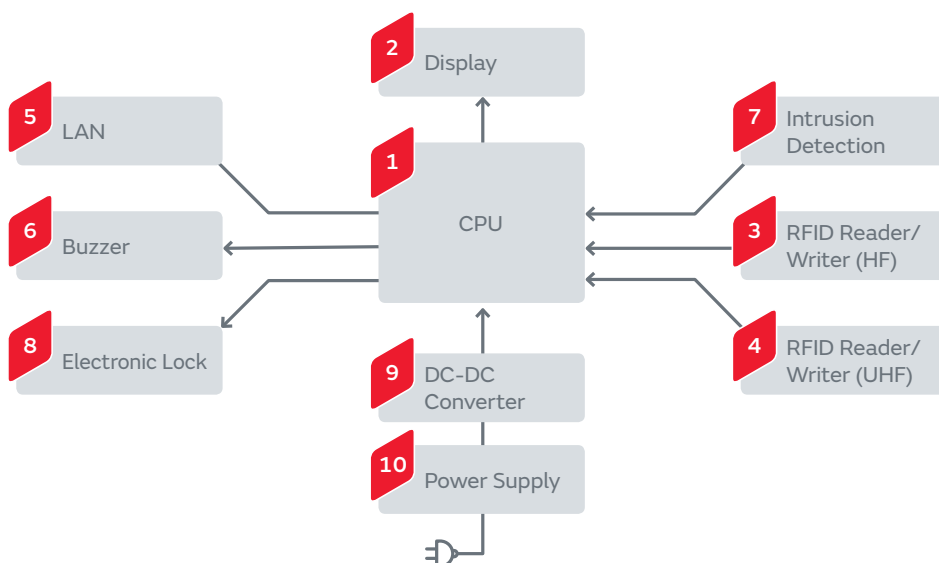
Pyroelectric Infrared Sensors
IRA Series



General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Entrance and Exit Management System



9 DC-DC Converter

Micro DC-DC Converters
LXDC Series



Thermistors
NCP/PRF Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



10 Power Supply

Micro DC-DC Converters
LXDC Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



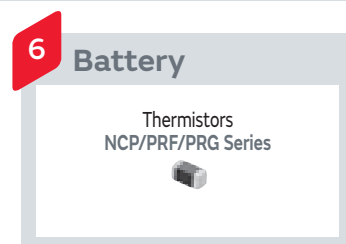
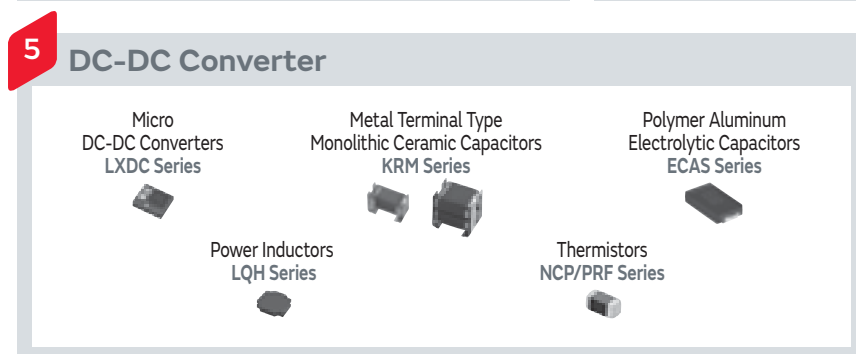
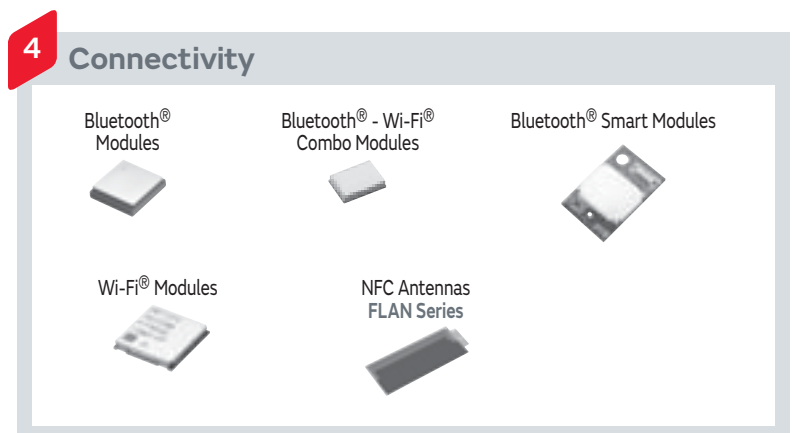
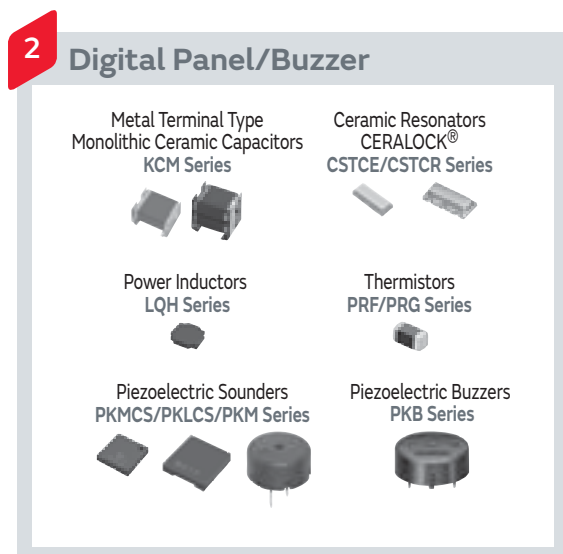
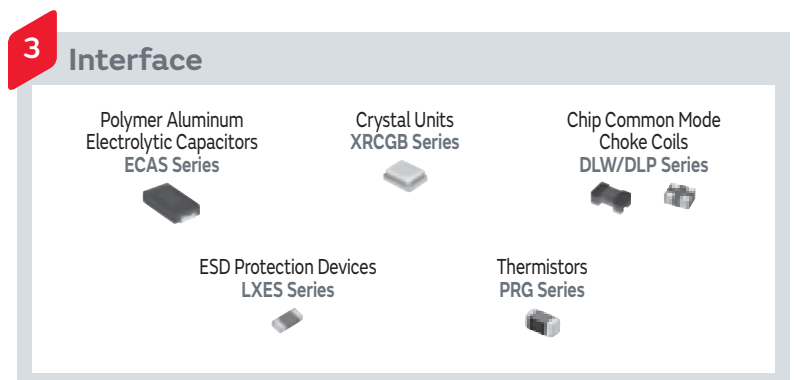
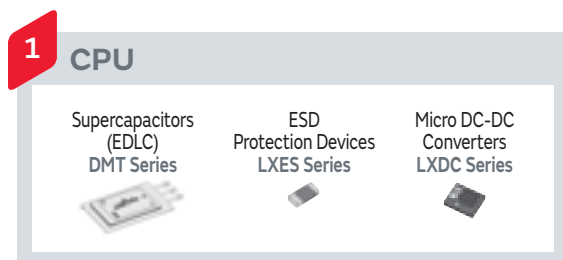
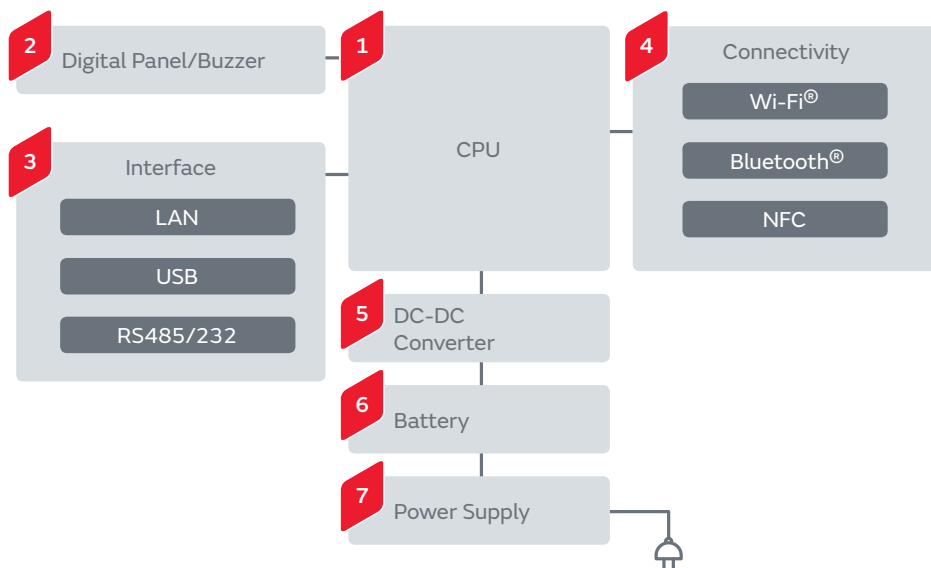
Thermistors
NCP/NTP/PRF Series



General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	

Electronic POS



7

Power Supply

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



AC Line Filters
PLA/PLY Series



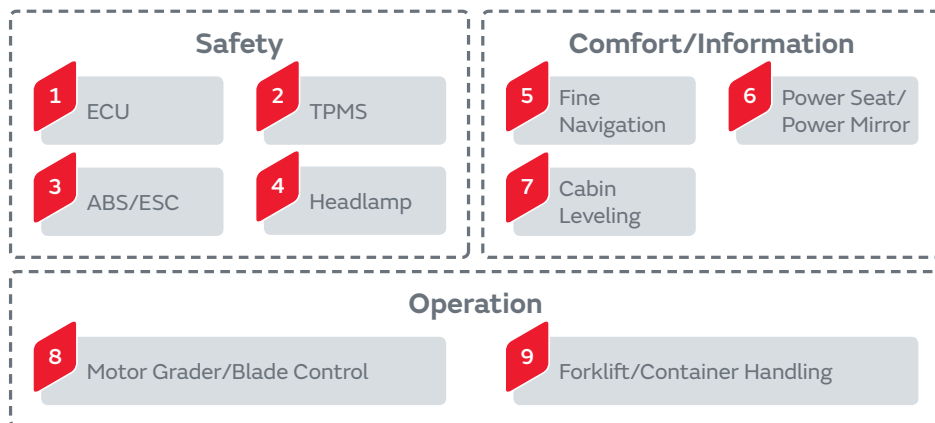
Thermistors
NCP/NTP/PRF/PTG Series



General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Heavy Duty Vehicles



Safety

1 ECU

Low Temperature Co-fired Ceramics (LTCC) Ceramic Multilayer Substrates LFC®



Metal Terminal Type Monolithic Ceramic Capacitors KCM Series



Monolithic Ceramic Capacitors for Conductive Glue Mounting GCG Series



Radial Lead Type Monolithic Ceramic Capacitors RH/RCE Series



Ceramic Resonators CERALOCK® CSTCE/CSTCR Series



Accelerometers SCA Series



Gyro Sensors SCC Series



Thermistors PRF/PTG Series



2 TPMS

Shock Sensors PKGS Series



Ceramic Filters CERAFIL® SFECE Series



Ceramic Discriminators CDSCB Series



Ceramic Resonators CERALOCK® CSTCE/CSTCR Series



Crystal Units XRCHA-F-A Series



Pressure Sensor Elements



Thermistors PRF Series



4 Headlamp

Monolithic Ceramic Capacitors GCM/GCJ Series



Monolithic Ceramic Capacitors for Conductive Glue Mounting GCG Series



Ceramic Resonators CERALOCK® CSTCE/CSTCR Series



Crystal Units XRCHA-F-A Series



Thermistors for Conductive Glue Mounting NCG18 Series



3 ABS/ESC

Low Temperature Co-fired Ceramics (LTCC) Ceramic Multilayer Substrates LFC®



Metal Terminal Type Monolithic Ceramic Capacitors KCM Series



Monolithic Ceramic Capacitors GCM/GCJ Series



Monolithic Ceramic Capacitors for Conductive Glue Mounting GCG Series



Ceramic Resonators CERALOCK® CSTCE/CSTCR Series



Crystal Units XRCHA-F-A Series



Accelerometers SCA Series



Gyro Sensors SCC Series



Thermistors for Conductive Glue Mounting NCG18 Series



Comfort/Information

5 Fine Navigation

Accelerometers
SCA Series



Gyro Sensors
SCC Series



MEMS Gyro Sensors
SCR Series



6 Power Seat/Power Mirror

Piezoelectric Sounders
PKLCS Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCHA-F-A Series



Thermistors
PRF/PTG Series



7 Cabin Leveling

Accelerometers
SCA Series



Gyro Sensors
SCC Series



Operation

8 Motor Grader/Blade Control

Accelerometers
SCA Series



Gyro Sensors
SCC Series



MEMS Gyro Sensors
SCR Series



9 Forklift/Container Handling

Accelerometers
SCA Series



General Purpose

Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling



Monolithic Ceramic Capacitors

GCM/GCJ Series

Powertrain/Safety



Monolithic Ceramic Capacitors for Medium Voltage

GRM Series

For Snubber



Radial Lead Type Monolithic Ceramic Capacitors

RCE Series

Noise Suppression/Decoupling



Chip Inductors (Chip Coils)

LQM/LQH Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



EMI Suppression Filters EMIFIL®

NFM/NFA/NFL/NFE/NFW/NFR Series

Noise Suppression



Chip Common Mode Choke Coils

DLW Series

Common Mode Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



General Purpose (High Reliability)

Monolithic Ceramic Capacitors

GCM Series

Coupling/Decoupling



150°C

Radial Lead Type Monolithic Ceramic Capacitors

RCE Series

Noise Suppression/Decoupling



125°C

Radial Lead Type Monolithic Ceramic Capacitors

RH Series

Noise Suppression/Decoupling



150°C

Chip Inductors (Chip Coils)

LQH32CH Series

Voltage Conversion



105°C

Chip Inductors (Chip Coils)

LQG15HH Series

Impedance Matching/Choke



125°C

Chip Ferrite Beads

BLM_SH Series

Noise Suppression



125°C

3 Terminal Capacitors

NFM_H/NFE_H Series

Noise Suppression



125°C

Chip Common Mode Choke Coils

DLW31SH/DLW43SH Series

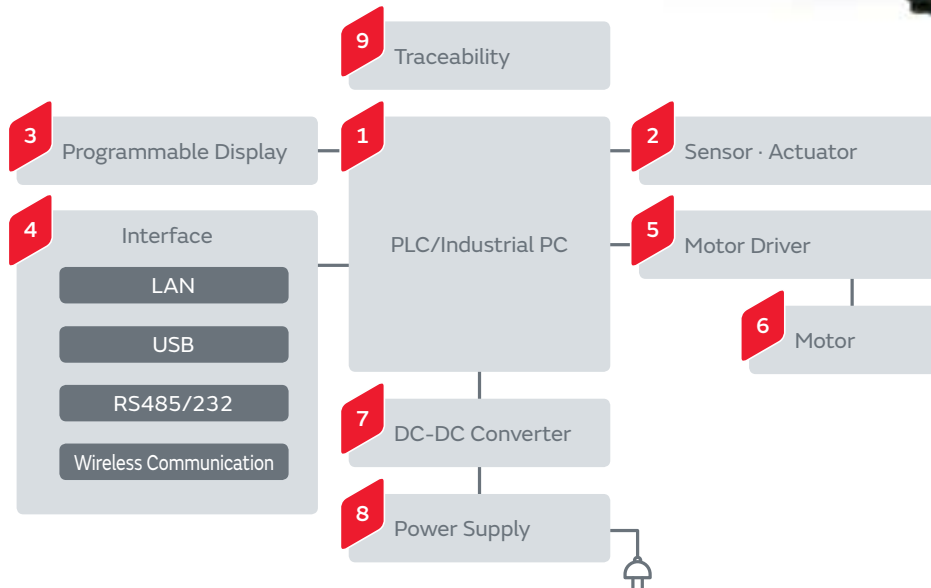
Common Mode Noise Suppression



125°C

105°C 105°C max. 125°C 125°C max. 150°C 150°C max.

Industrial Automation



1 PLC/Industrial PC

Polymer Aluminum
Electrolytic Capacitors
ECAS Series



3 Terminal Capacitors
NFM Series



Crystal Units
XRCGB Series



Supercapacitors (EDLC)
DMT Series



Chip Ferrite Beads
BLM Series



Thermistors
NCP/PRF Series



2 Sensor · Actuator

Pyroelectric Infrared Sensors
IRA Series



AMR Sensors (Magnetic Sensors)
MR Series



3 Programmable Display

Micro DC-DC Converters
LXDC Series



Power Inductors
LQH Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Supercapacitors (EDLC)
DMT Series



Crystal Units
XRCGB Series



Chip Common Mode Choke Coils
DLW/DLP Series



5 Motor Driver

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Large Current
Common Mode Choke Coils
PLT10HH Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Crystal Units
XRCGB Series



Thermistors
PRF/PTG Series



4 Interface

Polymer Aluminum
Electrolytic Capacitors
ECAS Series



ESD Protection Devices
LXES Series



Crystal Units
XRCGB Series



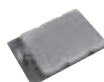
Thermistors
PRG Series



Chip Common Mode Choke Coils
DLW/DLP Series



Wireless Communication Modules
based on the ISA100 Wireless™ standard



6 Motor

Crystal Units
XRCGB Series



Rotary Sensors



7 DC-DC Converter

Isolated DC-DC Converters
MYB Series



Non-isolated DC-DC Converters
OKL/MPD/MYS Series



Micro DC-DC Converters
LXDC Series



Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Power Inductors
LQH Series



Thermistors
NCP/PRF Series



8 Power Supply

Micro DC-DC Converters
LXDC Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



Ceramic Resonators
CERALOCK®
CSTCE/CSTCR Series



Thermistors
NCP/NTP/PRF Series



9 Traceability

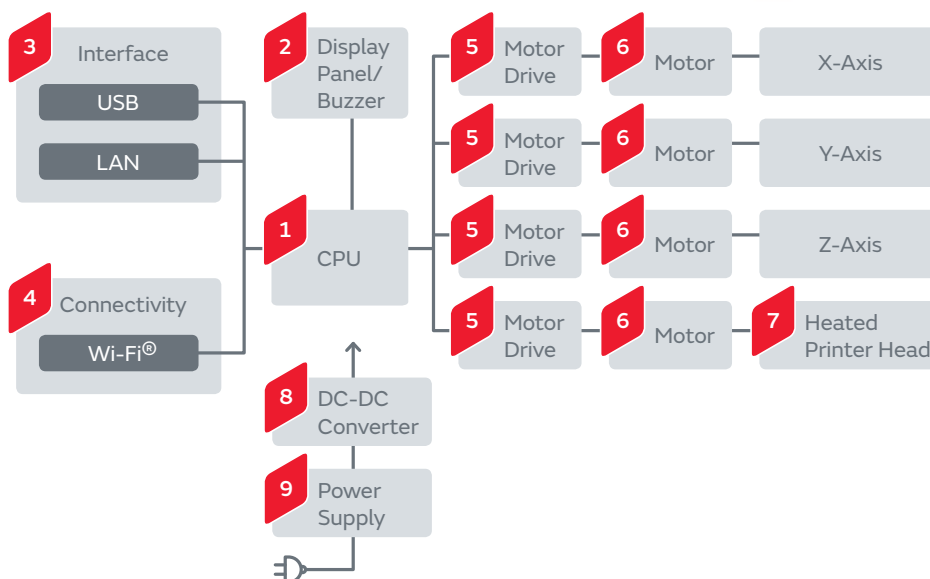
Supercapacitors (EDLC)
DMT Series



General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

3D Printer



1 CPU

Isolated DC-DC Converters
MYB Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Non-isolated DC-DC Converters
OKL/MPDR/MPDT Series



Crystal Units
XRCGB Series



Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series



Thermistors
NCP/PRF Series



2 Display Panel/Buzzer

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series



Piezoelectric Sounders
PKMCS/PKLCS/PKM Series



3 Interface

Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Crystal Units
XRCGB Series



Chip Common Mode Choke Coils
DLW/DLP Series



ESD Protection Devices
LXES Series



Thermistors
PRG Series



4 Connectivity

Wi-Fi® Modules



Micro DC-DC Converters
LXDC Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB Series



Chip Inductors (Chip Coils)
LQB Series



ESD Protection Devices
LXES Series

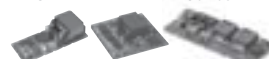


5 Motor Drive

Isolated DC-DC Converters
MYB Series



Non-isolated DC-DC Converters
OKL/MPDR/MPDT Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



Crystal Units
XRCGB Series



Large Current
Common Mode Choke Coils
PLT10HH Series



Thermistors
PRF/PTG Series



6 Motor

Crystal Units
XRCGB Series



7 Heated Printer Head

Thermistors
NCP/PRF Series



8 DC-DC Converter

Micro DC-DC Converters
LXDC Series



Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



Polymer Aluminum
Electrolytic Capacitors
ECAS Series



Thermistors
NCP/PRF Series



9 Power Supply

Micro DC-DC Converters
LXDC Series



Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



Medium High Voltage
Ceramic Capacitors
DEA/DES Series



Safety Standard Certified
Ceramic Capacitors
Type KX/KY



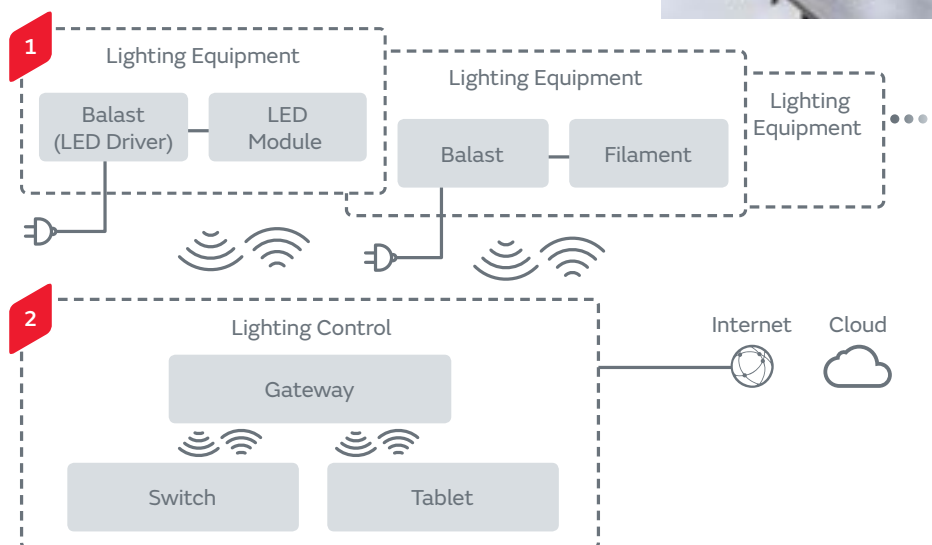
Thermistors
NCP/NTP/PRF/PRG Series



General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	
Resin External Electrode Monolithic Ceramic Capacitors	GRJ Series	Coupling/Decoupling/For Step-up	
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	
Chip Ferrite Beads	BLM Series	Noise Suppression	
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	
Microwave Absorbers	EA Series	Noise Suppression	
Ferrite Cores	FS Series	Noise Suppression	
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	
Small Energy Devices	UMAC Series	Battery Backup	

Lighting



1 Lighting Equipment

Ballast for LED Lighting



Wi-Fi® Modules



Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series



Sub-GHz Modules



Medium High Voltage Ceramic Capacitors DEA/DES Series



Thermistors NCP/NTP/PRF/PRG/PTG Series



Safety Standard Certified Ceramic Capacitors Type KX/KY



AC Line Filters PLA/PLH/PLY Series



2 Lighting Control

Wi-Fi® Modules



Sub-GHz Modules



Pyroelectric Infrared Sensors IRA Series



Ceramic Resonators CERALOCK® CSTLS/CSTCE/CSTCR Series



SAW Filters SF/RF Series



General Purpose

Monolithic Ceramic Capacitors

GRM/GJM Series

High Frequency Filter Circuit



Monolithic Ceramic Capacitors

GRM Series

Coupling/Decoupling/For Step-up



Resin External Electrode Monolithic Ceramic Capacitors

GRJ Series

Coupling/Decoupling/For Step-up



Polymer Aluminum Electrolytic Capacitors

ECAS Series

Smoothing/Transient Backup



Chip Inductors (Chip Coils)

LQW/LQP/LQG Series

High Frequency Circuit-Impedance Matching/Resonance



Chip Inductors (Chip Coils)

LQM/LQH Series

Voltage Conversion



Chip Ferrite Beads

BLM Series

Noise Suppression



3 Terminal Capacitors

NFM/NFE Series

Noise Suppression



Chip Common Mode Choke Coils

DLW/DLP Series

Noise Suppression



Microwave Absorbers

EA Series

Noise Suppression



Ferrite Cores

FS Series

Noise Suppression



Thin Type Sandwich Cores

FSSA Series

Noise Suppression



Small Energy Devices

UMAC Series

Battery Backup



Memo

Design Support Tool "SimSurfing"

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

This is the latest tool to get the electrical characteristics for Capacitors, Inductors, and EMI Suppression Filters, and to simulate Thermistors' behavior !



■ Characteristics viewer

You can easily search and download the following data for Monolithic Ceramic Capacitors, Polymer Capacitors, EMI Suppression Filters (Three-terminal Capacitors, Ferrite Beads) and Power/RF Inductors.

■ Components performance simulator

You can search by the simulation on simple circuits for Thermistors.

■ Selection tool

You can select Medium voltage Capacitors and Power Inductors according to conditions of use.

* Medium voltage: Rated Voltage 250V and over

■ Search tool

You can search the Murata timing device (CERALOCK® and crystal units) that is most suitable for your IC and access information about the recommended circuit constant setting.

If you register as a "my Murata" user

(<https://my.murata.com/en/web/mymurata/>), you can use Enhanced SimSurfing.

■ Usage example of "Monolithic Ceramic Capacitors"

1 Select the products

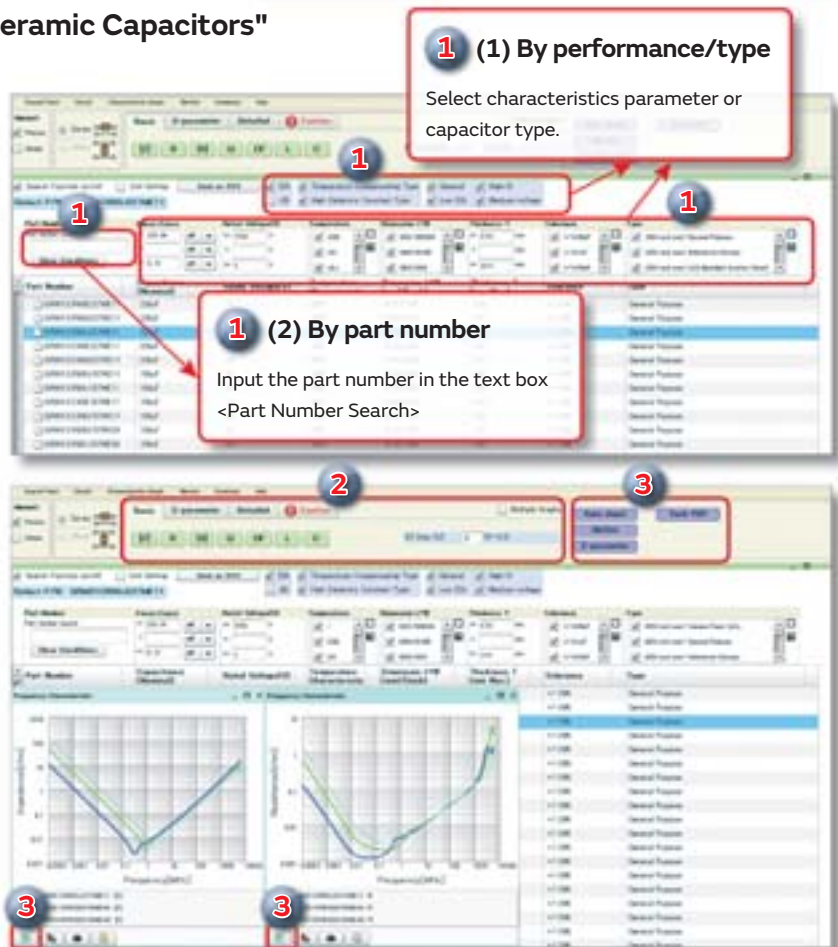
- (1) By performance/type
- (2) By part number

2 Show graph

Click each button on each tab of [Basic], [S-parameter] and [Detailed].

3 Data download

- Click each purple button in this area.
- Click "CSV output" button.



* Images are as of October 2015. Be assured that this software will be updated frequently.

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

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Global Locations

For details please visit www.murata.com



⚠ Note

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- ⑧ Disaster prevention / crime prevention equipment
- ⑨ Data-processing equipment
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