MURATA PRODUCTS Lineup 2013

muRata
Innovator in Electronics

2013 MURATA PRODUCTS Lineup

Capacitors

Noise Suppression Products/EMI Suppression Filters

Inductors (Coils)

Resistors

Resonators

Filters for Audio Visual Equipment

Filters for Communication Equipment

RF Components

Contents

Application Guides

Capacitors

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

Summary

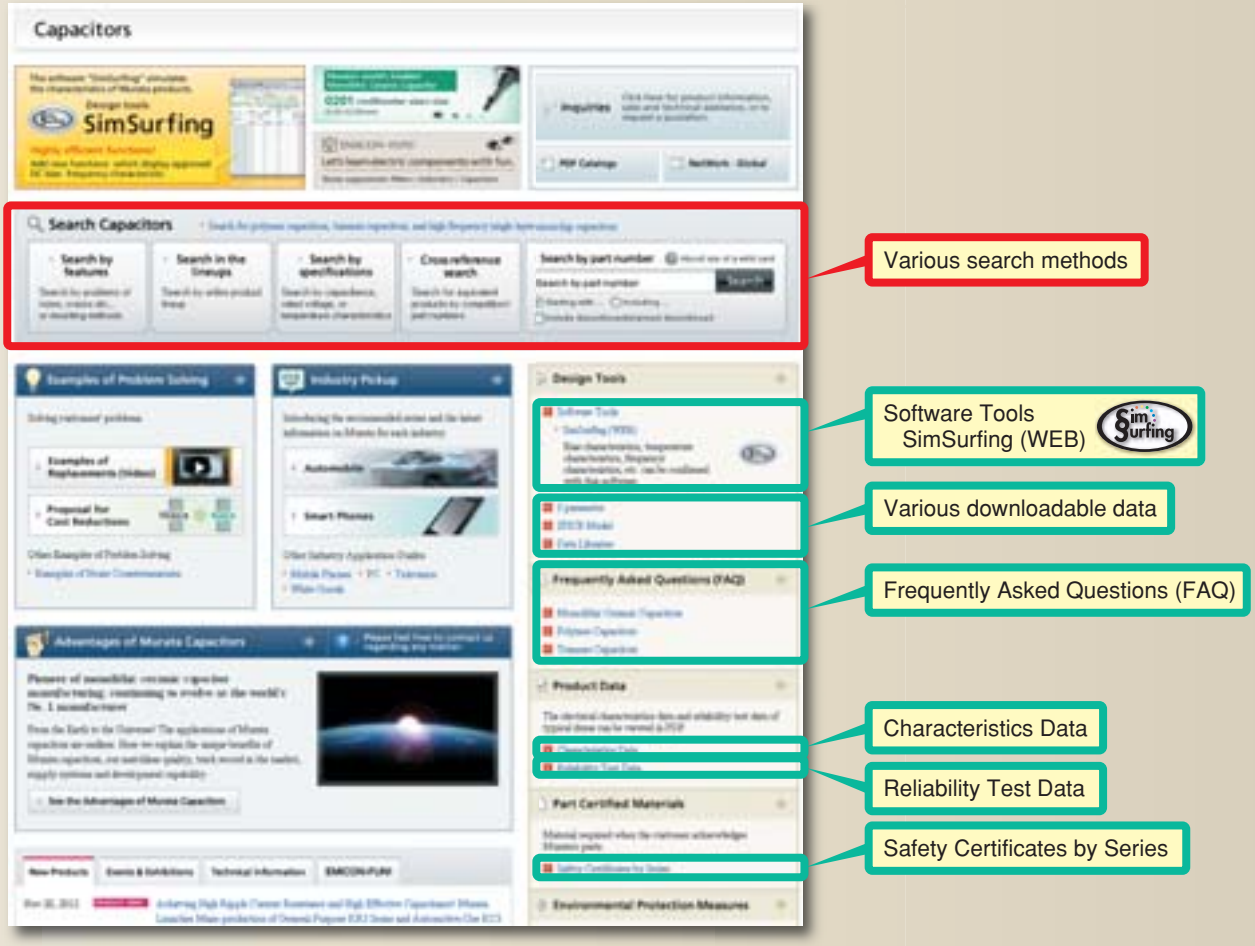
Using Murata's unique material technology, we offer a variety of capacitors covering a wide range of voltages. Murata also offers technical support that includes design kits and a comprehensive set of software tools to simulate virtually any circuit condition, satisfying the demands of many applications.

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



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

Chip Monolithic Ceramic Capacitors For General Purpose

Temperature Compensating Type

GRM

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)
GRM02	0.4X0.2 <01005>	16	0.20pF – 47pF
		10	56pF – 100pF
GRM03	0.6X0.3 <0201>	50	0.10pF – 100pF
		25	1.0pF – 100pF
GRM15	1.0X0.5 <0402>	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
		100	100pF – 3300pF
		50	1200pF – 47000pF
		10	56000pF – 0.10μF
GRM31	3.2X1.6 <1206>	2k	10pF – 68pF
		1k	10pF – 1000pF
		630	10pF – 4700pF
		250	2700pF – 10000pF
		100	1800pF – 22000pF
		50	12000pF – 0.10μF
GRM32	3.2X2.5 <1210>	2k	82pF – 220pF
		1k	1200pF – 2200pF
		630	1200pF – 10000pF
GRM42	4.5X2.0 <1808>	3.15k	27pF – 100pF
GRM43	4.5X3.2 <1812>	1k	2700pF – 4700pF
		630	12000pF – 22000pF
GRM55	5.7X5.0 <2220>	1k	5600pF – 10000pF
		630	27000pF – 47000pF

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

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
- Electrical Double Layer Capacitor — Cat. No. O82E

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

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 – 10000pF
		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
		25	2200pF – 1.0μF
		16	3300pF – 1.0μF
		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
		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	10μF – 22μF
		4	22μF
GRM21	2.0X1.25 <0805>	250	1000pF – 10000pF
		100	10000pF – 0.47μF
		50	10000pF – 4.7μF
		35	2.2μF – 4.7μF
		25	68000pF – 22μF
		16	0.33μF – 22μF
		10	2.2μF – 22μF
		6.3	10μF – 47μF
		4	10μF – 47μF
GRM31	3.2X1.6 <1206>	1k	470pF – 4700pF
		630	1000pF – 15000pF
		250	15000pF – 0.10μF
		100	0.47μF – 2.2μF
		50	0.47μF – 4.7μF
		35	10μF
		25	0.33μF – 22μF
		16	4.7μF – 22μF
		10	22μF – 47μF
		6.3	22μF – 100μF
		4	47μF – 100μF
GRM32	3.2X2.5 <1210>	1k	6800pF – 22000pF
		630	22000pF – 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/

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)
GRM32	3.2X2.5 <1210>	250	68000pF – 0.22µF
		100	1.0µF – 2.2µF
		50	4.7µF – 10µF
		35	10µF
		25	10µF – 22µF
		16	22µF – 47µF
		10	47µF – 100µF
		6.3	47µF – 150µF
		4	100µF – 150µF
		2.5	150µF
GRM43	4.5X3.2 <1812>	1k	33000pF – 47000pF
		630	68000pF – 0.10µF
		250	0.15µF – 0.47µF
GRM55	5.7X5.0 <2220>	1k	68000pF – 0.10µF
		630	0.15µF – 0.22µF
		250	0.33µF – 1.0µF

Array (High Dielectric Constant Type)

GNM

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)
GNM0M	0.9X0.6 <0302>	16	10000pF – 0.10µF
		10	10000pF – 0.10µF
		4	1.0µF
GNM1M	1.37X1.0 <0504>	50	1000pF
		25	2200pF – 10000pF
		16	22000pF – 1.0µF
		10	22000pF – 2.2µF
		6.3	2.2µF
GNM21	2.0X1.25 <0805>	50	470pF – 1000pF
		25	2200pF – 10000pF
		16	22000pF – 0.10µF
		10	0.22µF – 1.0µF
		6.3	0.22µF – 1.0µF

Low ESL Type

LW Reversed Type

LLL

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)
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

Continued on the following page.

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

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
LLL18	0.8X1.6 <0306>	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
		4	1.0μF – 2.2μF
LLL31	1.6X3.2 <0612>	50	10000pF – 0.10μF
		25	47000pF – 0.47μF
		16	0.22μF – 1.0μF
		10	0.47μF – 2.2μF
		6.3	2.2μF – 10μF

Controlled ESR Type

LLR

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

10 Terminal Type

LLM

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

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

High Frequency HiQ Type (0402 Size Max.)

GJM

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)
GJM02	0.4X0.2 <01005>	16	0.20pF – 22pF
GJM03	0.6X0.3 <0201>	25	0.20pF – 20pF
		6.3	22pF – 33pF
GJM15	1.0X0.5 <0402>	50	0.10pF – 47pF

High Frequency HiQ Type (0603 Size Min.)

GQM

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)
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

For Bonding (High Dielectric Constant Type)

GMD

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

Monolithic Microchip (High Dielectric Constant Type)

GMA

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)
GMA05	0.5X0.5 <0202>	100	100pF – 1000pF
		25	1500pF – 4700pF
		10	6800pF – 22000pF
		6.3	0.10μF

Continued on the following page.

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

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)
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

Resin External Electrode Type

GRJ

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)
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

Only for LCD Backlight Inverter Circuit

GRM

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)
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)
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

Continued on the following page.

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

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
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

Only for Communication / Information Devices

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

Only for Camera Flash Units

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 GC (UL, IEC60384-14 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
GA355	5.7X5.0 <2220>	AC250 (r.m.s.)	100pF 330pF

Continued on the following page.

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

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

GA3

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

Type GD (IEC60384-14 Y3 Class)

GA3

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

Type GB (UL, IEC60384-14 X2 Class)

GA3

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (V)	Capacitance Range (F)
GA355	5.7X5.0 <2220>	AC250 (r.m.s.)	10000pF – 56000pF

Metal Terminal Type

KRM/KR3

High Effective Capacitance

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)
KRM31	3.5X1.7	100	1.0µF
		50	4.7µF
		25	10µF
	3.6X1.7	50	2.2µF
	3.7X1.85	100	2.2µF
KRM55	6.1X5.3	100	4.7µF – 15µF
		63	4.7µF – 22µF
		50	4.7µF – 22µF
		35	10µF – 33µF
		25	15µF – 47µF

Continued on the following page.

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

High Effective Capacitance & High Ripple Resistance

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)
KR355	6.1X5.3	630	0.10µF – 0.56µF
		450	0.22µF – 1.2µF
		250	0.47µF – 2.2µF

Chip Monolithic Ceramic Capacitors For Automotive

Powertrain / Safety (Temperature Compensating Type)

GCM

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)
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	560pF – 22000pF
GCM31	3.2X1.6 <1206>	1k	10pF – 1000pF
		630	10pF – 4700pF
		250	2700pF – 10000pF
		100	1800pF – 10000pF
		50	4700pF – 56000pF
GCM32	3.2X2.5 <1210>	1k	1200pF – 2200pF
		630	1200pF – 10000pF
GCM43	4.5X3.2 <1812>	1k	2700pF – 4700pF
		630	12000pF – 22000pF
GCM55	5.7X5.0 <2220>	1k	5600pF – 10000pF
		630	27000pF – 47000pF

Powertrain / Safety (High Dielectric Constant Type)

GCM

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)
GCM03	0.6X0.3 <0201>	25	100pF – 1500pF
		16	2200pF – 3300pF
		10	4700pF – 10000pF
GCM15	1.0X0.5 <0402>	100	220pF – 4700pF
		50	220pF – 22000pF
		25	10000pF – 47000pF
		16	33000pF – 0.10µF

Continued on the following page.

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

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)
GCM18	1.6X0.8 <0603>	100	1000pF – 0.10μF
		50	1000pF – 0.22μF
		25	33000pF – 1.0μF
		16	0.10μF – 1.0μF
		6.3	2.2μF
GCM21	2.0X1.25 <0805>	100	6800pF – 0.10μF
		50	33000pF – 1.0μF
		35	0.68μF – 1.0μF
		25	0.15μF – 2.2μF
		16	0.68μF – 4.7μF
		10	2.2μF – 4.7μF
		6.3	10μF
GCM31	3.2X1.6 <1206>	100	0.10μF – 0.22μF
		50	0.33μF – 4.7μF
		25	2.2μF – 10μF
		16	4.7μF – 10μF
		10	10μF
		6.3	22μF
GCM32	3.2X2.5 <1210>	100	2.2μF
		50	1.0μF – 10μF
		35	10μF
		25	4.7μF – 10μF
		16	10μF – 22μF
		10	22μF
		6.3	47μF

Resin External Electrode Type

GCJ

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)
GCJ18	1.6X0.8 <0603>	100	1000pF – 22000pF
		50	1000pF – 0.10μF
		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 – 0.47μF
		25	470pF – 1.0μF
		16	0.27μF – 2.2μF
		10	2.2μF
GCJ31	3.2X1.6 <1206>	1k	1000pF – 10000pF
		630	1000pF – 22000pF
		250	15000pF – 0.10μF
		100	0.10μF – 0.22μF
		50	0.10μF – 2.2μF
		25	0.10μF – 4.7μF
		16	1.0μF – 4.7μF
		10	6.8μF – 10μF

Continued on the following page.

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

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)
GCJ32	3.2X2.5 <1210>	1k	15000pF – 22000pF
		630	6800pF – 47000pF
		250	68000pF – 0.22μF
		100	2.2μF
		50	4.7μF
		25	10μF
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)
GCD18	1.6X0.8 <0603>	100	1000pF – 4700pF
		50	1000pF – 22000pF
		25	27000pF – 47000pF
GCD21	2.0X1.25 <0805>	100	1000pF – 12000pF
		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)
GCE18	1.6X0.8 <0603>	100	1000pF – 4700pF
		50	1000pF – 22000pF
GCE21	2.0X1.25 <0805>	100	1000pF – 12000pF
		50	1000pF – 0.10μF

High Effective Capacitance & High Ripple Resistance

GC3

Series	LXW (mm) <Size Code (inch)>	Rated Voltage (Vdc)	Capacitance Range (F)
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

Continued on the following page.

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

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
GC332	3.2X2.5 <1210>	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

KCM/KC3

High Effective Capacitance

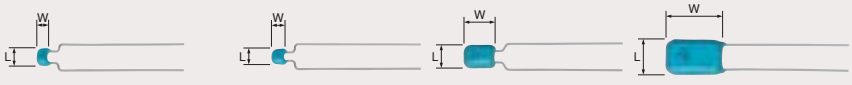
Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F) 0.1p 1p 10p 100p 1000p 10000p 0.1μ 1μ 10μ 100μ 1000μ
KCM55	6.1X5.3	100	4.7μF – 15μF
		63	4.7μF – 22μF
		50	4.7μF – 22μF
		35	10μF – 33μF
		25	15μF – 47μF

High Effective Capacitance & High Ripple Resistance

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 (High Dielectric Constant Type)



RPE RDE RDE RDE

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

Continued on the following page.

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

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)
			0.1p 1p 10p 100p 1000p 10000p 0.1μ 1μ 10μ 100μ 1000μ
RDEC7	5.5X5.0	25	22μF
	5.5X7.5	100	4.7μF
		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	0.33μF 1.0μF
	7.5X8.0	630	0.10μF 0.27μF
	7.7X12.5	450	1.0μF 1.2μF
		250	2.2μF
	7.7X13.0	630	0.47μF 0.56μF
RDEF1	4.0X3.5	50	10000pF 0.10μF
	5.0X3.5	50	10000pF 0.10μF
RDEF5	4.0X3.5	50	10000pF 0.10μF
	5.0X3.5	50	10000pF 0.10μF
RDER7	4.0X3.5	100	1000pF 22000pF
		50	220pF 0.10μF
		25	0.10μF
	4.5X3.5	100	33000pF 0.47μF
		50	0.15μF 0.47μF
	5.0X3.5	630	1000pF 15000pF
		250	1000pF 47000pF
		100	1000pF 0.47μF
		50	220pF 0.47μF
		25	0.10μF
	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
	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	1k	0.22μF
		630	0.47μF
RPER7	5.5X4.0	50	1.0μF 2.2μF
	5.5X5.0	50	3.3μF 4.7μF
	5.5X7.5	50	10μF

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

Radial Lead Type (Temperature Compensating Type)

RDE

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)
RDE5C	4.0X3.5	100	10pF – 1000pF
		50	10pF – 1000pF
	5.0X3.5	100	10pF – 1000pF
		50	10pF – 1000pF

Disc Type (Medium High Voltage)

DES/DEH/DEA/DEB/DEC/DEF

High Temperature Guaranteed Low Loss Type (Low Heat Generation)

Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)
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)
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)
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)
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

Continued on the following page.

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

Medium Voltage Compatible Type

Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)
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) Only for LCD Backlight Inverter Circuit

DEF

Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)
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)

DE2/DE1/DEJ

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

Series	D (mm)	Rated Voltage (V)	Capacitance Range (F)
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)
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)
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 (Ultrahigh-voltage)

DHR

Series	D (mm)	Rated Voltage (Vdc)	Capacitance Range (F)
DHR4E	8.0 to 18.0	15k	100pF – 1000pF
		12k	100pF – 1000pF
		10k	100pF – 1000pF
DHRB3	8.0 to 18.0	15k	100pF – 1000pF
		12k	100pF – 1000pF
		10k	100pF – 1000pF

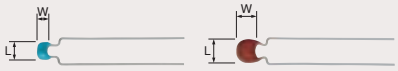
Lead Type Ceramic Capacitors For Automotive

Radial Lead Type (Temperature Compensating Type)

RH

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)
RHE5G	4.0X3.5	100	100pF – 1000pF
		50	100pF – 1500pF

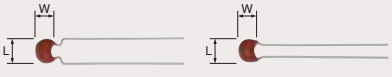
Radial Lead Type (High Dielectric Constant Type)



RH RH

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)
RHEL8	4.0X3.5	100	1000pF – 22000pF
		50	1000pF – 0.10μF

150°C Compatible Type



RHD

Series	LXW (mm)	Rated Voltage (Vdc)	Capacitance Range (F)
RHDL8	5.7X4.5	100	33000pF – 0.10μF
		50	0.15μF – 1.5μF
	6.0X5.5	50	2.2μF – 4.7μF
	6.0X8.0	50	10μF

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

Safety Standard Certified for Automotive

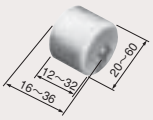
Type KJ -IEC60384-14 X1/Y2 Class

DE6

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

High Voltage Ceramic Capacitors

Ultrahigh-voltage

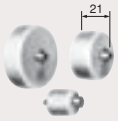


DHS

(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

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

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	
		 TZB4_E	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
		 TZB4_E	3.2mm max.	4.0X4.5mm	100V/50V	-25 to 85°C	with Cover Film
PCB Insertion	Manual Insertion	 TZ03_F	5.3mm max.	6.0X6.0mm	100V/50V	-25 to 85°C	
		 TZ03_N	5.3mm max.	6.0X6.0mm	100V/50V	-25 to 85°C	

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.69 for Electrical Double Layer Capacitors.

Noise Suppression Products/ EMI Suppression Filters

Broad lineup of Noise Suppression Products and EMI Suppression Filters

Summary

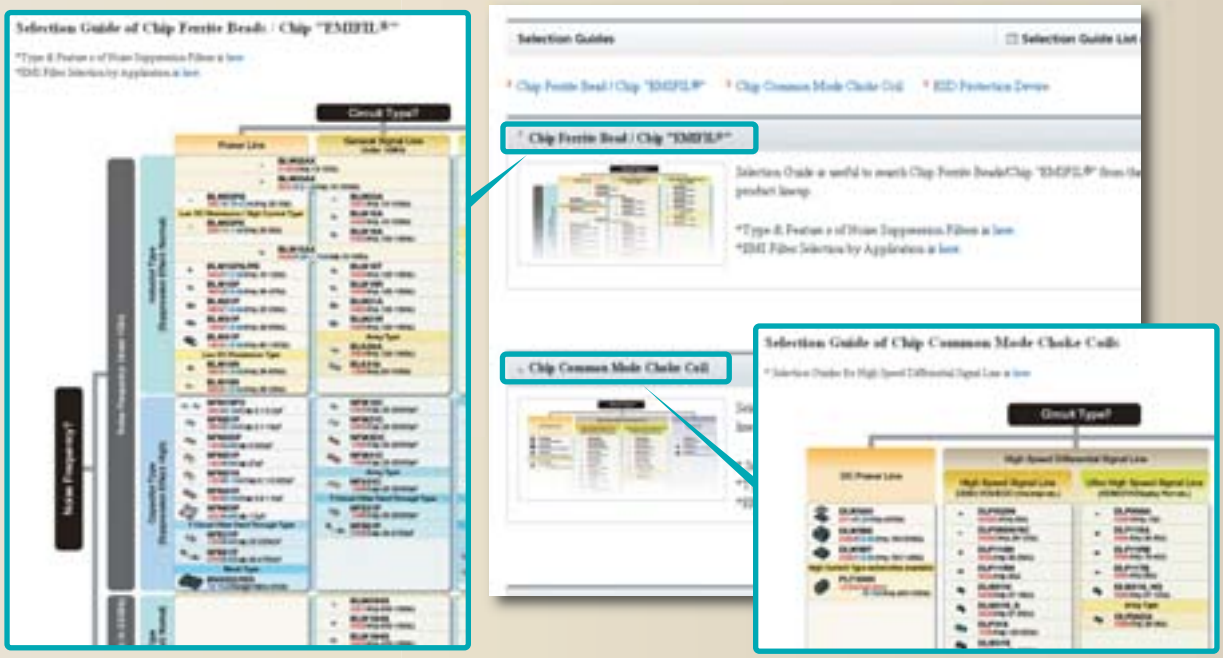
Using Murata's ceramic processing technology and unique material, we offer a variety of Noise Suppression Products and EMI Suppression Filters.

Lineup

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

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 Filters (Chip Ferrite Bead)

			Series	Size Code mm (Inch)	Max. Rated Current (mA)	Impedance (Ω) at 100MHz	Effective Frequency Range
For General Band Noise	Universal Type [Power Lines / Signal Lines]		BLM02AX	0402 (01005)	750	10 70 120	
			BLM03AX	0603 (0201)	1000	10 80 120 240 600 1000	
			BLM15AX	1005 (0402)	1740	10 30 70 120 220 600 1000	
	Signal Lines Type	For General Signal Lines	BLM03AG	0603 (0201)	-	10 80 70 120 240 600 1000	
			BLM15AG	1005 (0402)	-	10 70 120 220 600 1000	
			BLM18A	1608 (0603)	-	120 150 220 330 470 600 1000	
			BLM21A	2012 (0805)	-	120 150 220 330 470 600 1000	
			BLM18T	1608 (0603)	-	120 220 600 1000	
			BLA2AA (4 circuits array)	2010 (0804)	-	120 220 600 1000	
			BLA31A (4 circuits array)	3216 (1206)	-	30 60 120 220 600 1000	
		For High Speed Signal Lines	BLM03B	0603 (0201)	-	10 22 33 47 56 75 80 120 240 470 600	
			BLM15B	1005 (0402)	-	5 10 22 33 47 75 120 220 240 470 600 1000 1800	
			BLM18B	1608 (0603)	-	5 10 22 47 60 75 120 140 150 220 330 420 470 600 1000 1500 1800 2200 2500	
			BLM21B	2012 (0805)	-	5 60 75 120 150 200 220 330 420 470 600 750 1000 1500 1800 2200 2250 2700	
			BLA2AB (4 circuits array)	2010 (0804)	-	10 22 47 75 120 220 600 470 1000	
			BLA31B (4 circuits array)	3216 (1206)	-	120 220 600 470 1000	
		For Digital Interface Lines	BLM18R	1608 (0603)	-	120 220 600 470 1000	
			BLM21R	2012 (0805)	-	120 220 600 470 1000	
	Power Lines Type		BLM03PX*	0603 (0201)	1800	22 (1.8A) 33 (1.5A) 80 (1A)	
			BLM03PG	0603 (0201)	900	22 (0.9A) 33 (0.75A)	
			BLM15P*	1005 (0402)	2200	10 (1A) 30 (2.2A) 60 (1.7A) 80 (1.5A) 120 (1.3A)	
			BLM18P*	1608 (0603)	3000	30 (1A) 33 (3A) 60 (0.5A) 120 (2A) 180 (1.5A) 220 (1.4A) 330 (1.2A) 470 (1A)	
			BLM21P*	2012 (0805)	6000	22 (6A) 30 (4A) 60 (3.5A) 120 (3A) 220 (2A) 330 (1.5A)	
			BLM31P*	3216 (1206)	6000	33 (6A) 50 (3.5A) 120 (3.5A) 390 (2A) 600 (1.5A)	
			BLM41P*	4516 (1806)	6000	60 (6A) 75 (3.5A) 180 (3.5A) 470 (2A) 1000 (1.5A)	
			BLM18K* (Low DC Resistance Type)	1608 (0603)	6000	26 (6A) 30 (5A) 100 (3A) 70 (3.5A) 120 (3A) 220 (2.2A) 330 (1.7A) 470 (1.5A) 600 (1.3A)	
			BLM18S* (Low DC Resistance Type)	1608 (0603)	6000	26 (6A) 70 (4A) 120 (3A) 220 (2.5A) 330 (1.5A)	
For GHz Band Noise	Universal Type [Power Lines / Signal Lines]		BLM15EG*	1005 (0402)	1500	120 (1.5A) 220 (0.7A)	
			BLM18EG*	1608 (0603)	2000	100 (2A) 120 (2A) 220 (2A/1A) 330 (0.5A) 390 (0.5A) 470 (0.5A) 600 (0.5A)	
			BLM18HE*	1608 (0603)	800	600 (0.8A) 1000 (0.6A) 1500 (0.5A)	
	Signal Lines Type		BLM03HG	0603 (0201)	-	600 1000	
			BLM03HD	0603 (0201)	-	330 600 470 1000	
			BLM15HG	1005 (0402)	-	600 1000	
			BLM15HD	1005 (0402)	-	600 1000 1800	
			BLM15HB	1005 (0402)	-	120 220	
			BLM18HG	1608 (0603)	-	470 600 1000	
			BLM18HD	1608 (0603)	-	470 600 1000	
			BLM18HB	1608 (0603)	-	120 220 330	
			BLM18HK	1608 (0603)	-	330 470 600 1000	

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

		Series	Size Code mm (Inch)	Max. Rated Current (mA)	Impedance (Ω) at 100MHz	Effective Frequency Range
					10 100 1000	10kHz 1MHz 100MHz 10GHz 100kHz 10MHz 1GHz
For High-GHz Band Noise	Signal Lines Type	BLM15GG	1005 (0402)	-	220 470	
		BLM15GA	1005 (0402)	-	75	
		BLM18GG	1608 (0603)	-	470	

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

Noise Suppression Filters (Chip 3 Terminal Capacitor)

	Series	Size Code mm (Inch)	Max. Rated Current (mA)	Capacitance (F)	Effective Frequency Range
				10p 100p 1000p 10000p 0.1µ 1µ 10µ	10kHz 1MHz 100MHz 10GHz 100kHz 10MHz 1GHz
Signal Lines Type	NFM18C	1608 (0603)	-	22 47 100 220 470 1000 2200 22000	
	NFM21C	2012 (0805)	-	22 47 100 220 470 1000 2200 22000	
	NFM3DC	3212 (1205)	-	22 47 100 220 470 1000 2200 22000	
	NFM41C	4516 (1806)	-	22 47 100 220 470 1000 2200 22000	
	NFA31C (4 circuits array)	3216 (1206)	-	22 47 100 220 470 1000 2200 22000	
Power Lines Type	NFM18P	1608 (0603)	4000	0.1 0.22 0.47 1.0 2.2	
	NFM21P	2012 (0805)	6000	0.1 0.22 0.47 1.0 2.2 4.7 10	
	NFM3DP*	3212 (1205)	2000	22000	
	NFM31P	3216 (1206)	6000	27	
	NFM31K*	3216 (1206)	10000	10000 (10A) 15000 (10A) 22000 (10A) 0.1 (6A)	
	NFM41P	4516 (1806)	6000	0.2 1.5	
	NFM55P	5750 (2220)	6000	1.5	
Universal Type [Power Lines / Signal Lines]	NFE31P	3216 (1206)	6000	22 47 100 220 470 1500 2200	
	NFE61P	6816 (2706)	2000	33 68 100 180 360 680 1000 4700	

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

Noise Suppression Filters (Chip LC/RC Filter)

	Series	Size Code mm (Inch)	Max. Rated Current (mA)	Cut-off Frequency (MHz)	Effective Frequency Range
				10 100 500	10kHz 1MHz 100MHz 10GHz 100kHz 10MHz 1GHz
Signal Lines Type	NFL15ST	1005 (0402)	-	150 200 300 500	
	NFL18ST	1608 (0603)	-	50 70 100 200 300 500	
	NFL18SP	1608 (0603)	-	150 200 300 500	
	NFL21S	2012 (0805)	-	10 20 50 70 100 150 200 300 400 500	
	NFA18S (4 circuits array)	1608 (0603)	-	50 130 180 200 220 300 350 400 480	
	NFA21S (4 circuits array)	2012 (0805)	-	50 80 200 280 300 310 330	
	NFW31S	3216 (1206)	-	10 20 50 100 150 200 300 400 500	
	NFR21G	2012 (0805)	-		
	NFA31G (4 circuits array)	3216 (1206)	-		

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)

		Series	Size Code mm (Inch)	Max. Rated Current (mA)	Common Mode Impedance (Ω) at 100MHz	Effective Frequency Range
Signal Lines Type	For Audio Lines	DLM11G	1210 (0504)	-	600	
	For Ultra High Speed Signal Lines	DLM11S	1210 (0504)	-	45 90	
		DLP0QS	0605 (025020)	-	15 60 7 35	
		DLP0NS	0806 (03025)	-	15 35 90 7 28 67 120	
		DLP11S	1210 (0504)	-	67 240 35 90 120 160 200 280 330	
		DLP11R	1210 (0504)	-	15 40 45	
		DLP11TB	1210 (0504)	-	80	
		DLP31S	3216 (1206)	-	120 220 550	
		DLP1ND (2 circuits array)	1506 (05025)	-	35 90 67	
		DLP2AD (2 circuits array)	2010 (0804)	-	35 90 240 67 120 160 200 280	
		DLP31D (2 circuits array)	3216 (1206)	-	90 130 200 320 440	
		DLW21S	2012 (0805)	-	90 67 120 180 260 370 500	
		DLW21H	2012 (0805)	-	90 67 120 180	
		DLW31S	3216 (1206)	-	90 160 260 600 1000 2200	
Universal Type [Power Lines / Signal Lines]		DLW5AH/DLW5BS*	5036 (2014)/5050 (2020)	5000	190 350 1000 1500 3000 4000	
		DLW5AT*/DLW5BT*	5036 (2014)/5050 (2020)	6000	110 (5A) 400 (2A) 850 (1.5A) 1400 (1.5A) 100 (6A) 250 (5A) 500 (1.5A/4A) 1000 (2A) 2700 (1A)	
Large Current Type for Auto-motive Available		PLT10HH*	-	-	400 900 500 1000 (at 10MHz)	

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

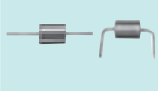
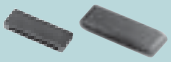
Noise Suppression Filters (Block Type)

		Series	Height (mm)	Max. Rated Current (mA)	Rated Voltage (Vdc)	Rated Current (A)	Effective Frequency Range
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.

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

Noise Suppression Filters (Lead Type), Others

	Series							Effective Frequency Range (10kHz 100kHz 1MHz 10MHz 100MHz 1GHz 10GHz)
Lead Type EMIFIL®	 BL01	 BL02	 BL03	 DSN6	 DSN9(H)	 DSS6	 DST9(H)	
EMIGUARD®	 VFR3V	 VFS6V	 VFS9V					
AC Line Filters	 PLA	 PLH	 PLY					
Common Mode Choke Coils	 PLT09H							
Microwave Absorbers	 EA10	 EA20/21/30						
Ferrite Core	 FSRH	FSRB	 FSRC	 FSSA				

Please refer to p.77 for ESD Protection Devices.

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

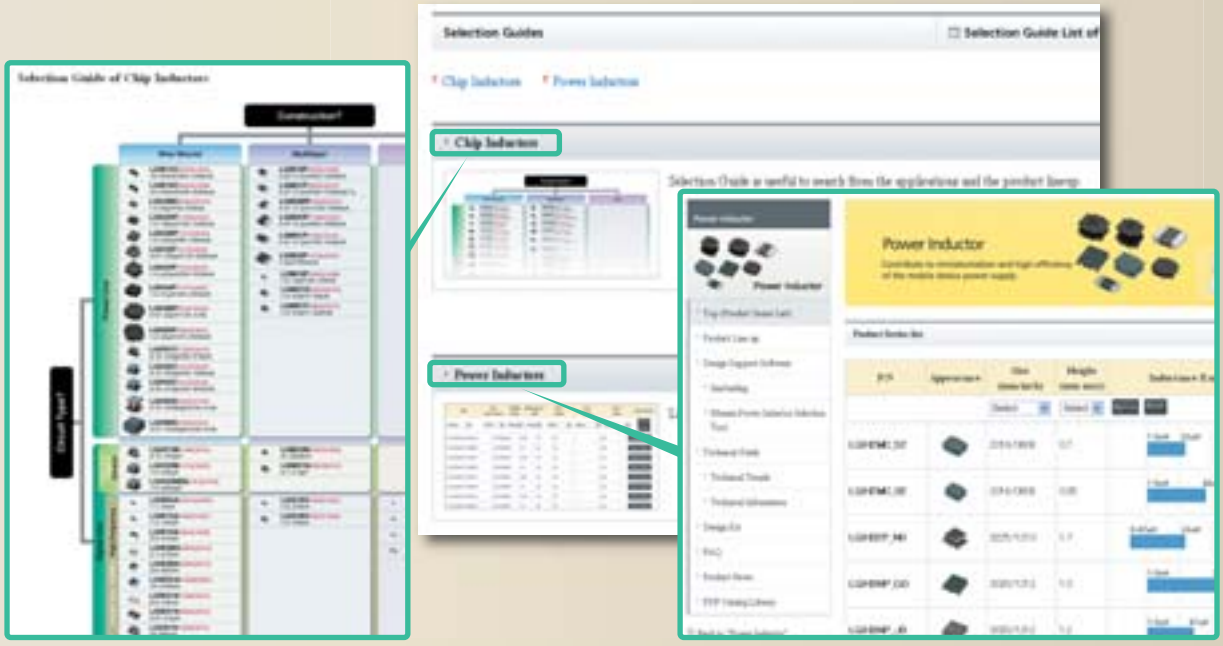
Using Murata's ceramic processing technology and unique material we offer a variety of inductor products that are suitable for the demands of many applications.

Lineup

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

Selection Guide

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



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

Detailed Catalogs

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

• Chip Inductors (Chip Coils) Cat. No. O05E

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

General Purpose Inductors for Power Circuits

	Series	Structure	Size Code mm (Inch)	Inductance Range (1n 10n 100n 1µ 10µ 100µ 1m 10m)	Rated Current (mA) (10 100 1000 10000)
Inductor for Power Lines (Power Inductor)	LQW15C_00	Wire Wound	1005 (0402)	18nH – 200nH	390 – 1400
	LQW15C_10		1005 (0402)	390nH – 560nH	300 – 370
	LQW18C		1608 (0603)	4.9nH – 650nH	430 – 2600
	LQH2MC_02		2016 (0806)	1.0µH – 82µH	90 – 485
	LQH2MC_52		2016 (0806)	1.0µH – 22µH	130 – 595
	LQH2HP_G0		2520 (1008)	2.2µH – 100µH	130 – 1000
	LQH2HP_J0		2520 (1008)	1.5µH – 10µH	550 – 1500
	LQH2HP_M0		2520 (1008)	2.2µH – 4.7µH	800 – 1250
	LQH3NP_M0		3030 (1212)	1.0µH – 100µH	200 – 1400
	LQH3NP_MR		3030 (1212)	1.0µH – 47µH	320 – 1600
	LQH3NP_J0		3030 (1212)	1.0µH – 47µH	200 – 1620
	LQH3NP_G0		3030 (1212)	1.0µH – 250µH	80 – 1525
	LQH32P_N0		3225 (1210)	470nH – 120µH	80 – 2550
	LQH32P_NC		3225 (1210)	470nH – 22µH	270 – 2900
	LQH43P_26		4532 (1812)	1.0µH – 220µH	220 – 3300
	LQH44P_P0		4040 (1515)	1.0µH – 22µH	790 – 2450
	LQH44P_J0		4040 (1515)	1.0µH – 47µH	300 – 1530
	LQH5BP_T0		5050 (2020)	470nH – 22µH	1050 – 4000
	LQH55P_R0		5852 (2220)	1.2µH – 22µH	670 – 2600
	LQH31C		3216 (1206)	120nH – 100µH	80 – 970
	LQH32C_23/_33		3225 (1210)	150nH – 560µH	60 – 1450
	LQH32C_53		3225 (1210)	1.0µH – 100µH	100 – 1000
	LQH43C_03		4532 (1812)	1.0µH – 470µH	90 – 1080
	LQH43C_33		4532 (1812)	560nH – 3.9µH	1600 – 2950
	LQH55D		5750 (2220)	120nH – 10mH	50 – 6000
	LQH66S	Magnetically Shielded	6363 (2525)	270nH – 10mH	50 – 6000
	LQM18P_B0	Magnetically Shielded Multilayer	1608 (0603)	1.5µH	600
	LQM18P_C0		1608 (0603)	1.8µH	700
	LQM18P_D0		1608 (0603)	2.5µH	700
	LQM18P_F0		1608 (0603)	1.0µH	600
	LQM18P_FR		1608 (0603)	220nH – 4.7µH	620 – 1250
	LQM21P_C0		2012 (0805)	470nH – 2.2µH	600 – 1100
	LQM21P_G0		2012 (0805)	470nH – 3.3µH	800 – 1300
	LQM21P_GS		2012 (0805)	2.2µH – 4.7µH	750 – 950
	LQM21P_GC		2012 (0805)	1.0µH – 2.2µH	800 – 900
	LQM21P_GR		2012 (0805)	1.0µH – 4.7µH	800 – 1300
	LQM2MP_G0		2016 (0806)	470nH – 4.7µH	1100 – 1600
	LQM2HP_J0		2520 (1008)	1.0µH – 3.3µH	1000 – 1500

Continued on the following page.

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

Inductors (Coils)

Inductance Lineup
: E-24 or Higher
: E-12
: Other
*There are some items that do not match to E step.

	Series	Structure	Size Code mm (Inch)	Inductance Range (1n 10n 100n 1μ 10μ 100μ 1m 10m)	Rated Current (mA) (10 100 1000 10000)
Inductor for Power Lines (Power Inductor)	LQM2HP_JC	Magnetically Shielded Multilayer	2520 (1008)	1.0μH 2.2μH	1000 1500
	LQM2HP_G0		2520 (1008)	470nH 4.7μH	1100 1800
	LQM2HP_GS		2520 (1008)	2.2μH 4.7μH	1000 1100
	LQM2HP_GC		2520 (1008)	1.0μH 4.7μH	800 1500
	LQM2HP_E0		2520 (1008)	560nH	1500
	LQM31P_00		3216 (1206)	470nH 4.7μH	700 1400
	LQM31P_C0		3216 (1206)	470nH 2.2μH	900 1300
	LQM32P_G0		3225 (1210)	1.0μH	1800
	LQM18F		1608 (0603)	1.0μH 10μH	50 150
	LQM21D		2012 (0805)	1.0μH 47μH	7 60
	LQM21F		2012 (0805)	1.0μH 47μH	7 220
General Purpose Inductor	LQM18N	Magnetically Shielded Multilayer	1608 (0603)	47nH 2.2μH	15 50
	LQM21N		2012 (0805)	100nH 4.7μH	30 250
	LQH31M	Wire Wound (ferrite core)	3216 (1206)	150nH 100μH	45 250
	LQH32M		3225 (1210)	1.0μH 560μH	40 445
	LQH43M(N)		4532 (1812)	1.0μH 2.2mH	30 500

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

RF Inductors

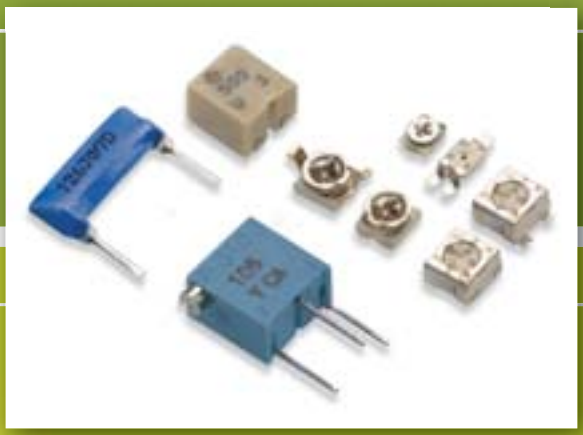
	Series	Structure	Size Code mm (Inch)	Inductance Range (1n 10n 100n 1μ 10μ 100μ 1m 10m)	Rated Current (mA) (10 100 1000 10000)
RF Inductor	LQG15H	Multilayer	1005 (0402)	1.0nH 270nH	110 300
	LQG18H		1608 (0603)	1.2nH 100nH	300 500
	LQP02T	Film	0402 (01005)	0.2nH to 20nH	100 320
	LQP03TG_02		0603 (0201)	0.6nH to 22nH	140 850
	LQP03TN_02		0603 (0201)	0.6nH to 270nH	60 850
	LQP15M		1005 (0402)	1.0nH 33nH	60 400
	LQP18M		1608 (0603)	1.3nH 100nH	50 300
	LQW04A	Wire Wound (air core)	0804 (03015)	1.1nH 33nH	140 990
	LQW15A		1005 (0402)	1.3nH 120nH	110 3150
	LQW18A		1608 (0603)	2.2nH 470nH	75 1400
	LQW2BH		2015 (0805)	2.7nH 470nH	160 1900
	LQW2BA		2015 (0805)	2.8nH 820nH	180 800
	LQW2UA		2520 (1008)	12nH 4.7μH	260 1000
	LQW31H		3216 (1206)	8.8nH 100nH	230 750
	LQW21H	Wire Wound (ferrite core)	2012 (0805)	470nH 2.2μH	75 160
	LQH31H		3216 (1206)	54nH 880nH	180 920

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

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

Resistors

Full lineup for various applications



Summary

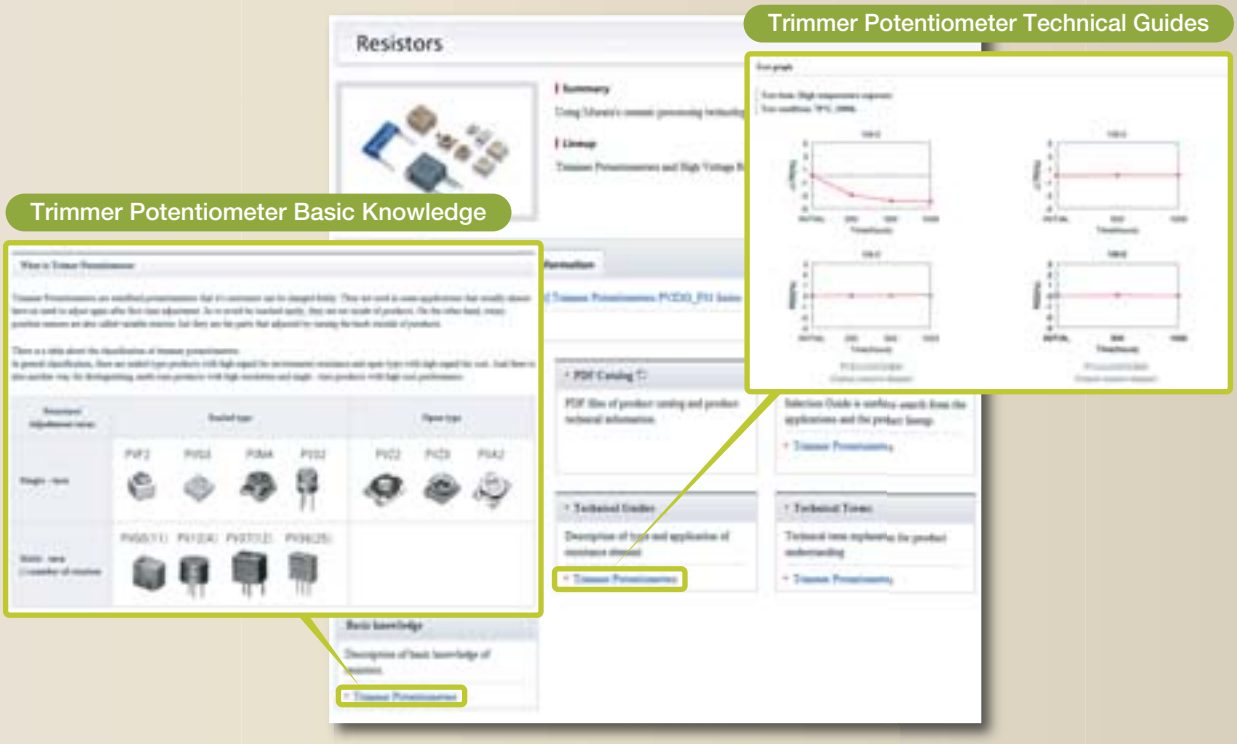
Using Murata's ceramic processing technology and unique material, we offer a variety of resistor products.

Lineup

- Trimmer Potentiometers
- High Voltage Resistors

Web Content

Introducing Trimmer Potentiometer content on our website.



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

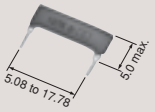
Trimmer Potentiometers are used for trimming the resistance value of electronic equipment.
Murata offers a broad range of Trimmer Potentiometers using both carbon and cermet materials.

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
						PVZ3G	Low Profile (1.25mm max.)
						PVZ3H	
			Rear Adjustment	1	2mm	PVZ2R	Low Profile with Smaller Footprint (0.9mm max.)
					3mm	PVZ3K	
		Cermet	Top Adjustment	1	2mm	PVA2A	Automatic Adjustment
	Sealed Type	Cermet	Top Adjustment	1	3mm	PVG3A	Automatic Adjustment with Rotational Stop
						PVG3G	with Rotational Stop
					4mm	PVM4	
				11	5mm	PVG5A	
			Side Adjustment	11	5mm	PVG5H	
PCB Insertion	Sealed Type	Cermet	Top Adjustment	1	6mm	PV32H	with Rotational Stop
				4	7mm	PV12P	
				12	6mm	PV37W	
				25	10mm	PV36W	
			Side Adjustment	1	6mm	PV32N	with Rotational Stop
				4	7mm	PV12T	
				12	6mm	PV37X	
				25	10mm	PV36X	

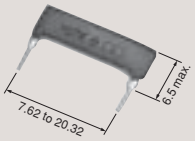
For more details on each series, please refer to our website.
Product Search ⇒ http://search.murata.co.jp/

High Voltage Resistors

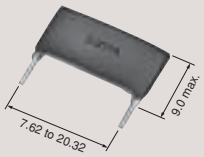
High Voltage Resistors are used for home and office equipment such as printers, copies and air-conditioners. Murata offers the High Voltage Resistors "MHR Series".



MHR03 Series



MHR04 Series



MHR06 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/

Resonators

A stable timing source for microprocessors in various electronic devices

Summary

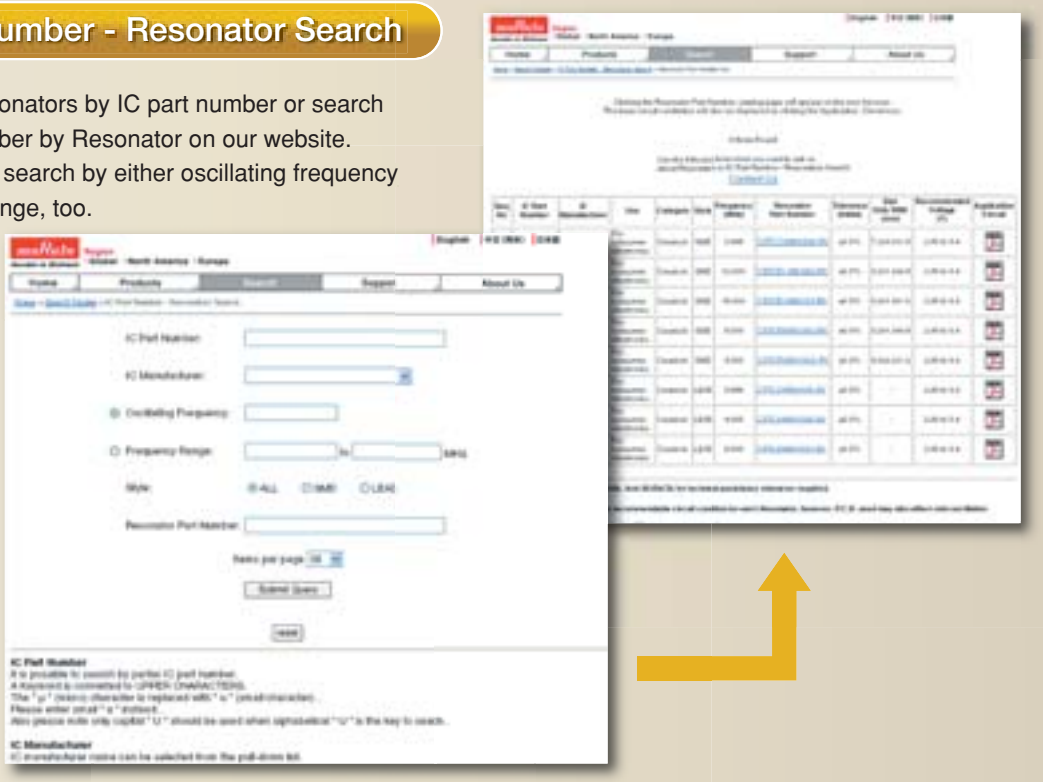
Murata's ceramic processing technology and unique piezoelectric material has led to the development of a range of small and thin ceramic resonators that offer high oscillation frequency and remarkable oscillation tolerance.

Lineup

- Crystal Resonators
- Ceramic Resonators CERALOCK®

IC Part Number - Resonator Search

Search for Resonators by IC part number or search for IC part number by Resonator 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

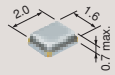
For more details, please refer to our printed catalogs and the PDF catalogs on our website.

• Ceramic Resonators (CERALOCK®)	Cat. No. P16E
• Ceramic Resonator (CERALOCK®) Application Manual	Cat. No. P17E
• Crystal Resonator	Cat. No. P79E

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

Crystal Resonators

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



XRCGB

(in mm)

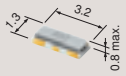
Series	Nominal Frequency (MHz)	Frequency Tolerance (25±3°C)	Equivalent Series Resistance (Ω)	Temperature Stability	Drive Level (μW)	Load Capacitance (pF)
XRCGB	24.0000 to 29.9999	±100ppm max.	150 max.	±50ppm max. (-30 to 85°C)	300 max.	6
	30.0000 to 48.0000	±100ppm max.	100 max.	±50ppm max. (-30 to 85°C)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

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)

CSTCR_G15C



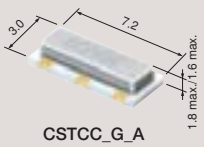
CSTCE_G15C

CSTCE_V13C

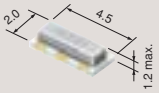
(in mm)

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

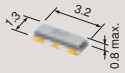
MHz Chip Type for Automotive (Standard Frequency Tolerance)



CSTCC_G_A

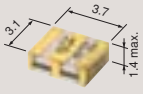


CSTCR_G_B

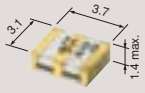


CSTCE_G_A

CSTCE_V_C



CSTCV_X_Q



CSACV_X_Q

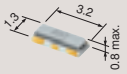
(in mm)

Series	Frequency Range (MHz) 1 2 3 4 5 6 7 8 9 10 20 30 40 50 70 100	Temperature Stability (%)	Temperature Range (°C)
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/

MHz Chip Type for Consumer Electronics (Tight Frequency Tolerance)

CSTCR_G15L



CSTCE_G15L

CSTCE_V13L

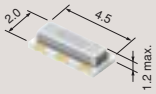
CSTCW_X11

(in mm)

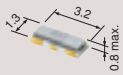
Series	Frequency Range (MHz) 1 2 3 4 5 6 7 8 9 10 20 30 40 50 70 100	Temperature Stability (%)	Temperature Range (°C)
CSTCR_G15L	4.00±0.1% — 7.99±0.1%	±0.08	0 to 70
CSTCE_G15L	8.00±0.1% — 13.99±0.1%	±0.08	0 to 70
CSTCE_V13L	14.00±0.1% — 20.00±0.1%	±0.08	0 to 70
CSTCW_X11	20.01±0.1% — 48.00±0.1%	±0.1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

MHz Chip Type for Consumer Electronics (Standard Frequency Tolerance)

CSTCC_G



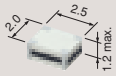
CSTCR_G



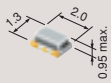
CSTCE_G

CSTCE_V

CSTCW_X



CSACW_X

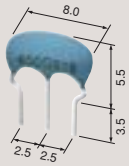


CSTCG_V

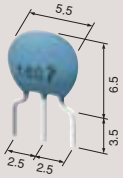
(in mm)

Series	Frequency Range (MHz) 1 2 3 4 5 6 7 8 9 10 20 30 40 50 70 100	Temperature Stability (%)	Temperature Range (°C)
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)



CSTLS_G



CSTLS_X

(in mm)

Series	Frequency Range (MHz) 1 2 3 4 5 6 7 8 9 10 20 30 40 50 70 100	Temperature Stability (%)	Temperature Range (°C)
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/

Filters for Audio Visual Equipment

Signal extraction for visual and audio in electronic devices

Summary

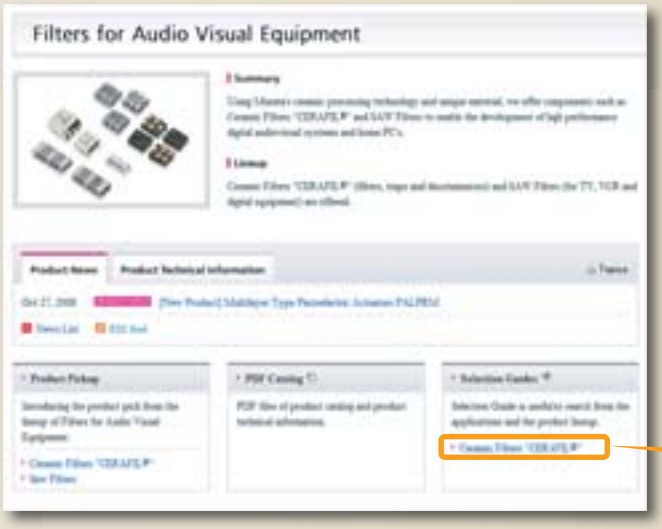
Using Murata's ceramic processing technology and unique material, we offer components such as Ceramic Filters CERAFIL® and SAW Filters to enable the development of high-performance digital audio/visual systems and home PCs.

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.

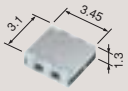
- CERAFIL® (Filters/Traps/Discriminators) for Audio/Visual Equipment Cat. No. P50E
- CERAMIC FILTER (CERAFIL®) Application Manual Cat. No. P11E

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

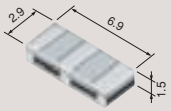
Ceramic Filters CERAFIL®

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

(in mm)

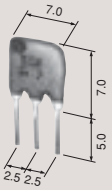
Type	Series	3dB Bandwidth (kHz)						
		D	E	F	G	H	J	K
		350	330	280	230	180	150	110
Standard Type	SFECF10M7☐	●	●	●	●	●	–	–
High-reliability Type	SFECK10M7☐	–	–	–	–	–	●	●
Standard Type	SFECV10M7☐	–	–	–	–	–	●	●
Standard Type	SFECV15M0☐	–	●	–	–	–	–	–

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

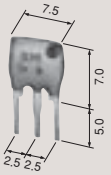
CERAFIL® 10.7MHz Lead Type

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)

(in mm)

Type	Series	3dB Bandwidth (kHz)							
		F	G	H	J	K	L	M	N
		280	230	180	150	110	80	50	35
Standard Type	SFELF10M7☐	●	●	●	–	●	–	–	–
Low Loss Type		●	●	●	●	–	–	–	–
Low Spurious Response Type		●	●	●	●	●	–	–	–

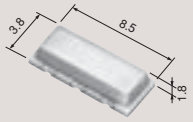
☐ is filled in with a letter denoting 3dB bandwidth.

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

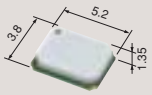
Filters for Audio Visual Equipment

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



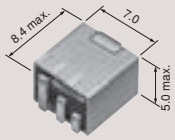
SFSKB Series

(in mm)

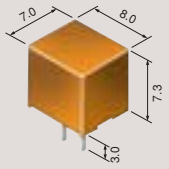
Series	Center Frequency (MHz)												3dB Bandwidth (kHz)
	2.3	2.8	3.2	3.8	4.3	4.5	4.8	5.2	5.5	5.7	6.0	6.5	
SFSKA	–	–	–	–	–	●	–	–	●	–	●	●	±60 min.
SFSKB	●	●	●	●	●	–	●	●	–	●	–	–	±75 min.

CERAFIL® 450kHz

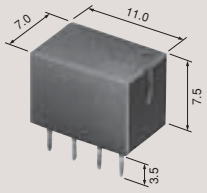
This series features high selectivity, high stability and adjustment-free operation, suitable for intermediate filters for AM radios.



SFPKA Series



SFPLA / CFULA Series



CFWLA Series

(in mm)

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

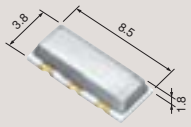
□ is filled in with a letter denoting 6dB bandwidth.

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.



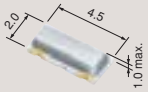
TPSKA Series

(in mm)

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

Ceramic Discriminators

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



CDSCB Series

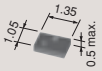
(in mm)

Series	Center Frequency
CDSCB	10.700MHz±30kHz

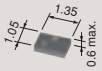
Recommended part number depends on IC specifications. Please contact us with the IC part number to be applied.

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

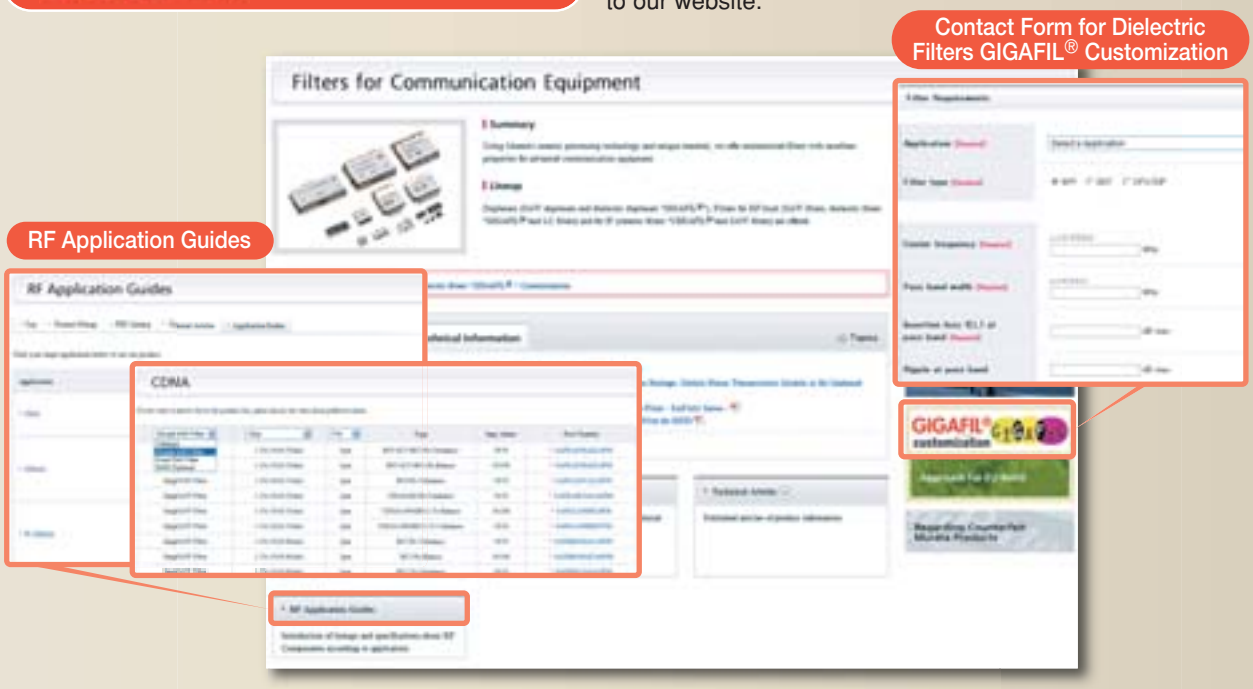
Using Murata's ceramic processing technology and unique material, we offer miniaturized filters with excellent properties for advanced communication equipment.

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.



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.

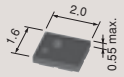
• Ceramic Filters (CERAFIL®)/Ceramic Discriminators for Communications Equipment
Cat. No. P05E

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

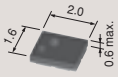
SAW Filters for Mobile Communications

SAW Duplexers

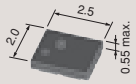
Features: Low Loss, High attenuation performance, Small size, Highly selective pass band, Chip Size Package



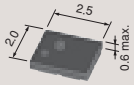
SAYFH Series



SAYRF Series



SAYFP Series



SAYRJ Series

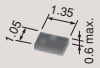
(in mm)

RF Filters

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

Single Filter

SAFEA Series

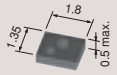


SAFEB Series

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.

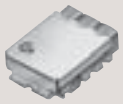
For more details on each series, please refer to our website.
Product Search ⇒ http://search.murata.co.jp/
RF Application Guides ⇒ http://www.murata.com/products/apps/rf/

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.

DFYH Series



DFCH Series

	Series	Frequency Range (MHz) 100 1000 2000 3000 4000 5000	Number of Resonators	Input Power Range
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.

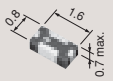
Characteristic customization is available. You can contact us also from our website.
Contact Form ⇒ https://www.murata.co.jp/en/contact/product_gigafil/

Chip Multilayer LC Filters

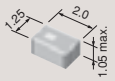
Ultra-small and low-profile filters based on ceramic multilayer technology.

Band Pass Filters

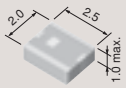
LFB15 Series



LFB18 Series



LFB21 Series



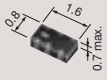
LFB2H Series

LFB31 Series

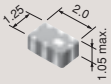
(in mm)

Low Pass Filters

LFL15 Series



LFL18 Series



LFL21 Series

(in mm)

For more details on each series, please refer to our website.
Product Search ⇒ http://search.murata.co.jp/
RF Application Guides ⇒ http://www.murata.com/products/apps/rf/

Ceramic Filters CERAFIL®

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

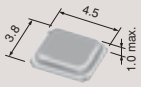
CERAFIL® 10.7MHz Chip Type

(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.



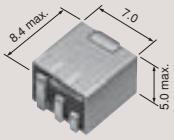
(in mm)

SFSCE Series

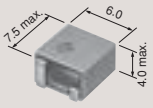
Type	Series	3dB Bandwidth (kHz) min.		
		03	04	05
		±500	±400	±325
Wide Bandwidth	SFSCE10M7WF☐☐	●	●	●

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

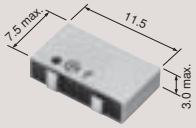
CERAFIL® 450/455kHz Chip Type



SFPKA Series



CFUKG / CFUKF Series



CFWKA Series

(in mm)

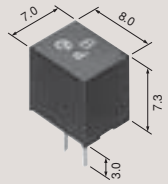
Type	Series	6dB Bandwidth (kHz) min.							
		A	B	C	D	E	F	G	H
		±17.5	±15	±12.5	±10	±7.5	±6	±4.5	±3
High-selectivity	SFPKA455K☐ (4 Elements)	–	–	–	●	●	●	●	●
High-selectivity Miniature	CFUKG455K☐ (4 Elements)	–	–	–	●	●	●	●	–
GDT Flat Type Miniature	CFUKF455K☐ (4 Elements)	●	●	●	●	●	–	–	–
High-selectivity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

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

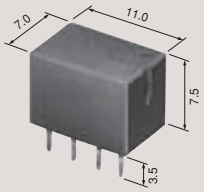
For more details on each series, please refer to our website.
Product Search ⇒ http://search.murata.co.jp/

Filters for Communication Equipment

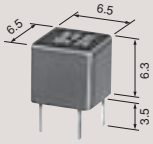
CERAFIL® 450/455kHz Lead Type



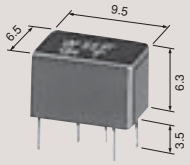
CFULA Series



CFWLA Series



CFULB Series



CFWLB Series

(in mm)

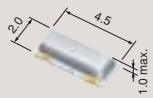
Type	Series	6dB Bandwidth (kHz) min.							
		B	C	D	E	F	G	H	J
		±15	±12.5	±10	±7.5	±6	±4.5	±3	±2
High-selectivity Low-profile	**CFULA455K☐** (4 Elements)	●	●	●	●	●	●	●	–
High-selectivity Low-profile	**CFWLA455K☐** (6 Elements)	●	●	●	●	●	●	●	●
High-selectivity Miniature	**CFULB455K☐** (4 Elements)	●	●	●	●	●	●	●	●
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



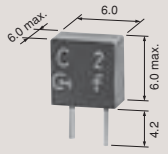
CDSCB Series

(in mm)

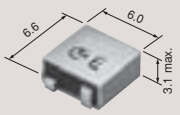
Series	Center Frequency
CDSCB	10.700MHz±30kHz

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

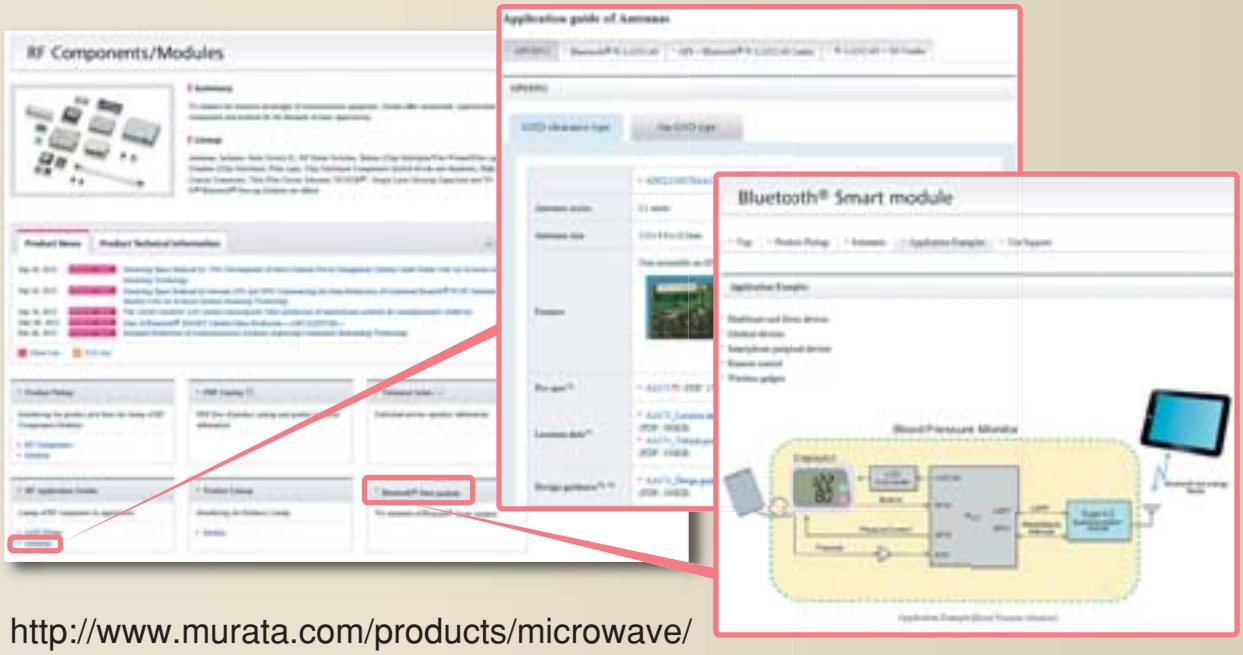
To enhance the technical advantages of communication equipment, Murata offers miniaturized, sophisticated components to meet the demands of many applications.

Lineup

●Antennas ●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.

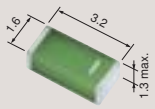
• High Frequency Single Layer Microchip Capacitors
Cat. No. C01E

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

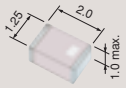
Antennas

Chip Antennas LDA Series

Ultra small size antennas for W-LAN, Bluetooth®, ZigBee®, etc.



LDA31 Series



LDA21 Series

LDA2H Series

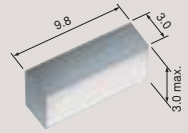
(in mm)

Series	Center Frequency (MHz)	Applications	Use Form
LDA31	2442/3500/5800	WLAN / BT / ZigBee®, etc.	GND Clearance
LDA21	2442	WLAN / BT / ZigBee®, etc.	GND Clearance
LDA2H	2442	WLAN / BT / ZigBee®, etc.	On GND

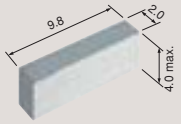
Operating Temperature Range: -40°C to 85°C

Chip Antennas ANC Series

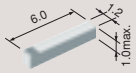
Small size antennas for GPS, ISM2.4, etc.



ANCG11G57SAA160RD2



ANCG12G44SAA145RD1



ANCL11G57SAA166RB5

(in mm)

Main Part Number	Center Frequency (MHz)	Applications	Use Form
ANCG11G57SAA160RD2	1575	GPS	On GND
ANCG12G44SAA145RD1	2442	WLAN / BT / ZigBee®, etc.	On GND
ANCL11G57SAA166RB5	1575	GPS	GND Clearance

Operating Temperature Range: -40°C to 85°C

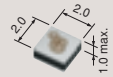
*We have other products for various applications and sizes, please contact us about your requirements.
Some items of the ANC Series are the multiband type.

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

Isolators

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

For Mobile Phones

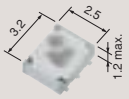


CEG23 Series

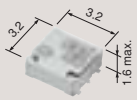
(in mm)

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

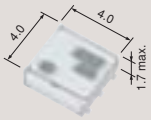
For Base Stations



CES20 Series



CES30 Series



CES40 Series

(in mm)

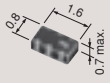
Series	Adaptive Frequency Range (MHz) 100 1000 2000 3000	Size (mm)	Rating Power (W)
CES20	1900 – 2600	3.2×2.5×1.2 max.	2.5 max.
CES30	1700 – 2200	3.2×3.2×1.6 max.	2.5 max.
CES40	700 – 950	4.0×4.0×1.7 max.	2.5 max.

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

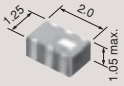
Baluns

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

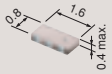


LDB18 Series



LDB21 Series

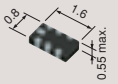
LDM15 Series



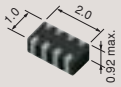
LDM18 Series

(in mm)

Film Type



DXP18B Series



DXP2AB Series

(in mm)

Wire Wound Type

DXW21B Series

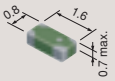
(in mm)

Couplers

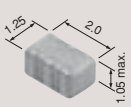
An ultra-small, low-profile directional coupler based on ceramic multilayer technology. This coupler achieves ultra-small size, low insertion loss and high isolation.

Chip Multilayer Type

LDC15 Series



LDC18 Series



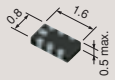
LDC21 Series
*It is available with Integrated LPF for LDC21 Series.

LDC32 Series
(3dB Hybrid)

(in mm)

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

Film Type

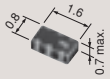


DXP18C Series

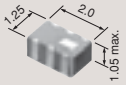
(in mm)

Chip Multilayer Hybrid Dividers

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



LDD18 Series

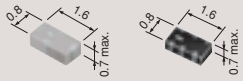


LDD21 Series

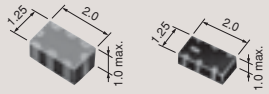
(in mm)

Chip Multilayer Diplexers

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



LFD18 Series



LFD21 Series

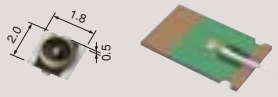
(in mm)

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

High Frequency Coaxial Connectors

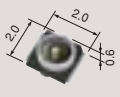
High Frequency Coaxial Cable Connectors

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



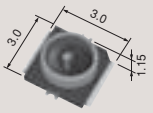
MM5829-2700

MXJA01_____



MM4829-2702

MXHP32_____



MM9329-2700

MXTK92_____

(in mm)

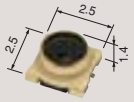
Type	Receptacle Part Number	Rated Voltage (Vrms)	Frequency Rating (GHz)	Temperature Range	VSWR	Cable Number	Mating Height (mm)
JSC	**MM5829-2700**	30	to 12	-40 to 85°C	1.3 max. (DC to 3GHz)	**MXJA01_____**	1.0 max.
HSC	**MM4829-2702**	250	to 6	-40 to 85°C	1.3 max. (DC to 3GHz)	**MXHP32_____**	1.2 max.
GSC	**MM9329-2700**	250	to 6	-40 to 90°C	1.2 max. (DC to 3GHz)	**MXTK92_____**	2.0 max.

Nominal impedance: 50Ω

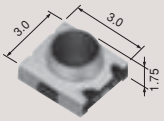
High Frequency Coaxial Connectors with Switch

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

MM8030-2610



MM8130-2600



MM8430-2610

(in mm)

Type	Receptacle Part Number	Rated Voltage (Vrms)	Frequency Rating (GHz)	Temperature Range	VSWR	Standard Measurement Probe Part Number
SWG	**MM8030-2610**	250	to 11	-40 to 85°C	1.2 max. (DC to 3GHz)	**MM126310 MXHQ87WA3000**
SWF	**MM8130-2600**	250	to 6	-40 to 85°C	1.2 max. (DC to 3GHz)	**MM126036 MXHS83QE3000 MXHS83QH3000**
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	Series	Size (mm)	Rated Voltage (Vdc)	Capacitance Range at 25°C (pF)	Operating Temperature Range (°C)
0±30ppm/°C	CLB0A	0.25×0.25	100	0.1	-25 to 85
	CLB0C	0.35×0.25	100	0.2	-25 to 85
	CLB0D	0.38×0.38	100	0.2 0.4	-25 to 85
	CLB05	0.5×0.5	100	0.3 0.6	-25 to 85
	CLB0E	0.55×0.38	100	0.5 0.6	-25 to 85
	CLB0F	0.64×0.64	100	0.3 1	-25 to 85
	CLB0G	0.7×0.5	100	0.7 1	-25 to 85
	CLB0H	0.71×0.38	100	0.7 0.8	-25 to 85
	CLB0J	0.76×0.76	100	0.4 1.3	-25 to 85
	CLB09	0.9×0.9	100	0.5 1.8	-25 to 85
	CLB1A	1.00×0.64	100	1.1 1.6	-25 to 85
	CLB1B	1.09×0.76	100	1.5 2	-25 to 85
	CLB1C	1.27×1.27	100	1 3.6	-25 to 85
	CLB1E	1.49×0.9	100	2 2.7	-25 to 85
	CLB1G	1.73×1.27	100	3.9 4.7	-25 to 85
	CLB1H	1.78×1.78	100	1.8 6.8	-25 to 85
	CLB2C	2.19×1.27	100	5.1	-25 to 85
	CLB2E	2.29×2.29	100	3 10	-25 to 85
	CLB2L	2.95×1.78	100	7.5 10	-25 to 85
	CLB3G	3.71×2.29	100	11 16	-25 to 85
-750±60ppm/°C	CLB0A	0.25×0.25	100	0.3 0.7	-25 to 85
	CLB0B	0.30×0.25	100	0.8	-25 to 85
	CLB0C	0.35×0.25	100	0.9	-25 to 85
	CLB0D	0.38×0.38	100	0.9 1.6	-25 to 85
	CLB05	0.5×0.5	100	1 2.4	-25 to 85
	CLB0E	0.55×0.38	100	1.8 2.4	-25 to 85
	CLB0F	0.64×0.64	100	2 4.3	-25 to 85
	CLB0G	0.7×0.5	100	2.7 3	-25 to 85
	CLB0H	0.71×0.38	100	2.7	-25 to 85
	CLB0J	0.76×0.76	100	3 6.2	-25 to 85
	CLB09	0.9×0.9	100	3.3 6.8	-25 to 85
	CLB1A	1.00×0.64	100	4.7 6.2	-25 to 85
	CLB1B	1.09×0.76	100	6.8 7.5	-25 to 85
	CLB1C	1.27×1.27	100	7.5 15	-25 to 85
	CLB1E	1.49×0.9	100	7.5 9.1	-25 to 85
	CLB1H	1.78×1.78	100	13 15	-25 to 85
	CLB2E	2.29×2.29	100	20	-25 to 85

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

Continued on the following page.

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

Capacitance Change	Series	Size (mm)	Rated Voltage (Vdc)	Capacitance Range at 25°C (pF)	Operating Temperature Range (°C)
-2200±500ppm/°C	CLB0A	0.25×0.25	100	0.8 1.3	-25 to 85
	CLB0B	0.30×0.25	100	1.5 1.6	-25 to 85
	CLB0C	0.35×0.25	100	1.8	-25 to 85
	CLB0D	0.38×0.38	100	1.8 3	-25 to 85
	CLB05	0.5×0.5	100	2.2 4.7	-25 to 85
	CLB0E	0.55×0.38	100	3.3 4.3	-25 to 85
	CLB0F	0.64×0.64	100	3.6 7.5	-25 to 85
	CLB0G	0.7×0.5	100	5.1 5.6	-25 to 85
	CLB0H	0.71×0.38	100	4.7 5.1	-25 to 85
	CLB0J	0.76×0.76	100	5.6 11	-25 to 85
	CLB09	0.9×0.9	100	6.2 13	-25 to 85
	CLB1A	1.00×0.64	100	8.2 11	-25 to 85
	CLB1B	1.09×0.76	100	12	-25 to 85
	CLB1C	1.27×1.27	100	15 22	-25 to 85
	CLB1E	1.49×0.9	100	15 16	-25 to 85
	CLB1G	1.73×1.27	100	33	-25 to 85
	CLB1H	1.78×1.78	100	27	-25 to 85
	CLB2E	2.29×2.29	100	39 47	-25 to 85

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

High Dielectric Constant Type

Capacitance Change	Series	Size (mm)	Rated Voltage (Vdc)	Capacitance Range at 25°C (pF)	Operating Temperature Range (°C)
±10%	CLB0A	0.25×0.25	100	2 to 3 4.7 to 12	-25 to 85
	CLB0B	0.30×0.25	100	3.3 3.6 13 15	-25 to 85
	CLB0C	0.35×0.25	100	3.9 4.3 16 18	-25 to 85
	CLB0D	0.38×0.38	100	5.1 to 7.5 11 to 30	-25 to 85
	CLB05	0.5×0.5	100	5.6 43	-25 to 85
	CLB0E	0.55×0.38	100	8.2 10 33 43	-25 to 85
	CLB0F	0.64×0.64	100	10 75	-25 to 85
	CLB0G	0.7×0.5	100	47 68	-25 to 85
	CLB0H	0.71×0.38	100	47 56	-25 to 85
	CLB0J	0.76×0.76	100	15 110	-25 to 85
	CLB09	0.9×0.9	100	16 130	-25 to 85
	CLB1A	1.00×0.64	100	82 120	-25 to 85
	CLB1C	1.27×1.27	100	33 to 62 75 to 200	-25 to 85
	CLB1E	1.49×0.9	100	150 160	-25 to 85
	CLB1G	1.73×1.27	100	300	-25 to 85
	CLB1H	1.78×1.78	100	130 430	-25 to 85
	CLB2E	2.29×2.29	100	200 620	-25 to 85
+30, -80%	CLB0A	0.25×0.25	100	27 33	-25 to 85
	CLB0B	0.30×0.25	100	36 39	-25 to 85
	CLB0C	0.35×0.25	100	43 51	-25 to 85
	CLB0D	0.38×0.38	100	62 82	-25 to 85
	CLB05	0.5×0.5	100	75 130	-25 to 85
	CLB0E	0.55×0.38	100	91 120	-25 to 85
	CLB0F	0.64×0.64	100	130 220	-25 to 85

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.

Continued on the following page.

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

Capacitance Change	Series	Size (mm)	Rated Voltage (Vdc)	Capacitance Range at 25°C (pF) 0.1 1 10 100 1000	Operating Temperature Range (°C)
+30, -80%	CLB0G	0.7×0.5	100	150 200	-25 to 85
	CLB0H	0.71×0.38	100	130 150	-25 to 85
	CLB0J	0.76×0.76	100	200 300	-25 to 85
	CLB09	0.9×0.9	100	200 390	-25 to 85
	CLB1A	1.00×0.64	100	240 360	-25 to 85
+30, -90%	CLB0A	0.25×0.25	100	36 56	-25 to 85
	CLB0D	0.38×0.38	100	91 150	-25 to 85
	CLB05	0.5×0.5	100	130 220	-25 to 85
	CLB0F	0.64×0.64	100	220 390	-25 to 85
	CLB0J	0.76×0.76	100	330 560	-25 to 85
	CLB09	0.9×0.9	100	390 680	-25 to 85

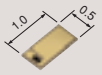
Some capacitances are not available in the CLB0A/B/C/D/E, CLB1C Series.
All Single Layer Microchip Capacitors are produced after receiving an order.

Thin Film Circuit Substrate RUSUB®

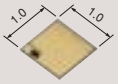
Suitable for Photo diode module.

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/mm²)
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

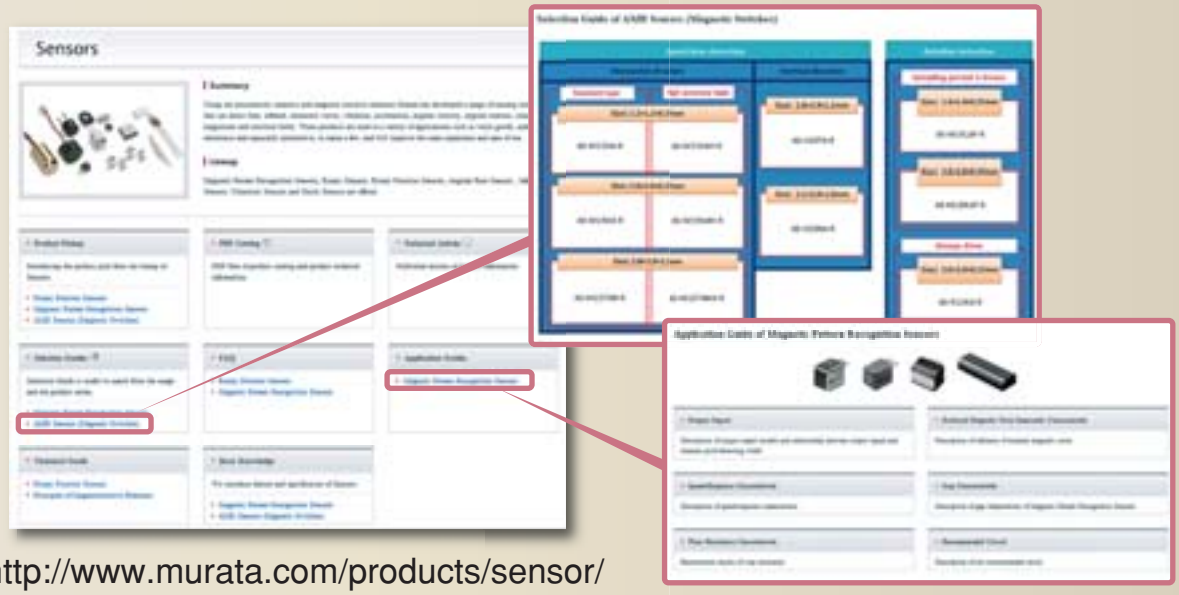
Using our piezoelectric ceramics and magnetic resistive elements Murata has developed a range of sensing technologies that can detect heat, infrared, ultrasonic waves, vibration, acceleration, angular velocity, angular rotation, rotation, magnetism and electrical fields. These products are used in a 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 Velocity 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.

• MR Sensors	Cat. No. S45E
• Rotary Position Sensors	Cat. No. R51E
• Pyroelectric Infrared Sensors	Cat. No. S21E
• Angular Rate Sensors (ENC Series)	Cat. No. S42E
• Ultrasonic Sensor Application Manual	Cat. No. S15E
• NTC Thermistors	Cat. No. R44E
• POSISTOR® for Circuit Protection	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.

AS 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.58.

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

Detection	Murata's Sensors			Applications											
				AV Equipment					Communications Devices						
	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)	AS Series	1.2×1.2×0.37				●	●	●					
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	ENC Series	8.0×4.0×2.0				●	●						
		MEV Series	10.0×6.2×5.25											
		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																								
Home Electronics												Security				Car Electronics			Toy		Others				
Refrigerator	Electric Rice-cooker	Air Conditioner	Air Purification System	Humidifier	Cleaner	Laundry Machine	Food Fan	Water Heater	Toilet Seats with a Warm-water Shower Feature	Lighting	Security Camera	Security Light	Indoor Security Sensor	Intrusion Detection Sensor	Navigation System	Climate Control	Parking Assist	Radio Control (Attitude Control)	Game Controller	Machine Tool	ATM, CD	Vending Machine	Amusement Machine	Murata's Sensors Products
●		●	●	●				●	●	●									●		●	●	●	Pyroelectric Infrared Sensors
●		●	●	●				●	●	●	●	●	●	●					●		●	●	●	
		●												●										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 (ENC Series)
															●									Angular Rate Sensors (MEV Series)
						●									●					●			●	Angular Rate Sensors (SCC Series)
●		●				●		●	●	●	●				●	●		●	●				●	Rotary Position Sensors
●	●	●	●	●	●	●	●	●	●	●					●				●			●	●	NTC Thermistors
●	●	●	●	●	●	●	●	●	●	●												●	●	
●	●	●	●	●	●	●	●	●	●	●					●				●				●	PTC Thermistors POSISTOR®
				●	●	●	●	●	●	●													●	

Sensors

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, motor starters, heater 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 0201(inch) size
2. Tighter tolerance series like as +/-0.5% on resistance value.

●**Lead Type NTC Thermistor for Sensing Temperature**
Thermostring products which consist of SMD type NTC with lead wire.
This product has the following advantages:
1. Small head size due to 0402 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 ±3°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: 0603 and 0805 inch (PRG18 or PRG21).
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 ±10%.

Web Content

Introducing Thermistor content on our website.

Product Lineup ⇒ http://www.murata.com/products/thermistor/

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

We offer simulation software tools.

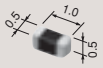
Design Tool ⇒ http://www.murata.com/products/thermistor/design_support/

NTC Thermistors (for Temperature Sensor/Temperature Compensation)

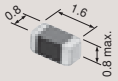
Chip Type

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

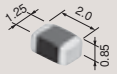
NCP03 Series



NCP15 Series



NCP18 Series



NCP21 Series

(in mm)

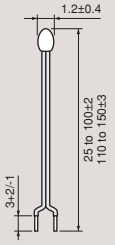
Series	Size Code Inch (mm)	Resistance (25°C) (Ω)	B-Constant (25-50°C) (K)	Permissive Operating Current (25°C) (mA)	Rated Electric Power (25°C) (mW)	Typical Dissipation Constant (25°C) (mW/°C)	Operating Temperature Range (°C)
NCP03	0201 (0603)	1.0k to 220k	3500 to 4485	0.06 to 9.5	100	1	-40 to 125
NCP15	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 Thermistor's temperature to rise to 125°C by self heating, at ambient temperature of 25°C.

Thermo String Type

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

Twist
NXFT15_1B Series



Without twist
NXFT15_2B Series

(in mm)

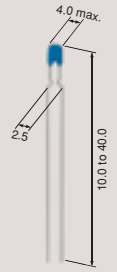
Series	Resistance (25°C) (Ω)	B-Constant (25-50°C) (K)	Operating Current for Sensor (25°C) (mA)	Thermal Time Constant (25°C) (s)	Full Length (mm)	Operating Temperature Range (°C)
NXFT15	10k to 100k	3380 to 4250	0.04 to 0.12	4	25 to 150	-40 to 125

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

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

Lead Type

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



NXRT15 Series

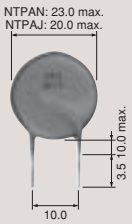
(in mm)

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.

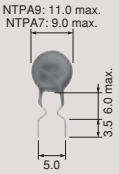
NTC Thermistors (for Inrush Current Suppression)

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



NTPAN / NTPAJ Series

NTPAD / NTPAA Series



NTPA7 / NTPA9 Series

(in mm)

Series	Resistance (25°C) (Ω)	Permissible Max. Current (25°C) (A)	Permissible Max. Current (55°C) (A)	Thermal Time Constant (25°C) (s)	Permissible Electrolytic Capacitor (100V) (μF)	Operating Temperature Range (°C)
NTPAN / 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

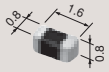
For more details on each series, please refer to our website.
Product Search ⇒ http://search.murata.co.jp/

PTC Thermistors POSISTOR® (for Overheat Sensing)

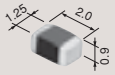
Chip Type

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

PRF15 Series



PRF18 Series



PRF21 Series

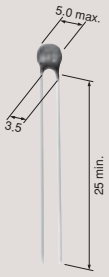
(in mm)

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

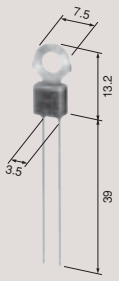
There are also items for automotive use in the PRF Series.

Lead Type

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



PTFL Series



PTFM Series

(in mm)

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

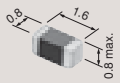
A blank is filled with type codes. (L: Lead type, M: with lug-terminal)
Operating Temperature Range is -10 to TS+10°C.

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

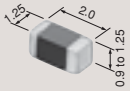
PTC Thermistors POSISTOR® (for Overcurrent Protection)

Chip Type

Overcurrent Protection device with resettable function suitable for current limiting resistor.



PRG18 Series



PRG21 Series

(in mm)

Series	Maximum Voltage (V)	Hold Current (60°C) (mA)	Trip Current (-10°C) (mA)	Maximum Current (A)	Resistance (25°C) (Ω)	Size Code Inch (mm)
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.

Lead Type

Best suited to meet the requirements for power supplies and motor protection.
Error-free operations are assured by rush current.

PTGL Series
*The Lead shape is an example.

(in mm)

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

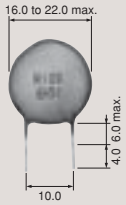
Maximum Current shows typical transformer capacities that can be used.
There are also items for automotive use in the PTGL Series.

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.

PTGL07AS Series



PTGL14 to 20AS Series

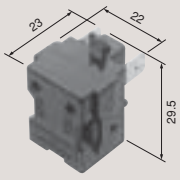
(in mm)

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

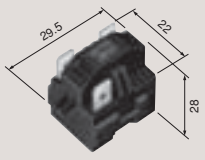
Maximum Inrush Current shows the maximum inrush current value introduced into the Posistor at operating temperature range.

PTC Thermistors POSISTOR® (for Motor Starters)

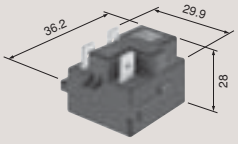
This series is specifically designed for appliance application in refrigerators and freezers.



PTH7M Series



PTH8M Series



PTHTM Series
*It is effective solution for the power saving.

(in mm)

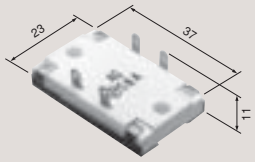
Series	Resistance (25°C) (Ω)	Maximum Voltage (V)	Maximum Current (A)	Operating Time (25°C) (s)	Starting System
PTH7M	4.7 to 33	180 to 355	6 to 12	0.2 to 2.2	CSR/RSIR/RSCR
PTH8M	4.7 to 33	180 to 355	6 to 12	0.2 to 3.5	CSR/RSIR/RSCR
PTHTM	4.7 to 47	180 to 400	5 to 12	0.2 to 2.2	RSCR

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

PTC Thermistors POSISTOR® (for Heater)

Standard Type

These POSISTOR® are designed for various applications for constant temperature.



(in mm)

PTWSB Series

Series	Curie Point (°C)	Rated Voltage (V)	Maximum Voltage (V)	Inrush Current (A)	Steady State Current (at 120Vrms) (mA)	Steady State Current (at 220Vrms) (mA)
PTWSB	92 to 225	100/220	260	5.0	32 to 78	17 to 39

Inrush Current Based on 220Vrms.
Operating Temperature Range PTWSB1: -20 to 60°C, PTWSB2: -20 to 85°C

Detailed Catalogs

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

• NTC Thermistors	Cat. No. R44E
• POSISTOR® for Circuit Protection	Cat. No. R90E
• POSISTOR® for Heater	Cat. No. R19E
• PTC Thermistor (POSISTOR®) Application Manual	Cat. No. R16E
• PTC - NTC for Surface Mounting Application	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

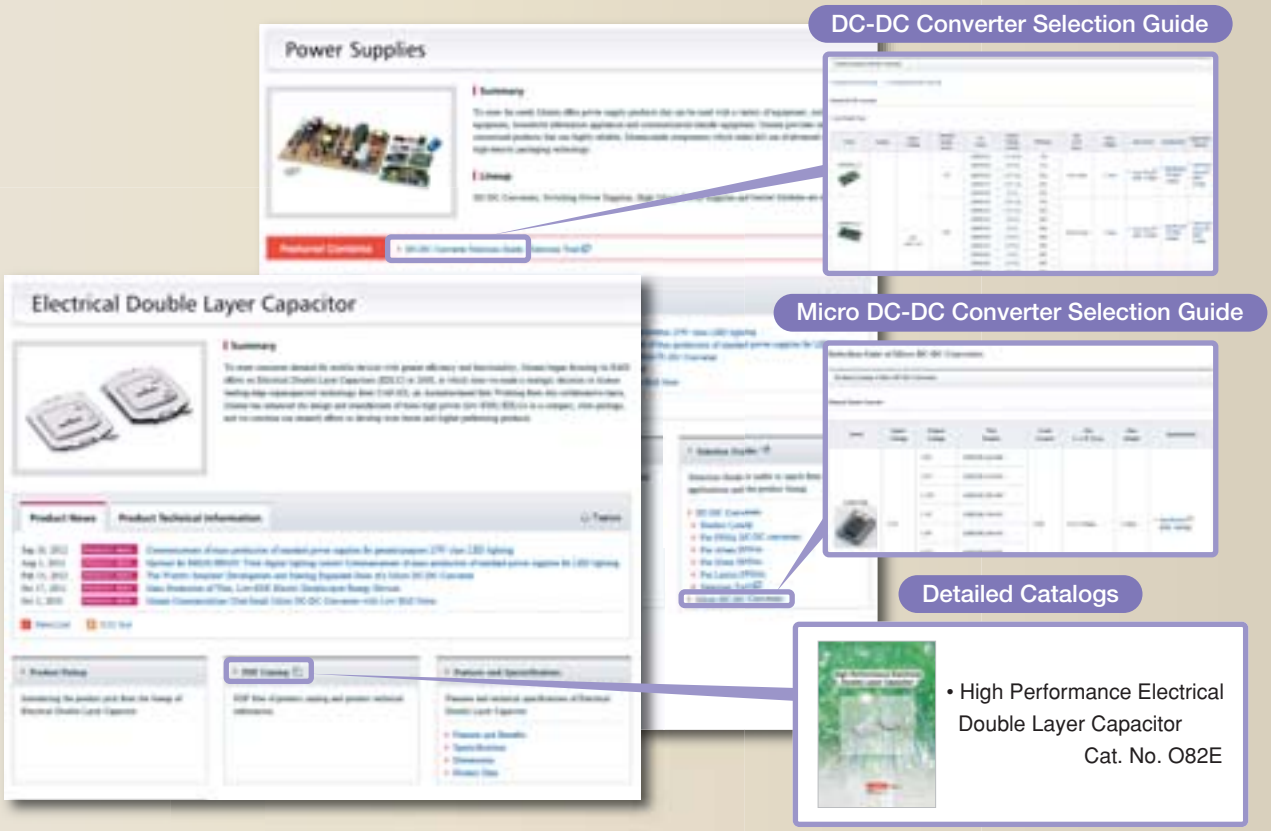
To meet consumer needs Murata offers power supply products and energy devices that can be used with a variety of equipment, such as video equipment, household information appliances and communication/ transfer equipment. Murata provides standard and customized products using highly reliable, Murata-made components utilizing advanced design and high-density packaging technology. The electrical double-layer capacitor is the energy device that can provide various merits such as downsizing, efficiency, and high function.

Lineup

●DC-DC Converters ●Micro DC-DC Converters ●High Voltage Power Supplies ●Switching Power Supplies
●Electrical Double Layer Capacitors ●Ionizer Modules

Web Content

Introducing DC-DC Converters and Electrical Double Layer Capacitors content on our website.



Power Supplies ⇒ http://www.murata.com/products/power/
Electrical Double Layer Capacitors ⇒ http://www.murata.com/products/edlc/

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


OKL Series


MPDRX312S

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
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
MPDRX312S	SMD	3.0 to 5.5	28.8	0.8 to 1.8	16	86.5	27.8×15.4×4.2

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

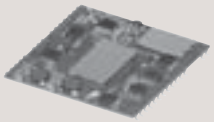
For more details on our product lineup, please refer to our website.
Product Search ⇒ http://search.murata.co.jp/
Power Supplies Contents ⇒ http://www.murata.com/products/power/

Power Supplies/Energy Devices

Isolated Type

MPD5D01*S Series

MPD6D10*S/20*S Series
MPD7D06*S Series



MPD6D12*S Series
MPD7D05*S/13*S/12*S Series

Part Number	Package	Input Voltage (V)	Nominal Output Power (W)	Output Voltage (V)	Current (A)	Efficiency (%)	Size (mm) L×W×H
MPD5D013S	SMD	36.0 to 75.0	5	1.5	0.8	70	27.0×14.6×4.7
MPD6D101S	SMD	36.0 to 75.0	10	12	0.8	88	39.9×22.4×4.2
MPD6D207S	SMD	18.0 to 36.0	30	3.3	9	91	39.3×30.1×8.0
MPD7D067S	SMD	36.0 to 75.0	35	3.3	10.6	90	39.3×30.1×8.0
MPD6D122S	SMD	36.0 to 75.0	30	1.2	12	84	45.0×45.0×4.4
MPD7D052S	SMD	36.0 to 75.0	50	1.2	16	86	45.0×36.2×4.2
MPD7D137S	SMD	36.0 to 75.0	80	3.3	24	92	45.0×45.0×8.5
MPD7D128S	SMD	36.0 to 75.0	100	5	20	92.5	45.0×45.0×8.5

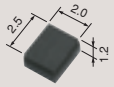
These are just a few examples of our large assortment of power products.

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.

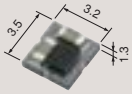
General Buck Converter

LXDC2HL Series

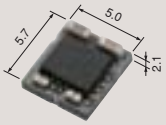


LXDC2HN Series

LXDC2UR Series



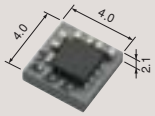
LXDC3EP Series



LXDC55B Series

(in mm)

Boost Converter

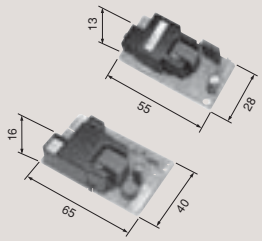


LXDC44A Series

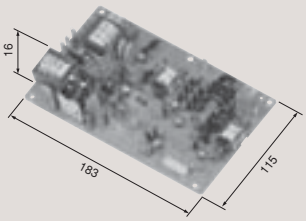
(in mm)

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/

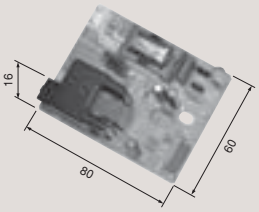
High Voltage Power Supplies



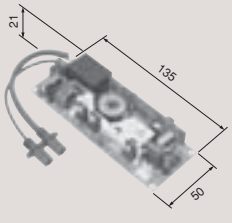
MPH1000/2000 Series



MPH7000 Series



MPH4000 Series
(for Air Purifier/Air Conditioner)



(in mm)

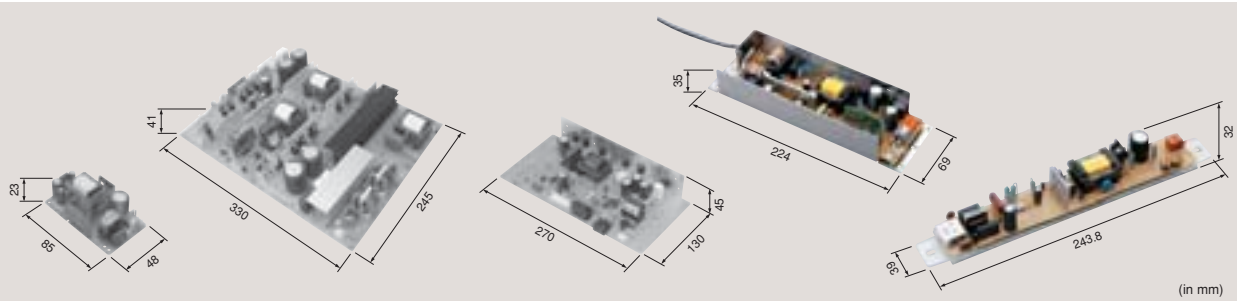
MPL3000 Series
(AC/DC Ballast)

Series	Input Voltage Vin	Power Supply Type		Output Voltage Vout	Output Current Iout	Adjustable Range
MPH1000	24V DC	DC Constant Voltage		6kV	(350μA)	Vout: 4 to 6.5kV
MPH2000		DC Constant Current		(6kV)	350μA	Iout: 150 to 400μA
MPH7000		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 (for Air Purifier/Air Conditioner)		DC Constant Voltage		±6kV	±400μA	—
		DC Constant Current		(±6kV)	±400μA	—

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

For more details on our products, please contact us.

Switching Power Supplies



For SOHO Equipment　For Wide-screen LCD Panel　For PBX　LED Lighting

Applications	Input Voltage	Output Voltage	Safety Standard	EMI Standard	Remarks
SOHO Equipment	115V AC	50V 0.3A/24V 4.5A (PEAK)	Facsimile voluntary standard, UL, CSA	VCCI, FCC	Models that provide a power-saving standby mode are also available.
	230V AC	24V 1.0A (RATE)	IEC	VDE, CISPR	
For Wide-screen LCD Panel	100/115V /230V AC	24V 20A/15V 4A/5V 0.3A	Electrical safety, UL, CSA, IEC	VCCI, FCC, VDE, CISPR	W/W input type is available. Models that provide a power-saving standby mode are also available.
PBX	115V/30V AC	5V 5.0A/12V 1.0A/-48V 2.5V	UL, IEC	FCC, CISPR	Provided with Pb battery charging function.
LED Lighting	90 to 267V AC	30 to 50V	PSE	PSE	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.

(in mm)

DMF Series

Main Part Number	Thickness (mm)	Capacitance (mF)	Rated Voltage (Peak Voltage) (V)	ESR (mΩ)	Operating Temperature (°C)
DMF3R5R5L334M3DTA0	2.5	330	5.5	60	-30 to70
DMF3Z5R5H474M3DTA0	3.2	470	5.5	40	-30 to 70

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.75.

Sound Components

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

Summary

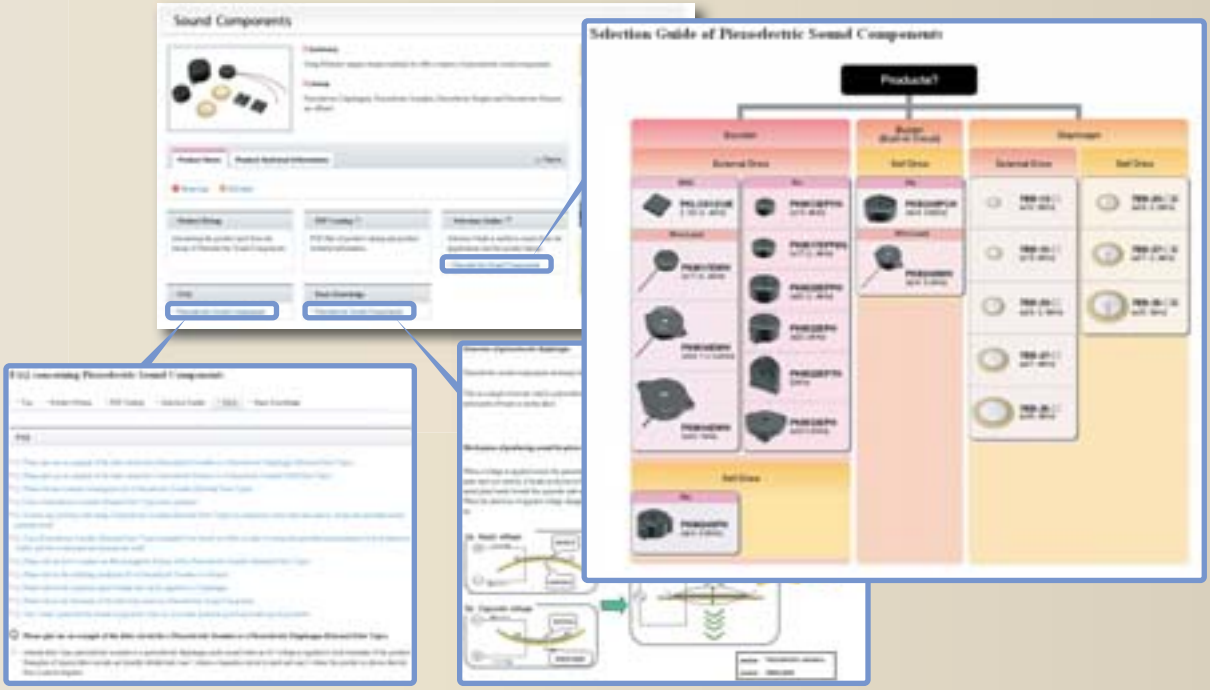
Using Murata's unique ceramic material we offer a variety of piezoelectric sound components.

Lineup

- Piezoelectric Sounders
- Piezoelectric Buzzers
- Piezoelectric Diaphragms

Web Content

Introducing Sound Component content on our website.



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

Detailed Catalogs

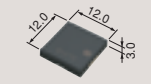
For more details, please refer to our printed catalogs and the PDF catalogs on our website.

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

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

Piezoelectric Sounders

Low power consumption, lightweight
Suitable for office equipment/home appliances/audio equipment



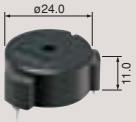
PKLCS1212E2400

PKM13EPYH

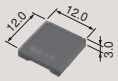
PKM22EPH

PKM22EPPH

PKM17EWH



PKM24SPH



PKLCS1212E4001

PKM17EPP

(in mm)

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]
	Lead Type	**PKM17EWH4000**	75 min.	[3Vp-p, 4kHz, square wave, 10cm]
Self Drive	Pin Type	**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

PKB24SPCH

(in mm)

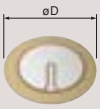
Drive Type	Mounting Type	Main Part Number	Sound Pressure Level (dB)	Measurement Condition of Sound Pressure Level
Self Drive	Pin Type	**PKB24SPCH3601-B0**	90 min.	[12Vdc, 10cm]

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

Piezoelectric Diaphragms

Low power consumption, lightweight
Suitable for Clocks/Calculators/Digital cameras/Various alarms (Burglar alarms, etc.)

7BB-□□-□



7BB-□□-□C

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/

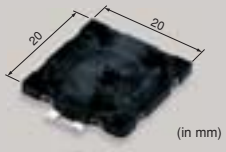
Others

Micromechatronics

Utilizing the vibration and deformation of piezoelectric materials.

Microblowers

Tiny air pumps without a motor



(in mm)

Features

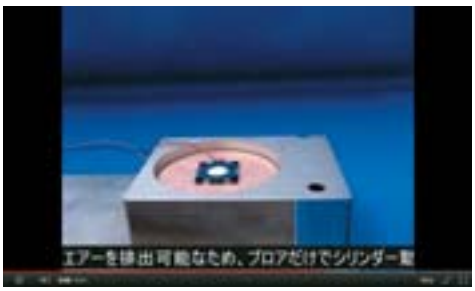
Microblowers are designed to function as an air pump, using the ultrasonic vibrations of Piezoelectric ceramics, which can generate high pressure air from a thin and extremely compact unit.

Applications

Air freshener, Gas & Alcohol Sensor, Air ionizer, Amusement, Spot Cooling for tiny devices etc.

Part Number	Size	Air Flow	Static Pressure	Voltage of Operation
MZB1001T02	20(W)×20(L)×1.85(H)mm without the nozzle 20(W)×20(L)×3.45(H)mm with 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-made 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.

LTCC (Low Temperature Co-fired Ceramics) Multilayer Substrates

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/

Cat.No. N20E

Others

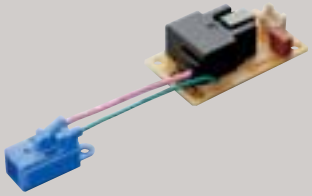
Ionizer Modules Ionissimo®

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/ionizer/

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

Others

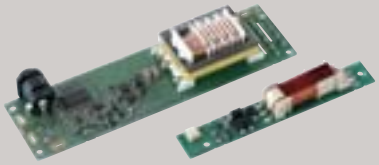
Wireless Power Transmission Modules

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

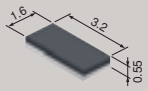
Others

RFID Devices

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

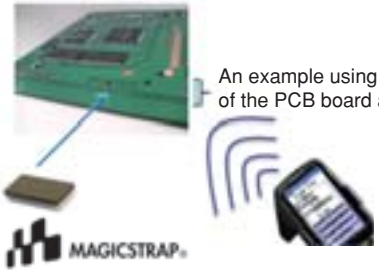
UHF-band MAGICSTRAP®

LXMS31 Series



(in mm)

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 (±500μm). In addition, MAGICSTRAP® supports wide UHF band (860-960MHz) for worldwide use in a single design.

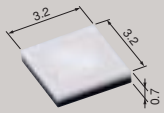


An example using the grand pattern of the PCB board as an antenna.

View demonstration videos of MAGICSTRAP® on our website.
http://www.murata.com/products/rfid/

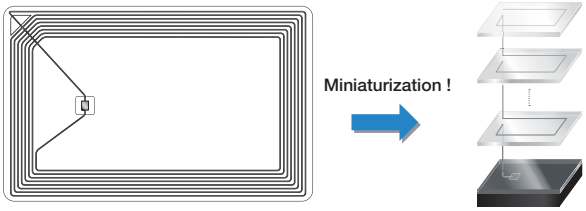
HF-band MAGICSTRAP®

LXMS33 Series



(in mm)

HF-band MAGICSTRAP® is one of the world's smallest HF-band RFID tags (3.2x3.2x0.7mm). Murata has applied its proprietary multi-layer circuit board technology and high-frequency module technology, with which the successful miniaturization of an RFID tag to one-tenth the size of an RFID tag composed of plane surface, was achieved. Furthermore, the new RFID product uses a ceramic module structure that makes it highly resistant to the environment and enables it to achieve stable operation under various environmental conditions.



Horizontal

Multi-layer

Applications

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

Electrical Characteristics

Read range: 15mm (reader/writer output: 200mW, antenna size: 35x54mm)

For more details on RFID Devices, please refer to our website.
http://www.murata.com/products/rfid/

Others

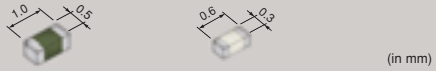
ESD Protection Devices

Support ESD protection for various kinds of electronic devices

Ceramic ESD Protection Devices

Applying Murata original ceramic technology to have excellent ESD suppression performance and ultra-small capacitance value

LXES_A Series



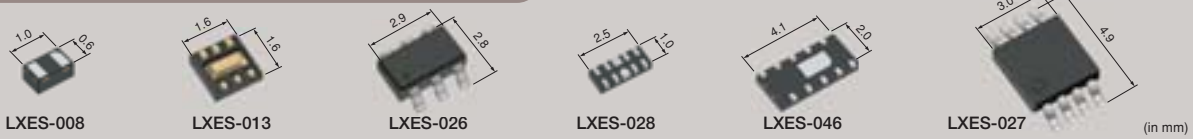
LXES-100　　LXES-098

(in mm)

Silicon ESD Protection Devices

Applying accumulated design technology to have excellent ESD suppression performance

LXES_B Series

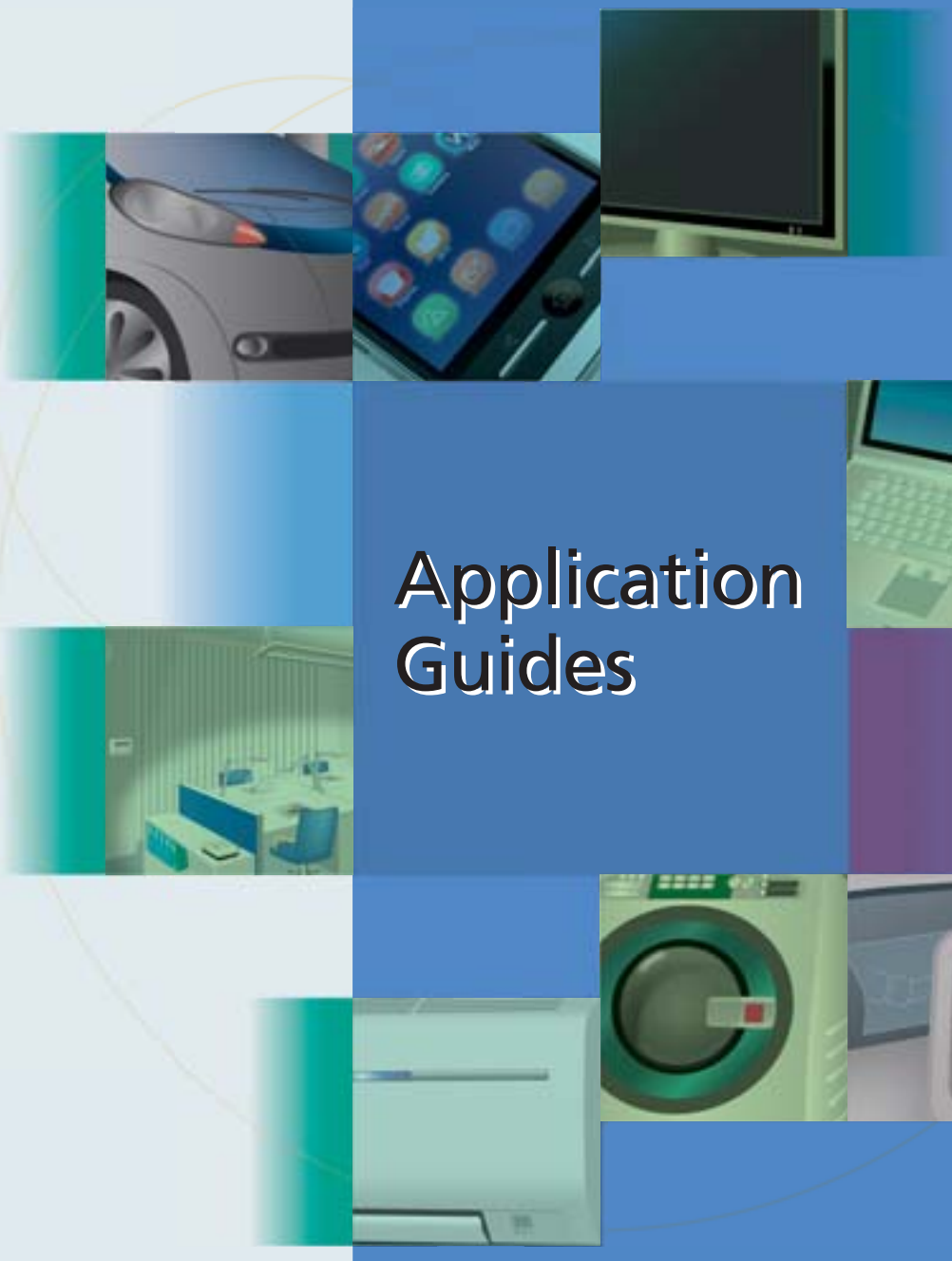


LXES-008　LXES-013　LXES-026　LXES-028　LXES-046　LXES-027

(in mm)

For more details on each series, please refer to our website.
Product Lineup ⇒ http://www.murata.com/products/emc/selection_guide/emc3/
Product Search ⇒ http://search.murata.co.jp/
<Category Search> Primary: "Noise Suppression Products/EMI Suppression Filters" Secondary: "ESD Protection Device"
<Part Number Search> Part Number: "LXES"

Memo

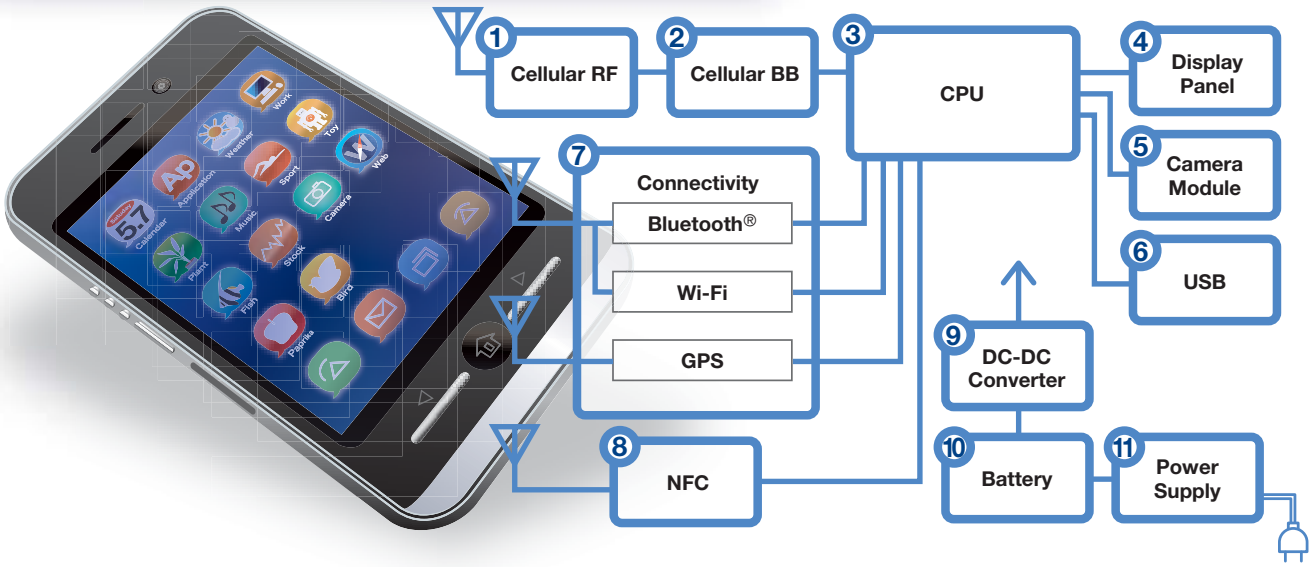


Application Guides

muRata

Application Guides

Mobile Phones



1 Cellular RF

- Chip Antennas — LDA/ANC Series — p46
- SWITCHPLEXER® — LMSP Series
- Chip Multilayer Diplexers — LFD Series — p49
- SAW Duplexers — SAY Series — p41
- SAW Filters — SAF Series — p41
- Chip Multilayer LC Filters — p42
- Chip Multilayer Hybrid Baluns — LDB/LDM Series — p48
- Chip Multilayer Hybrid Dividers — LDD Series — p49
- Coaxial Connectors — p50
- GaAs Switch IC
- Isolators — CEG23 Series — p47
- Micro DC-DC Converters — LXDC Series — p67
- Trimmer Capacitors — TZS2 Series — p21
- ESD Protection Devices — LXES Series — p77
- Thermistors — NCP/PRF Series — p59

2 Cellular BB

- Micro DC-DC Converters — LXDC Series — p67
- 3 Terminal Capacitors — NFM Series — p24
- Chip Common Mode Choke Coils — DLW/DLP Series — p25
- Thermistors — NCP/PRF Series — p59

3 CPU

- Crystal Resonators — XRCGB Series — p34
- Chip Ferrite Beads — BLM Series — p23
- 3 Terminal Capacitors — NFM Series — p24
- Thermistors — NCP/PRF Series — p59

4 Display Panel

- Micro DC-DC Converters — LXDC Series — p67
- Ceramic Resonators CERALOCK® — CSTCE Series — p34
- EMI Suppression Filters EMIFIL® — NFA Series — p24
- Chip Common Mode Choke Coils — DLW/DLP Series — p25
- Chip Inductors (Chip Coils) — LQW/LQP Series — p28
- Trimmer Potentiometers — PVZ2 Series — p31
- ESD Protection Devices — LXES Series — p77
- Thermistors — NCP/PRF Series — p59

5 Camera Module

- Micro DC-DC Converters — LXDC Series — p67
- Electrical Double Layer Capacitors — DMF/DME Series — p69
- Monolithic Ceramic Capacitors for Medium Voltage — GR7 Series — p9
- Actuators — PALPRM Series — p73
- Chip Ferrite Beads — BLM Series — p23
- Trimmer Potentiometers — PVZ2 Series — p31
- ESD Protection Devices — LXES Series — p77
- Thermistors — NCP/PRF Series — p59

6 USB

Micro DC-DC Converters
LXDC Series
p67

Chip Common Mode Choke Coils
DLW/DLP Series
p25

Chip Ferrite Beads
BLM Series
p23

ESD Protection Devices
LXES Series
p77

Thermistors
NCP/PRF Series
p59

7 Connectivity

Bluetooth® Modules
p74

Wi-Fi Modules
p74

Bluetooth® - Wi-Fi Combo Modules
p74

WiMAX® Modules

TransferJet® Modules

GPS Modules

Chip Antennas
LDA/ANC Series
p46

Dielectric Antennas
ANH Series

SAW Filters
SAF Series
p41

Chip Multilayer LC Filters
p42

Chip Multilayer Hybrid Baluns
LDB/LDM Series
p48

Coaxial Connectors
p50

Micro DC-DC Converters
LXDC Series
p67

ESD Protection Devices
LXES Series
p77

Thermistors
NCP/PRF Series
p59

8 NFC

NFC Modules

NFC Antennas
FLAN Series

Micro DC-DC Converters
LXDC Series
p67

Crystal Resonators
XRCGB Series
p34

Chip Ferrite Beads
BLM Series
p23

Chip Inductors (Chip Coils)
LQM/LQH Series
p28

Trimmer Capacitors
TZS2 Series
p21

Variable Capacitors
LXRW Series

ESD Protection Devices
LXES Series
p77

9 DC-DC Converter

Micro DC-DC Converters
LXDC Series
p67

Metal Terminal Type
Monolithic Ceramic Capacitors
KRM Series
p10

Polymer Aluminum Electrolytic Capacitors
ECAS Series
p20

Thermistors
NCP/PRF Series
p59

10 Battery

Thermistors
NCP/PRF/PRG Series
p59

11 Power Supply

Wireless Power
Transmission Modules
p75

Monolithic Ceramic Capacitors
for Medium Voltage
GR/GA Series
p3

Chip Inductors (Chip Coils)
LQM/LQH Series
p28

Medium High Voltage
Ceramic Capacitors
DEA/DES Series
p16

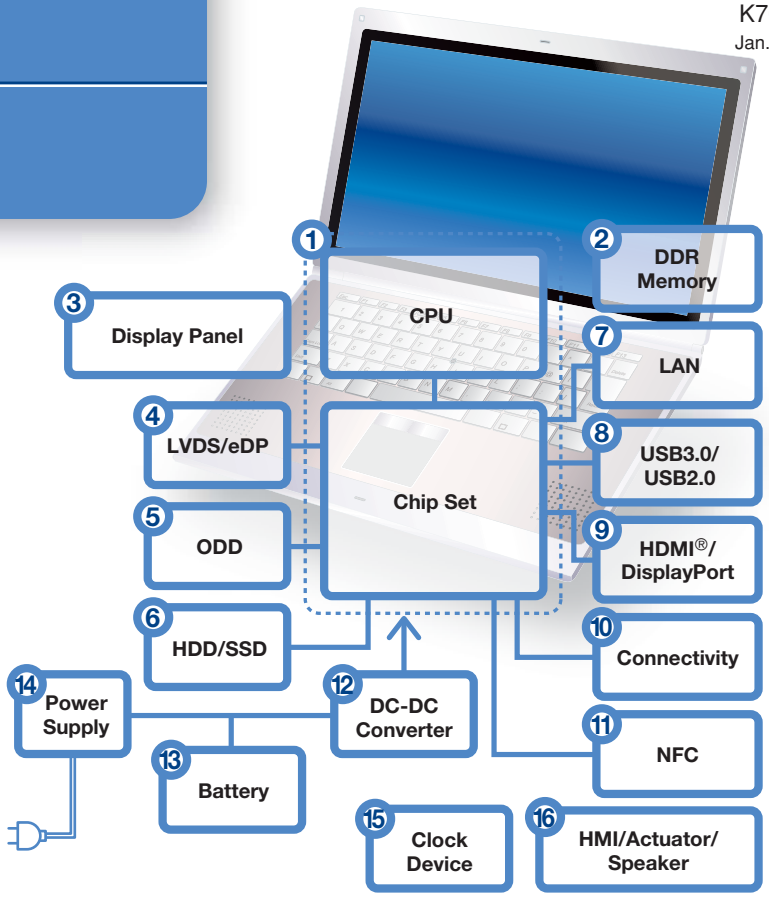
Safety Standard Certified
Ceramic Capacitors
Type KX/KY
p17

General Purpose

Monolithic Ceramic Capacitors	GRM/GJM Series	High Frequency Filter Circuit	p3
Monolithic Ceramic Capacitors	GRM/GNM Series	Coupling/Decoupling/For Step-up	p3
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	p20
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	p28
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	p28
Chip Ferrite Beads	BLM Series	Noise Suppression	p23
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	p24
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	p25
Microwave Absorbers	EA Series	Noise Suppression	p26
Ferrite Cores	FS Series	Noise Suppression	p26
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	p26

Application Guides

Personal Computers



1 CPU/Chip Set

- Micro DC-DC Converters LXDC Series p67
- Low ESL Monolithic Ceramic Capacitors LLL/LLA/LLM Series p5
- Monolithic Ceramic Decoupling Capacitors GWM Series
- Polymer Aluminum Electrolytic Capacitors ECAS Series p20
- Crystal Resonators XRCGB Series p34
- Chip Ferrite Beads BLM Series p23
- 3 Terminal Capacitors NFM Series p24
- Thermistors NCP/PRF Series p59

2 DDR Memory

- Micro DC-DC Converters LXDC Series p67
- Polymer Aluminum Electrolytic Capacitors ECAS Series p20
- Chip Ferrite Beads BLM Series p23

3 Display Panel

- Metal Terminal Type Monolithic Ceramic Capacitors KRM Series p10
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p34
- Power Inductors LQH Series p28
- Trimmer Potentiometers PVZ2 Series p31
- Thermistors PRF/PRG Series p61

4 LVDS/eDP

- Chip Common Mode Choke Coils DLW/DLP Series p25
- ESD Protection Devices LXES Series p77
- Thermistors NCP/PRF Series p59

5 ODD

- Ceramic Resonators CERALOCK® CSTCW Series p35
- Crystal Resonators XRCGB Series p34
- Trimmer Potentiometers PVZ2 Series p31
- Thermistors NCP Series p59

6 HDD/SSD

- Shock Sensors PKGS Series p56
- Micro DC-DC Converters LXDC Series p67
- Polymer Aluminum Electrolytic Capacitors ECAS Series p20
- Electrical Double Layer Capacitor DMG Series p69
- Actuators PALHRS Series p73
- Crystal Resonators XRCGB Series p34
- Thermistors NCP/PRF Series p59

7 LAN

- Monolithic Ceramic Capacitors for Medium Voltage GR4 Series p9
- Chip Common Mode Choke Coils DLW/DLP Series p25

8 USB3.0/USB2.0

- Micro DC-DC Converters LXDC Series p67
- Polymer Aluminum Electrolytic Capacitors ECAS Series p20
- Crystal Resonators XRCGB Series p34
- Chip Common Mode Choke Coils DLW/DLP Series p25
- Chip Ferrite Beads BLM Series p23
- ESD Protection Devices LXES Series p77
- Thermistors PRG Series p62

9 HDMI®/DisplayPort

- Chip Common Mode Choke Coils DLW/DLP Series p25
- ESD Protection Devices LXES Series p77
- Thermistors PRG Series p62

10 Connectivity

- Bluetooth® Modules  p74
- Wi-Fi Modules  p74
- Bluetooth® - Wi-Fi Combo Modules  p74
- WiMAX® Modules 
- TransferJet® Modules 
- GPS Modules 
- Chip Antennas LDA/ANC Series  p46
- Dielectric Antennas ANH Series 
- SAW Filters SAF Series p41
- Chip Multilayer LC Filters  p42
- Chip Multilayer Hybrid Baluns LDB/LDM Series  p48
- Coaxial Connectors  p50
- Micro DC-DC Converters LXDC Series  p67
- ESD Protection Devices LXES Series  p77

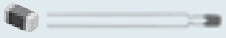
11 NFC

- NFC Modules 
- NFC Antennas FLAN Series 
- Micro DC-DC Converters LXDC Series  p67
- Crystal Resonators XRCGB Series  p34
- Chip Ferrite Beads BLM Series  p23
- Chip Inductors (Chip Coils) LQM/LQH Series  p28
- Trimmer Capacitors TZS2 Series  p21
- Variable Capacitors LXRW Series 
- ESD Protection Devices LXES Series  p77

12 DC-DC Converter

- Micro DC-DC Converters LXDC Series  p67
- Thermistors NCP/PRF Series  p59
- Metal Terminal Type Monolithic Ceramic Capacitors KRM Series  p10
- Polymer Aluminum Electrolytic Capacitors ECAS Series  p20

13 Battery

- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series  p34
- Thermistors NXR/PRF/PRG Series  p60

14 Power Supply

- Micro DC-DC Converters LXDC Series  p67
- Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series  p3
- Medium High Voltage Ceramic Capacitors DEA/DES Series  p16
- Safety Standard Certified Ceramic Capacitors Type KX/KY  p17
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series  p34
- Trimmer Potentiometers PVG3 Series  p31
- Chip Common Mode Choke Coils DLW/DLP Series  p25
- Thermistors NCP/NTP/PRF Series  p59

15 Clock Device

- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series  p34
- Crystal Resonators XRCGB Series  p34

16 HMI/Actuator/Speaker

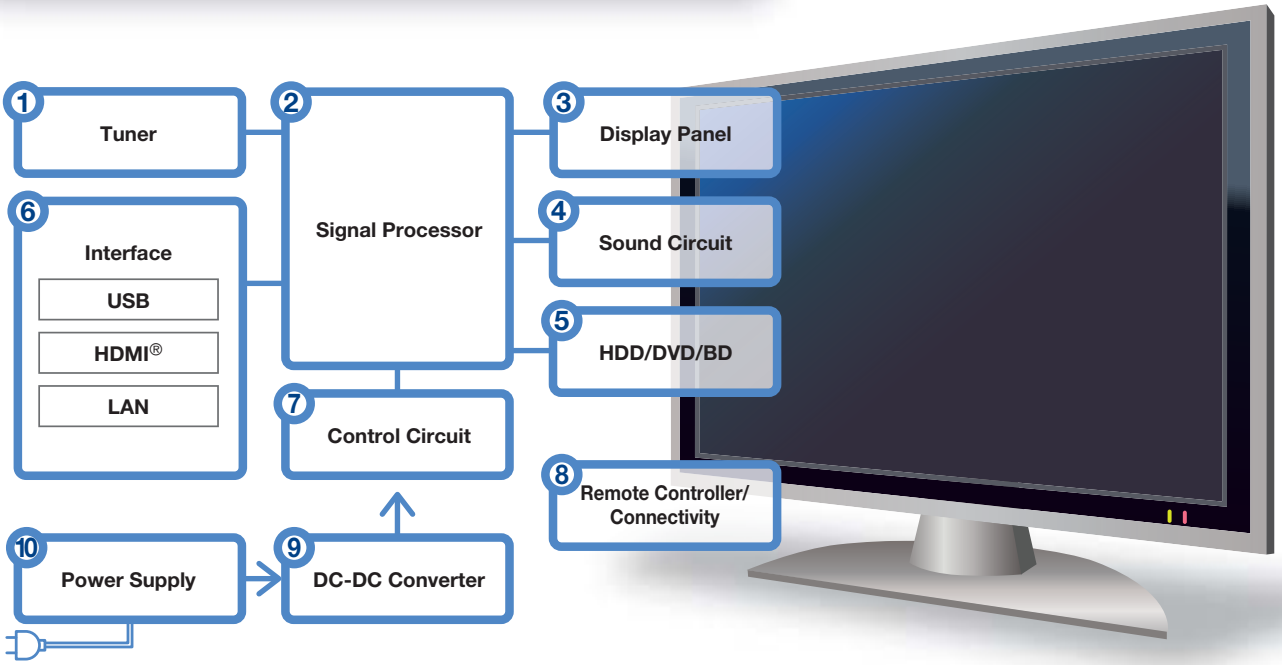
- Pyroelectric Infrared Sensors IRS Series  p56
- Ultrasonic Sensors MA Series  p56
- ESD Protection Devices LXES Series  p77

General Purpose

Monolithic Ceramic Capacitors	GRM/GNM Series	Coupling/Decoupling	p3
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	p20
Radial Lead Type Monolithic Ceramic Capacitors	RDE Series	Coupling/Decoupling	p14
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	p28
Chip Ferrite Beads	BLM Series	Noise Suppression	p23
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	p24
Microwave Absorbers	EA Series	Noise Suppression	p26
Ferrite Cores	FS Series	Noise Suppression	p26

Application Guides

Televisions



1 Tuner

Microchip Transformers (Baluns)
DXP18B Series
p48

Crystal Resonators
XRCGB Series
p34

Chip Inductors (Chip Coils)
LQW Series
p28

Trimmer Potentiometers
PVZ2 Series
p31

ESD Protection Devices
LXES Series
p77

2 Signal Processor

Polymer Aluminum Electrolytic Capacitors
ECAS Series
p20

Ceramic Resonators CERALOCK®
CSTCE/CSTCR Series
p34

Crystal Resonators
XRCGB Series
p34

3 Terminal Capacitors
NFM Series
p24

Thermistors
NCP/PRF Series
p59

3 Display Panel

Switching Power Supplies
MPF Series
p69

DC-DC Converters
OKL Series
p66

Metal Terminal Type Monolithic Ceramic Capacitors
KRM Series
p10

Polymer Aluminum Electrolytic Capacitors
ECAS Series
p20

Chip Common Mode Choke Coils
DLW/DLP Series
p25

Power Inductors
LQH Series
p28

Rotary Position Sensors
SV Series
p55

Trimmer Potentiometers
PVZ2 Series
p31

Thermistors
NCP/PRF Series
p59

4 Sound Circuit

Chip Common Mode Choke Coils
DLW/DLP Series
p25

5 HDD/DVD/BD

Shock Sensors
PKGS Series
p56

Polymer Aluminum Electrolytic Capacitors
ECAS Series
p20

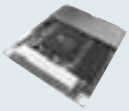
Ceramic Resonators CERALOCK®
CSTCE Series
p34

Crystal Resonators
XRCGB Series
p34

Trimmer Potentiometers
PVZ2 Series
p31

Thermistors
NCP/PRF Series
p59

6 Interface

- 11n Modules 
- Polymer Aluminum Electrolytic Capacitors ECAS Series  p20
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series  p34
- Crystal Resonators XRCGB Series  p34
- Chip Common Mode Choke Coils DLW/DLP Series  p25
- ESD Protection Devices LXES Series  p77
- Thermistors PRG Series  p62

7 Control Circuit

- Bluetooth® Modules  p74
- Pyroelectric Infrared Sensors IRS Series  p56
- Micro DC-DC Converters LXDC Series  p67
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series  p34

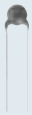
8 Remote Controller/Connectivity

- Bluetooth® Modules  p74
- Wi-Fi Modules  p74
- Bluetooth® Smart Modules 
- NFC Modules 
- TransferJet® Modules 
- Shock Sensors PKGS Series  p56
- Angular Rate Sensors ENC Series  p56
- Micro DC-DC Converters LXDC Series  p67
- Wireless Power Transmission Modules  p75
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series  p34
- Piezoelectric Sounders PKM/PKLCS Series  p71
- ESD Protection Devices LXES Series  p77

9 DC-DC Converter

- Micro DC-DC Converters LXDC Series  p67
- Metal Terminal Type Monolithic Ceramic Capacitors KRM Series  p10
- Polymer Aluminum Electrolytic Capacitors ECAS Series  p20
- Power Inductors LQH Series  p28
- Thermistors NCP/PRF Series  p59

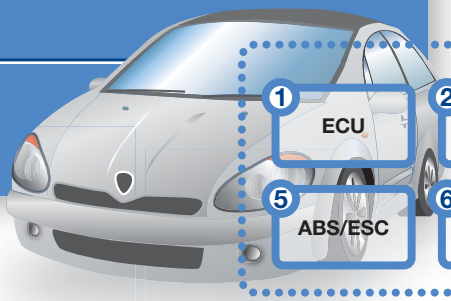
10 Power Supply

- Wireless Power Transmission Modules  p75
- Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series  p3
- Medium High Voltage Ceramic Capacitors DEA/DES Series  p16
- Safety Standard Certified Ceramic Capacitors Type KX/KY  p17
- Trimmer Potentiometers PVG3 Series  p31
- AC Line Filters PLA/PLY Series  p26
- Thermistors NCP/NTP/PRF/PTG Series  p59

General Purpose

Monolithic Ceramic Capacitors	GRM Series	High Frequency Filter Circuit/Frequency Control	p3
Monolithic Ceramic Capacitors	GRM/GNM Series	Coupling/Decoupling	p3
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	p20
Radial Lead Type Monolithic Ceramic Capacitors	RDE Series	Coupling/Decoupling	p14
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	p28
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	p28
Chip Ferrite Beads	BLM Series	Noise Suppression	p23
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	p24
Ferrite Cores	FS Series	Noise Suppression	p26
Thin Type Sandwich Cores	FSSA Series	Noise Suppression	p26

Application Guides
Automotive



Powertrain/Safety

1. ECU
2. AT
3. Auxiliary Motors
4. TPMS
5. ABS/ESC
6. Headlamp
7. EPS
8. Fuel Injection System

1 ECU

- LTCC (Low Temperature Co-fired Ceramics) Multilayer Substrates LFC® p74
- 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
- Radial Lead Type Monolithic Ceramic Capacitors RH Series p18
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p34
- Accelerometers SCA Series p55
- Gyroscopes SCC Series p55
- Thermistors PRF/PTG Series p61

3 Auxiliary Motors

- LTCC (Low Temperature Co-fired Ceramics) Multilayer Substrates LFC® p74
- DC-DC Converters p66
- Metal Terminal Type Monolithic Ceramic Capacitors KCM Series p14
- Radial Lead Type Monolithic Ceramic Capacitors RH Series p18
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p34
- Large Current Common Mode Choke Coils PLT10HH Series p25
- Thermistors PRF/PTG Series p61

2 AT

- LTCC (Low Temperature Co-fired Ceramics) Multilayer Substrates LFC® p74
- Accelerometers SCA Series p55
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p34
- Metal Terminal Type Monolithic Ceramic Capacitors KCM Series p14
- Thermistors PRF/PTG Series p61

4 TPMS

- Ceramic Filters CERAFIL® SFECF Series p37
- Ceramic Discriminators CDSCB Series p39
- Thermistors PRF Series p61
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p34
- Pressure Elements
- Piezoelectric Sounders PKLCS Series p71

5 ABS/ESC

- LTCC (Low Temperature Co-fired Ceramics) Multilayer Substrates LFC® p74
- 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
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p34
- Accelerometers SCA Series p55
- Gyroscopes SCC Series p56
- 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
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p34
- Thermistors for Conductive Glue Mounting NCG18 Series

7 EPS

- LTCC (Low Temperature Co-fired Ceramics) Multilayer Substrates LFC® p74
- 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
- Radial Lead Type Monolithic Ceramic Capacitors RPE Series
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p34
- Thermistors for Conductive Glue Mounting NCG18 Series
- Accelerometers SCA Series p55
- Gyroscopes SCC Series p55
- Thermistors PRF/PTG Series p61

8 Fuel Injection System

- Actuator for Fuel Injector
- Radial Lead Type Monolithic Ceramic Capacitors RPF Series

HEV/PHEV/EV

1. Charger
2. BMS
3. Electrically-driven Compressor
4. Electric Pump
5. Inverter
6. DC-DC Converter

1 Charger

Metal Terminal Type Monolithic Ceramic Capacitors KCM Series p14

Monolithic Ceramic Capacitors GCM/GCJ Series p11

Safety Standard Certified Ceramic Capacitors Type KJ p19

Ceramic Resonators CERALOCK® CSTCE Series p34

Large Current Common Mode Choke Coils PLT10HH Series p25

Thermistors PRF/PTG Series p61

2 BMS

DC-DC Converters p66

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

Ceramic Resonators CERALOCK® CSTCE Series p34

Thermistors PRF/PTG Series p61

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

Thermistors PRF/PTG Series p61

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

Large Current Common Mode Choke Coils PLT10HH Series p25

Thermistors PRF/PTG Series p61

5 Inverter

Monolithic Ceramic Capacitors for High Power Applications EVC Series

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

Radial Lead Type Monolithic Ceramic Capacitors RH Series p18

Large Current Common Mode Choke Coils PLT10HH Series p25

Thermistors PRF/PTG Series p61

6 DC-DC Converter

Monolithic Ceramic Capacitors for High Power Applications EVC Series

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

Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p34

Large Current Common Mode Choke Coils PLT10HH Series p25

Thermistors PRF/PTG Series p61

High Reliability

Monolithic Ceramic Capacitors	GCM Series	Coupling/Decoupling	150°c	p11
Radial Lead Type Monolithic Ceramic Capacitors	RPE Series	Noise Suppression/Decoupling	125°c	
Radial Lead Type Monolithic Ceramic Capacitors	RH Series	Noise Suppression/Decoupling	150°c	p18
Chip Inductors (Chip Coils)	LQH32CH Series	Voltage Conversion	105°c	p28
Chip Inductors (Chip Coils)	LQG15HH Series	Impedance Matching/Choke	125°c	p29
Chip Ferrite Beads	BLM_SH Series	Noise Suppression	125°c	p23
3 Terminal Capacitors	NFM_H/NFE_H Series	Noise Suppression	125°c	p24
Chip Common Mode Choke Coils	DLW31SH/DLW43SH Series	Common Mode Noise Suppression	125°c	p25

http://www.murata.com/products/apps/auto/hev.html

105°c 105°c max. 125°c 125°c max. 150°c 150°c max.

Information/Comfort/Accessory

1. Navigation/ Infotainment
2. RKE
3. Meter/HUD
4. Power Seat/ Power Mirror
5. Parking Assist

1 Navigation/Infotainment

- Angular Rate Sensors MEV Series p56
- Rotary Position Sensors SV Series p55
- Accelerometers SCA Series p55
- Electrical Double Layer Capacitor DMF/DME Series p69
- Ceramic Filters CERAFIL® SFECF Series p37
- Ceramic Discriminators CDSCB Series p39
- Piezoelectric Sounders PKLCS Series p71
- Bluetooth® Modules p74
- Wi-Fi Modules p74
- DC-DC Converters p66
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p34
- Thermistors PRF/PRG/PTG Series p61

2 RKE

- Electrical Double Layer Capacitor DMF/DME Series p69
- Ceramic Filters CERAFIL® SFECF Series p37
- Ceramic Discriminators CDSCB Series p39
- Trimmer Capacitors TZY2 Series p21
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p34
- Trimmer Potentiometers PVM4 Series p31

3 Meter/HUD

- Rotary Position Sensors SV Series p55
- DC-DC Converters p66
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p34
- Piezoelectric Sounders PKM/PKLCS Series p71
- Thermistors PRF/PTG Series p61

4 Power Seat/Power Mirror

- Piezoelectric Sounders PKLCS Series p71
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p34
- Thermistors PRF/PTG Series p61

5 Parking Assist

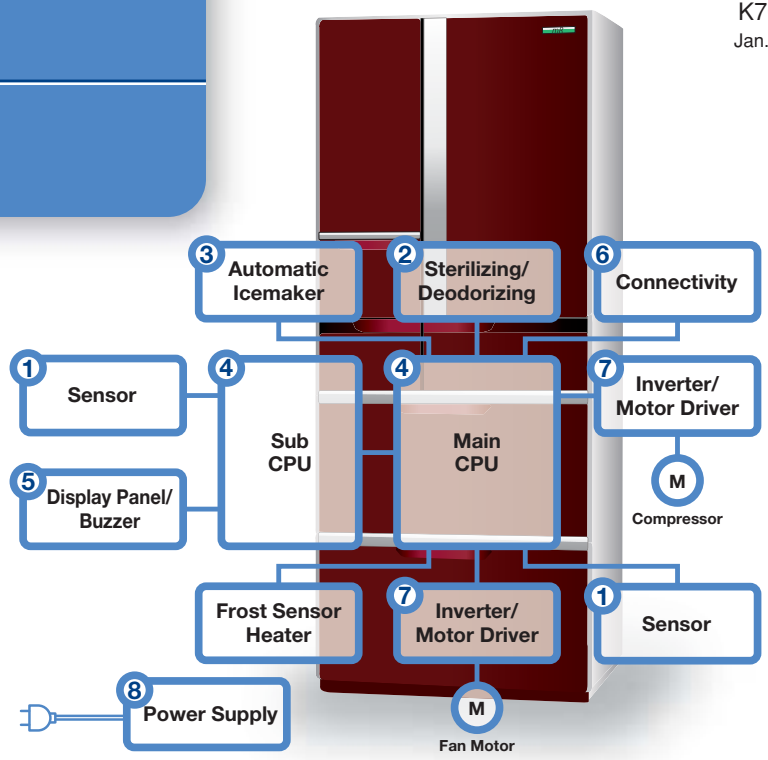
- Ultrasonic Sensors MA Series p56
- Accelerometers SCA Series p55
- Electrical Double Layer Capacitor DMF/DME Series p69
- Piezoelectric Sounders PKM/PKLCS Series p71
- Ceramic Resonators CERALOCK® CSTCE/CSTCR Series p34
- Thermistors PRF/PTG Series p61

General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling	p3
Monolithic Ceramic Capacitors for Medium Voltage	GRM Series	For Snubber	p3
Radial Lead Type Monolithic Ceramic Capacitors	RPE Series	Noise Suppression/Decoupling	p15
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	Voltage Conversion	p28
Chip Ferrite Beads	BLM Series	Noise Suppression	p23
EMI Suppression Filters EMIFIL®	NFM/NFA/NFL/NFE/NFW/NFR Series	Noise Suppression	p24
Chip Common Mode Choke Coils	DLW Series	Common Mode Noise Suppression	p25
Ferrite Cores	FS Series	Noise Suppression	p26

Application Guides

Refrigerator



1 Sensor

Pyroelectric Infrared Sensors
IRS Series
p56

Thermistors
NCP/NXR/PRF Series
p59

2 Sterilizing/Deodorizing

Ionizer Modules Ionissimo®
MHM Series
p75

High Voltage Resistors
MHR Series
p32

Microblowers
p73

3 Automatic Icemaker

Microblowers
p73

4 CPU

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series
p34

5 Display Panel/Buzzer

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series
p34

Piezoelectric Sounders
PKM/PKLCS Series
p71

6 Connectivity

Bluetooth® Modules
p74

Wi-Fi Modules
p74

Sub-GHz Modules

NFC Modules

Chip Multilayer Antennas
LDA Series
p46

Chip Dielectric Antennas
ANC Series
p46

Coaxial Connectors
p50

Micro DC-DC Converters
LXDC Series
p67

7 Inverter/Motor Driver

Thermistors
NCP/NXR/PRF Series
p59

PTC Thermistors POSISTOR® (for Motor Starters)
PTH Series
p63

8 Power Supply

Monolithic Ceramic Capacitors for Medium Voltage
GR/GA Series
p3

Medium High Voltage Ceramic Capacitors
DEA/DES Series
p16

Safety Standard Certified Ceramic Capacitors
Type KX/KY
p17

Trimmer Potentiometers
PVG3 Series
p31

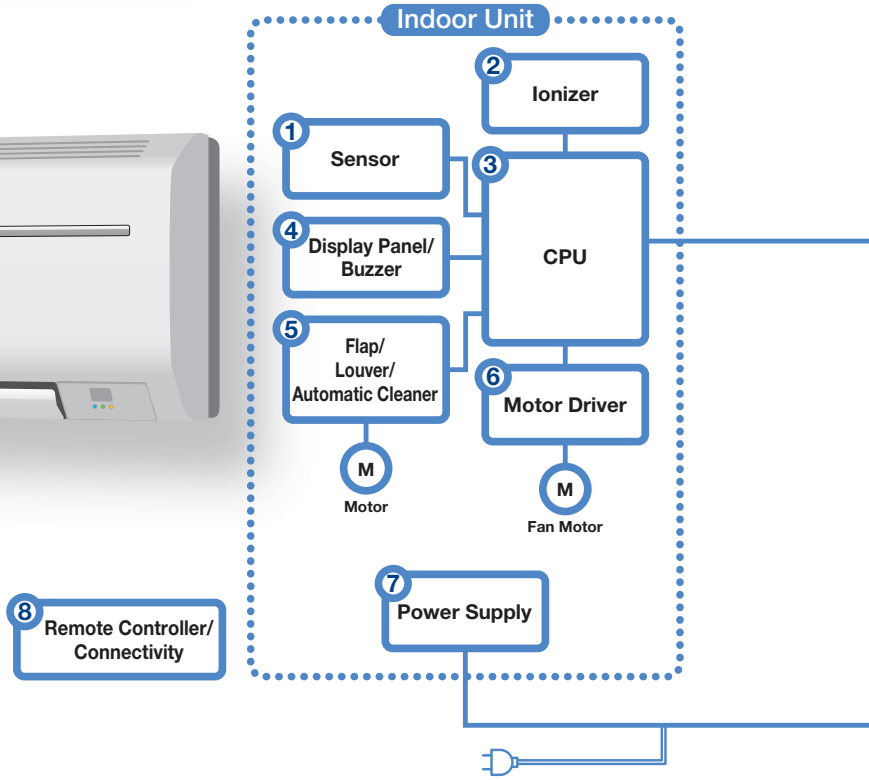
Thermistors
NTP/PTG Series
p60

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	p20
Radial Lead Type Monolithic Ceramic Capacitors	RDE Series	Coupling/Decoupling	p14
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	p28
Chip Ferrite Beads	BLM Series	Noise Suppression	p23
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	p24
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	p25
Ferrite Cores	FS Series	Noise Suppression	p26

Application Guides

Air Conditioner



1 Sensor

Pyroelectric Infrared Sensors
IRS Series
p56

Ultrasonic Sensors
MA Series
p56

Thermistors
NCP/NXR/PRF Series
p59

2 Ionizer

Ionizer Modules Ionissimo®
MHM Series
p75

High Voltage Resistors
MHR Series
p32

3 CPU

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series
p34

4 Display Panel/Buzzer

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series
p34

Piezoelectric Sounders
PKM/PKLCS Series
p71

5 Flap/Louver/Automatic Cleaner

Rotary Position Sensors
SV Series
p55

6 Motor Driver

Thermistors
NCP/NXR/PRF Series
p59

7 Power Supply

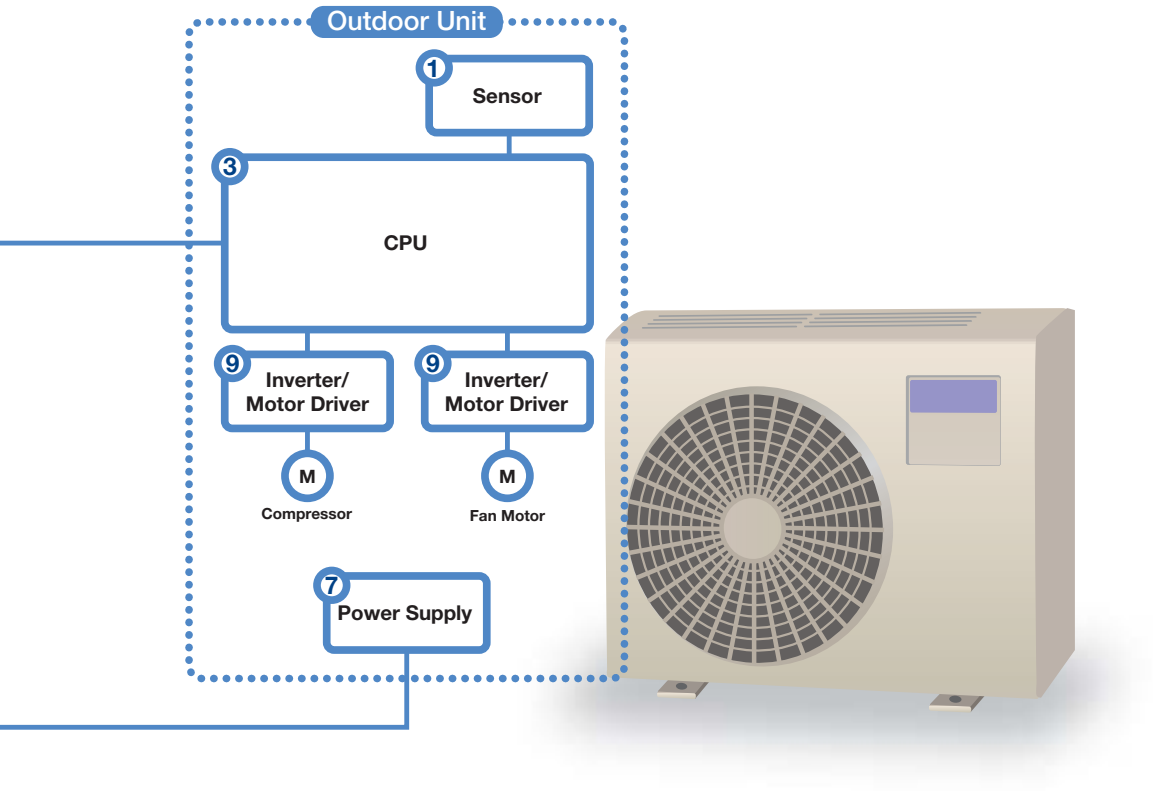
Monolithic Ceramic Capacitors for Medium Voltage
GR/GA Series
p3

Medium High Voltage Ceramic Capacitors
DEA/DES Series
p16

Safety Standard Certified Ceramic Capacitors
Type KX/KY
p17

Trimmer Potentiometers
PVG3 Series
p31

Thermistors
NTP/PTG Series
p60



8 Remote Controller/Connectivity

Bluetooth® Modules p74

Wi-Fi Modules p74

Sub-GHz Modules

NFC Modules

Chip Multilayer Antennas
LDA Series p46

Chip Dielectric Antennas
ANC Series p46

Coaxial Connectors p50

Micro DC-DC Converters
LXDC Series p67

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series p34

9 Inverter/Motor Driver

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series p34

Trimmer Potentiometers
PVG3 Series p31

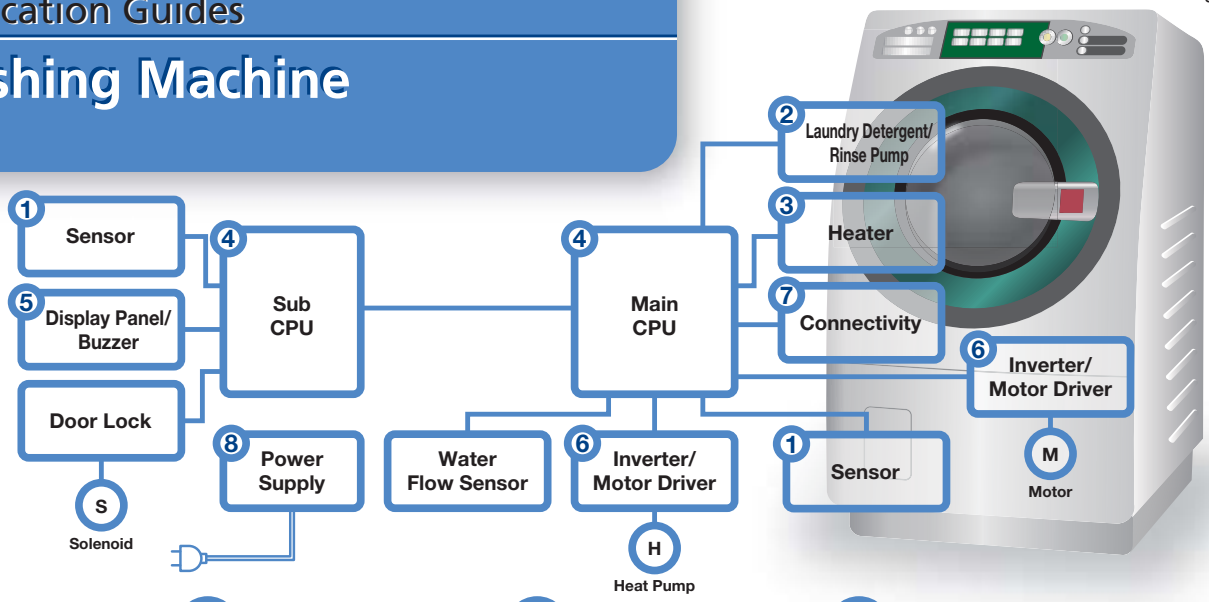
Thermistors
NCP/NXR/PRF Series p59

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	p20
Radial Lead Type Monolithic Ceramic Capacitors	RDE Series	Coupling/Decoupling	p14
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	p28
Chip Ferrite Beads	BLM Series	Noise Suppression	p23
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	p24
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	p25
Ferrite Cores	FS Series	Noise Suppression	p26

Application Guides

Washing Machine



1 Sensor

Thermistors
NCP/NXR/PRF Series
p59

2 Laundry Detergent/Rinse Pump

Microblowers
p73

3 Heater

Thermistors
PTWH Series

4 CPU

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series
p34

5 Display Panel/Buzzer

Rotary Position Sensors
SV Series
p55

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series
p34

Piezoelectric Sounders
PKM Series
p71

6 Inverter/Motor Driver

Trimmer Potentiometers
PVG3 Series
p31

Thermistors
NCP/NXR/PRF Series
p59

7 Connectivity

Bluetooth® Modules
p74

Wi-Fi Modules
p74

Sub-GHz Modules

NFC Modules

Chip Multilayer Antennas
LDA Series
p46

Chip Dielectric Antennas
ANC Series
p46

Coaxial Connectors
p50

Micro DC-DC Converters
LXDC Series
p67

8 Power Supply

Monolithic Ceramic Capacitors for Medium Voltage
GR/GA Series
p3

Medium High Voltage Ceramic Capacitors
DEA/DES Series
p16

Safety Standard Certified Ceramic Capacitors
Type KX/KY
p17

Trimmer Potentiometers
PVG3 Series
p31

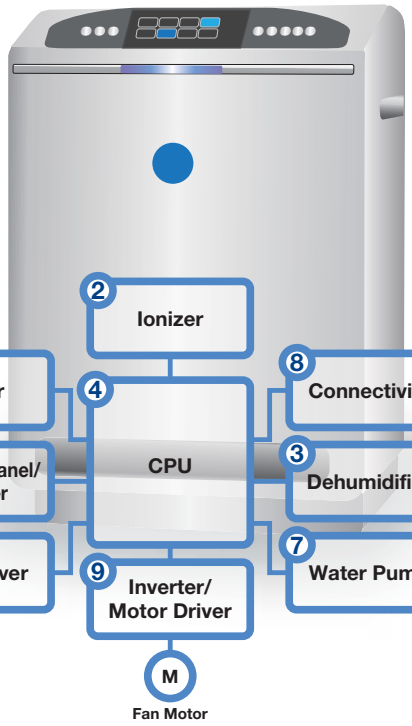
Thermistors
NTP/PTG Series
p60

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	p20
Radial Lead Type Monolithic Ceramic Capacitors	RDE Series	Coupling/Decoupling	p14
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	p28
Chip Ferrite Beads	BLM Series	Noise Suppression	p23
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	p24
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	p25
Ferrite Cores	FS Series	Noise Suppression	p26

Application Guides

Air Purifier



1 Sensor

Pyroelectric Infrared Sensors
IRS Series
p56

Ultrasonic Sensors
MA Series
p56

Thermistors
NCP/NXR/PRF Series
p59

2 Ionizer

Ionizer Modules Ionissimo®
MHM Series
p75

High Voltage Resistors
MHR Series
p32

3 Dehumidifier

Thermistors
PTWH Series

4 CPU

Micro DC-DC Converters
LXDC Series
p67

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series
p34

5 Display Panel/Buzzer

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series
p34

Piezoelectric Sounders
PKM/PKLCS Series
p71

6 Flap/Louver

Rotary Position Sensors
SV Series
p55

7 Water Pump

Microblowers
p73

8 Connectivity

Bluetooth® Modules
p74

Wi-Fi Modules
p74

Sub-GHz Modules

NFC Modules

Chip Multilayer Antennas
LDA Series
p46

Chip Dielectric Antennas
ANC Series
p46

Coaxial Connectors
p50

Micro DC-DC Converters
LXDC Series
p67

9 Inverter/Motor Driver

Trimmer Potentiometers
PVG3 Series
p31

Thermistors
NCP/NXR/PRF Series
p59

10 Power Supply

Monolithic Ceramic Capacitors for Medium Voltage
GR/GA Series
p3

Trimmer Potentiometers
PVG3 Series
p31

Medium High Voltage Ceramic Capacitors
DEA/DES Series
p16

AC Line Filters
PLA/PLY Series
p26

Safety Standard Certified Ceramic Capacitors
Type KX/KY
p17

Thermistors
NTP/PTG Series
p60

11 Remote Controller

Micro DC-DC Converters
LXDC Series
p67

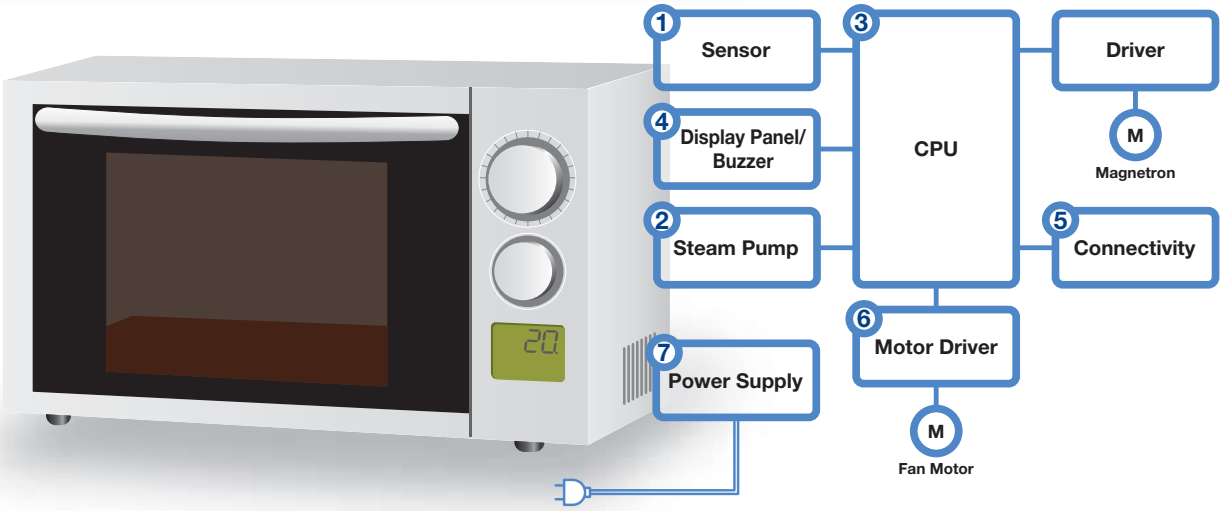
Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series
p34

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	p20
Radial Lead Type Monolithic Ceramic Capacitors	RDE Series	Coupling/Decoupling	p14
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	p28
Chip Ferrite Beads	BLM Series	Noise Suppression	p23
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	p24
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	p25
Ferrite Cores	FS Series	Noise Suppression	p26

Application Guides

Microwave Oven



1 Sensor

Thermistors
NCP/NXR/PRF Series
p59

2 Steam Pump

Microblowers
p73

3 CPU

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series
p34

4 Display Panel/Buzzer

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series
p34

Piezoelectric Sounders
PKM/PKLCS Series
p71

6 Motor Driver

Thermistors
NCP/NXR/PRF Series
p59

5 Connectivity

Bluetooth® Modules
p74

Wi-Fi Modules
p74

Sub-GHz Modules

NFC Modules

Chip Multilayer Antennas
LDA Series
p46

Chip Dielectric Antennas
ANC Series
p46

Coaxial Connectors
p50

Micro DC-DC Converters
LXDC Series
p67

7 Power Supply

Monolithic Ceramic Capacitors for Medium Voltage
GR/GA Series
p3

Medium High Voltage Ceramic Capacitors
DEA/DES Series
p16

Safety Standard Certified Ceramic Capacitors
Type KX/KY
p17

Trimmer Potentiometers
PVG3 Series
p31

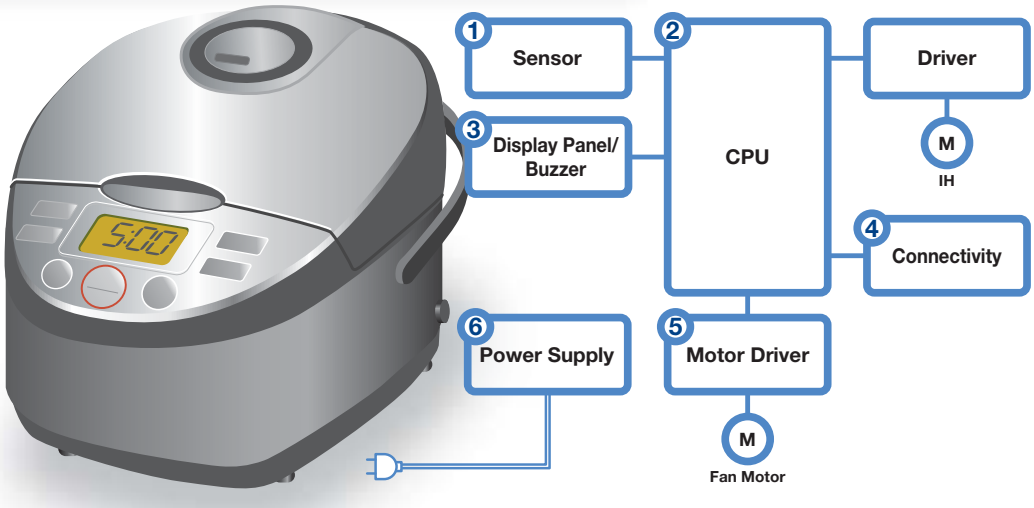
Thermistors
NTP/PTG Series
p60

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	p20
Radial Lead Type Monolithic Ceramic Capacitors	RDE Series	Coupling/Decoupling	p14
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	p28
Chip Ferrite Beads	BLM Series	Noise Suppression	p23
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	p24
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	p25
Ferrite Cores	FS Series	Noise Suppression	p26

Application Guides

IH Rice Cooker



1 Sensor

Thermistors
NCP/NXR/PRF Series
p59

2 CPU

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series
p34

3 Display Panel/Buzzer

Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series
p34

Piezoelectric Sounders
PKM/PKLCS Series
p71

4 Connectivity

Bluetooth® Modules
p74

Wi-Fi Modules
p74

Sub-GHz Modules

NFC Modules

Chip Multilayer Antennas
LDA Series
p46

Chip Dielectric Antennas
ANC Series
p46

Coaxial Connectors
p50

Micro DC-DC Converters
LXDC Series
p67

5 Motor Driver

Thermistors
NCP/NXR/PRF Series
p59

6 Power Supply

Monolithic Ceramic Capacitors for Medium Voltage
GR/GA Series
p3

Medium High Voltage Ceramic Capacitors
DEA/DES Series
p16

Safety Standard Certified Ceramic Capacitors
Type KX/KY
p17

Trimmer Potentiometers
PVG3 Series
p31

Thermistors
NTP/PTG Series
p60

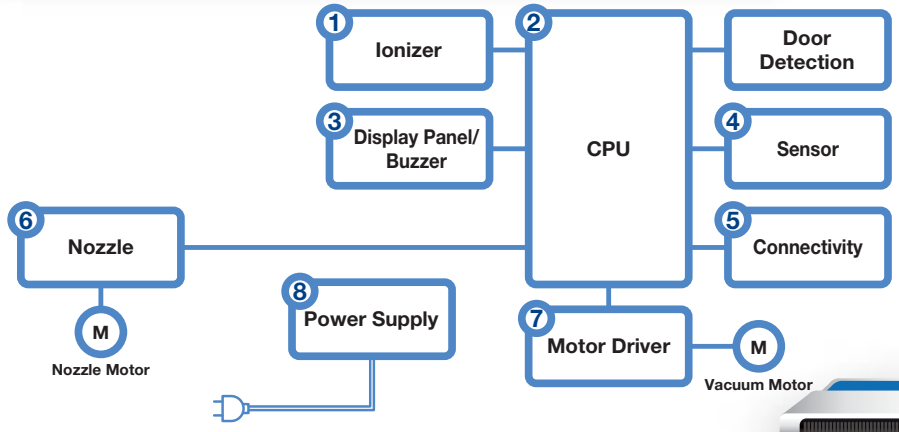
General Purpose

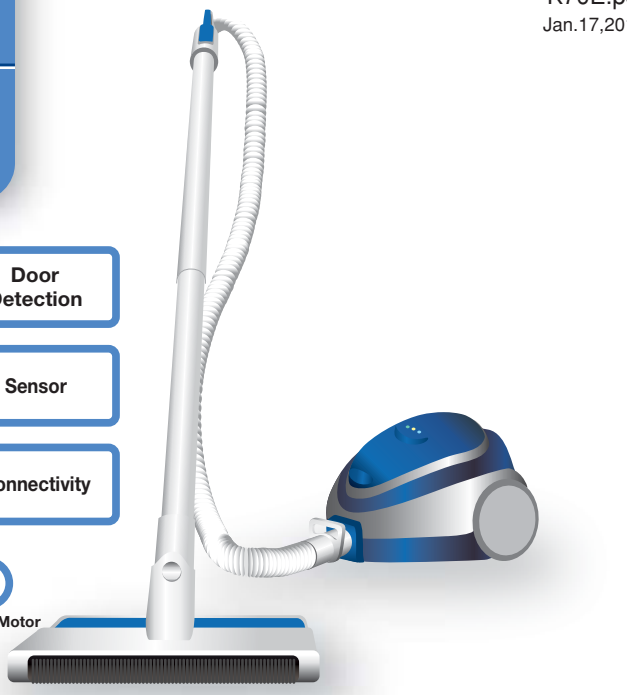
Monolithic Ceramic Capacitors	GRM/GJM Series	Coupling/Decoupling/For Snubber	p3
Monolithic Ceramic Capacitors for Medium Voltage	GR/GA Series	Coupling/Decoupling	p3
Polymer Aluminum Electrolytic Capacitors	ECAS Series	Smoothing/Transient Backup	p20
Radial Lead Type Monolithic Ceramic Capacitors	RDE Series	Coupling/Decoupling	p14
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	p28
Chip Ferrite Beads	BLM Series	Noise Suppression	p23
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	p24
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	p25
Ferrite Cores	FS Series	Noise Suppression	p26

http://www.murata.com/products/apps/whitegoods/cook.html

Application Guides

Vacuum Cleaner





1 Ionizer

Ionizer Modules Ionissimo® MHM Series p75

High Voltage Resistors MHR Series p32

2 CPU

Ceramic Resonators CERALOCK® CSTLS/CSTCE/CSTCR Series p34

3 Display Panel/Buzzer

Ceramic Resonators CERALOCK® CSTLS/CSTCE/CSTCR Series p34

Piezoelectric Sounders PKM/PKLCS Series p71

4 Sensor

Ultrasonic Sensors MA Series p56

Thermistors NCP Series p59

5 Connectivity

Bluetooth® Modules p74

Wi-Fi Modules p74

Sub-GHz Modules

NFC Modules

Chip Multilayer Antennas LDA Series p46

Chip Dielectric Antennas ANC Series p46

Coaxial Connectors p50

Micro DC-DC Converters LXDC Series p67

6 Nozzle

Thermistors PTG Series p62

7 Motor Driver

Thermistors NCP/NXR/PRF Series p59

8 Power Supply

Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series p3

Medium High Voltage Ceramic Capacitors DEA/DES Series p16

Safety Standard Certified Ceramic Capacitors Type KX/KY p17

Trimmer Potentiometers PVG3 Series p31

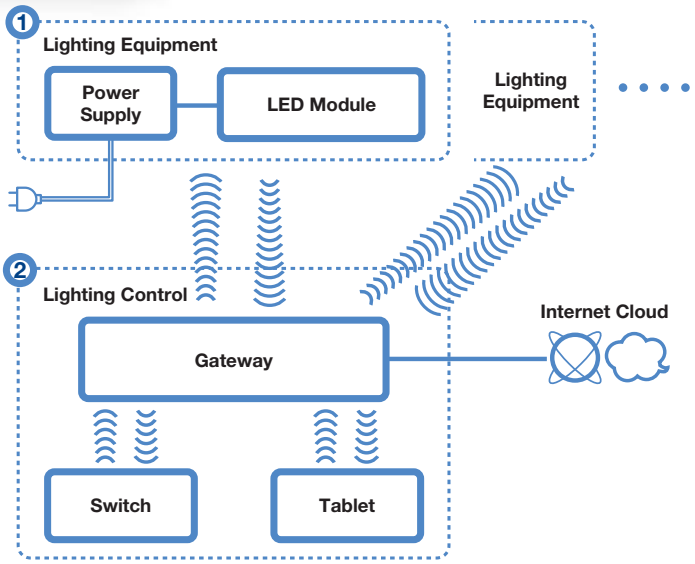
Thermistors NTP/PTG Series p60

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	p20
Radial Lead Type Monolithic Ceramic Capacitors	RDE Series	Coupling/Decoupling	p14
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	p28
Chip Ferrite Beads	BLM Series	Noise Suppression	p23
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	p24
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	p25
Ferrite Cores	FS Series	Noise Suppression	p26

Application Guides

Lighting Control System



1 Lighting Equipment

Ballast for LED Lighting p69

Monolithic Ceramic Capacitors for Medium Voltage
GR/GA Series p3

Medium High Voltage Ceramic Capacitors
DEA/DES Series p16

Safety Standard Certified Ceramic Capacitors
Type KX/KY p17

Wi-Fi Modules p74

Sub-GHz Modules

Thermistors
NCP/NTP/PRF/PRG/PTG Series p59

AC Line Filters
PLA/PLH/PLY Series p26

2 Lighting Control

ZigBee®Gateway

Wi-Fi Modules p74

Sub-GHz Modules

Pyroelectric Infrared Sensors
IRS Series p56

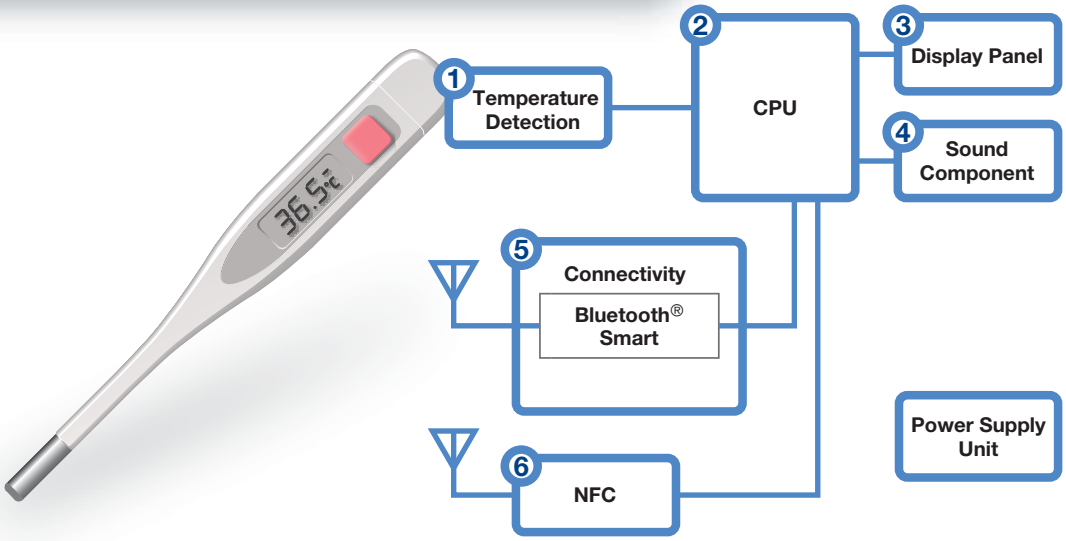
Ceramic Resonators CERALOCK®
CSTLS/CSTCE/CSTCR Series p34

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
Radial Lead Type Monolithic Ceramic Capacitors	RDE Series	Coupling/Decoupling	p14
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	p28
Chip Ferrite Beads	BLM Series	Noise Suppression	p23
3 Terminal Capacitors	NFM/NFE Series	Noise Suppression	p24
Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression	p25

Application Guides

Thermometer



1 Temperature Detection

Thermistors
NXR Series
p60

2 CPU

Ceramic Resonators CERALOCK®
CSTCR-G/CSTCE-G/CSTCE-V Series
p34

3 Display Panel

Trimmer Potentiometers
PVZ2 Series
p31

Thermistors
NCP Series
p59

4 Sound Component

Piezoelectric Sounders
PKLCS Series
p71

Piezoelectric Diaphragms
7BB Series
p72

5 Connectivity

Bluetooth® Smart Modules
LBCA/LBMA Series

6 NFC

NFC Modules

NFC Antennas
FLAN Series

Micro DC-DC Converters
LXDC Series
p67

Crystal Resonators
XRCGB Series
p34

Chip Ferrite Beads
BLM Series
p23

Chip Inductors (Chip Coils)
LQM/LQH Series
p28

Trimmer Capacitors
TZS2 Series
p21

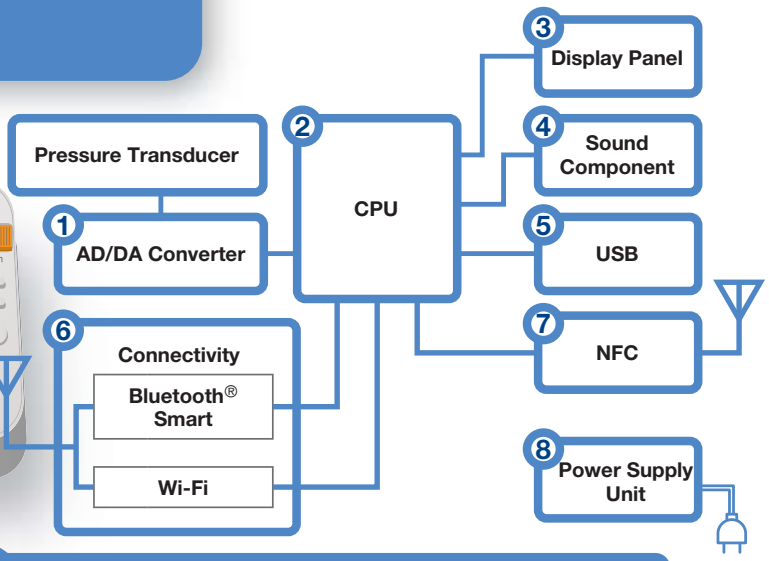
ESD Protection Device
LXES Series
p77

General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	p3
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	p28
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	p28
Chip Ferrite Beads	BLM Series	Noise Suppression	p23
3 Terminal Capacitors	NFM Series	Noise Suppression	p24

Application Guides

Manometer



1 AD/DA Converter

Chip Ferrite Beads
BLM Series
p23

Thermistors
NCP Series
p59

2 CPU

Ceramic Resonators CERALOCK®
CSTCR-G/CSTCE-G/CSTCE-V Series
p34

Thermistors
NCP/NXR Series
p59

3 Display Panel

EMI Suppression Filters EMIFIL®
NFM Series
p24

Chip Ferrite Beads
BLM Series
p23

Trimmer Potentiometers
PVZ2 Series
p31

Thermistors
NCP Series
p59

4 Sound Component

Piezoelectric Sounders
PKLCS/PKM Series
p71

5 USB

Micro DC-DC Converters
LXDC Series
p67

ESD Protection Device
LXES Series
p77

Thermistors
PRG Series
p62

6 Connectivity

ESD Protection Device
LXES Series
p77

Micro DC-DC Converters
LXDC Series
p67

Bluetooth® Smart Modules
LBCA/LBMA Series

Wi-Fi Modules
p74

Ceramic Resonators CERALOCK®
CSTCR-G-L/CSTCE-G-L/CSTCE-V-L/CSTCW-X Series
p34

Crystal Resonators
XRCGB Series
p34

Thermistors
PRG Series
p62

7 NFC

NFC Modules

NFC Antennas
FLAN Series

Micro DC-DC Converters
LXDC Series
p67

Crystal Resonators
XRCGB Series
p34

Chip Ferrite Beads
BLM Series
p23

Chip Inductors (Chip Coils)
LQM/LQH Series
p28

Trimmer Capacitors
TZS2 Series
p21

ESD Protection Device
LXES Series
p77

8 Power Supply Unit

Thermistors
NCP Series
p59

Thermistors
PRF/PRG Series
p61

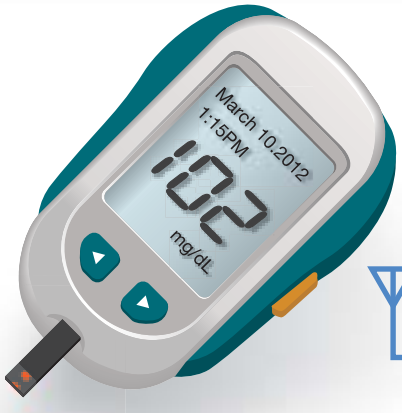
General Purpose

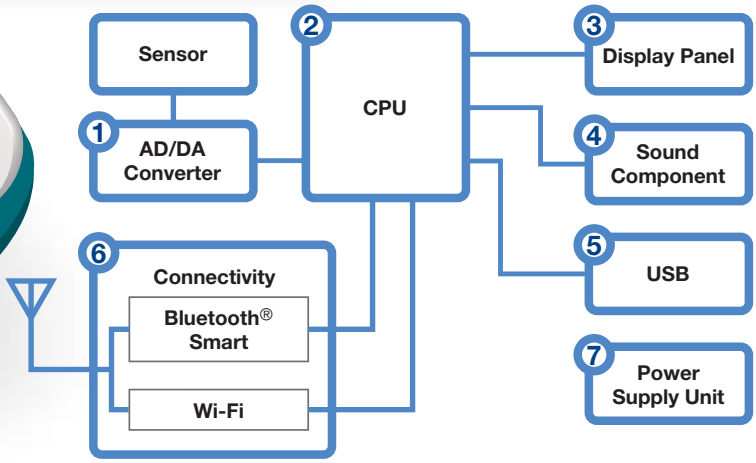
Monolithic Ceramic Capacitors	GRM Series	High Frequency Filter Circuit	p3
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	p3
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	p28
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	p28
Chip Ferrite Beads	BLM Series	Noise Suppression	p23
3 Terminal Capacitors	NFM Series	Noise Suppression	p24

http://www.murata.com/products/apps/healthcare/manometer.html

Application Guides

Blood Glucose Meter





1 AD/DA Converter

Chip Ferrite Beads
BLM Series
p23

Thermistors
NCP Series
p59

2 CPU

Ceramic Resonators CERALOCK®
CSTCR-G/CSTCE-G/CSTCE-V Series
p34

Thermistors
NCP/NXR Series
p59

3 Display Panel

EMI Suppression Filters EMIFIL®
NFM Series
p24

Chip Ferrite Beads
BLM Series
p23

Trimmer Potentiometers
PVZ2 Series
p31

Thermistors
NCP Series
p59

4 Sound Component

Piezoelectric Diaphragms
7BB Series
p72

5 USB

Thermistors
PRG Series
p62

6 Connectivity

Bluetooth® Smart Modules
LBCA/LBMA Series

Wi-Fi Modules
p74

Ceramic Resonators CERALOCK®
CSTCR-G-L/CSTCE-G-L/CSTCE-V-L/CSTCW-X Series
p34

Crystal Resonators
XRCGB Series
p34

Thermistors
PRG Series
p62

7 Power Supply Unit

Thermistors
NCP Series
p59

Thermistors
PRF/PRG Series
p61

General Purpose

Monolithic Ceramic Capacitors	GRM Series	High Frequency Filter Circuit	p3
Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Step-up	p3
Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance	p28
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion	p28
Chip Ferrite Beads	BLM Series	Noise Suppression	p23
3 Terminal Capacitors	NFM Series	Noise Suppression	p24

Index

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.

Design Support Software
SimSurfing

SimSurfing is the latest tool to get the electrical characteristics for Capacitors, Inductors and Thermistors on the internet !

◎You can easily search and download the following data for Chip Monolithic Ceramic Capacitors, Polymer Capacitors, EMI Suppression Filters and Power/RF Inductors.
◎You can search by the simulation on simple circuits for Thermistors.

● View electrical characteristic *1

(ex.1) Chip Monolithic Ceramic Capacitor
- S11, S21, S12, S22 (frequency characteristics / Smith chart)
- |Z|, R, |X|, Q, DF, L, C
- DC bias characteristics (Absolute cap / change ratio)
- Temperature characteristics (Absolute cap / change ratio)
- Ripple exothermic characteristic (Absolute cap / change ratio)
- AC voltage characteristics (Absolute cap / change ratio)

(ex.2) Power Inductor
- S11, S21, S12, S22 (frequency characteristics / Smith chart)
- |Z|, R, |X|, θz, |Y|, G, B, θy, L, Q
- DC bias characteristics (L-DC current @ each temp.)
- Temperature characteristics of Inductance (L-Temperature @ each bias current)
- Current characteristic (Temp. rise)
- Temperature characteristics of DC resistance (DCR-Temp.)
- ACR-frequency characteristics (Core loss characteristics)

● Download S-parameter/Netlist *1

● Product search

● Simulation *2

*1 For Capacitors, EMI Suppression Filters and Inductors
*2 For NTC/PTC Thermistors

■ Usage example of "Chip Monolithic Ceramic Capacitors"

1 Select the products

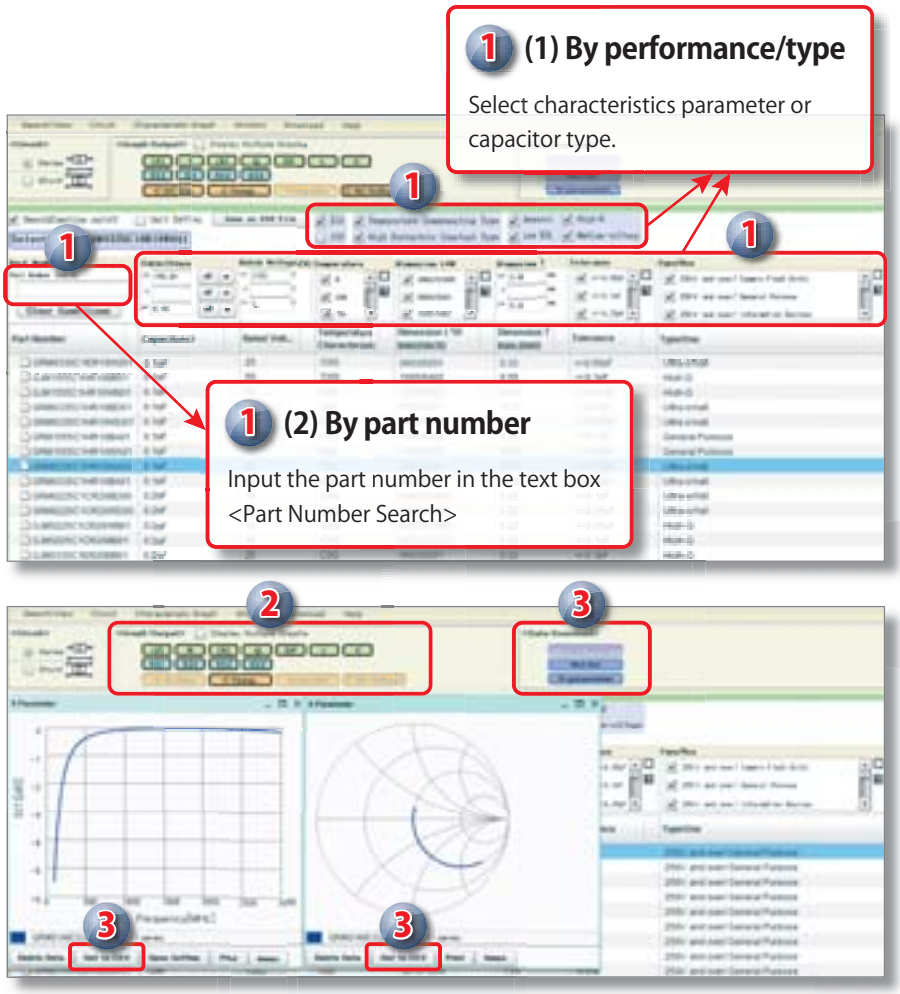
(1) By performance/type
(2) By part number

2 Show graph

Click each button in the <Graph Output> area.

3 Data download

Click each button in the <Data Download> area.



These images are captured at November/2012. Be sure that this software will be updated frequently.

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

⚠ 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 2012. 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.Therfore, 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.

muRata Murata Manufacturing Co., Ltd.

http://www.murata.com/

Head Office
1-10-1, Higashi Kotari, Nagaokakyo-shi, Kyoto 617-8555, Japan
Phone: 81-75-951-9111

International Division
3-29-12, Shibuya, Shibuya-ku, Tokyo 150-0002, Japan
Phone: 81-3-5469-6123 Fax: 81-3-5469-6155 E-mail: intl@murata.co.jp

Cat. No. K70E-1