

MURATA PRODUCTS Lineup

2014





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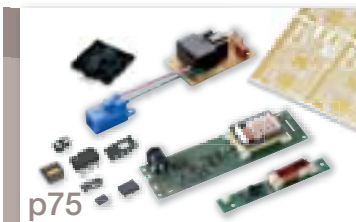
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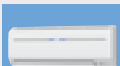
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Capacitors

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



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
- Electrical Double Layer Capacitors

Web Content

Convenient search
Substantial technical information



Various Search Methods

Software Tools
SimSurfing (WEB) 

Various Downloadable Data

Frequently Asked Questions (FAQ)

Characteristics Data

Reliability Test Data

Safety Certificates by Series

<http://www.murata.com/products/capacitor/>

Chip Monolithic Ceramic Capacitors For General Purpose

For General Purpose

Temperature Compensating Type



GRM

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	0.20pF				47pF													
		10				56pF	100pF													
GRM03	0.6X0.3 <0201>	100	0.10pF			15pF														
		50	0.10pF				120pF													
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	4700pF												
		10						5600pF	0.10μF											
GRM31	3.2X1.6 <1206>	2k			10pF		68pF													
		1k			10pF		1000pF													
		630			10pF		4700pF													
		500			10pF		4700pF													
		250					2700pF	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											

Continued on the following page.



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

High Dielectric Constant Type



GRM

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>	10				100pF		10000pF						
		6.3					1000pF		0.10μF					
		4						15000pF		0.10μF				
GRM03	0.6X0.3 <0201>	50				100pF		1500pF						
		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		2.2μF						
6.3								0.10μF		4.7μF				
4								0.10μF		10μF				
2.5								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									22μF			
		GRM21	2.0X1.25 <0805>	250				1000pF		22000pF				
200						1000pF		22000pF						
100							10000pF		0.47μF					
50							10000pF		4.7μF					
35									2.2μF		4.7μF			
25								68000pF		22μF				
16									0.33μF		22μF			
10										2.2μF	47μF			
6.3											10μF	47μF		
4											10μF	47μF		
2.5												47μF		
GRM31	3.2X1.6 <1206>	1k				470pF		10000pF						
		630				1000pF		22000pF						
		250					15000pF		0.10μF					
		200					15000pF		0.10μF					
		100							0.47μF		2.2μF			
		50							0.47μF		10μF			
		35									10μF			
		25								0.33μF		22μF		
		16									4.7μF	22μF		

Continued on the following page.



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

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		
GRM31	3.2X1.6 <1206>	10									22μF	47μF			
		6.3									22μF	100μF			
		4										47μF	100μF		
GRM32	3.2X2.5 <1210>	1k					6800pF	22000pF							
		630					22000pF	47000pF							
		250						68000pF	0.22μF						
		200						68000pF	0.22μF						
		100								1.0μF	2.2μF				
		80										4.7μF			
		63											10μF		
		50										4.7μF	10μF		
		35											10μF		
		25										10μF	22μF		
		16											22μF	47μF	
		10												47μF	100μF
		6.3													47μF
4													100μF		
GRM43	4.5X3.2 <1812>	1k						33000pF	47000pF						
		630						68000pF	0.10μF						
		250							0.15μF	0.47μF					
		200							0.15μF	0.47μF					
GRM55	5.7X5.0 <2220>	1k						68000pF	0.10μF						
		630							0.15μF	0.22μF					
		250								0.33μF	1.0μF				
		200								0.33μF	1.0μF				

Low ESL Type

LW Reversed Type



LLL

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>	50					10000pF	0.10μF						
		25						47000pF	0.47μF					
		16							0.22μF	1.0μF				

Continued on the following page.



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

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>	10									0.47μF	2.2μF			
		6.3										2.2μF	10μF		

Controlled ESR Type



LLL

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		
LLR18	0.8X1.6 <0306>	4										1.0μF			

8 Terminal Type



LLA

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				
LLA31	3.2X1.6 <1206>	4									1.0μF	4.7μF			
		16							0.22μF	1.0μF					
		10								0.47μF	2.2μF				
		6.3								1.0μF	2.2μF				

10 Terminal Type



LLM

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)												
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ		
LLM21	2.0X1.25 <0805>	25						10000pF	22000pF						
		16							47000pF	0.10μF					
		6.3								0.22μF	0.47μF				
		4										1.0μF			
LLM31	3.2X1.6 <1206>	16							0.10μF	0.22μF					
		10									0.47μF				
		6.3											1.0μF	2.2μF	

High Frequency HiQ Type (0402 Size Max.)



GJM

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



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

High Frequency HiQ Type (0603 Size Min.)



GQM

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		
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

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							5600pF		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

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						10000pF							



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

Resin External Electrode Type



GRJ

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)													
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ			
GRJ21	2.0X1.25 <0805>	250						1000pF	22000pF							
GRJ31	3.2X1.6 <1206>	1k						470pF	10000pF							
		630						1000pF	22000pF							
		250							15000pF	0.10μF						
GRJ32	3.2X2.5 <1210>	1k						6800pF	22000pF							
		630						22000pF	47000pF							
		250							68000pF	0.22μF						
GRJ43	4.5X3.2 <1812>	1k						33000pF	47000pF							
		630							68000pF	0.10μF						
		250								0.15μF	0.47μF					
GRJ55	5.7X5.0 <2220>	1k							68000pF	0.10μF						
		630								0.15μF	0.22μF					
		250									0.33μF	1.0μF				

For LCD Backlight Inverter Circuit Only



GRM

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

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)													
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ			
GR321	2.0X1.25 <0805>	250						10000pF	22000pF							
GR331	3.2X1.6 <1206>	630						10000pF	15000pF							
		450						10000pF	47000pF							
		250							33000pF	68000pF						
GR332	3.2X2.5 <1210>	630						22000pF	47000pF							
		450							68000pF	0.10μF						
		250								0.10μF	0.15μF					
GR343	4.5X3.2 <1812>	630							68000pF							
		450								0.15μF						
		250									0.22μF	0.33μF				
GR355	5.7X5.0 <2220>	630							0.10μF	0.27μF						
		450								0.22μF	0.56μF					
		250									0.47μF	1.0μF				



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

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



GR4

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

For Camera Flash Units Only



GR7

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			
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

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

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



GA3

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										
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

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							

Continued on the following page.



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

Type GB (UL, IEC60384-14 X2 Class)



GA3

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

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																			
		16																			
KRM31	3.5X1.7	100																			
		50																			
		35																			
		25																			
KRM55	3.6X1.7	50																			
	3.7X1.85	100																			
KRM55	6.1X5.3	1k																			
		630																			
		250																			
		100																			
		63																			
		50																			
		35																			
25																					

High Effective Capacitance & High Ripple Resistance



KR3

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																			
		450																			
		250																			



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Chip Monolithic Ceramic Capacitors For Automotive

For Automotive (General Purpose)

Temperature Compensating Type



GCM

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									
		50					1000pF		22000pF								
GCM31	3.2X1.6 <1206>	1k			10pF		1000pF										
		630			10pF		4700pF										
		250					2700pF		10000pF								
		100					1800pF		10000pF								
GCM32	3.2X2.5 <1210>	50					3900pF		56000pF								
		1k					1200pF		2200pF								
		630					1200pF		10000pF								
GCM43	4.5X3.2 <1812>	1k					2700pF		4700pF								
		630						1200pF		22000pF							
GCM55	5.7X5.0 <2220>	1k						5600pF		10000pF							
		630							27000pF		47000pF						

High Dielectric Constant Type



GCM

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						
GCM15	1.0X0.5 <0402>	100				220pF		4700pF								
		50				220pF				0.10μF						
		25						10000pF		47000pF						
GCM18	1.6X0.8 <0603>	16						33000pF		0.22μF						
		100				1000pF		22000pF								
		50				1000pF				0.22μF						
		25						33000pF		1.0μF						
GCM21	2.0X1.25 <0805>	16						0.10μF		1.0μF						
		6.3								0.10μF		1.0μF				
		25									2.2μF					
		100					6800pF		0.10μF							
		50						33000pF		1.0μF						
GCM21	2.0X1.25 <0805>	35								0.68μF		1.5μF				
		25								0.15μF		2.2μF				
		16								0.68μF		4.7μF				

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For more details on each series, please refer to our website.
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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	
GCM21	2.0X1.25 <0805>	10									2.2μF	10μF		
		6.3											10μF	
GCM31	3.2X1.6 <1206>	100							0.10μF	1.0μF				
		50							0.33μF	4.7μF				
		25								2.2μF	10μF			
		16									4.7μF	10μF		
		10											10μF	
		6.3												22μF
GCM32	3.2X2.5 <1210>	50								1.0μF	10μF			
		35										10μF		
		25									4.7μF	10μF		
		16										10μF	22μF	
		10											22μF	
		6.3												47μF

Resin External Electrode Type



Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
GCJ18	1.6X0.8 <0603>	100					1000pF	22000pF						
		50					1000pF	0.10μF						
		35						33000pF	68000pF					
		25					1000pF	0.22μF						
		16						10000pF	0.47μF					
		10							0.12μF	0.22μF				
GCJ21	2.0X1.25 <0805>	250					1000pF	22000pF						
		100				220pF	0.10μF							
		50					330pF	1.0μF						
		35						0.12μF	0.47μF					
		25					470pF	2.2μF						
		16							0.27μF	4.7μF				
GCJ31	3.2X1.6 <1206>	1k					1000pF	10000pF						
		630					1000pF	22000pF						
		250						15000pF	0.10μF					
		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	10μF	
		6.3											22μF	
GCJ32	3.2X2.5 <1210>	1k					15000pF	22000pF						
		630					6800pF	47000pF						
		250						68000pF	0.22μF					
		100								2.2μF				
		50								4.7μF	10μF			
		16								4.7μF	10μF			

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For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

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		
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						
GCE21	2.0X1.25 <0805>	100						1000pF	0.10μF						
		50						1000pF	0.10μF						

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		
GCG18	1.6X0.8 <0603>	50				10pF			2200pF						
GCG21	2.0X1.25 <0805>	50					100pF		10000pF						

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For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

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	68000pF								
		50				220pF	0.22μF								
		25							0.12μF	0.47μF					
GCG21	2.0X1.25 <0805>	50					27000pF	0.22μF							
		25							0.10μF	1.0μF					
		16								0.33μF	4.7μF				
GCG31	3.2X1.6 <1206>	25								1.0μF	4.7μF				
		16									1.0μF	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	15μF	

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For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

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	63										4.7μF	22μF				
		50											4.7μF	22μF			
		35												10μF	33μF		
		25													15μF	47μF	

High Effective Capacitance & High Ripple Resistance



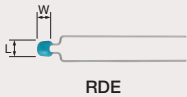
KC3

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				

Lead Type Ceramic Capacitors For General Purpose

Radial Lead Type

Temperature Compensating Type



RDE

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												
RDE7U	4.5X3.5	250				100pF	4700pF										
		5.5X4.0	1k		10pF	1000pF											
			630		10pF	4700pF											
	5.5X5.0	250					6800pF	22000pF									
		1k					1500pF	2200pF									
		630					6800pF	10000pF									
	7.5X5.5	250						33000pF	47000pF								
		1k					3300pF	4700pF									
		630					15000pF	22000pF									
	7.5X8.0	1k						6800pF	10000pF								
		630							33000pF	47000pF							
	7.5X13.0	1k								22000pF							
630										0.10μF							

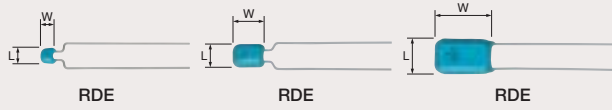
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Capacitors

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		
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			
		250									0.10μF	0.27μF			
	7.5X8.0	630													
450											1.0μF	1.2μF			
7.7X12.5	450												2.2μF		
	250														
7.7X13.0	630									0.47μF	0.56μF				
RDEF1	4.0X3.5	50						10000pF	0.1μF						
	5.0X3.5	50						10000pF	0.1μF						
RDEF5	4.0X3.5	50						10000pF	0.1μF						
	5.0X3.5	50						10000pF	0.1μF						
RDER7	4.0X3.5	100				220pF	22000pF								
		50				220pF	0.1μF								
		25											0.1μF		
	4.5X3.5	100						33000pF	0.47μF						
		50							0.15μF	0.47μF					
	5.0X3.5	630					1000pF	15000pF							
		250					1000pF	47000pF							
		100				220pF	0.47μF								
		50				220pF	0.47μF								
		25											0.1μF		
	5.0X4.5	630						22000pF	47000pF						
		250							68000pF	0.10μF					
	5.5X4.0	1k					470pF	4700pF							
		100									0.15μF	1.0μF			
		50									0.68μF	2.2μF			
5.5X5.0	1k						6800pF	22000pF							
	50												3.3μF		

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For more details on each series, please refer to our website.
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Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)												
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ		
RDER7	7.5X5.5	1k							33000pF	47000pF					
		630								68000pF	0.10μF				
		250									0.15μF	0.22μF			
	7.5X7.5	250									0.33μF	0.47μF			
		7.5X8.0	1k							68000pF	0.10μF				
	630										0.15μF	0.22μF			
	7.7X12.5	250												1.0μF	
	7.7X13.0	1k													0.22μF
630															0.47μF

Disc Type (Medium High Voltage)



DES/DEH/DEA/DEB/DEC

High Temperature Guaranteed Low Loss Type (Low Heat Generation)

Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)												
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ		
DESD3	6.0 to 17.0	1k					100pF			4700pF					
	6.0 to 14.0	500					100pF			4700pF					

High Temperature Guaranteed Low Loss Type

Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)												
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ		
DEHC3	6.0 to 14.0	500					330pF			4700pF					
DEHR3	7.0 to 19.0	3.15k					150pF			2700pF					
	7.0 to 21.0	2k					220pF			4700pF					
	7.0 to 17.0	1k					220pF			4700pF					

Medium Voltage (Low Heat Generation Type for Temperature Compensation)

Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)												
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ		
DEA1X	5.0 to 16.0	3.15k				10pF			390pF						
	4.5 to 15.0	2k				10pF			560pF						
	4.5 to 12.0	1k				10pF			560pF						

Medium Voltage Type (High Dielectric Constant)

Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)												
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ		
DEBB3	5.0 to 15.0	3.15k				100pF			3300pF						
	4.5 to 15.0	2k				100pF			4700pF						
	4.5 to 15.0	1k				100pF			6800pF						
DEBE3	7.0 to 13.0	3.15k					1000pF		4700pF						
	6.0 to 16.0	2k					1000pF		10000pF						
	5.0 to 13.0	1k					1000pF		10000pF						
DEBF3	5.0 to 12.0	2k					1000pF		10000pF						
	6.0 to 10.0	1k					2200pF		10000pF						

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For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

Medium Voltage Compatible Type

Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)												
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ		
DEC1X	7.0 to 15.0	6.3k			10pF	150pF									
DECB3	9.0 to 13.0	6.3k				100pF	1000pF								
DECE3	11.0 to 15.0	6.3k					1000pF	2200pF							

Disc Type (High Voltage) for LCD Backlight Inverter Circuit Only



Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)												
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ		
DEF1X	7.0 to 9.0	6.3k			10pF	47pF									
DEF2C	7.0 to 8.0	6.3k		2.0pF	10pF										

Disc Type (Safety Standard Certified Type)



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

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

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							

The Electrical Appliance and Material Safety Law of Japan

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						

➔ For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Disc Type (Ultra-high-voltage)

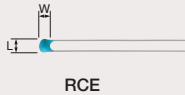


Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
DHR4E	8.0 to 18.0	15k				100pF	1000pF							
	8.0 to 16.0	12k				100pF	1000pF							
	8.0 to 15.0	10k				100pF	1000pF							
DHRB3	8.0 to 18.0	15k				100pF	1000pF							
	8.0 to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

Lead Type Ceramic Capacitors For Automotive

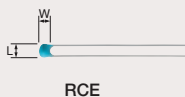
Powertrain/Safety (AEC-Q200)

Temperature Compensating Type



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						

High Dielectric Constant Type



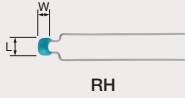
Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)											
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ	
RCEC7	5.5X5.0	100								1.5μF	2.2μF			
	5.5X7.5	100									4.7μF			
RCER7	3.6X3.5	100				220pF	22000pF							
		50				220pF	0.10μF							
	4.0X3.5	100					33000pF	0.33μF						
		50						0.15μF	0.47μF					
	5.5X4.0	100						0.15μF	1.0μF					
		50							0.68μF	2.2μF				
	5.5X5.0	100								3.3μF	4.7μF			
		50								3.3μF	4.7μF			
	5.5X7.5	100										10μF		
		50										10μF		
	25											22μF		

➔ For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

Capacitors

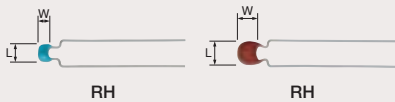
Powertrain/Safety (AEC-Q200) 150°C Max.

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					

High Dielectric Constant Type



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

Safety Standard Certified for Automotive

Type KJ -IEC60384-14 X1/Y2 Class



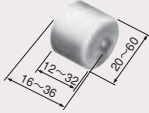
Series	D (mm)	Rated Voltage (V)	Capacitance Range (F)												
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ		
DE6B3	8.0 to 9.0	AC300 (r.m.s.)				100pF		680pF							
DE6E3	7.0 to 12.0	AC300 (r.m.s.)						1000pF		4700pF					



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

High Voltage Ceramic Capacitors

Ultra-high-voltage

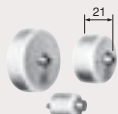


DHS

(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							

High Voltage AC Rated Type



DHK

(in mm)

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

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)													
			0.1p	1p	10p	100p	1000p	10000p	0.1μ	1μ	10μ	100μ	1000μ			
ECAS	7.3X4.3	16									6.8μF	22μF				
		12.5										10μF	100μF			
		10										10μF	150μF			
		6.3										10μF	220μF			
		4											68μF	330μF		
		2											100μF	470μF		



For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/capacitor/>

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	
		 TZS2	1.0mm max.	2.2X2.7mm	25V	-25 to 85°C	
		 TZY2	1.25mm max.	2.5X3.2mm	25V	-25 to 85°C	
		 TZV2	1.45mm max.	2.3X3.2mm	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_A	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	
		 TZB4_B	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	
	Flow Soldering Methods	 TZB4_A	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	with Cover Film
		 TZB4_B	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	with Cover Film



For more details on each series, please refer to our website.

Product Search ⇒ <http://www.murata.com/products/capacitor/>

Selection Guide of Trimmer Capacitors ⇒ http://www.murata.com/products/capacitor/kt_search/selection.html



Please refer to p.71 for Electrical Double Layer Capacitors.

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 Electrical
Double Layer Capacitor DMF Series Cat. No. O83E
- High Performance Electrical
Double Layer Capacitor DMT Series Cat. No. O84E

<http://www.murata.com/products/capacitor/catalog/>

Noise Suppression Products/ EMI Suppression Filters

Broad lineup of Noise Suppression Products and EMI Suppression Filters



Summary

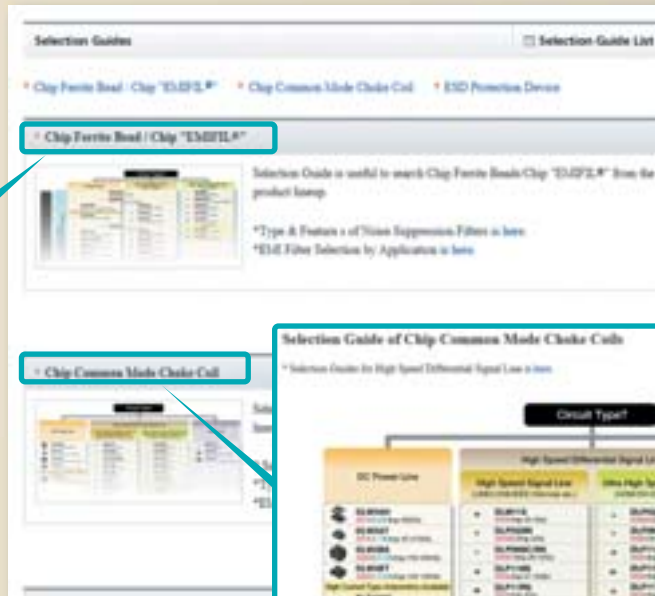
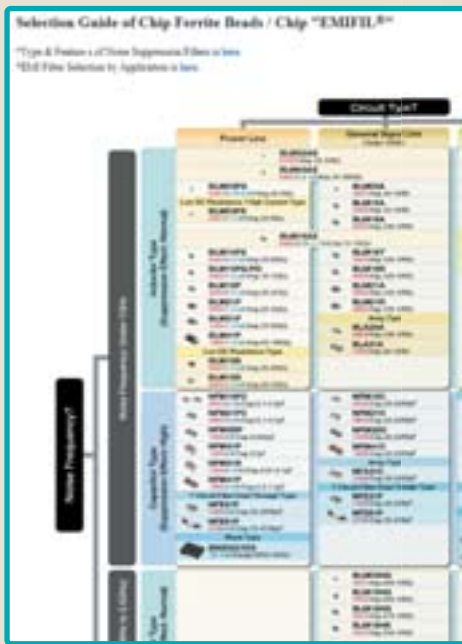
Using Murata's ceramic processing technology and unique material, we offer a variety of Noise Suppression Products and EMI Suppression Filters.

Lineup

- EMI (chip and lead type)
- Noise Suppression Products for Automotive
- ESD Protection Devices
- AC Line Filters
- Ferrite Cores

Selection Guide

The Selection Guide on our website is useful for searching the applications and the product lineup.



http://www.murata.com/products/emc/selection_guide/

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
- On-Board Type (DC) EMI Suppression Filters (EMIFIL®) for Automotive Cat. No. C50E
- 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

<http://www.murata.com/products/emc/catalog/>

Noise Suppression Products/EMI Suppression Filters

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													
			BLM03AX	0201 (0603)	1000	10		80	120	240	600	1000										
			BLM15AX	0402 (1005)	1740	10	30	70	120	220	600	1000										
	Signal Lines Type	For General Signal Lines		BLM03AG	0201 (0603)	-	10		80	120	240	600	1000									
				BLM15AG	0402 (1005)	-	10		70	120	220	600	1000									
				BLM18A	0603 (1608)	-				220	330	470	600	1000								
				BLM21A	0805 (2012)	-				220	330	470	600	1000								
				BLM18T	0603 (1608)	-				120	220	600	1000									
				BLA2AA (4 circuits array)	0804 (2010)	-				120	220	600	1000									
				BLA31A (4 circuits array)	1206 (3216)	-	30	60	120	220	600	1000										
			Signal Lines Type	For High Speed Signal Lines		BLM02BX	01005 (0402)	-				150										
						BLM03B	0201 (0603)	-	10	22	33	47	56	80	120	240	470					
						BLM15B	0402 (1005)	-	5	10	22	33	47	75	120	220	470	600	1800			
		BLM18B			0603 (1608)	-	5	10	22	47	60	75	140	220	420	600	1500	2200				
		BLM21B			0805 (2012)	-	5			60	75	200	330	470	750	1500	2200	2700				
		BLA2AB (4 circuits array)			0804 (2010)	-	10	22	47	75	120	220	470	1000	1800	2500						
		BLA31B (4 circuits array)			1206 (3216)	-				120	220	470	1000									
	For Digital Interface Lines				BLM18R	0603 (1608)	-				120	220	470	1000								
			BLM21R	0805 (2012)	-				120	220	470	1000										
	Power Lines Type			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	10 (1A)			33 (3A) 80 (1.5A/2.3A) 180 (1.5A) 220 (1.4A) 470 (1A) 30 (2.2A) 60 (1.7A/2.5A) 120 (1.3A/2A) 330 (1.2A) 600 (0.9A)												
				BLM18P*	0603 (1608)	3000				33 (3A) 120 (2A) 220 (1.4A) 470 (1A) 30 (1A) 60 (0.5A) 180 (1.5A) 330 (1.2A)												
				BLM21P*	0805 (2012)	6000				30 (4A) 220 (2A) 22 (6A) 60 (3.5A) 120 (3A) 330 (1.5A)												
				BLM31P*	1206 (3216)	6000				50 (3.5A) 120 (3.5A) 390 (2A) 33 (6A)	600 (1.5A)											
				BLM41P*	1806 (4516)	6000				75 (3.5A) 470 (2A) 60 (6A) 180 (3.5A)	1000 (1.5A)											
			BLM18K* (Low DC Resistance Type)	0603 (1608)	6000				30 (5A) 70 (3.5A) 220 (2.2A) 470 (1.5A) 26 (6A) 100 (3A) 120 (3A) 330 (1.7A) 600 (1.3A)													
			BLM18S* (Low DC Resistance Type)	0603 (1608)	6000				70 (4A) 220 (2.5A) 26 (6A) 120 (3A) 330 (1.5A)													
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)														
		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			600 (0.8A) 1500 (0.5A) 1000 (0.6A)														
	Signal Lines Type		BLM03HG	0201 (0603)	-				600	1000												
			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	470	1000													

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

For more details on each series, please refer to our website.
Product Search => <http://search.murata.co.jp/>

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 High-GHz Band Noise	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	0.1 μ	1 μ	10 μ	10k	100k	1M	10M	100M	1G	10G
Signal Lines Type	NFM15CC	0402 (1005)	-			2200	22000										
	NFM18C	0603 (1608)	-		22	47	100	220	1000	22000							
	NFM21C	0805 (2012)	-		22	47	100	220	1000	22000							
	NFM3DC	1205 (3212)	-		22	47	100	220	1000	22000							
	NFM41C	1806 (4516)	-		22	47	100	220	1000	22000							
	NFA31C (4 circuits array)	1206 (3216)	-		22	47	100	220	1000	22000							
Power Lines Type	NFM15PC	0402 (1005)	2000					47000	0.22	1.0							
	NFM18P	0603 (1608)	4000						0.1	0.47	4.3						
	NFM21P	0805 (2012)	6000							0.22	1.0						
	NFM3DP*	1205 (3212)	2000					22000		0.1	0.47	2.2					
	NFM31P	1206 (3216)	6000								0.22	1.0	4.7				
	NFM31K*	1206 (3216)	10000					10000	22000								
	NFM41P	1806 (4516)	6000									0.1					
Universal Type [Power Lines / Signal Lines]	NFE31P	1206 (3216)	6000			470	2200										
	NFE61P	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	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			
	NFL21S	0805 (2012)	-													
	NFA18S (4 circuits array)	0603 (1608)	-	10	20		50	70	100	150	200	300	400			
	NFA21S (4 circuits array)	0805 (2012)	-				50			130	180	220	300	350	480	
	NFW31S	1206 (3216)	-				50	80				280	310			
	NFR21G	0805 (2012)	-	10	20		50	100	150	200	300	400				
	NFA31G (4 circuits array)	1206 (3216)	-													

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

➔ For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Noise Suppression Products/EMI Suppression Filters

Noise Suppression Filters (Chip Common Mode Choke Coil)

Noise Suppression Products/EMI Suppression Filters

Signal Lines Type	Series	Size Code Inch (mm)	Max. Rated Current (mA)	Common Mode Impedance (Ω) at 100MHz			Effective Frequency Range (Hz) (For Reference Only)							
				100	500	1000	1M	10M	100M	1G	10G			
For Audio Lines For Ultra-High-Speed Signal Lines	DLM11G	0504 (1210)	-		600									
	DLM11S	0504 (1210)	-	45	90									
	DLP0QSN	025020 (0605)	-		60									
	DLP0QSA	025020 (0605)	-	15 7	35									
	DLP0NSC	03025 (0806)	-		28									
	DLP0NSN	03025 (0806)	-	35 67	90 120									
	DLP0NSA	03025 (0806)	-	15 7										
	DLP11SN	0504 (1210)	-	67 90	120	160	200	240	280	330				
	DLP11SA	0504 (1210)	-	35 67	90									
	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 67	90									
	DLP2ADA (2 circuits array)	0804 (2010)	-	35 67	90									
	DLP2ADN (2 circuits array)	0804 (2010)	-	90 67	120	160	200	240	280					
	DLP31DN (2 circuits array)	1206 (3216)	-		90	130	200	320	440					
	DLW21S	0805 (2012)	-	90 67	120	180	260	370	490	500				
	DLW21H	0805 (2012)	-	90 67	120			180						
	DLW31SN	1206 (3216)	-		90	160	260	600	1000	2200				
Universal Type [Power Lines / Signal Lines]	DLW5AH/DLW5BS*	2014 (5036)/2020 (5050)	5000		190	350	1000	1500	4000	3000				
	DLW5AT*/DLW5BT*	2014 (5036)/2020 (5050)	7000	50 45	110 100	150	230 250	330 400	500	850	1000	1400	2700	

Large Current Type for Automotive Available	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		
	PLT10HH*	-	-	45	100	400	900	500	1000					

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

For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Noise Suppression Products/EMI Suppression Filters

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							
		Lead Type	 BNX002	13 max.	50	10						
	 BNX003		13 max.	150	10							
	 BNX005		13.5 max.	50	15							
	 BNX012*		8.0 max.	50	15							
	 BNX016*		8.0 max.	25	15							

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

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 to have excellent ESD suppression performance.



Continued on the following page. 

 For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Noise Suppression Products/EMI Suppression Filters

Common mode filter with ESD Protection Devices LXES_D Series

Applying Murata's original ceramic technology for excellent ESD suppression performance with Common Mode Choke Coil and small capacitance value.



Product Lineup ⇒ http://www.murata.com/products/emc/selection_guide/emc3/
 <Category Search> Primary: "Noise Suppression Products/EMI Suppression Filters"
 Secondary: "ESD Protection Device"
 <Part Number Search> Part Number: "LXES"

Noise Suppression Filters (Lead Type), Others

	Series							Effective Frequency Range (Hz) (For Reference Only)							
								10k	100k	1M	10M	100M	1G	10G	
Lead Type EMIFIL®	 BL01	 BL02	 BL03	 DSN6	 DSN9(H)	 DSS6	 DST9(H)								
EMIGUARD®	 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											



For more details on each series, please refer to our website.
 Product Search ⇒ <http://search.murata.co.jp/>

Inductors (Coils)

Broad lineup of Chip Inductors and Power Inductors



Summary

Using Murata's ceramic processing technology and unique material we offer a variety of inductor products that are suitable for the demands of many applications.

Lineup

- Inductors for Power Circuits (power inductors and choke inductors)
- Chip Inductors (for general purpose, RF circuits, and automotive)

Selection Guide

You can see product data from various viewpoints.

Simulation tool that assists circuit designing



The top page is divided between RF Inductors and Power Inductors.

For details, please refer to our printed catalogs or PDF catalogs.
Cat.No. O05

Shows Murata's inductor selection guides for each application.

Frequently Asked Questions (FAQ)



<http://www.murata.com/products/inductor/>

Inductors (Coils)

Inductors for Power Lines

Inductors (Coils)

Series	Structure	Size Code inch (mm)	Inductance Range (H)							Rated Current (A)					
			1n	10n	100n	1μ	10μ	100μ	1m	10m	10m	100m	1	10	
LQW15CN_00	Wire Wound Type (Ferrite Core)	0402 (1005)			18nH									390mA	1.4A
LQW15CN_10		0402 (1005)				220nH								300mA	450mA
LQW18CN_00		0603 (1608)			4.9nH									430mA	2.6A
LQH2MCN_02		0806 (2016)							1.0μH					90mA	485mA
LQH2MCN_52		0806 (2016)							1.0μH					130mA	595mA
LQH2HPN_G0		1008 (2520)							2.2μH					130mA	1.0A
LQH2HPN_GR		1008 (2520)							470nH					430mA	2.52A
LQH2HPN_J0		1008 (2520)							1.5μH					550mA	1.5A
LQH2HPN_M0		1008 (2520)							2.2μH					800mA	1.25A
LQH3NPN_G0		1212 (3030)							1.0μH					130mA	1.525A
LQH3NPN_J0		1212 (3030)							1.0μH					350mA	1.62A
LQH3NPN_M0		1212 (3030)							1.0μH					240mA	2.05A
LQH3NPN_MR		1212 (3030)							1.0μH					460mA	2.15A
LQH32PN_N0		1210 (3225)							470nH					200mA	2.55A
LQH32PN_NC		1210 (3225)							470nH					550mA	2.9A
LQH32PB_N0		1210 (3225)							470nH					200mA	2.55A
LQH32PB_NC		1210 (3225)							470nH					550mA	2.9A
LQH43PN_26		1812 (4532)							1.0μH					240mA	3.3A
LQH43PB_26		1812 (4532)							1.0μH					240mA	3.3A
LQH44PN_J0		1515 (4040)							1.0μH					380mA	1.53A
LQH44PN_P0		1515 (4040)							1.0μH					790mA	2.45A
LQH5BPN_T0		2020 (5050)							470nH					1.05A	4.0A
LQH5BPN_T0		2020 (5050)							470nH					1.05A	4.0A
LQH31CN_03		1206 (3216)							120nH					80mA	970mA
LQH32CN_23/33		1210 (3225)							150nH					60mA	1.45A
LQH32CN_53		1210 (3225)							1.0μH					100mA	1.0A
LQH43CN_03		1812 (4532)							1.0μH					90mA	1.08A
LQH43CN_33		1812 (4532)							560nH					1.6A	2.95A
LQH55DN_03		2220 (5750)							120nH					50mA	6.0A
LQH66SN_03		2525 (6363)							270nH					50mA	6.0A
LQM18PN_B0		Multilayer Type (Ferrite Core)	0603 (1608)											600mA	
LQM18PN_C0			0603 (1608)							470nH				700mA	850mA
LQM18PN_D0	0603 (1608)								2.5μH				700mA		
LQM18PN_F0	0603 (1608)								1.0μH				600mA		
LQM18PN_FR	0603 (1608)								220nH				620mA	1.25A	

CAUTION: Use rosin-based flux, but not strong acidic flux (with chlorine content exceeding 0.2wt%) when soldering chip inductors (chip coils). Do not use water-soluble flux.

➔ For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/inductor/power/>

Continued on the following page. ↗

Inductors (Coils)

Inductance Lineup

- : E-24 or Higher
- : E-12
- : 0.1nH Step
- : Other

*Some items do not match E step.

Series	Structure	Size Code inch (mm)	Inductance Range (H)								Rated Current (A)					
			1n	10n	100n	1μ	10μ	100μ	1m	10m	10m	100m	1	10		
LQM21PN_C0	Multilayer Type (Ferrite Core)	0805 (2012)				470nH			2.2μH						600mA	1.1A
LQM21PN_G0		0805 (2012)				470nH			3.3μH						800mA	1.3A
LQM21PN_GS		0805 (2012)				2.2μH			4.7μH						750mA	950mA
LQM21PN_GC		0805 (2012)				1.0μH			2.2μH						800mA	900mA
LQM21PN_GR		0805 (2012)				1.0μH			4.7μH						800mA	1.3A
LQM2MPN_G0		0806 (2016)				470nH			4.7μH						1.1A	1.6A
LQM2MPN_GH		0806 (2016)				160nH			2.2μH						1.0A	4.0A
LQM2HPN_G0		1008 (2520)				470nH			4.7μH						1.1A	1.8A
LQM2HPN_GS		1008 (2520)				2.2μH			4.7μH						1.0A	1.1A
LQM2HPN_GC		1008 (2520)				1.0μH			4.7μH						800mA	1.5A
LQM2HPN_GH		1008 (2520)				470nH			2.2μH						1.5A	2.6A
LQM2HPN_J0		1008 (2520)				1.0μH			3.3μH						1.0A	1.5A
LQM2HPN_JC		1008 (2520)				1.0μH			2.2μH						1.0A	1.5A
LQM2HPN_JH		1008 (2520)				470nH			2.2μH						1.5A	2.7A
LQM2HPN_E0		1008 (2520)				560nH									1.5A	
LQM31PN_00		1206 (3216)				470nH			4.7μH						700mA	1.4A
LQM31PN_C0		1206 (3216)				470nH			2.2μH						900mA	1.3A
LQM32PN_G0		1210 (3225)				1.0μH										1.8A
LQM18FN_00		0603 (1608)				1.0μH			10μH						50mA	150mA
LQM21DN_00		0805 (2012)				1.0μH			47μH						7.0mA	60mA
LQM21FN_00		0805 (2012)				1.0μH			47μH						7.0mA	220mA
LQM21FN_70		0805 (2012)				4.7μH			10μH						100mA	120mA
LQM21FN_80		0805 (2012)				4.7μH			10μH						100mA	120mA

Inductors (Coils)

Inductors for General Use

Series	Structure	Size Code inch (mm)	Inductance Range (H)								Rated Current (A)					
			1n	10n	100n	1μ	10μ	100μ	1m	10m	10m	100m	1	10		
LQB15NN_10	Multilayer Type (Ferrite Core)	0402 (1005)				220nH			560nH						300mA	380mA
LQB18NN_10		0603 (1608)				220nH			560nH						300mA	450mA
LQM18NN_00		0603 (1608)				47nH			2.2μH						15mA	50mA
LQM21NN_10		0805 (2012)				100nH			4.7μH						30mA	250mA
LQH31MN_03	Wire Wound Type (Ferrite Core)	1206 (3216)				150nH			100μH						45mA	250mA
LQH32MN_23		1210 (3225)				1.0μH			560μH						40mA	445mA
LQH43M(N)N_03		1812 (4532)				1.0μH			2.2mH						30mA	500mA
LQH44NN_03		1515 (4040)				510nH			470μH						145mA	4.5A

CAUTION: Use rosin-based flux, but not strong acidic flux (with chlorine content exceeding 0.2wt%) when soldering chip inductors (chip coils). Do not use water-soluble flux.

➔ For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/inductor/power/>

Inductors (Coils)

Inductance Lineup

- : E-24 or Higher
- : E-12
- : 0.1nH Step
- : Other

*Some items do not match E step.

RF Inductors

Inductors (Coils)

	Series	Structure	Size Code inch (mm)	Inductance Range (H)								Rated Current (A)					
				1n	10n	100n	1μ	10μ	100μ	1m	10m	10m	100m	1	10		
RF Inductors	LQG15HN_02	Multilayer Type (Non-Magnetic Core)	0402 (1005)	1.0nH	120nH								150mA	300mA			
	LQG15HS_02		0402 (1005)	1.0nH	270nH								110mA	300mA			
	LQG18HN_00		0603 (1608)	1.2nH	100nH								300mA	500mA			
	LQP02TN_02	Film Type (Non-Magnetic Core)	01005 (0402)	0.2nH to 39nH									90mA	320mA			
	LQP02TQ_02		01005 (0402)	0.4nH to 10nH									170mA	990mA			
	LQP03TG_02		0201 (0603)	0.6nH to 120nH									80mA	850mA			
	LQP03TN_02		0201 (0603)	0.6nH to 270nH									60mA	850mA			
	LQP15MN_02		0402 (1005)	1.0nH	33nH									60mA	400mA		
	LQP18MN_02		0603 (1608)	1.3nH	100nH									50mA	300mA		
	LQW03AW_00		-	5.4nH	13nH									280mA	460mA		
	LQW04AN_00		03015 (0804)	1.1nH	33nH									140mA	990mA		
	LQW15AN_00	0402 (1005)	1.5nH	120nH									110mA	1.0A			
	LQW15AN_10	0402 (1005)	1.3nH	5.6nH									800mA	1.2A			
	LQW15AN_80	0402 (1005)	1.3nH	75nH									320mA	3.15A			
	LQW18AN_00	Wire Wound Type (Non-Magnetic Core)	0603 (1608)	2.2nH	470nH								75mA	850mA			
	LQW18AN_10		0603 (1608)	2.2nH	33nH								550mA	1.4A			
	LQW18AN_80		0603 (1608)	2.2nH	390nH								190mA	3.2A			
	LQW2BAS_00		0805 (2015)	2.8nH	820nH								180mA	800mA			
	LQW2BHN_03		0805 (2015)	3.3nH	470nH								160mA	1.32A			
	LQW2BHN_13		0805 (2015)	2.7nH	27nH								900mA	1.9A			
	LQW2UAS_00		1008 (2520)	12nH	4.7μH								260mA	1.0A			
	LQW31HN_03		1206 (3216)	8.8nH	100nH								230mA	750mA			
	LQW21HN_00	Wire Wound Type (Ferrite Core)	0805 (2012)	470nH	2.2μH								75mA	160mA			
	LQH31HN_03		1206 (3216)	54nH	880nH								180mA	920mA			

CAUTION: Use rosin-based flux, but not strong acidic flux (with chlorine content exceeding 0.2wt%) when soldering chip inductors (chip coils).
Do not use water-soluble flux.

➔ For more details on each series, please refer to our website.
Product Search ⇒ <http://www.murata.com/products/inductor/rf/>

Resistors

Full lineup for various applications



Summary

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

Lineup

- Trimmer Potentiometers
- High Voltage Resistors

Web Content

Introducing Trimmer Potentiometer content on our website.

Trimmer Potentiometer Basic Knowledge

What is Trimmer Potentiometer

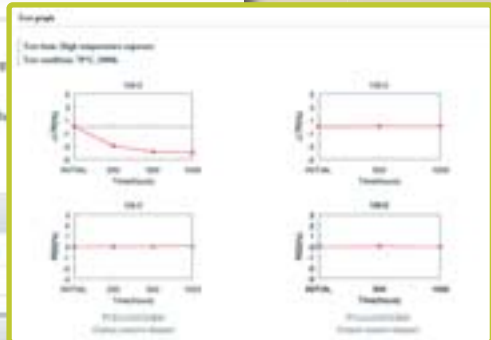
Trimmer Potentiometers are variable resistors that do not need to be changed freely. They are used in various applications for exactly above, below or within a certain range after fine-tune adjustment. To be exact it's variable resistors. They are an example of products for fine-tune load, precise performance and also stable variable resistors. All types are designed for adjustment for forming the load-resistance of products.

There is a table about the classification of Trimmer potentiometers.

In general classification, there are several high-precision, high-load, high-temperature and high-voltage and high-precision resistors. And there is also another classification for the background, such as product with high resistance and angle, high-precision and high-precision resistors.

Resistor Adjustment type	Model type	View type
High-precision	PV50, PV54, PV52	PV22, PV25, PV42
High-load	PV6211, PV6212, PV6213, PV6215	

Trimmer Potentiometer Technical Guides



<http://www.murata.com/products/resistor/>

Detailed Catalogs

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



- Trimmer Potentiometers Cat. No. R50E

<http://www.murata.com/products/resistor/catalog/>

Trimmer Potentiometers

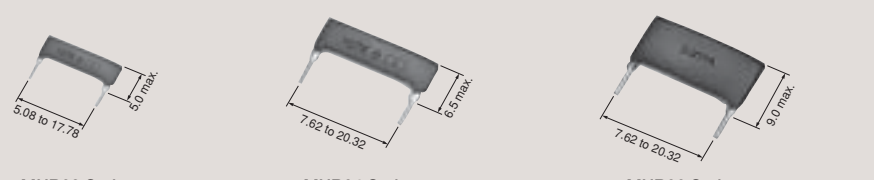
Trimmer Potentiometers are used for trimming the resistance value of electronic equipment. Murata offers a broad range of Trimmer Potentiometers using both carbon and cermet materials.

Mounting	Structure	Resistive Element Type	Adjustment Angle	Adjustment Turns	Size	Series	Remarks		
Surface Mounting	Open Type	Carbon	Top Adjustment	1	2mm	PVZ2A	Low Profile (0.85mm max.)		
					3mm	PVZ3A	Automatic Adjustment		
			Rear Adjustment	1		2mm	PVZ2R	Low Profile with Smaller Footprint (0.9mm max.)	
					3mm	PVZ3K			
	Sealed Type	Cermet	Top Adjustment	1	2mm	PVA2A	Automatic Adjustment		
					3mm	PVG3A	Automatic Adjustment with Rotational Stop		
			4mm	PVG3G		with Rotational Stop			
				Side Adjustment	11	5mm	PVM4		
			5mm			PVG5A			
			5mm	PVG5H					
PCB Insertion	Sealed Type	Cermet	Top Adjustment	1	6mm	PV32H	with Rotational Stop		
					4	7mm	PV12P		
						12	6mm	PV37W	
							10mm	PV36W	
			Side Adjustment	1	6mm	PV32N	with Rotational Stop		
					4	7mm	PV12T		
						12	6mm	PV37X	
					10mm		PV36X		

For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

High Voltage Resistors

High Voltage Resistors are used for home and office equipment such as printers, copies and air-conditioners. Murata offers the High Voltage Resistors "MHR Series".



(in mm)

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 9	10 to 18	0.8 to 1.5

We have many products with various specifications.
For resistance value and ratio of B circuit, please contact us.



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

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
- 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 possible to search by either oscillating frequency or frequency range, too.



<http://search.murata.co.jp/Ceramy/ICsearchAction.do?sLang=en>

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 Unit

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

<http://www.murata.com/products/resonator/catalog/>

Timing Devices

Crystal Units

Available in the applications to be necessary for high accuracy resonator. Especially, the communication clocks such as S-ATA and USB2.0/3.0.

Series	Nominal Frequency (MHz)	Frequency Tolerance (25±3°C)	Equivalent Series Resistance (Ω)	Temperature Stability	Drive Level (μW)	Load Capacitance (pF)
XRCGB	24.0000 to 29.9999	±100ppm max.	150 max.	±50ppm max. (-30 to 85°C)	300 max.	6
	30.0000 to 48.0000	±100ppm max.	100 max.	±50ppm max. (-30 to 85°C)	300 max.	6
XRCHA	12.0000 to 24.0000	±100ppm max.	100 max. (16MHz) 80 max. (20MHz)	±100ppm max. (-40 to 125°C)	300 max.	8

Ceramic Resonators CERALOCK®

Wide variety of product lineup for automotive and consumer use by SMD and lead package.

MHz Chip Type for Automotive (Tight Frequency Tolerance)

Series	Frequency Range (MHz)											Temperature Stability (%)	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)

Series	Frequency Range (MHz)											Temperature Stability (%)	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

➔ For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

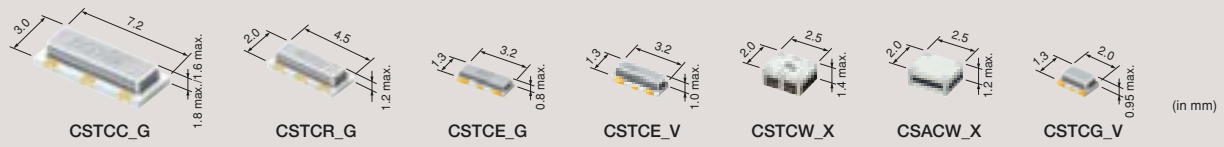
Timing Devices

MHz Chip Type for Consumer Electronics (Tight Frequency Tolerance)



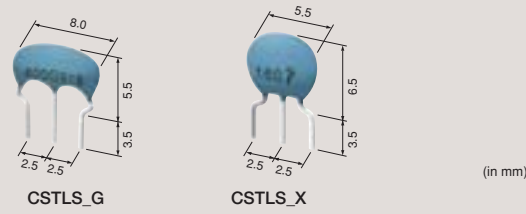
Series	Frequency Range (MHz)										Temperature Stability (%)	Temperature Range (°C)								
	1	2	3	4	5	6	7	8	9	10			20	30	40	50	70	100		
CSTCR_G15L			4.00±0.1%	7.99±0.1%															±0.08	0 to 70
CSTCE_G15L				8.00±0.1%	13.99±0.1%														±0.08	0 to 70
CSTCE_V13L							14.00±0.1%	20.00±0.1%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



Series	Frequency Range (MHz)										Temperature Stability (%)	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	
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
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
CSTCG_V										20.00±0.5%	33.86±0.5%							±0.3	-20 to 80

MHz Lead Type for Consumer Electronics (Standard Frequency Tolerance)



Series	Frequency Range (MHz)										Temperature Stability (%)	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

➔ For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Timing Devices

Filters for Audio Visual Equipment

Signal extraction for visual and audio in electronic devices



Summary

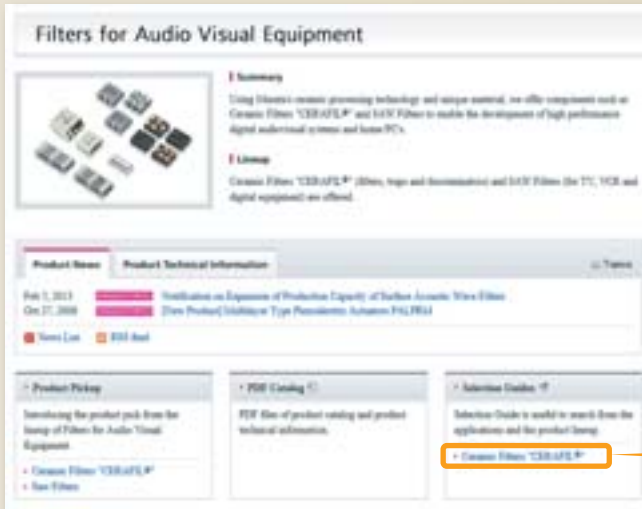
Using Murata's ceramic processing technology and unique material, we offer components such as Ceramic Filters CERAFIL[®] and SAW Filters to enable the development of high-performance digital audio/visual systems and home PCs.

Lineup

- Ceramic Filters CERAFIL[®] (Filters, Traps and Discriminators)
- SAW Traps

Web Content

View the CERAFIL[®] Selection Guide on our website.



http://www.murata.com/products/av_filter/

Application Lineup of CERAFIL[®]

		Applications				
		Hi-Fi Audio	Portable Audio	Car Audio	TV / VCR	RKE / TPMS
Ceramic Filters	450kHz	●	●	●		●
	10.7MHz	●	●	●	●	●
	2.3 to 6.5MHz	●			●	
Ceramic Discriminators	450kHz					●
	10.7MHz	●	●	●		
Ceramic Traps	4.5 to 6.5MHz				●	

CERAFIL[®] Selection Guide



Detailed Catalogs

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



- CERAFIL[®] (Filters/Traps/Discriminators) for Audio/Visual Equipment
Cat. No. P50E
- CERAMIC FILTER (CERAFIL[®]) Application Manual
Cat. No. P11E

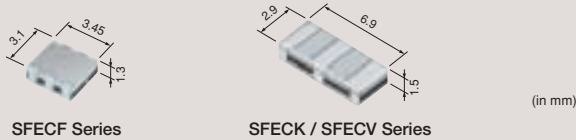
http://www.murata.com/products/av_filter/catalog/

Filters for Audio Visual Equipment

Ceramic Filters CERAFIL®

CERAFIL® 10.7MHz Chip Type

This series is suitable for FM radio and VICS/RKE/TPMS receiver use.
This series enables customers to design thinner and smaller circuits.



SFECF Series

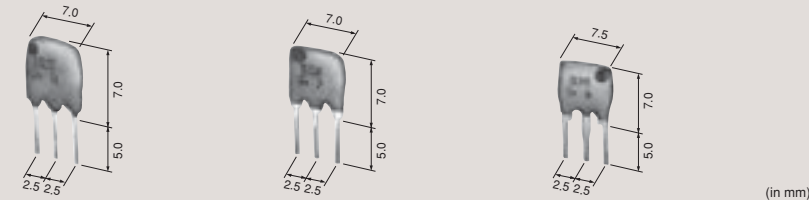
SFECK / SFECV Series

Type	Series	3dB Bandwidth (kHz)						
		D	E	F	G	H	J	K
Standard Type	SFECF10M7□	●	●	●	●	●	—	—
High-reliability Type	SFECK10M7□	—	—	—	—	—	●	●
Standard Type	SFECV10M7□	—	—	—	—	—	●	●
Standard Type	SFECV15M0□	—	●	—	—	—	—	—

□ is filled in with a letter denoting 3dB bandwidth.

CERAFIL® 10.7MHz Lead Type

This series is suitable for FM radio, car-audio or AM up-conversion use.



SFELF Series
(Standard Type)

SFELF Series
(Low Loss Type)

SFELF Series
(Low Spurious Response Type)

Type	Series	3dB Bandwidth (kHz)							
		F	G	H	J	K	L	M	N
Standard Type	SFELF10M7□	●	●	●	—	●	—	—	—
Low Loss Type		●	●	●	●	—	—	—	—
Low Spurious Response Type		●	●	●	●	●	—	—	—

□ is filled in with a letter denoting 3dB bandwidth.

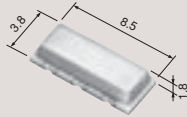


For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

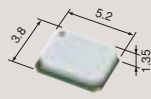
Filters for Audio Visual Equipment

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



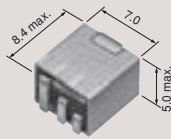
SFSKB Series

(in mm)

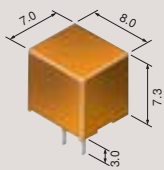
Series	Center Frequency (MHz)											3dB Bandwidth (kHz)	
	2.3	2.8	3.2	3.8	4.3	4.5	4.8	5.2	5.5	5.7	6.0		6.5
SFSKA	—	—	—	—	—	●	—	—	●	—	●	●	±60 min.
SFSKB	●	●	●	●	●	—	●	●	—	●	—	—	±75 min.

CERAFIL® 450kHz

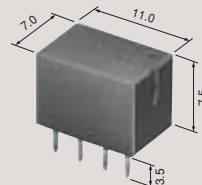
This series features high selectivity, high stability and adjustment-free operation, suitable for intermediate filters for AM radios.



SFPKA Series



SFPLA / CFULA Series



CFWLA Series

(in mm)

Type	Series	6dB Bandwidth (kHz) min.					
		D ±10	E ±7.5	F ±6	G ±4.5	H ±3	J ±2
Chip Standard Type	SFPKA450K□	—	—	—	●	●	—
Lead Standard Type	SFPLA450K□ / CFULA450K□	●	●	●	●	●	●
Lead High-selectivity Type	CFWLA450K□	●	●	●	●	●	●

□ is filled in with a letter denoting 6dB bandwidth.

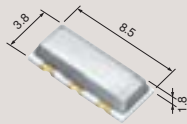


For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Filters for Audio Visual Equipment

Ceramic Traps

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



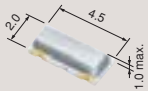
(in mm)

TPSKA Series

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.



(in mm)

CDSCB Series

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.

SAW Traps

Features: Wide pass band width, Highly selective attenuation band, High performance, Small size, Chip Size Package



SAEEA / SAEEL Series



SAEEB Series

(in mm)

SAW Filters and SAW Duplexers must be used only for the below 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.



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Filters for Communication Equipment

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



Summary

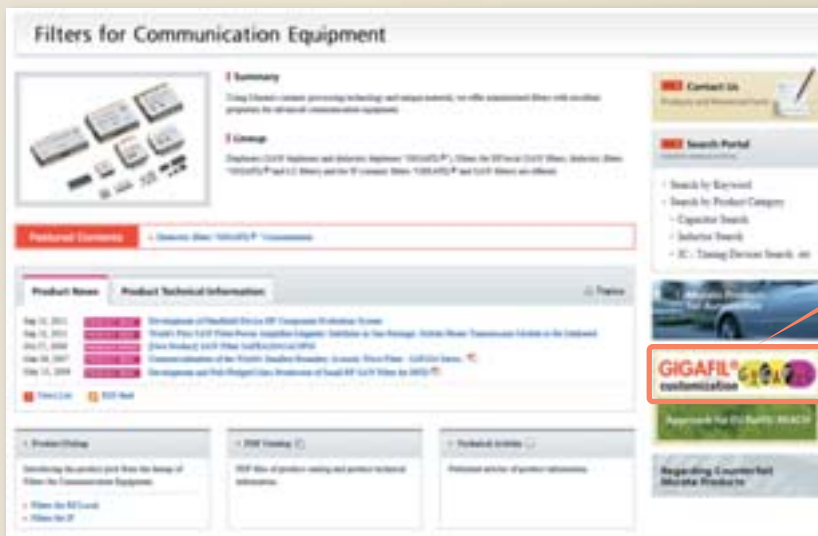
Using Murata's ceramic processing technology and unique material, we offer miniaturized filters with excellent properties for advanced communication equipment.

Lineup

- SAW Filters for Mobile Communications
- Dielectric Filters GIGAFIL®
- Chip Multilayer LC Filters
- Ceramic Filters CERAFIL®
- Ceramic Discriminators

Web Content

For more details on communication equipment, please refer to our website.



Contact Form for Dielectric Filters GIGAFIL® Customization

4 Filter Requirements

Application (Required)

Product Required (Required)

Quantity (Required)

Frequency (Required)

Bandwidth (Required)

Insertion Loss (dB) at pass band (Required)

Return Loss (dB) at pass band (Required)

Stopband Attenuation (Required)

Temperature Coefficient (Required)

Other Requirements

http://www.murata.com/products/comm_filter/

Detailed Catalogs

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



- Ceramic Filters (CERAFIL®)/Ceramic Discriminators for Communications Equipment Cat. No. P05E
- CERAMIC FILTER (CERAFIL®) Application Manual Cat. No. P11E

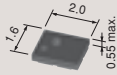
http://www.murata.com/products/comm_filter/catalog/

Filters for Communication Equipment

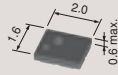
SAW Filters for Mobile Communications

SAW Duplexers

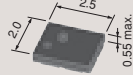
Features: Low Loss, High attenuation performance, Small size, Highly selective pass band, Chip Size Package



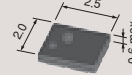
SAYFH Series



SAYRF Series



SAYFP Series



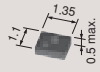
SAYRJ Series

(in mm)

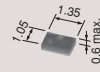
RF Filters

Features: Low Loss, High attenuation performance, Small size, Highly selective pass band, Chip Size Package

Single Filter



SAFEA Series



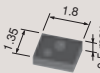
SAFEB Series



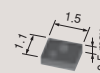
SAFFB Series

(in mm)

Dual Filter



SAWEN Series



SAWFD Series

(in mm)

SAW Bank

This module, which has matching components, can simplify the connection to RFIC.



Filter Bank

Please contact us if you have any questions regarding our SAW Bank products.

DPX Bank

Please contact us if you have any questions regarding our DPX Bank products.

SAW Filters and SAW Duplexers must be used only for the below 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.




For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Filters for Communication Equipment

Dielectric Filters GIGAFIL®

Suitable for the cellular base stations and other telecom infrastructure systems. Customized proposal responded to the request characteristics is also available in our applicable range mentioned below.



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

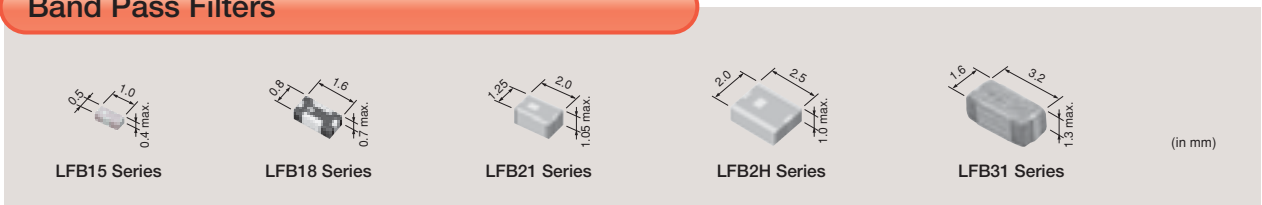
*Power depends upon specifications.

➔ Characteristic customization is available. You can contact us also from our website. Contact Form ⇒ https://www.murata.co.jp/en/contact/product_gigafil/

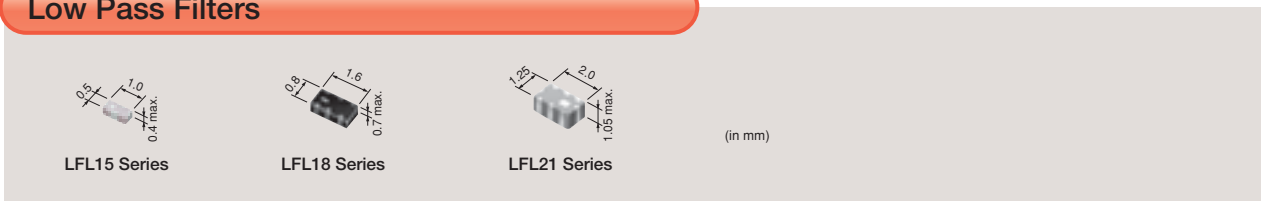
Chip Multilayer LC Filters

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

Band Pass Filters



Low Pass Filters



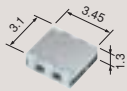
➔ For more details on each series, please refer to our website. Product Search ⇒ <http://search.murata.co.jp/>

Filters for Communication Equipment

Ceramic Filters CERAFIL®

Small and light Filters for IF in communications equipment using unique piezo-electric material.

CERAFIL® 10.7MHz Chip Type

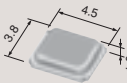


(in mm)

SFECF Series

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

□ is filled in with a letter denoting 3dB bandwidth.



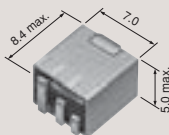
(in mm)

SFSCE Series

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

□ is filled in with a number denoting 3dB bandwidth.

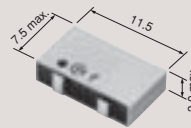
CERAFIL® 450/455kHz Chip Type



SFPKA Series



CFUKG / CFUKF Series



CFWKA Series

(in mm)

Type	Series	6dB Bandwidth (kHz) min.							
		A	B	C	D	E	F	G	H
		±17.5	±15	±12.5	±10	±7.5	±6	±4.5	±3
High-selectivity	SFPKA455K□ (4 Elements)	—	—	—	●	●	●	●	●
High-selectivity Miniature	CFUKG455K□ (4 Elements)	—	—	—	●	●	●	●	—
GDT Flat Type Miniature	CFUKF455K□ (4 Elements)	●	●	●	●	●	—	—	—
High-selectivity	CFWKA450K□ (6 Elements)	—	—	—	●	●	●	●	—

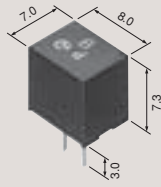
□ is filled in with a letter denoting 6dB bandwidth.



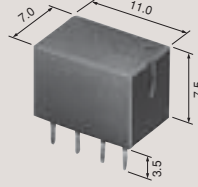
For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Filters for Communication Equipment

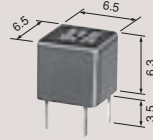
CERAFIL[®] 450/455kHz Lead Type



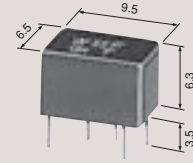
CFULA Series



CFWLA Series



CFULB Series



CFWLB Series

(in mm)

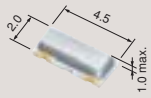
Type	Series	6dB Bandwidth (kHz) min.							
		B	C	D	E	F	G	H	J
High-selectivity Low-profile	CFULA455K□ (4 Elements)	●	●	●	●	●	●	●	—
High-selectivity Low-profile	CFWLA455K□ (6 Elements)	●	●	●	●	●	●	●	●
High-selectivity Miniature	CFULB455K□ (4 Elements)	●	●	●	●	●	●	●	●
High-selectivity Miniature	CFWLB455K□ (6 Elements)	●	●	●	●	●	●	●	●

□ is filled in with a letter denoting 6dB bandwidth.

Ceramic Discriminators

In combination with ICs, Ceramic Discriminators obtain stable demodulation characteristics.

Ceramic Discriminators 10.7MHz Type



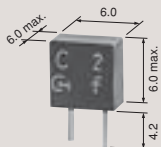
CDSCB Series

(in mm)

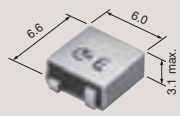
Series	Center Frequency
CDSCB	10.700MHz±30kHz

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

Ceramic Discriminators 450/455kHz Type



CDBLB Series



CDBKB Series

(in mm)

Series	Center Frequency (kHz)
CDBLB	450/455
CDBKB	450/455

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



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

RF Components

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



Summary

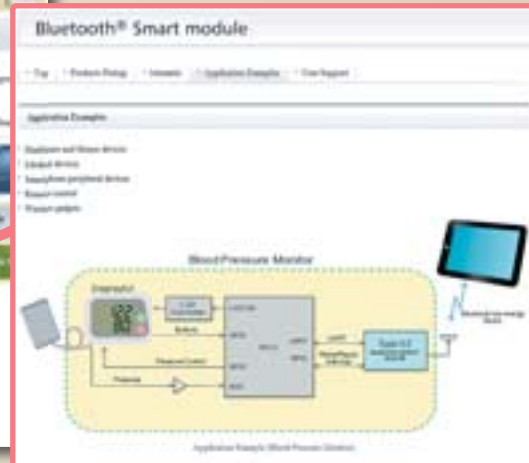
To enhance the technical advantages of communication equipment, Murata offers miniaturized, sophisticated components to meet the demands of many applications.

Lineup

- Isolators
- GaAs Switch ICs
- RF Diode Switches
- Baluns (Chip Multilayer and Wire Wound/Film type)
- Couplers (Chip Multilayer and Film type)
- Chip Multilayer Components (Hybrid Dividers and Diplexers)
- High Frequency Coaxial Connectors
- Single Layer Microchip Capacitors
- Thin Film Circuit Substrate RUSUB®

Web Content

Introducing the details of various RF products.



<http://www.murata.com/products/microwave/>

Detailed Catalogs

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



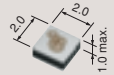
- High Frequency Single Layer Microchip Capacitors
Cat. No. C01E

<http://www.murata.com/products/microwave/catalog/>

Isolators

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

For Mobile Phones



(in mm)

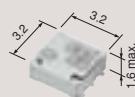
CEG23 Series

Series	Adaptive Frequency Range (MHz)				Size (mm)	Rating Power (W)
	100	1000	2000	3000		
CEG23		700	2600		2.0×2.0×1.0 max.	1.2 max.

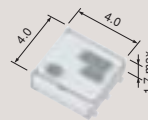
For Base Stations



CES20 Series



CES30 Series



CES40 Series

(in mm)

Series	Adaptive Frequency Range (MHz)				Size (mm)	Rating Power (W)
	100	1000	2000	3000		
CES20			1900	2600	3.2×2.5×1.2 max.	5 max.
CES30			1700	2200	3.2×3.2×1.6 max.	5 max.
CES40		800	950		4.0×4.0×1.7 max.	5 max.



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

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



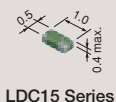
DXW21B Series

(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)

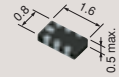
(in mm)



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

RF Components

Film Type

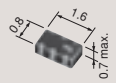


DXP18C Series

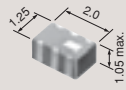
(in mm)

Chip Multilayer Hybrid Dividers

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



LDD18 Series

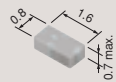


LDD21 Series

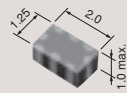
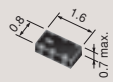
(in mm)

Chip Multilayer Diplexers

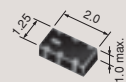
A diplexer branching low and high band.
Suitable for band-switching for dual-band system.



LFD18 Series



LFD21 Series



(in mm)

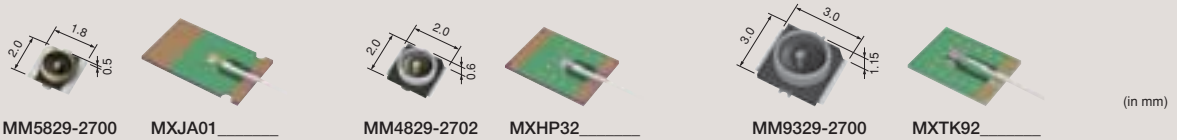


For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

High Frequency Coaxial Connectors

High Frequency Coaxial Cable Connectors

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

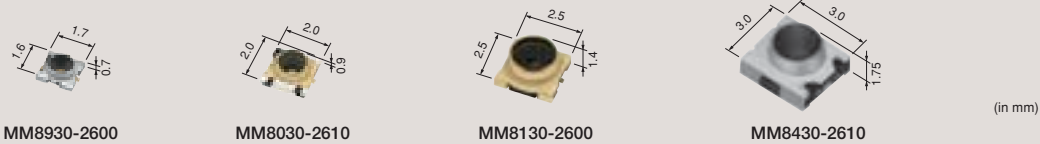


Type	Receptacle Part Number	Rated Voltage (Vrms)	Frequency Rating (GHz)	Temperature Range	VSWR	Cable Number	Mating Height (mm)
JSC	MM5829-2700	30	to 12	-40 to 85°C	1.3 max. (DC to 3GHz)	MXJA01	1.0 max.
HSC	MM4829-2702	250	to 6	-40 to 85°C	1.3 max. (DC to 3GHz)	MXHP32	1.2 max.
GSC	MM9329-2700	250	to 6	-40 to 90°C	1.2 max. (DC to 3GHz)	MXTK92	2.0 max.

Nominal Impedance: 50Ω

High Frequency Coaxial Connectors with Switch

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



Type	Receptacle Part Number	Rated Voltage (Vrms)	Frequency Rating (GHz)	Temperature Range	VSWR	Standard Measurement Probe Part Number
SWH	MM8930-2600	250	to 6	-40 to 85°C	1.2 max. (DC to 3GHz)	MM126515 MXHQ87PA3000
SWG	MM8030-2610	250	to 11	-40 to 85°C	1.2 max. (DC to 3GHz)	MM126320 MXHQ87WJ3000
SWF	MM8130-2600	250	to 6	-40 to 85°C	1.2 max. (DC to 3GHz)	MM126036 MXHS83QE3000
SWD	MM8430-2610	250	to 6	-40 to 85°C	1.2 max. (DC to 3GHz)	

Nominal Impedance: 50Ω



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

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	0.25×0.25	100	0.1					-55 to 125
	CLB0C	0.35×0.25	100	0.2					-55 to 125
	CLB0D	0.38×0.38	100	0.2	0.4				-55 to 125
	CLB05	0.5×0.5	100		0.3	0.6			-55 to 125
	CLB0E	0.55×0.38	100		0.5	0.6			-55 to 125
	CLB0F	0.64×0.64	100		0.3	1			-55 to 125
	CLB0G	0.7×0.5	100		0.7	1			-55 to 125
	CLB0H	0.71×0.38	100		0.7	0.8			-55 to 125
	CLB0J	0.76×0.76	100		0.4	1.3			-55 to 125
	CLB09	0.9×0.9	100		0.5	1.8			-55 to 125
	CLB1A	1.00×0.64	100			1.1	1.6		-55 to 125
	CLB1B	1.09×0.76	100			1.5	2		-55 to 125
	CLB1C	1.27×1.27	100			1	3.6		-55 to 125
	CLB1E	1.49×0.9	100			2	2.7		-55 to 125
	CLB1G	1.73×1.27	100				3.9	4.7	-55 to 125
	CLB1H	1.78×1.78	100				1.8	6.8	-55 to 125
	CLB2C	2.19×1.27	100					5.1	-55 to 125
	CLB2E	2.29×2.29	100					3	10
	CLB2L	2.95×1.78	100					7.5	10
	CLB3G	3.71×2.29	100						11
-750±60ppm/°C (-25 to 85°C)	CLB0A	0.25×0.25	100	0.3	0.7				-55 to 125
	CLB0B	0.30×0.25	100		0.8				-55 to 125
	CLB0C	0.35×0.25	100		0.9				-55 to 125
	CLB0D	0.38×0.38	100		0.9	1.6			-55 to 125
	CLB05	0.5×0.5	100		1	2.4			-55 to 125
	CLB0E	0.55×0.38	100		1.8	2.4			-55 to 125
	CLB0F	0.64×0.64	100		2	4.3			-55 to 125
	CLB0G	0.7×0.5	100		2.7	3			-55 to 125
	CLB0H	0.71×0.38	100		2.7				-55 to 125
	CLB0J	0.76×0.76	100			3	6.2		-55 to 125
	CLB09	0.9×0.9	100			3.3	6.8		-55 to 125
	CLB1A	1.00×0.64	100			4.7	6.2		-55 to 125
	CLB1B	1.09×0.76	100			6.8	7.5		-55 to 125
	CLB1C	1.27×1.27	100			7.5	15		-55 to 125
	CLB1E	1.49×0.9	100			7.5	9.1		-55 to 125
	CLB1H	1.78×1.78	100				13	15	-55 to 125
	CLB2E	2.29×2.29	100					20	-55 to 125

Some capacitances are not available in the CLB05 Series.
All Single Layer Microchip Capacitors are produced after receiving an order.

➔ For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

RF Components

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	0.25×0.25	100			5.6	12			-55 to 125
	CLB0B	0.30×0.25	100			13	15			-55 to 125
	CLB0C	0.35×0.25	100			16	18			-55 to 125
	CLB0D	0.38×0.38	100			18	30			-55 to 125
	CLB05	0.5×0.5	100			22	43			-55 to 125
	CLB0E	0.55×0.38	100			33	43			-55 to 125
	CLB0F	0.64×0.64	100			43	75			-55 to 125
	CLB0G	0.7×0.5	100			47	68			-55 to 125
	CLB0H	0.71×0.38	100			47	56			-55 to 125
	CLB0J	0.76×0.76	100			68	110			-55 to 125
	CLB09	0.9×0.9	100			68	130			-55 to 125
	CLB1A	1.00×0.64	100			82	120			-55 to 125
	CLB1C	1.27×1.27	100					160	200	-55 to 125
	CLB1E	1.49×0.9	100					150	160	-55 to 125
	CLB1G	1.73×1.27	100					300		-55 to 125
CLB1H	1.78×1.78	100					300	430	-55 to 125	
CLB2E	2.29×2.29	100					470	620	-55 to 125	
+30, -80% (-25 to 85°C)	CLB0A	0.25×0.25	100			27	33			-55 to 125
	CLB0B	0.30×0.25	100			36	39			-55 to 125
	CLB0C	0.35×0.25	100			43	51			-55 to 125
	CLB0D	0.38×0.38	100			62	82			-55 to 125
	CLB05	0.5×0.5	100			75	130			-55 to 125
	CLB0E	0.55×0.38	100			91	120			-55 to 125
	CLB0F	0.64×0.64	100			130	220			-55 to 125
	CLB0G	0.7×0.5	100			150	200			-55 to 125
	CLB0H	0.71×0.38	100			130	150			-55 to 125
	CLB0J	0.76×0.76	100			200	300			-55 to 125
	CLB09	0.9×0.9	100			200	390			-55 to 125
	CLB1A	1.00×0.64	100			240	360			-55 to 125
+30, -90% (-25 to 85°C)	CLB0A	0.25×0.25	100			36	56			-55 to 125
	CLB0D	0.38×0.38	100			91	150			-55 to 125
	CLB05	0.5×0.5	100			130	220			-55 to 125
	CLB0F	0.64×0.64	100			220	390			-55 to 125
	CLB0J	0.76×0.76	100			330	560			-55 to 125
	CLB09	0.9×0.9	100			390	680			-55 to 125

Some capacitances are not available in the CLB0A/B/C/D/E, CLB1C Series.
All Single Layer Microchip Capacitors are produced after receiving an order.



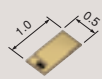
For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Thin Film Circuit Substrate RUSUB[®]

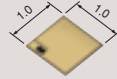
Suitable for Photo diode module.

■ 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) (L×W×T)	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	1.0×0.5×0.11	100±10%	50±20%	±10%	100	-70±50	100
RUCYT101K00011GNTC	1.0×0.5×0.11	100±10%	100±20%				
RUCYT101K00012GNTC	1.0×0.5×0.11	100±10%	200±20%				
RUCYT201K00010GNTC	1.0×1.0×0.12	200±10%	50±20%				
RUCYT201K00013GNTC	1.0×1.0×0.12	200±10%	100±20%				
RUCYT201K00014GNTC	1.0×1.0×0.12	200±10%	200±20%				



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Sensors

Offering sensing elements for various applications



Summary

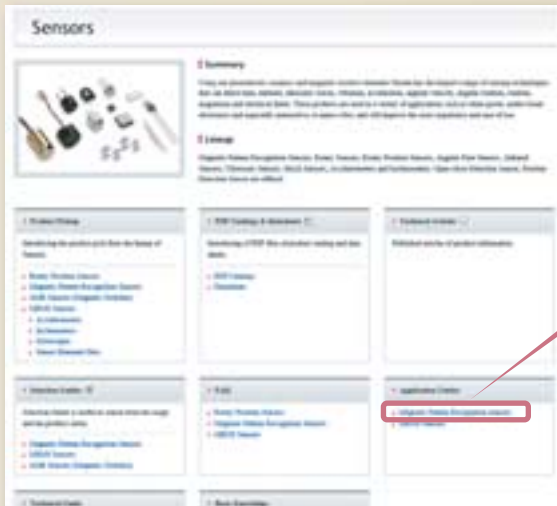
Using our piezoelectric ceramics and magnetic resistive elements Murata has developed a range of sensing technologies that can detect heat, infrared, ultrasonic waves, vibration, acceleration, angular velocity, angular rotation, rotation, magnetism and electrical fields. These products are used in a 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
- Magnetic Switches ● Shock Sensors ● Accelerometers ● Inclinometers ● Angular Rate Sensors
- Rotary Position Sensors ● Temperature Sensors (Thermistors)

Web Content

Introducing Sensor details on our website.



<http://www.murata.com/products/sensor/>

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

<http://www.murata.com/products/sensor/catalog/>

Product Pickup

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

For more details, please refer to our website.
<http://www.murata.com/products/sensor/>

Magnetic Switches (AMR Sensors)

Magnetic switches 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

For more details, please refer to our website.
<http://www.murata.com/products/sensor/>

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

For more details, please refer to our website.
<http://www.murata.com/products/sensor/>

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.60.

For more details, please refer to our website.
<http://www.murata.com/products/thermistor/>

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

For more details, please refer to our website.
<http://www.murata.com/products/sensor/>

Angular Rate Sensors

Gyroscope components and combined sensors (including gyroscopes and 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

For more details, please refer to our website.
<http://www.murata.com/products/sensor/>

Lineup

Applications

Detection	Murata's Sensors			Applications										
	Products	Series or Main Part Number	Dimensions (mm)	TV	Audio	DVD, CD	Digital Video Camera	Digital Camera	PC	Scanner	Multifunction Machine	Printer	FAX	Electronic Bulletin Board
Infrared	Pyroelectric Infrared Sensors	IRS Series	 4.9×4.7×2.4	●										●
		IRA Series	 ø9.2 H4.7	●	●	●		●	●	●	●	●	●	●
Ultrasonic	Ultrasonic Sensors Open Structure Type	MA40S4R (for Receiver) MA40S4S (for Transmitter)	 ø9.9 H7.1											●
	Ultrasonic Sensors Enclosed Type	MA58AF14-0N (for Dual Use)	 ø14.0 H9.0											
	Ultrasonic Sensors High Frequency Type	MA300D1-1 (for Dual Use)	 ø9.9 H7.3							●	●	●		
Magnetic	Rotary Sensors	FR05CM21AR	 ø12.7 H20											
	Magnetic Pattern Recognition Sensors	BS05 Series	 11.15×8.8×12.5 193.0×16.0×7.5											
	Magnetic Switches (AMR Sensors)	MR Series	 MRMS201A: 2.8×2.9×1.1 MRMS501A: 1.45×1.45×0.55				●	●	●					
Acceleration	Shock Sensors	PKGS Series	 3.2×2.0×1.05						●					
	Accelerometers	SCA Series	 10.48×11.31×5.08											
	Inclinometers	SCA Series	 15.58×11.31×5.08								●			
Angle Velocity	Angular Rate Sensors	SCC Series	 8.5×18.7×4.5											
Angle	Rotary Position Sensors	SV Series	 11×12×2.1	●				●			●	●		
Temperature	NTC Thermistors	Chip Type NCP Series	 NCP03: 0.6×0.3×0.3 NCP15: 1.0×0.5×0.5 NCP18: 1.6×0.8×0.8 NCP21: 2.0×1.25×0.85	●	●	●	●	●	●	●	●	●	●	●
		Lead Type NX Series	 NXF: ø1.2 L25 to 150 NXR: ø4.0 L10 to 40	●	●				●	●	●	●	●	●
	PTC Thermistors POSISTOR®	Chip Type PRF Series	 PRF15: 1.0×0.5×0.5 PRF18: 1.6×0.8×0.8 PRF21: 2.0×1.25×0.9	●	●	●	●	●	●	●	●	●	●	●
		Lead Type PTF Series	 ø5.0 max. T4.0 max. ø7.5 T3.0	●	●				●	●	●	●	●	●

➔ For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Applications																				Murata's Sensors	Products			
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	
	●		●	●	●			●	●	●	●	●	●	●					●		●	●	●	Pyroelectric Infrared Sensors
		●			●					●				●						●	●	●	●	Ultrasonic Sensors Open Structure Type
																	●							Ultrasonic Sensors Enclosed Type
																					●			Ultrasonic Sensors High Frequency Type
																				●				Rotary Sensors
																					●	●		Magnetic Pattern Recognition Sensors
●	●		●	●	●	●		●					●							●	●		●	Magnetic Switches (AMR Sensors)
																								Shock Sensors
						●															●		●	Accelerometers
																					●			Inclinometers
						●									●					●			●	Angular Rate Sensors
●		●				●		●	●	●	●				●	●			●				●	Rotary Position Sensors
●	●	●	●	●	●	●	●	●	●	●					●				●				●	NTC Thermistors
●	●	●	●	●	●	●	●	●	●	●												●	●	
●	●	●	●	●	●	●	●	●	●	●					●				●				●	PTC Thermistors POSISTOR®
				●	●	●	●	●	●	●													●	

Thermistors

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



Summary

Using Murata's semi-conductive ceramics and electrode printing technologies, such as PTC and NTC Thermistors, provides 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)

Features

● Chip Type NTC Thermistor for Temperature Sensor/ Compensation

We have many series of thermistor products with a wide variety of resistance and B-Constant.

The line-up is still expanding, for example,

1. Small size 01005 inch size
2. Tighter tolerance series such as +/-0.5% on resistance value.

● Lead Type NTC Thermistor for Sensing Temperature

Thermistoring products that consist of SMD type NTC with lead wire.

This product has the following advantages:

1. Small head size due to 0402 inch sized chip NTC (NCP15 Series) inside.
2. Soft lead wire
3. Excellent thermal response

● Chip Type PTC Thermistor for Overheat Sensing

PTC thermistor detects abnormal temperatures.

The sensing temperature range is 65°C to 150°C.

We have devised the PRF15 (0402 inch size) Series, which are the smallest PTC thermistors in the world with a tight sensing temperature tolerance of $\pm 3^\circ\text{C}$.

● Chip Type PTC Thermistor for Overcurrent Protection

Our PRG Series of PTC thermistor can be used as a resettable fuse.

Murata provides a variety of PRG Series in different sizes: 0402 (PRG15), 0603 (PRG18) and 0805 (PRG21) inch.

The hold current is up to 500mA and maximum voltage is up to 30V.

● Lead Type PTC Thermistor for Overcurrent Protection

Murata has many series of lead type PTC products; some of our series have a hold current up to 1200mA and maximum voltage is up to 265V.

Some series have a resistance tolerance of $\pm 10\%$.

Web Content

Introducing Thermistor content on our website.

Product Lineup \Rightarrow <http://www.murata.com/products/thermistor/>

Product Search \Rightarrow <http://search.murata.co.jp/>

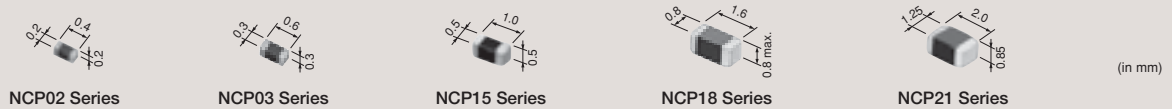
We offer simulation software tools.

Design Tool \Rightarrow http://www.murata.com/products/thermistor/design_support/

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.



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)	100k	4250	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

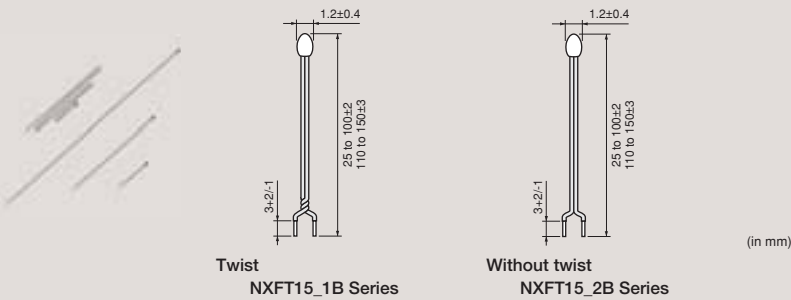
Rated Electric Power shows the required electric power that causes the Thermistor's temperature to rise to 125°C by self heating, at ambient temperature of 25°C.



Please use our online search tool to narrow the search for NCP Series.
http://www.murata.com/products/thermistor/cptc_lineup_nthchp/index.php

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 use in the NXF Series.

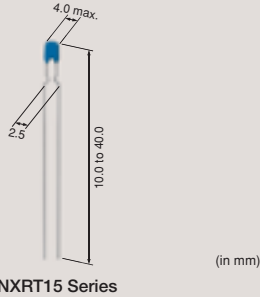


For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Thermistors

Lead Type

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



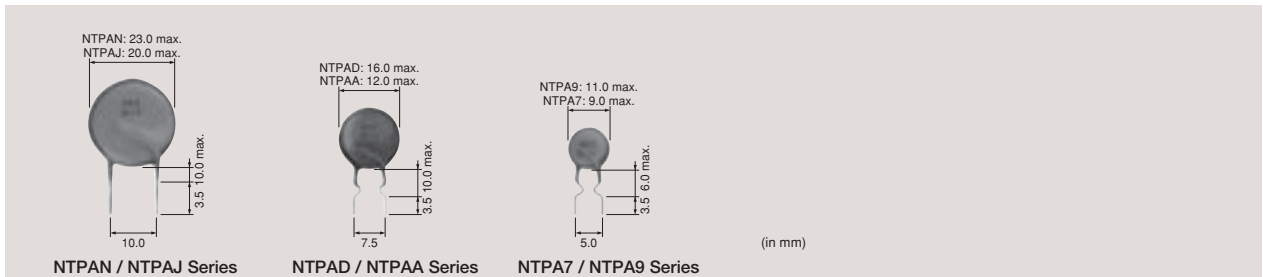
Series	Resistance (25°C) (Ω)	B-Constant (25-50°C) (K)	Operating Current for Sensor (25°C) (mA)	Thermal Time Constant (25°C) (s)	Full Length (mm)	Operating Temperature Range (°C)
NXRT15	2k to 100k	3500 to 4250	0.04 to 0.27	4	10 to 40	-40 to 125

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

➔ Please use our online search tool to narrow the search for NXRT Series.
http://www.murata.com/products/thermistor/cptc_lineup_nx_t/index.php

NTC Thermistors (for Inrush Current Suppression)

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



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 / NTPAJ	3 to 10	2.6 to 5.4	2.2 to 4.7	125 to 135	5000 to 8600	-20 to 160
NTPAD / NTPAA	2.2 to 16.0	1.7 to 3.7	1.5 to 3.2	65 to 70	1400 to 2700	-20 to 160
NTPA7 / NTPA9	4.0 to 22.0	1.0 to 2.3	0.88 to 2.0	40 to 65	400 to 800	-20 to 160

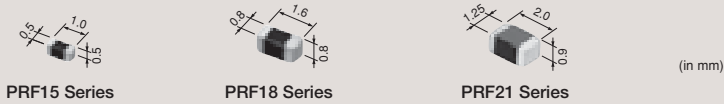
➔ Please our online search tool to narrow the search for NTP Series.
http://www.murata.com/products/thermistor/cptc_lineup_ntp/index.php

➔ For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

PTC Thermistors POSISTOR[®] (for Overheat Sensing)

Chip Type

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



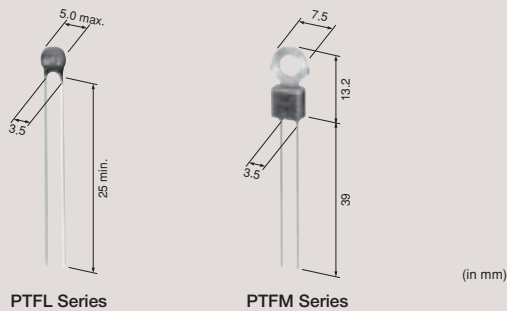
Series	Sensing Temperature Range (°C)										Sensing Temperature Tolerance (°C)	Maximum Voltage (V)	Size Code Inch (mm)
	60	70	80	90	100	110	120	130	140	150			
PRF15			●	●	●	●	●	●	●	●	±3/±5	32	0402 (1005)
PRF18		●	●	●	●	●	●	●	●	●	±3/±5	32	0603 (1608)
PRF21				●	●	●	●	●	●	●	±5	32	0805 (2012)

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

➔ Please use our online search tool to narrow the search for PRF Series.
http://www.murata.com/products/thermistor/cptc_lineup_prf/index.php

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

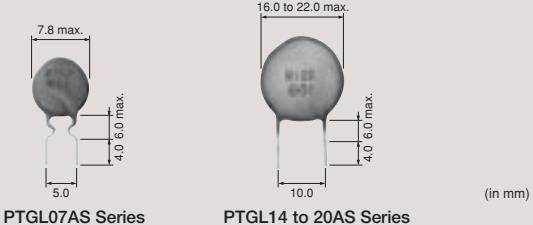
The blank is filled with type codes. (L: Lead type, M: with lug-terminal)
Operating Temperature Range is -10 to TS+10°C.

➔ Please use our online search tool to narrow the search for PTF Series.
http://www.murata.com/products/thermistor/cptc_lineup_ptf/index.php

➔ For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

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 (Ao-p)	Maximum Charge Energy (J)	Operating Temperature Range (°C)
PTGL07AS	120 to 200	280	5.66 to 8.46	7.8	-40 to 105
PTGL14 to 20AS	33 to 100	280	13 to 39	56.9 to 181.7	-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.



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	25 to 88	92 to 318	1.2 to 3.5	2.2 to 33	0402(1005)
PRG18	6 to 24	7 to 220	25 to 850	0.06 to 7.5	1.0 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 use in the PRG Series.

➔ Please use our online search tool to narrow the search for PRG Series.
http://www.murata.com/products/thermistor/cptc_lineup_prg/index.php

➔ For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Thermistors

Lead Type

Best suited to meet the requirements for power supplies and motor protection.
Error-free operations are assured 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	213 to 749	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 use in the PTGL Series.



Please use our online search tool to narrow the search for PTGL Series.
http://www.murata.com/products/thermistor/cptc_lineup_ptg/index.php

Detailed Catalogs

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



- NTC Thermistors
- POSISTOR® for Circuit Protection
- PTC Thermistor (POSISTOR®) Application Manual
- PTC - NTC for Surface Mounting Application

- Cat. No. R44E
- Cat. No. R90E
- Cat. No. R16E
- Cat. No. R01E

<http://www.murata.com/products/thermistor/catalog/>



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Power Supplies/Energy Devices

Eco-friendly and high quality power supplies



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. The electrical double-layer capacitor is an energy device that can provide various merits such as downsizing, efficiency, and high function.

Lineup

- DC-DC Converters
- Micro DC-DC Converters
- High Voltage Transformers
- High Voltage Power Supplies
- Switching Power Supplies
- Electrical Double Layer Capacitors

Web Content

Introducing DC-DC Converter and Electrical Double Layer Capacitor content on our website.

DC-DC Converter Selection Guide

Micro DC-DC Converter Selection Guide

Detailed Catalogs

- High Performance Electrical Double Layer Capacitor DMF Series
Cat. No. O83E
- High Performance Electrical Double Layer Capacitor DMT Series
Cat. No. O84E

Power Supplies ⇒ <http://www.murata.com/products/power/>

Electrical Double Layer Capacitors ⇒ <http://www.murata.com/products/edlc/>











Power Supplies/Energy Devices

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

								
MPDRX002S	MPDRX103S	MYGTM01210BZN	MYGTR01205BZN	MYSSM0123EBENL				
								
MYUSP3R303FMP	MPDRX312S	OKL-T/3-W5N-C	OKL-T/6-W12P-C	OKL2-T/20-W12P-C				
Part Number	Package	Input Voltage (V)	Nominal Output Power (W)	Output Voltage (V)	Current (A)	Efficiency (%)	Size (mm) L×W×H	
MPDRX002S	SMD	3.0 to 5.5	28.8	0.8 to 1.8	16	90	33.0×13.5×8.5	
MPDRX103S	SIL	10.8 to 13.2	28.8	0.8 to 1.8	16	86	50.8×5.8×14.0	
MYGTM01210BZN	SIL	17 to 40	120	5 to 12	10	97.3	40×40.3×29.2	
MYGTR01205BZN	SIL	17 to 40	36	5 to 12	3 to 5.2	93	25.1×12×27	
MYSSM0123EBENL	SMD	14 to 40	42	5 to 12	3.5	96	30.2×20.9×12	
MYUSP3R303FMP	SMD	3.0 to 5.5	9.9	0.7 to 3.3	3	94	11.0×8.5×5.6	
MPDRX312S	SMD	3.0 to 5.5	28.8	0.8 to 1.8	16	86.5	27.8×15.4×4.2	
OKL-T/3-W5N-C	SMD	2.7 to 5.5	10.9	0.6 to 3.63	3	95.3	12.2×12.2×6.2	
OKL-T/6-W12P-C	SMD	4.5 to 14	33	0.591 to 5.5	6	93	12.2×12.2×7.2	
OKL2-T/20-W12P-C	SMD	4.5 to 14	110	0.69 to 5.5	20	94	33.02×13.46×8.75	

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



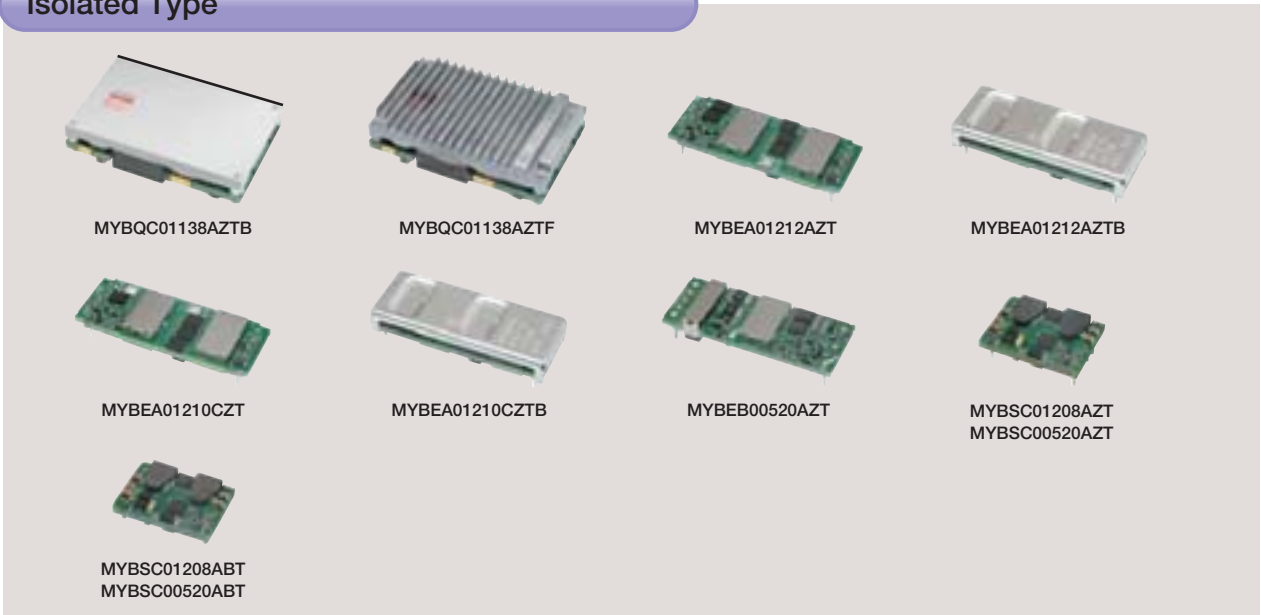
For more details on our product lineup, please refer to our website.

Product Search ⇒ <http://search.murata.co.jp/>

Power Supplies Contents ⇒ <http://www.murata.com/products/power/>

Power Supplies/Energy Devices

Isolated Type



Part Number	Package	Input Voltage (V)	Nominal Output Power (W)	Output Voltage (V)	Current (A)	Efficiency (%)	Isolation Voltage (VDC)	Footprint (Brick)	Size (mm) L×W×H
MYBQC01138AZTB	Insert	48V (36V to 75V)	400	10.6±6%	38	95.0	1500	1/4	58.4×36.8×14 max.
MYBQC01138AZTF	Insert	48V (36V to 75V)	400	10.6±6%	38	95.0	1500	1/4	58.4×36.8×17 max.
MYBEA01212AZT	Insert	48V (36V to 75V)	140	12±3%	12	92.5	1500	1/8	58.4×22.8×9 max.
MYBEA01212AZTB	Insert	48V (36V to 75V)	140	12±3%	12	92.5	1500	1/8	58.4×22.8×9 max.
MYBEA01210CZT	Insert	24V (18V to 36V)	120	12±3%	10	93.0	1500	1/8	58.4×22.8×9 max.
MYBEA01210CZTB	Insert	24V (18V to 36V)	120	12±3%	10	93.0	1500	1/8	58.4×22.8×9 max.
MYBEB00520AZT	Insert	48V (36V to 75V)	100	5±3%	20	93.0	1500	1/8	57.0×22.8×10 max.
MYBSC01208AZT	Insert	48V (36V to 75V)	100	12±3%	8	92.5	1500	1/16	33.0×23.2×10 max.
MYBSC01208ABT	SMD	48V (36V to 75V)	100	12±3%	8	92.5	1500	1/16	33.0×23.2×10 max.
MYBSC00520AZT	Insert	48V (36V to 75V)	100	5±3%	20	92.0	1500	1/16	33.0×22.8×10 max.
MYBSC00520ABT	SMD	48V (36V to 75V)	100	5±3%	20	92.0	1500	1/16	33.0×22.8×10 max.

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



For more details on our product lineup, please refer to our website.

Product Search ⇒ <http://search.murata.co.jp/>

Power Supplies Contents ⇒ <http://www.murata.com/products/power/>

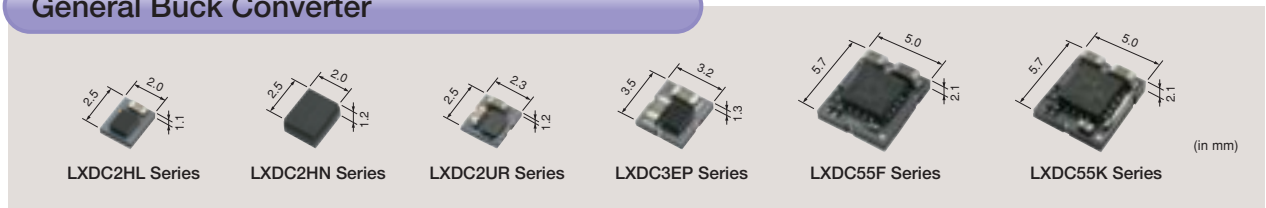
Power Supplies/Energy Devices

Micro DC-DC Converters

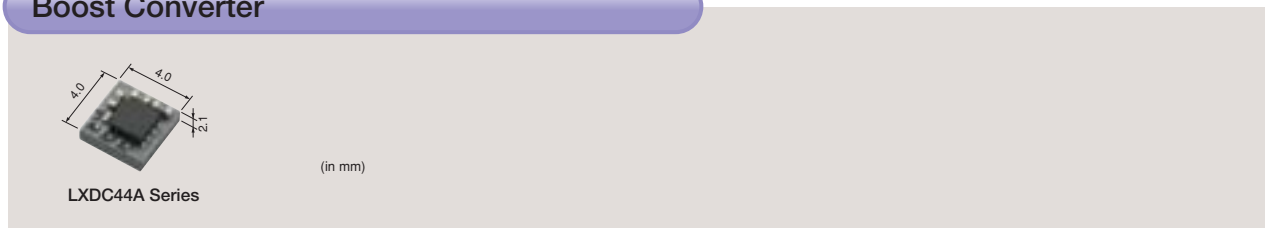
Micro DC-DC Converters are ultra-small power modules that utilize a ferrite substrate and embedded power inductor with superior EMI suppression and mounted power management IC on the ferrite substrate.

The features are ultra-small size, superior EMI suppression, and low conductive and emitted noise, helping to reduce design and process cost. We have a wide range of voltages.

General Buck Converter



Boost Converter



High Voltage Transformers

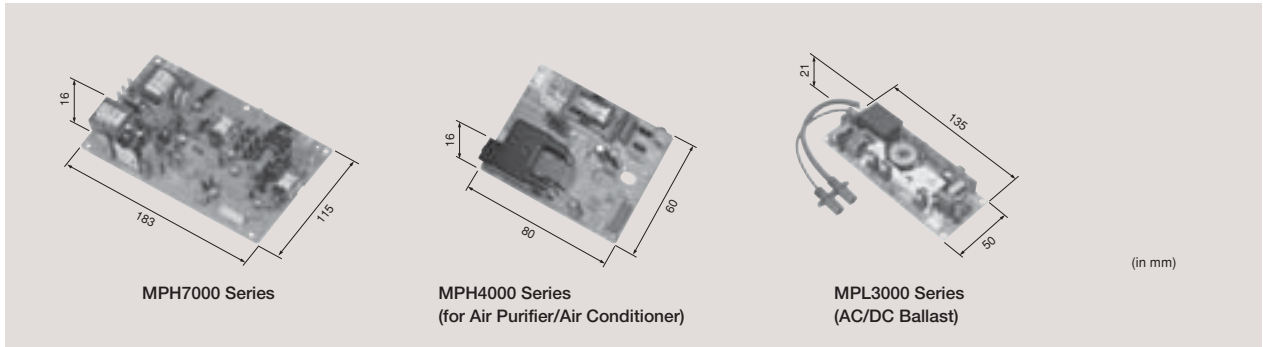
Series	Type	Features	Output Voltage Vout	Output Current Iout	Drive Frequency	Dimensions (mm) L×W×H
MSH	QF	Small Size	Max. 6kV	0.3mA	35 to 70kHz	39×24×13
	QP	Standard	Max. 8.5kV	0.4mA	35 to 70kHz	41×26×16
	WP	Low Profile	Max. 8.5kV	0.4mA	35 to 70kHz	44×27×11
	NU	High Power	Max. 8.5kV	1mA	30 to 70kHz	44×27×17
	WR	High Voltage	Max. 13kV	0.5mA	30 to 70kHz	49×25×27



For more details on our product lineup, please refer to our website.
 Product Search ⇒ <http://search.murata.co.jp/>
 Power Supplies Contents ⇒ <http://www.murata.com/products/power/>

Power Supplies/Energy Devices

High Voltage Power Supplies



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 650μV	
		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 <small>(for Air Purifier/Air Conditioner)</small>	24V DC	DC Constant Voltage	±6kV	±400μA	—	
		DC Constant Current	(±6kV)	±400μA	—	

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

For more details on our products, please contact us.

Power Supplies/Energy Devices

Switching Power Supplies

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.

Electrical Double Layer Capacitors

Electrical Double-Layer Capacitors (EDLCs), often referred to as supercapacitors, 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 EDLC technology resulting in low ESR and high capacitance in a very small package.

Series	Main Part Number	Thickness (mm)	Capacitance (mF)	Rated Voltage (V)	ESR (mΩ)	Operating Temperature (°C)
DMF (High Peak Power Type)	DMF3Z5R5H474M3DTA0	3.2	470	5.5 (Peak Voltage)	45	-30 to 70
DMT (High Reliability Type)	DMT334R2S474M3DTA0	3.5	470	4.2	130	-30 to 85

➔ For more details on each series, please refer to our website.
 Product Search ⇒ <http://search.murata.co.jp/>
 Electrical Double Layer Capacitors Contents ⇒ <http://www.murata.com/products/edlc/>

➔ For Ionizer Modules, please refer to p.77.

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

Web Content

Introducing Sound Component content on our website.

<http://www.murata.com/products/sound/>

Detailed Catalogs

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



- Piezoelectric Sound Components Cat. No. P37E
- Piezoelectric Sound Components Application Manual Cat. No. P15E

<http://www.murata.com/products/sound/catalog/>

Sound Components

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.	[3Vp-p, 2.4kHz, square wave, 10cm]
		PKLCS1212E4001-R1	75 min.	[3Vp-p, 4kHz, square wave, 10cm]
	Pin Type	PKM13EPYH4000-A0	70 min.	[3Vp-p, 4kHz, square wave, 10cm]
		PKM17EPP-2002-B0	70 min.	[3Vp-p, 2kHz, square wave, 10cm]
		PKM22EPH2001	75 min.	[3Vp-p, 2kHz, square wave, 10cm]
		PKM22EPPH2001-B0	70 min.	[3Vp-p, 2kHz, square wave, 10cm]
Self Drive	Pin Type	PKM17EWH4000	75 min.	[3Vp-p, 4kHz, square wave, 10cm]
		PKM24SPH3805	90 min.	[12Vdc, 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

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]

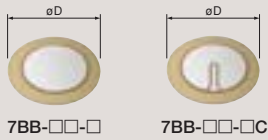
➔ For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

Sound Components

Piezoelectric Diaphragms

Low power consumption, lightweight

Suitable for Clocks/Calculators/Digital cameras/Various alarms (Burglar alarms, etc.)



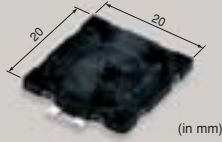
Drive Type	Main Part Number	Plate Size (øD)
External Drive	7BB-12-9	ø12.0mm
	7BB-15-6	ø15.0mm
	7BB-20-6	ø20.0mm
	7BB-27-4	ø27.0mm
Self Drive	7BB-20-6C	ø20.0mm
	7BB-27-4C	ø27.0mm



For more details on each series, please refer to our website.
Product Search ⇒ <http://search.murata.co.jp/>

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

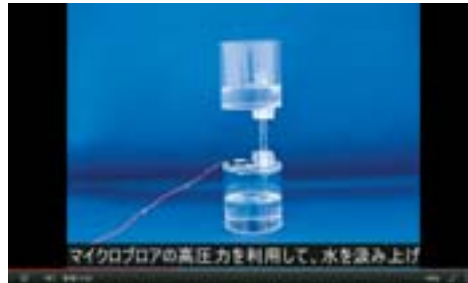
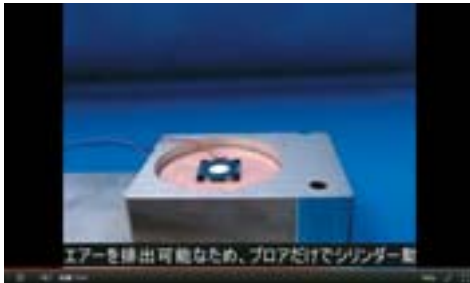
Aroma/diffuser, Gas & Alcohol Sensor, Air ionizer, Amusement, etc.

Part Number	Size	Air Flow	Static Pressure	Voltage of Operation
MZB1001T02	20(W)×20(L)×1.85(H)mm without the nozzle	≥0.7L/min@15Vp-p	≥1.42kPa@15Vp-p	10 to 20Vp-p



Microblower demonstration videos

<http://www.murata.com/products/micromechatronics/demonstration/microblower/>



Piezoelectric Actuators

Quick response and high-accuracy position control.



PALPRM Series

■ Features

Piezoelectric actuators, utilizing the deformation properties of the Piezoelectric ceramics itself, are used for position control within the autofocus system of cellular camera modules and within the image stabilization system of digital still cameras. The features of Murata's piezoelectric actuators contribute to miniaturization of various modules, due to its very usable displacement in spite of its small size and a low profile.

*Please contact us for custom specifications.



For more details on Micromechatronics products, please refer to our website.
<http://www.murata.com/products/micromechatronics/>

Others 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.



Please contact us about Wireless Communication Modules.

Others 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 the automotive industry.

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.



For more details on Ceramic Applied Products, please refer to our website and the PDF catalogs on our website.
<http://www.murata.com/products/ceramic/>



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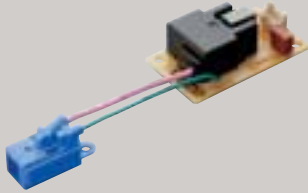
Others Ionizer Modules Ionissimo®

High-concentration ion, compact design, ozone control

Ionissimo® is an ionizer module with unprecedented compactness and high efficiency, capable of generating the largest amount 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

- Ion is generated at low voltage (-2.0kV) with high efficiency, resulting in high ion concentration.
- 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.

➔ For more details on the Ionizer Modules, please refer to our website.
<http://www.murata.com/products/ionissimo/>



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

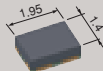
Others Variable Capacitor

Capacitance value can be adjusted by the tuning voltage

LXRW_V Series



LXRW19V Series



LXRWJFV Series

(in mm)

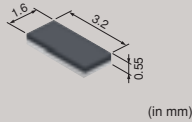
Thin Film Variable Capacitors can carry out the variable of the capacitor by adjusting the tuning voltage. It is designed for use as Frequency Matching for HF band (13.56MHz).

Others RFID Devices

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

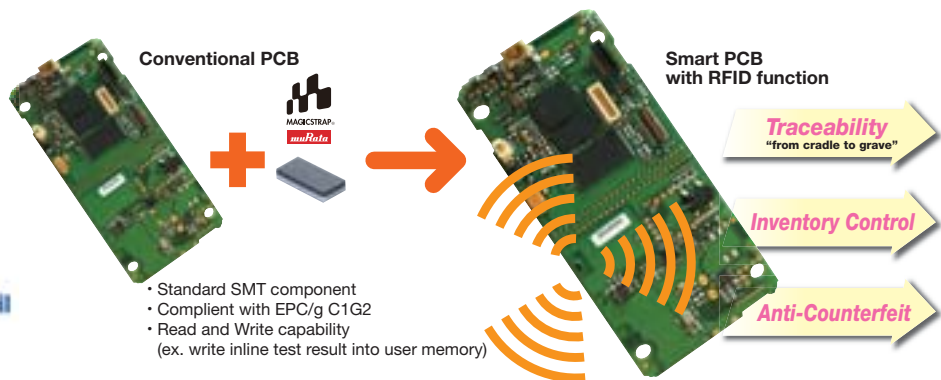
UHF-band MAGICSTRAP®

LXMS31 Series



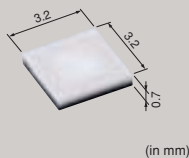
MAGICSTRAP® can be easily assembled by means of reflow soldering and adhesive (electrically conductive or non-conductive). Even if non-conductive adhesive is used, communication will take place when MAGICSTRAP® is bonded onto the antenna, and the RFID tag will function correctly.

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.

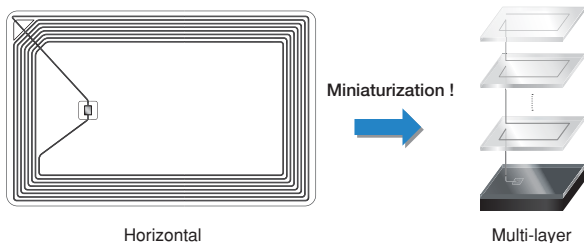


HF-band MAGICSTRAP®

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.



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.
<http://www.murata.com/products/rfid/>



Wireless Power Transmission Modules

Realization of wireless charging systems

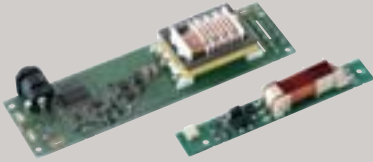
Murata has begun mass production of the capacitive coupling type* of wireless power transmission modules capable of charging at 10W.

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



For more details on Wireless Power Transmission Modules, please refer to our website.
http://www.murata.com/products/wireless_power/



View demonstration videos of Wireless Power Transmission Modules on our website

Memo




Application Guides

Mobile Phones



1 Cellular RF

RF Diode Switches
SWITCHPLEXER®
LMSP Series



Chip Multilayer Diplexers
LFD Series



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SAW Duplexers
SAY Series




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SAW Filters
SAF Series



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Chip Multilayer LC Filters




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Chip Multilayer Hybrid Baluns
LDB/LDM Series



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Chip Multilayer Hybrid Dividers
LDD Series




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RF Transformer
SMST Series




Coaxial Connectors




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GaAs Switch IC



Isolators
CEG23 Series




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Micro DC-DC Converters
LXDC Series



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Chip Inductors (Chip Coils)
LQW/LQP Series



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Trimmer Capacitors
TZY2 Series



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ESD Protection Devices
LXES Series



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Thermistors
NCP/PRF Series



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2 Cellular BB

Micro DC-DC Converters
LXDC Series



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3 Terminal Capacitors
NFM Series



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Chip Common Mode Choke Coils
DLW/DLP Series



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Thermistors
NCP/PRF Series



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3 CPU

Crystal Units
XRCGB Series




p37

Chip Ferrite Beads
BLM Series



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3 Terminal Capacitors
NFM Series



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Thermistors
NCP/PRF Series



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5 Camera Module

Micro DC-DC Converters
LXDC Series



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Electrical Double Layer Capacitors
DMF Series




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Monolithic Ceramic Capacitors
for Medium Voltage
GR7 Series



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Actuators
PALPRM Series



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4 Display Panel

Micro DC-DC Converters
LXDC Series



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Ceramic Resonators CERALOCK®
CSTCE Series



p37

EMI Suppression Filters EMIFIL®
NFA Series



p25

Chip Common Mode Choke Coils
DLW/DLP Series



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Trimmer Potentiometers
PVZ2 Series



p34

ESD Protection Devices
LXES Series



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Thermistors
NCP/PRF Series




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Chip Ferrite Beads
BLM Series



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Trimmer Potentiometers
PVZ2 Series



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ESD Protection Devices
LXES Series




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Thermistors
NCP/PRF Series





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6 USB

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Wi-Fi Modules  p76


Bluetooth® - Wi-Fi Combo Modules  p76


TransferJet® Modules  p76


SAW Filters SAF Series  p44


Chip Multilayer LC Filters  p45

Chip Multilayer Hybrid Baluns LDB/LDM Series  p50

Coaxial Connectors  p52

Micro DC-DC Converters LXDC Series  p69

ESD Protection Devices LXES Series  p27

Thermistors NCP/PRF Series  p61

8 NFC

NFC Antennas FLAN Series  p69

Micro DC-DC Converters LXDC Series  p69

Crystal Units XRCGB Series  p37

Chip Ferrite Beads BLM Series  p24


Chip Inductors (Chip Coils) LQM/LQH/LQB Series  p30


Trimmer Capacitors TZY2 Series  p22


Variable Capacitors LXRW Series  p77


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Micro DC-DC Converters LXDC Series  p69

Metal Terminal Type Monolithic Ceramic Capacitors KRM Series  p10


Polymer Aluminum Electrolytic Capacitors ECAS Series  p21


Thermistors NCP/PRF Series  p61


10 Battery


Thermistors NCP/PRF/PRG Series  p61


11 Power Supply

Wireless Power Transmission Modules  p79




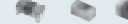
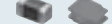






Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series  p3

Medium High Voltage Ceramic Capacitors DEA/DES Series  p17

Safety Standard Certified Ceramic Capacitors Type KX/KY  p18

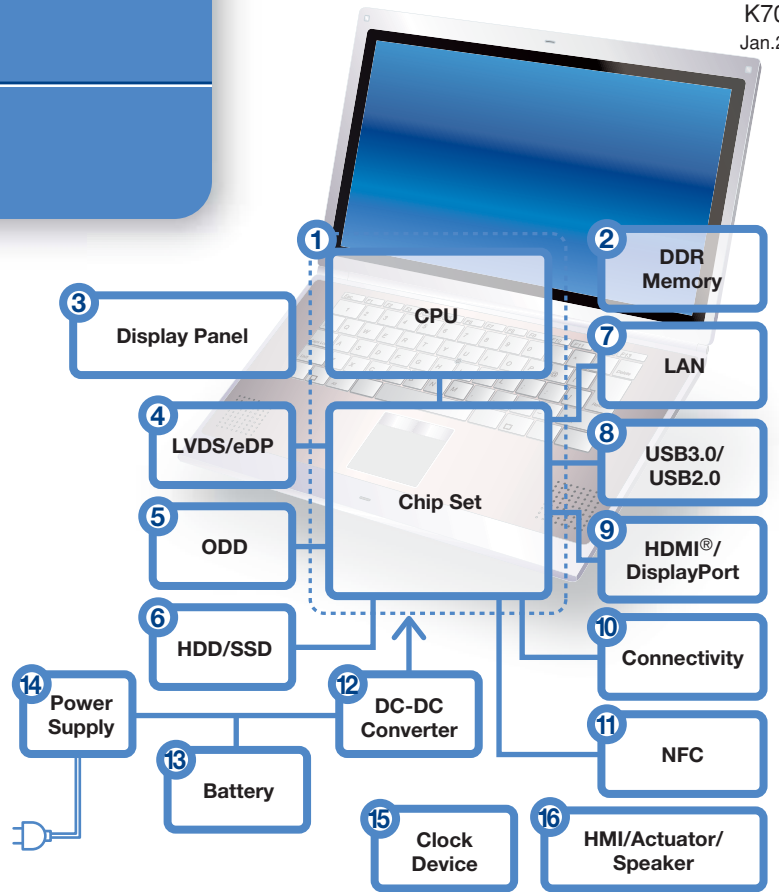
Chip Inductors (Chip Coils) LQM/LQH Series  p30

General Purpose








Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit		p3
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up		p3
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup		p21
Chip Inductors (Chip Coils)	LQM/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance		p30
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion		p30
Chip Ferrite Beads	BLM Series	Noise Suppression		p24
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression		p25
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression		p26
Microwave Absorbers	EA Series	Noise Suppression		p28
Ferrite Cores	FS Series	Noise Suppression		p28
Thin Type Sandwich Cores	FSSA Series	Noise Suppression		p28

Application Guides




Personal Computers








1 CPU/Chip Set

Micro DC-DC Converters LXDC Series  p69	Low ESL Monolithic Ceramic Capacitors LLL/LLA/LLM Series  p5
Polymer Aluminum Electrolytic Capacitors ECAS Series  p21	Crystal Units XRCGB Series  p37
Chip Ferrite Beads BLM Series  p24	3 Terminal Capacitors NFM Series  p25
Thermistors NCP/PRF Series  p61	




2 DDR Memory

Micro DC-DC Converters LXDC Series  p69	Chip Ferrite Beads BLM Series  p24
Polymer Aluminum Electrolytic Capacitors ECAS Series  p21	





3 Display Panel

Metal Terminal Type Monolithic Ceramic Capacitors KRM Series  p10	Ceramic Resonators CERALOCK® CSTCE/CSTCR Series  p37
Power Inductors LQH Series  p30	Trimmer Potentiometers PVZ2 Series  p34
	Thermistors PRF/PRG Series  p63








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Chip Common Mode Choke Coils DLW/DLP Series  p26
ESD Protection Devices LXES Series  p27
Thermistors NCP/PRF Series  p61



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Ceramic Resonators CERALOCK® CSTCW Series  p38	Crystal Units XRCGB Series  p37
Trimmer Potentiometers PVZ2 Series  p34	Thermistors NCP Series  p61

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Shock Sensors PKGS Series  p58	Micro DC-DC Converters LXDC Series  p69	Polymer Aluminum Electrolytic Capacitors ECAS Series  p21
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		Thermistors NCP/PRF Series  p61




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8 USB3.0/USB2.0

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Crystal Units XRCGB Series  p37	Chip Common Mode Choke Coils DLW/DLP Series  p26
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9 HDMI®/DisplayPort

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10 Connectivity

Bluetooth® Modules



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Wi-Fi Modules



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Bluetooth® - Wi-Fi Combo Modules



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TransferJet® Modules



SAW Filters
SAF Series



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Chip Multilayer LC Filters



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Chip Multilayer Hybrid Baluns
LDB/LDM Series



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Coaxial Connectors



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Micro DC-DC Converters
LXDC Series



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ESD Protection Devices
LXES Series



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11 NFC

NFC Antennas
FLAN Series



Micro DC-DC Converters
LXDC Series



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Crystal Units
XRCGB Series



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Chip Ferrite Beads
BLM Series



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



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Trimmer Capacitors
TZY2 Series



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Variable Capacitors
LXRW Series



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ESD Protection Devices
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Micro DC-DC Converters
LXDC Series



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Thermistors
NCP/PRF Series



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Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series



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Polymer Aluminum
Electrolytic Capacitors
ECAS Series



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13 Battery

Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



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Thermistors
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14 Power Supply

Micro DC-DC Converters
LXDC Series



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Wireless Power
Transmission Modules



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Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



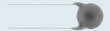
p3

Medium High Voltage
Ceramic Capacitors
DEA/DES Series



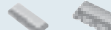
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Safety Standard Certified
Ceramic Capacitors
Type KX/KY



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Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



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Trimmer Potentiometers
PVG3 Series



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Chip Common Mode Choke Coils
DLW/DLP Series



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Thermistors
NCP/NTP/PRF Series



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15 Clock Device

Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series



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Crystal Units
XRCGB Series



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16 HMI/Actuator/Speaker

Pyroelectric Infrared Sensors
IRA Series



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Ultrasonic Sensors
MA Series



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ESD Protection Devices
LXES Series

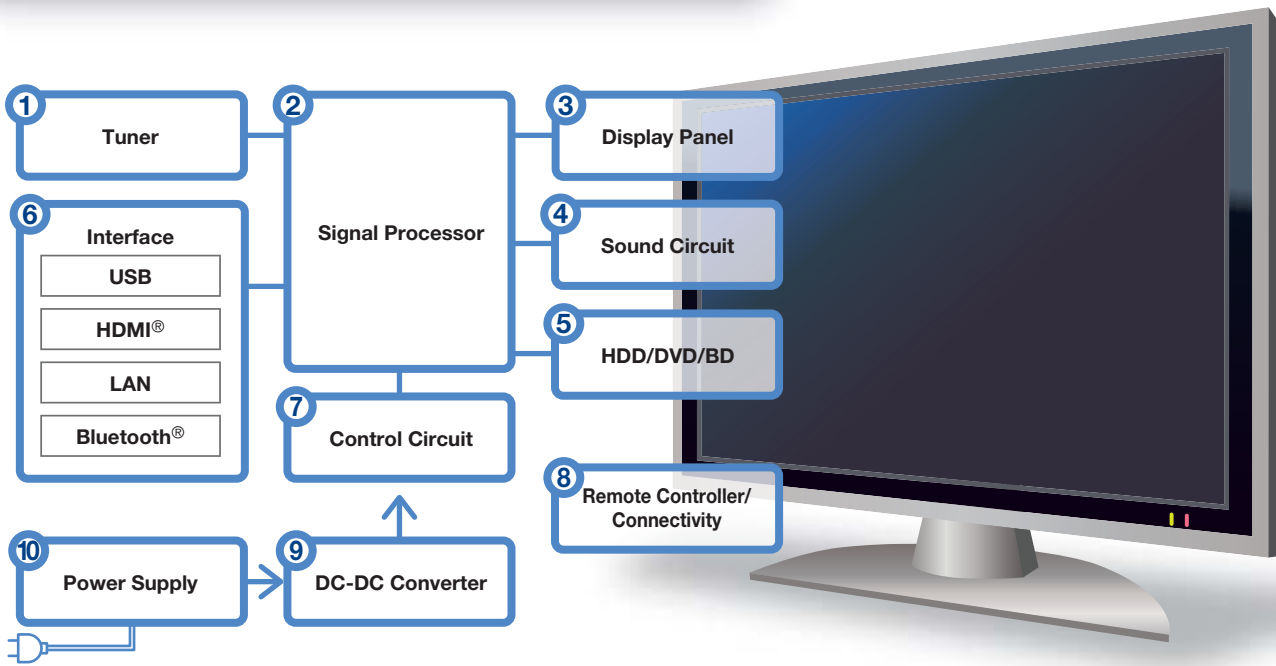


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General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling		p3
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup		p21
Radial Lead Type Monolithic Ceramic Capacitors	RDE Series	Coupling/Decoupling		p15
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion		p30
Chip Ferrite Beads	BLM Series	Noise Suppression		p24
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression		p25
Microwave Absorbers	EA Series	Noise Suppression		p28
Ferrite Cores	FS Series	Noise Suppression		p28






Televisions











1 Tuner

Microchip Transformers (Baluns) DXP18B Series  p50	Crystal Units XRCGB Series  p37	Chip Inductors (Chip Coils) LQW Series  p30
Trimmer Potentiometers PVZ2 Series  p34	ESD Protection Devices LXES Series  p27	







2 Signal Processor

Polymer Aluminum Electrolytic Capacitors ECAS Series  p21	Ceramic Resonators CERALOCK® CSTCE/CSTCR Series  p37
Crystal Units XRCGB Series  p37	3 Terminal Capacitors NFM Series  p25
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Polymer Aluminum Electrolytic Capacitors ECAS Series  p21	Chip Common Mode Choke Coils DLW/DLP Series  p26	Power Inductors LQH Series  p30
Rotary Position Sensors SV Series  p57	Trimmer Potentiometers PVZ2 Series  p34	Thermistors NCP/PRF Series  p61










5 HDD/DVD/BD

Shock Sensors PKGS Series  p58	Polymer Aluminum Electrolytic Capacitors ECAS Series  p21
Ceramic Resonators CERALOCK® CSTCE Series  p37	Crystal Units XRCGB Series  p37
Trimmer Potentiometers PVZ2 Series  p34	Thermistors NCP/PRF Series  p61





4 Sound Circuit

Chip Common Mode Choke Coils DLW/DLP Series  p26











6 Interface

- Bluetooth® Modules  p76
- Bluetooth® Smart Modules LBCA/LBMA Series  p37
- 11n Modules  p26
- Polymer Aluminum Electrolytic Capacitors ECAS Series  p21
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series  p37
- Crystal Units XRCGB Series  p37
- Chip Common Mode Choke Coils DLW/DLP Series  p26
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7 Control Circuit

- Bluetooth® Modules  p76
- Pyroelectric Infrared Sensors IRS Series  p58
- Micro DC-DC Converters LXDC Series  p69
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series  p37







8 Remote Controller/Connectivity

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- Wi-Fi Modules  p76
- Bluetooth® Smart Modules  p69
- TransferJet® Modules  p58
- Shock Sensors PKGS Series  p58
- Micro DC-DC Converters LXDC Series  p69
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series  p37
- Piezoelectric Sounders PKM/PKLS Series  p73
- Chip Inductors (Chip Coils) LQB Series  p31
- ESD Protection Devices LXES Series  p27











9 DC-DC Converter

- Micro DC-DC Converters LXDC Series  p69
- Metal Terminal Type Monolithic Ceramic Capacitors KRM Series  p10
- Polymer Aluminum Electrolytic Capacitors ECAS Series  p21
- Power Inductors LQH Series  p30
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10 Power Supply

- Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series  p3
- Medium High Voltage Ceramic Capacitors DEA/DES Series  p17
- Safety Standard Certified Ceramic Capacitors Type KX/KY  p18
- Trimmer Potentiometers PVG3 Series  p34
- AC Line Filters PLA/PLY Series  p28
- Thermistors NCP/NTP/PRF/PTG Series  p61

General Purpose

Monolithic Ceramic Capacitors	GRM Series	High Frequency Filter Circuit/Frequency Control		p3
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling		p3
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup		p21
Radial Lead Type Monolithic Ceramic Capacitors	RDE Series	Coupling/Decoupling		p15
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance		p30
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion		p30
Chip Ferrite Beads	BLM Series	Noise Suppression		p24
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression		p25
Ferrite Cores	FS Series	Noise Suppression		p28
Thin Type Sandwich Cores	FSSA Series	Noise Suppression		p28



1 ECU

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



Metal Terminal Type Monolithic Ceramic Capacitors KCM Series



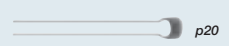
Monolithic Ceramic Capacitors GCM/GCJ Series



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



Gyroscopes 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

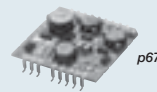


3 Auxiliary Motors

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



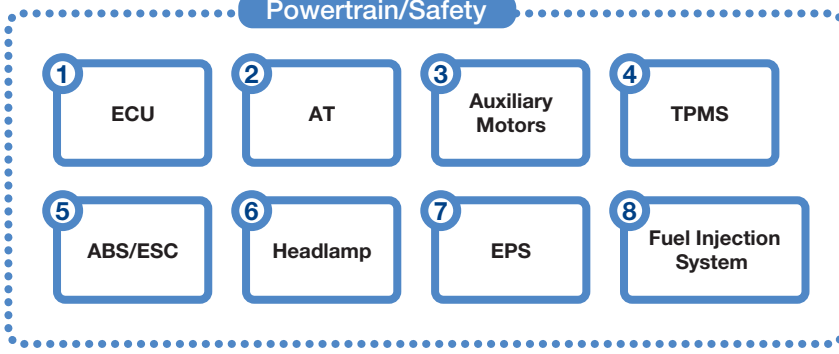
Pressure Sensor Elements



Thermistors PRF Series



Powertrain/Safety



5 ABS/ESC

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



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Metal Terminal Type Monolithic Ceramic Capacitors KCM Series



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Monolithic Ceramic Capacitors GCM/GCJ Series



p11

Monolithic Ceramic Capacitors for Conductive Glue Mounting GCG Series



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Ceramic Resonators CERALOCK® CSTCE/CSTCR Series



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Crystal Units XRCHA-F-A Series



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Accelerometers SCA Series



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Gyroscopes SCC Series



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Thermistors for Conductive Glue Mounting NCG18 Series



6 Headlamp

Monolithic Ceramic Capacitors GCM/GCJ Series



p11

Monolithic Ceramic Capacitors for Conductive Glue Mounting GCG Series



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Ceramic Resonators CERALOCK® CSTCE/CSTCR Series



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Crystal Units XRCHA-F-A Series



p37

Thermistors for Conductive Glue Mounting NCG18 Series



7 EPS

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



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Metal Terminal Type Monolithic Ceramic Capacitors KCM Series



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Monolithic Ceramic Capacitors GCM/GCJ Series



p11

Monolithic Ceramic Capacitors for Conductive Glue Mounting GCG Series



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Radial Lead Type Monolithic Ceramic Capacitors RCE Series



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Ceramic Resonators CERALOCK® CSTCE/CSTCR Series



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Crystal Units XRCHA-F-A Series



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Thermistors for Conductive Glue Mounting NCG18 Series



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Accelerometers SCA Series



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Gyroscopes SCC Series



p57

Thermistors PRF/PTG Series



p63

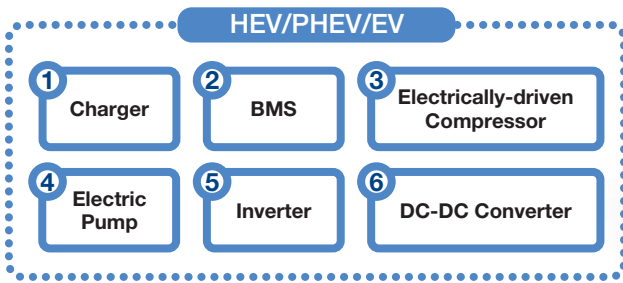
8 Fuel Injection System

Radial Lead Type Monolithic Ceramic Capacitors RPF Series



General Purpose (High Reliability)

Monolithic Ceramic Capacitors	GCM Series	Coupling/Decoupling		150°C p11
Radial Lead Type Monolithic Ceramic Capacitors	RCE Series	Noise Suppression/Decoupling		125°C p19
Radial Lead Type Monolithic Ceramic Capacitors	RH Series	Noise Suppression/Decoupling		150°C p20
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



1 Charger

Metal Terminal Type Monolithic Ceramic Capacitors KCM Series p14	Monolithic Ceramic Capacitors GCM/GCJ Series p11	Safety Standard Certified Ceramic Capacitors Type KJ p20
Ceramic Resonators CERALOCK® CSTCE Series p37	Crystal Units XRCHA-F-A Series p37	
Large Current Common Mode Choke Coils PLT10HH Series p26	Thermistors PRF/PTG Series p63	

2 BMS

DC-DC Converters p67	Metal Terminal Type Monolithic Ceramic Capacitors KCM Series p14	Monolithic Ceramic Capacitors GCM/GCJ Series p11
Monolithic Ceramic Capacitors for Conductive Glue Mounting GCG Series p13	Ceramic Resonators CERALOCK® CSTCE Series p37	Thermistors PRF/PTG Series p63
Crystal Units XRCHA-F-A Series p37		

3 Electrically-driven Compressor

Metal Terminal Type Monolithic Ceramic Capacitors KCM Series p14	Monolithic Ceramic Capacitors GCM/GCJ Series p11	
Monolithic Ceramic Capacitors for Conductive Glue Mounting GCG Series p13	Thermistors PRF/PTG Series p63	

4 Electric Pump

Metal Terminal Type Monolithic Ceramic Capacitors KCM Series p14	Monolithic Ceramic Capacitors GCM/GCJ Series p11	Monolithic Ceramic Capacitors for Conductive Glue Mounting GCG Series p13
Large Current Common Mode Choke Coils PLT10HH Series p26	Thermistors PRF/PTG Series p63	

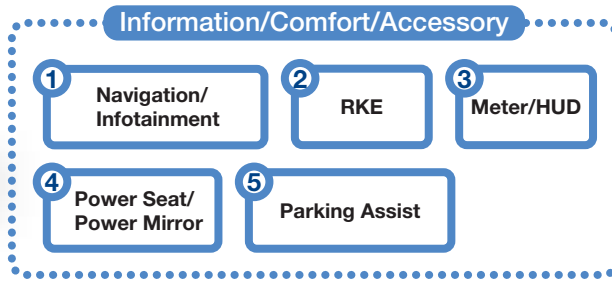
5 Inverter

Metal Terminal Type Monolithic Ceramic Capacitors KCM Series p14	Monolithic Ceramic Capacitors GCM/GCJ Series p11	
Monolithic Ceramic Capacitors for Conductive Glue Mounting GCG Series p13	Radial Lead Type Monolithic Ceramic Capacitors RH Series p20	
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6 DC-DC Converter

Metal Terminal Type Monolithic Ceramic Capacitors KCM Series p14	Monolithic Ceramic Capacitors GCM/GCJ Series p11	Monolithic Ceramic Capacitors for Conductive Glue Mounting GCG Series p13
Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p37	Crystal Units XRCHA-F-A Series p37	Thermistors PRF/PTG Series p63
Large Current Common Mode Choke Coils PLT10HH Series p26		

General Purpose (High Reliability)	Monolithic Ceramic Capacitors	GCM Series	Coupling/Decoupling		150°C p11
	Radial Lead Type Monolithic Ceramic Capacitors	RCE Series	Noise Suppression/Decoupling		125°C p19
	Radial Lead Type Monolithic Ceramic Capacitors	RH Series	Noise Suppression/Decoupling		150°C p20
	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



1 Navigation/Infotainment

<p>Rotary Position Sensors SV Series p57</p>	<p>Accelerometers SCA Series p57</p>	<p>Electrical Double Layer Capacitor DMF/DMT Series p71</p>
<p>Ceramic Filters CERAFIL® SFECF Series p40</p>	<p>Ceramic Discriminators CDSCB Series p42</p>	<p>Piezoelectric Sounders PKLCS Series p73</p>
<p>Bluetooth® Modules p76</p>	<p>Wi-Fi Modules p76</p>	<p>DC-DC Converters p67</p>
<p>Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p37</p>	<p>Crystal Units XRCHG Series p37</p>	<p>Thermistors PRF/PRG/PTG Series p63</p>

2 RKE

<p>Electrical Double Layer Capacitor DMF/DMT Series p71</p>	<p>Ceramic Filters CERAFIL® SFECF Series p40</p>
<p>Ceramic Discriminators CDSCB Series p42</p>	<p>Trimmer Capacitors TZY2 Series p22</p>
<p>Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p37</p>	<p>Crystal Units XRCHA-F-A Series p37</p>
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3 Meter/HUD

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4 Power Seat/Power Mirror

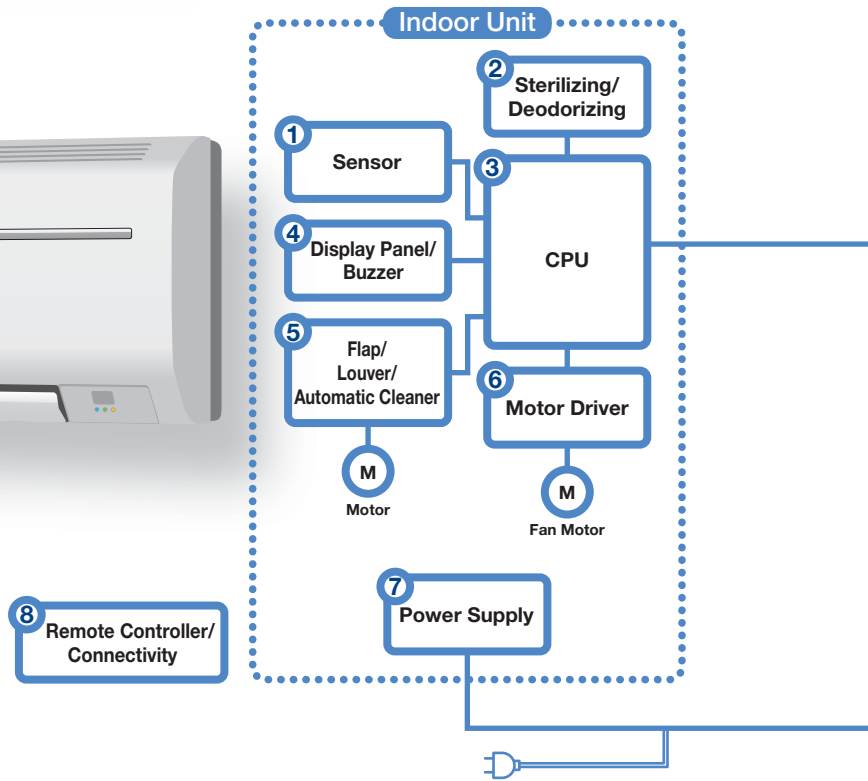
<p>Piezoelectric Sounders PKLCS Series p73</p>	<p>Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p37</p>
<p>Crystal Units XRCHA-F-A Series p37</p>	<p>Thermistors PRF/PTG Series p63</p>

5 Parking Assist

<p>Ultrasonic Sensors MA Series p58</p>	<p>Accelerometers SCA Series p57</p>	<p>Electrical Double Layer Capacitor DMF/DMT Series p71</p>	<p>Piezoelectric Sounders PKM/PKLCS Series p73</p>
<p>Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p37</p>	<p>Crystal Units XRCHA-F-A Series p37</p>	<p>Thermistors PRF/PTG Series p63</p>	

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	Monolithic Ceramic Capacitors for Medium Voltage	GRM Series	For Snubber		p3
	Radial Lead Type Monolithic Ceramic Capacitors	RCE Series	Noise Suppression/Decoupling		p19
	Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion		p30
	Chip Ferrite Beads	BLM Series	Noise Suppression		p24
	EMI Suppression Filters EMIFIL®	NFM/NFA/NFL/NFE/NFW/NFR Series	Noise Suppression		p25
	Chip Common Mode Choke Coils	DLW Series	Common Mode Noise Suppression		p26
	Ferrite Cores	FS Series	Noise Suppression		p28

Air Conditioner



1 Sensor

Pyroelectric Infrared Sensors
IRA Series



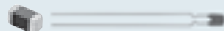
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Ultrasonic Sensors
MA Series



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Thermistors
NCP/NXR/PRF Series



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3 CPU

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series



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4 Display Panel/Buzzer

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series



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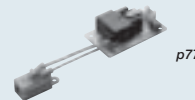
Piezoelectric Sounders
PKM/PK LCS Series



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2 Sterilizing/Deodorizing

Ionizer Modules Ionissimo®
MHM300 Series



p77

High Voltage Power
MPH4602 Series



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Ozonizer Modules Ionissimo®
MHM500 Series



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High Voltage Resistors
MHR Series



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5 Flap/Louver/Automatic Cleaner

Rotary Position Sensors
SV Series



p57

6 Motor Driver

Thermistors
NCP/NXR/PRF Series



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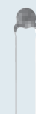
7 Power Supply

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



p3

Medium High Voltage Ceramic Capacitors
DEA/DES Series



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Safety Standard
Certified Ceramic Capacitors
Type KX/KY



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Trimmer Potentiometers
PVG3 Series

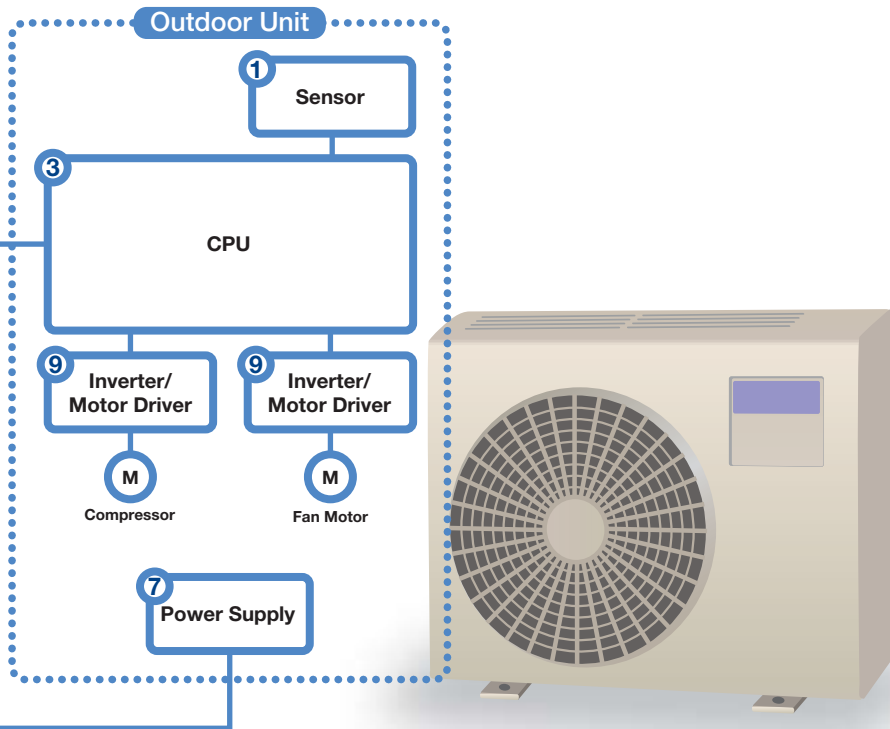


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Thermistors
NTP/PTG Series



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8 Remote Controller/Connectivity

- Bluetooth® Modules (p76)
- Wi-Fi Modules (p76)
- Sub-GHz Modules
- Coaxial Connectors (p52)
- Micro DC-DC Converters LXDC Series (p69)
- Ceramic Resonators CERALOCK® CSTLS/CSTCE/CSTCR Series (p37)
- Chip Inductors (Chip Coils) LQB Series (p31)

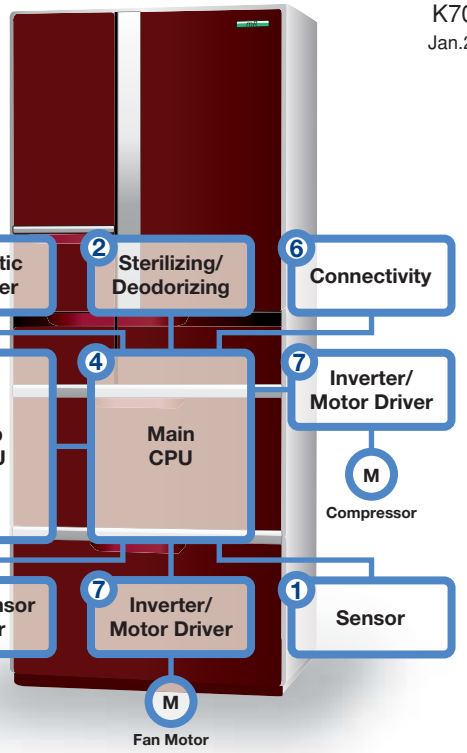
9 Inverter/Motor Driver

- Ceramic Resonators CERALOCK® CSTLS/CSTCE/CSTCR Series (p37)
- Trimmer Potentiometers PVG3 Series (p34)
- Thermistors NCP/NXR/PRF Series (p61)


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	Monolithic Ceramic Capacitors for Medium Voltage	GR/GA Series	Coupling/Decoupling		p3
	Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup		p21
	Radial Lead Type Monolithic Ceramic Capacitors	RDE Series	Coupling/Decoupling		p15
	Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion		p30
	Chip Ferrite Beads	BLM Series	Noise Suppression		p24
	3 Terminal Capacitors	NFM/NFE Series	Noise Suppression		p25
	Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression		p26
	Ferrite Cores	FS Series	Noise Suppression		p28


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Refrigerator

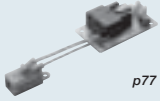


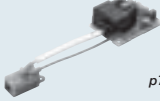
1 Sensor

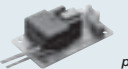
Pyroelectric Infrared Sensors
IRA Series  p58


Thermistors
NCP/NXR/PRF Series  p61

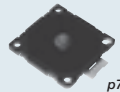
2 Sterilizing/Deodorizing

Ionizer Modules Ionissimo®
MHM300 Series  p77

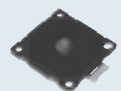
Ozonizer Modules Ionissimo®
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3 Automatic Icemaker

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CSTLS/CSTCE/CSTCR Series  p37


5 Display Panel/Buzzer


Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series  p37


Piezoelectric Sounders
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6 Connectivity


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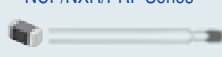
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Micro DC-DC Converters
LXDC Series  p69


Chip Inductors (Chip Coils)
LQB Series  p31


7 Inverter/Motor Driver


Thermistors
NCP/NXR/PRF Series  p61


8 Power Supply










Monolithic Ceramic Capacitors for Medium Voltage
GR/GA Series  p3

Medium High Voltage Ceramic Capacitors
DEA/DES Series  p17

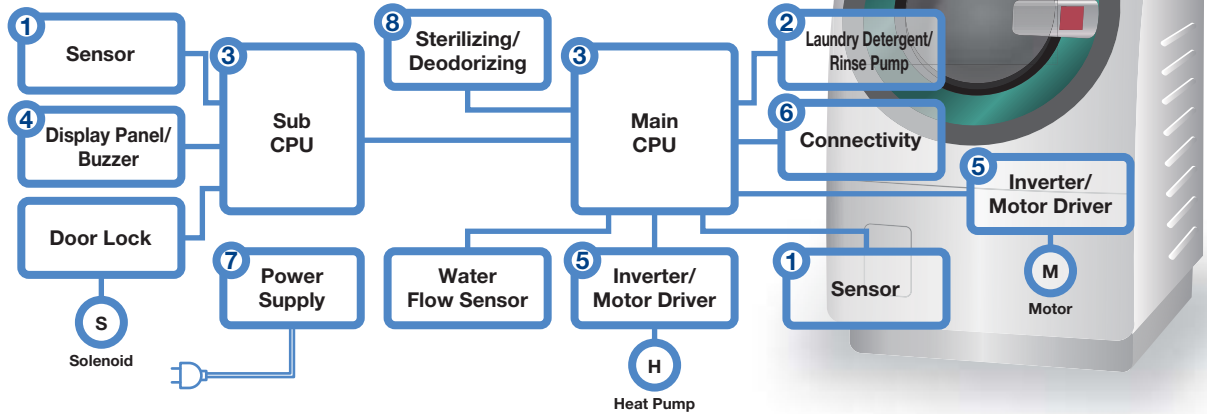
Safety Standard Certified Ceramic Capacitors
Type KX/KY  p18

Trimmer Potentiometers
PVG3 Series  p34

Thermistors
NTP/PTG Series  p62

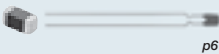
General Purpose	Monolithic Ceramic Capacitors	GRM/GJM Series	Coupling/Decoupling/For Snubber	 p3
	Monolithic Ceramic Capacitors for Medium Voltage	GR/GA Series	Coupling/Decoupling	 p3
	Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	 p21
	Radial Lead Type Monolithic Ceramic Capacitors	RDE Series	Coupling/Decoupling	 p15
	Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	 p30
	Chip Ferrite Beads	BLM Series	Noise Suppression	 p24
	3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	 p25
	Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	 p26
	Ferrite Cores	FS Series	Noise Suppression	 p28

Washing Machine



1 Sensor


Thermistors
NCP/NXR/PRF Series



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2 Laundry Detergent/Rinse Pump


Microblowers



p75

3 CPU


Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series



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5 Inverter/Motor Driver

Trimmer Potentiometers
PVG3 Series



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Thermistors
NCP/NXR/PRF Series



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4 Display Panel/Buzzer

Rotary Position Sensors
SV Series




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Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series



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Piezoelectric Sounders
PKM Series



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6 Connectivity

Bluetooth®
Modules




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Wi-Fi Modules




p76

Sub-GHz Modules




Coaxial Connectors




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Micro DC-DC
Converters
LXDC Series



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Chip Inductors
(Chip Coils)
LQB Series



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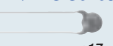
7 Power Supply

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series



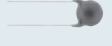
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Medium High Voltage Ceramic Capacitors
DEA/DES Series



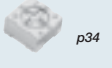
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Safety Standard Certified
Ceramic Capacitors
Type KX/KY




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Trimmer Potentiometers
PVG3 Series



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Thermistors
NTP/PTG Series



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8 Sterilizing/Deodorizing

Ozonizer Modules Ionissimo®
MHM500 Series




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High Voltage Power
MPH4602 Series



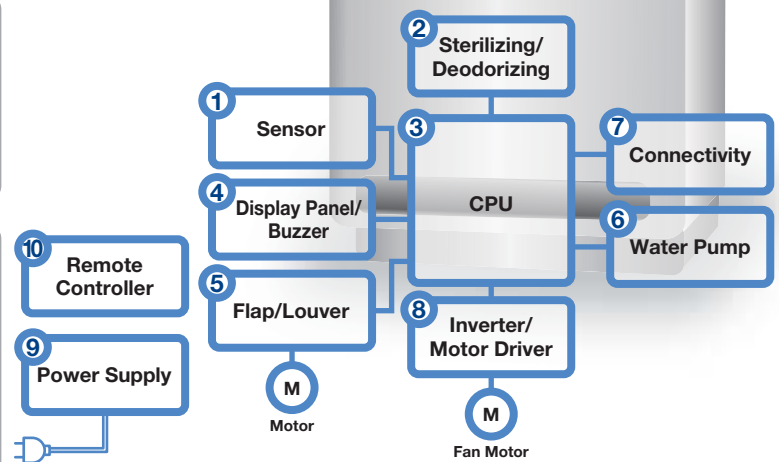
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General Purpose


Monolithic Ceramic Capacitors	GRM/GJM Series	Coupling/Decoupling/For Snubber	 p3
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3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	  p25
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	  p26
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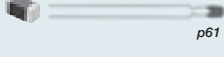
Air Purifier



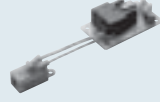
1 Sensor

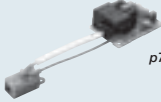
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Ultrasonic Sensors MA Series  p58


Thermistors NCP/NXR/PRF Series  p61

2 Sterilizing/Deodorizing


Ionizer Modules Ionissimo® MHM300 Series  p77


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High Voltage Resistors MHR Series  p35


3 CPU

Micro DC-DC Converters LXDC Series  p69


Ceramic Resonators CERALOCK® CSTLS/CSTCE/CSTCR Series  p37

4 Display Panel/Buzzer


Ceramic Resonators CERALOCK® CSTLS/CSTCE/CSTCR Series  p37


Piezoelectric Sounders PKM/PKLC Series  p73


5 Flap/Louver


Rotary Position Sensors SV Series  p57


7 Connectivity


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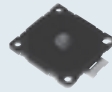
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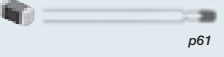
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
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
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





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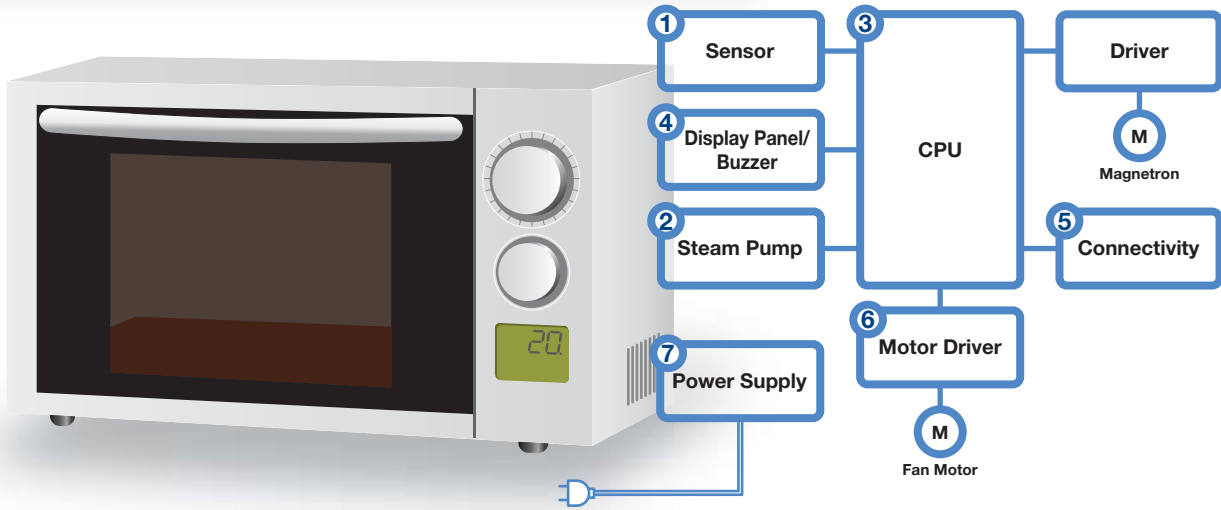
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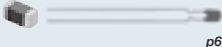
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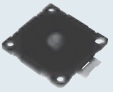
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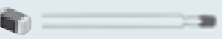
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
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
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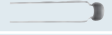
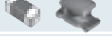






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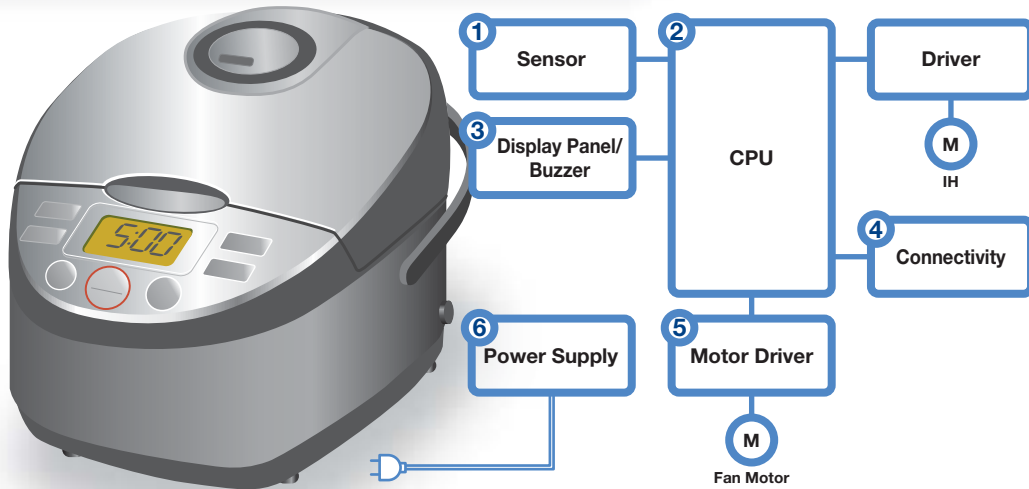
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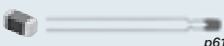
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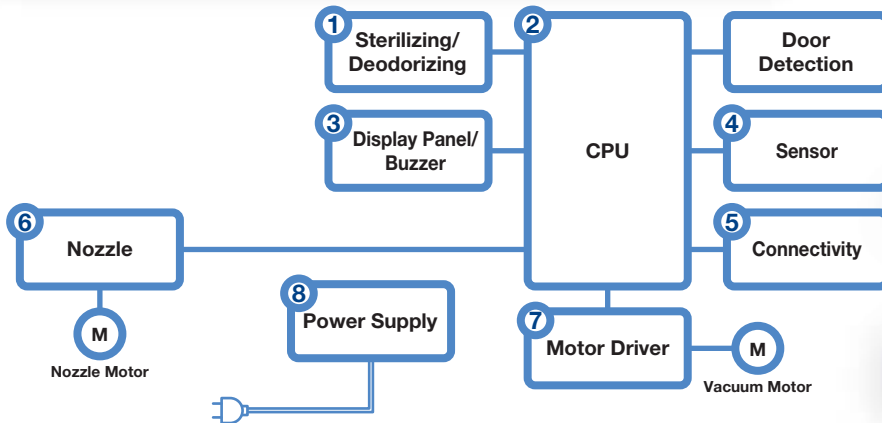
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for Medium Voltage
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Ceramic Capacitors
Type KX/KY

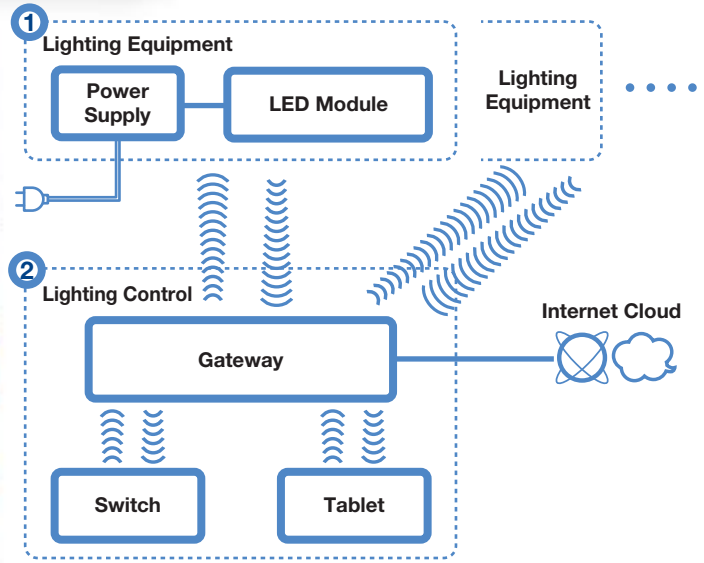
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Ceramic Resonators CERALOCK®
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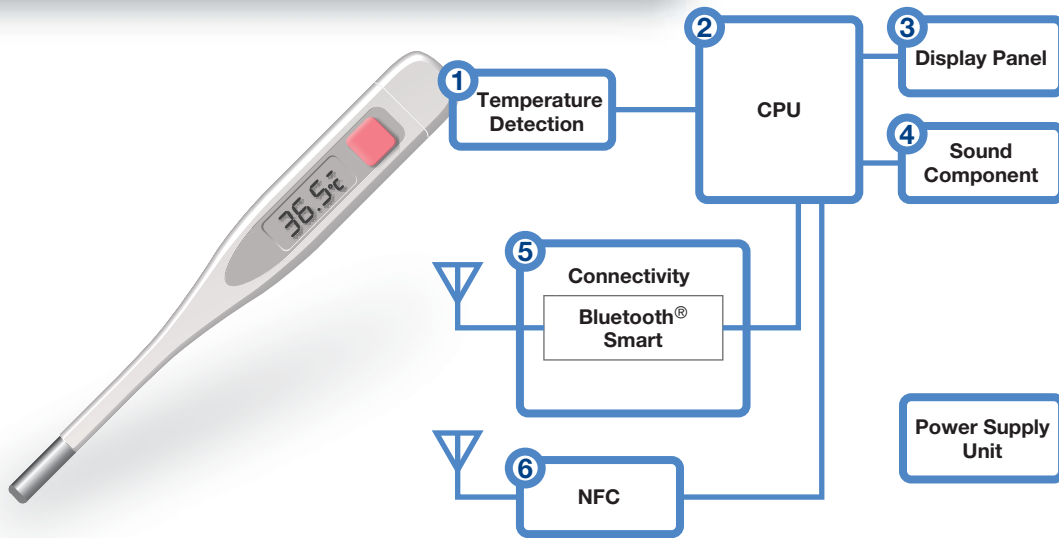


















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General Purpose

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Thermometer

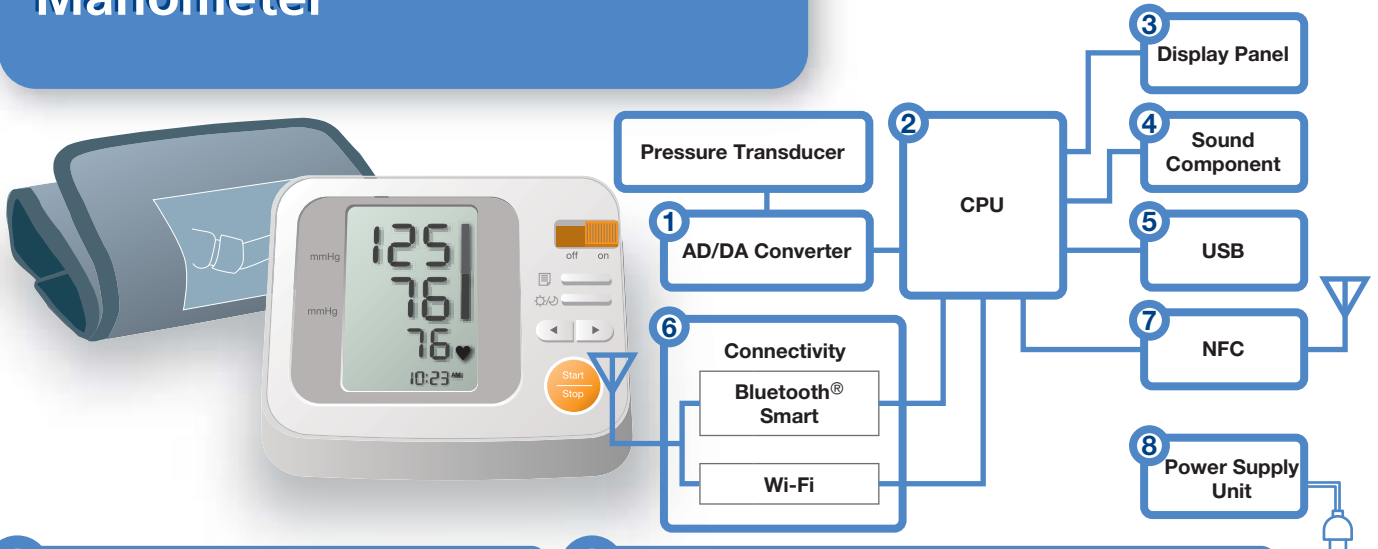


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
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7 NFC

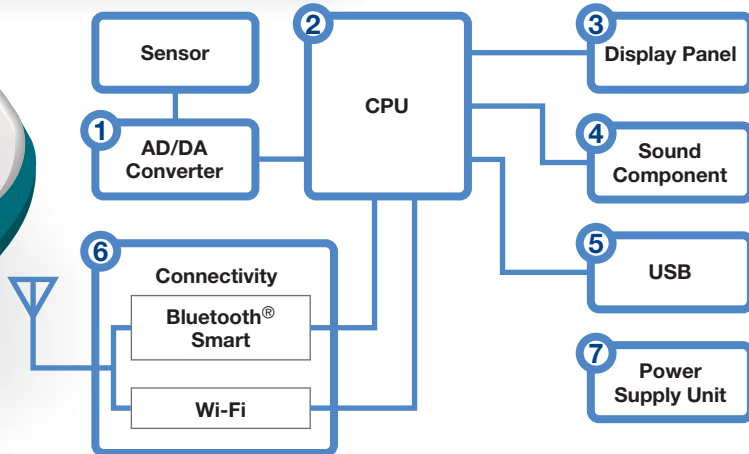
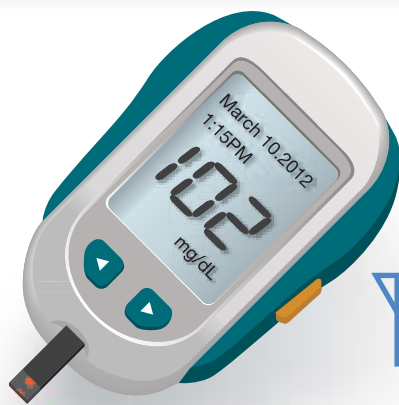
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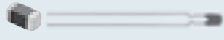
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


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5 USB










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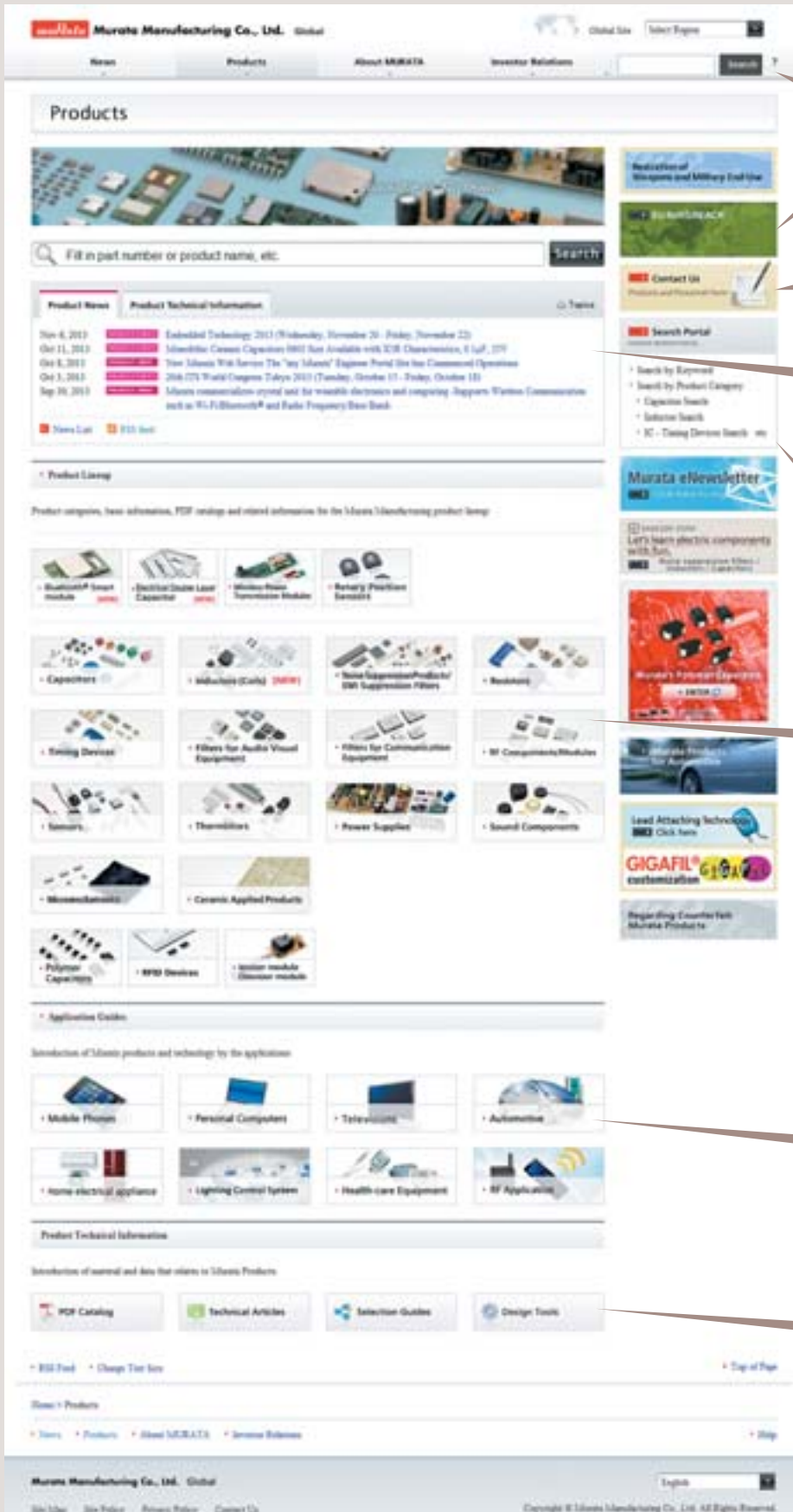
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Website

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

For detailed information regarding products, please visit the "Products" page on the Murata website. The "Products" page is full of valuable information.



Using the keyword search function, you can search every page of the Murata website.

Murata's RoHS compliance is clarified.

Please make any inquiries using the "Contact Us" form.

It contains information updates regarding both new product news and new product content.

You can search for product information using various search functions. In particular, the capacitor search function is covered extensively.

The product information listed on the website is organized into different product categories. The wealth of information ranges in complexity from basic product knowledge through technical information.

You can find Murata's products and technologies by choosing the application (mobile phones, PCs, televisions, automotive, white goods, RF).

The website offers a wide variety of information, covering different technologies, such as PDF catalogs, design tools, product information etc.

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.

■ Components selection tool

You can select Medium voltage Capacitors and Power Inductors according to conditions of use.
* Medium voltage: Rated Voltage 250V and over

■ Usage example of "Chip Monolithic Ceramic Capacitors"

1 Select the products

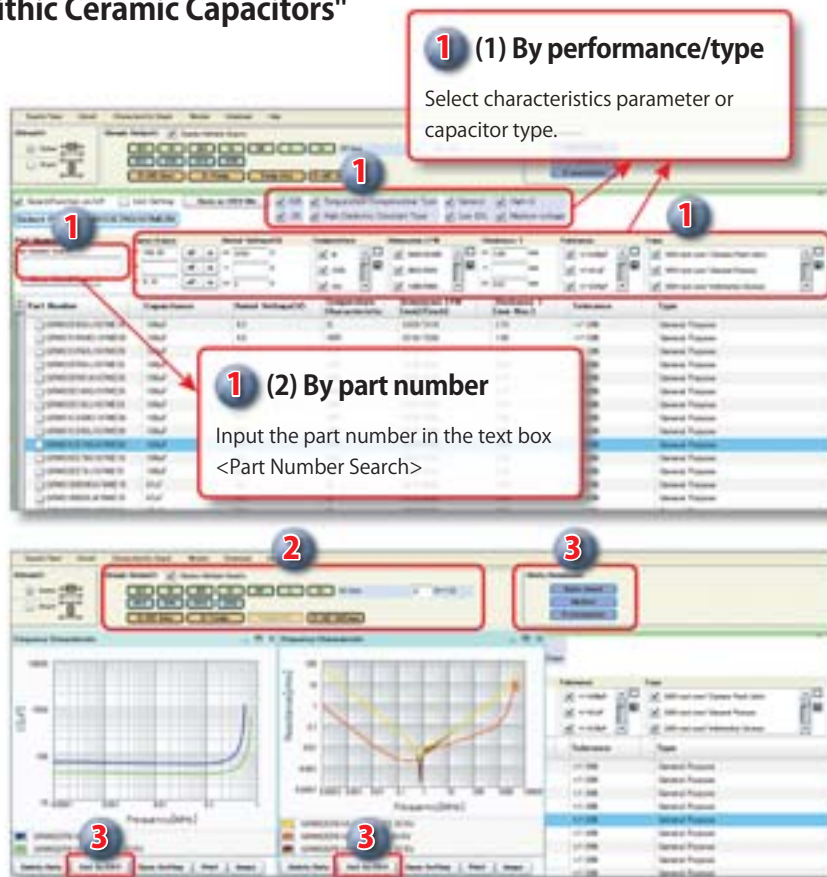
- (1) By performance/type
- (2) By part number

2 Show graph

Click each button in the <Graph Output> area.

3 Data download

Click each button in the <Data Download> area.



These images were captured in November of 2013. Be assured that this software will be updated frequently.

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BLM	Noise Suppression Filters (Chip Ferrite Bead)	MHM	Ionizer Modules Ionissimo®
BL0	Noise Suppression Filters (Lead Type)	MHR	High Voltage Resistors
BN	Noise Suppression Filters (Block Type)	MM	High Frequency Coaxial Connectors (Receptacle)
BS	Magnetic Pattern Recognition Sensors	MPD	DC-DC Converters
C		MPH	High Voltage Power Supplies
CD	Ceramic Discriminators	MPL	High Voltage Power Supplies
CE	Isolators	MR	Magnetic Switches (AMR Sensors)
CF	Ceramic Filters CERAFIL®	MSH	High Voltage Transformers
CL	Single Layer Microchip Capacitors	MX	High Frequency Coaxial Connectors (Cable)
CS	Ceramic Resonators CERALOCK®	MY	DC-DC Converters
D		MZ	Microblowers
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DF	Dielectric Filters GIGAFIL®	NC	NTC Thermistors
DHK	High Voltage Ceramic Capacitors	NF	Noise Suppression Filters (Chip 3 Terminal Capacitor), (Chip LC/RC Filter)
DHR	Lead Type Ceramic Capacitors	NT	NTC Thermistors
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GJ	Chip Monolithic Ceramic Capacitors	R	
GM	Chip Monolithic Ceramic Capacitors	RC	Lead Type Ceramic Capacitors
GQ	Chip Monolithic Ceramic Capacitors	RD	Lead Type Ceramic Capacitors
GR	Chip Monolithic Ceramic Capacitors	RH	Lead Type Ceramic Capacitors
I		RU	Thin Film Circuit Substrate RUSUB®
IR	Pyroelectric Infrared Sensors	S	
K		SAE	SAW Traps
KC	Chip Monolithic Ceramic Capacitors	SAF	SAW Filters for Mobile Communications
KR	Chip Monolithic Ceramic Capacitors	SAW	SAW Filters for Mobile Communications
L		SAY	SAW Filters for Mobile Communications
LDB	Baluns	SCA	Accelerometers
LDC	Couplers	SCA	Inclinometers
LDD	Chip Multilayer Hybrid Dividers	SCC	Angular Rate Sensors
LDM	Baluns	SF	Ceramic Filters CERAFIL®
LFB	Chip Multilayer LC Filters	SV	Rotary Position Sensors
LFC	Low Temperature Co-fired Ceramics (LTCC) Multi-layer Module Boards	T	
LFD	Chip Multilayer Diplexers	TP	Ceramic Traps
LFL	Chip Multilayer LC Filters	TZ	Trimmer Capacitors
LL	Chip Monolithic Ceramic Capacitors	V	
LQ	Inductors (Coils)	VF	EMIGUARD®
LXDC	Micro DC-DC Converters	X	
LXES	ESD Protection Devices	XR	Crystal Units
LXMS	MAGICSTRAP®	7B	Piezoelectric Diaphragms
LXWS	Wireless Power Transmission Modules		74

⚠ Note:

1. Export Control

<For customers outside Japan>

No Murata products should be used or sold, through any channels, for use in the design, development, production, utilization, maintenance or operation of, or otherwise contribution to (1) any weapons (Weapons of Mass Destruction [nuclear, chemical or biological weapons or missiles] or conventional weapons) or (2) goods or systems specially designed or intended for military end-use or utilization by military end-users.

<For customers in Japan>

For products which are controlled items subject to the "Foreign Exchange and Foreign Trade Law" of Japan, the export license specified by the law is required for export.

2. Please contact our sales representatives or product engineers before using the products in this catalog for the applications listed below, which require especially high reliability for the prevention of defects which might directly damage a third party's life, body or property, or when one of our products is intended for use in applications other than those specified in this catalog.

- | | |
|-----------------------------|--|
| ① Aircraft equipment | ② Aerospace equipment |
| ③ Undersea equipment | ④ Power plant equipment |
| ⑤ Medical equipment | ⑥ Transportation equipment (vehicles, trains, ships, etc.) |
| ⑦ Traffic signal equipment | ⑧ Disaster prevention / crime prevention equipment |
| ⑨ Data-processing equipment | ⑩ Application of similar complexity and/or reliability requirements to the applications listed above |

3. Product specifications in this catalog are as of November 2013. They are subject to change or our products in it may be discontinued without advance notice. Please check with our sales representatives or product engineers before ordering. If there are any questions, please contact our sales representatives or product engineers.

4. This catalog has only typical specifications. Therefore, please review our product specifications or consult the approval sheet for product specifications before ordering. Especially, please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in them to prevent smoking and/or burning, etc.

5. You are able to read a detailed specification in the website of Search Engine (<http://search.murata.co.jp/>) or catalog library (<http://www.murata.com/products/catalog/>) before to require our product specification or to transact the approval sheet for product specification.

6. Please note that unless otherwise specified, we shall assume no responsibility whatsoever for any conflict or dispute that may occur in connection with the effect of our and/or a third party's intellectual property rights and other related rights in consideration of your use of our products and/or information described or contained in our catalogs. In this connection, no representation shall be made to the effect that any third parties are authorized to use the rights mentioned above under licenses without our consent.

7. No ozone depleting substances (ODS) under the Montreal Protocol are used in our manufacturing process.

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