

MURATA PRODUCT Lineup Guides

Capacitors

Noise Suppression Products / EMI Suppression Filters

Inductors (Coils)

Resistors

Resonators

Filters for Audio Visual Equipment

Filters for Communication Equipment

RF Components / Modules

Sensors

Thermistors

Power Supplies

Sound Components

Micromechanics

Ceramic Applied Products

Application Guides



Innovator in Electronics

Murata's website

Capacitors



p.02

- Monolithic Ceramic Capacitors (capacitors for general purpose and automotive, medium voltage capacitors, safety standard certified capacitors and lead type capacitors)
- Disc Ceramic Capacitors (medium voltage capacitors and safety standard certified capacitors)
- High Frequency Single Layer Microchip Capacitors
- Ceramic Trimmer Capacitors

Noise Suppression Products /



p.06

Resistors



p.16

- Trimmer Potentiometers
- High Voltage Resistors
- Network Resistors

Resonators



p.18

Filters for Communication Equipment



p.22

- Duplexers (SAW duplexers and dielectric duplexers GIGAFIL®)
- Filters for RF/local (SAW filters, dielectric filters GIGAFIL® and LC filters)
- Filters for IF (ceramic filters CERAFIL® and SAW filters)

RF Components / Modules



p.22

Thermistors



p.23

- PTC Thermistors POSISTOR® (for heaters, motor starters, over current protection, overheat sensing and automotive)
- NTC Thermistors (for inrush current suppression, temperature sensor/compensation and automotive)

Power Supplies



p.24

Micromechatronics



p.26

- Microblowers
- Piezoelectric Actuators

Ceramic Applied Products



p.26

Mobile Phones



p.28

Personal Computers



p.30

Televisions



p.32

CONTENTS

EMI Suppression Filters

- Noise Suppression Filters EMIFIL® (chip and lead type)
- Common Mode Chokes (chip and lead type)
- AC Line Filters
- Noise Suppression Products for Automotive
- Microwave Absorbers
- Ferrite Cores
- ESD Protection Devices

Inductors (Coils)



p.12

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

02

06

12

Filters for Audio Visual Equipment

- Ceramic Resonators CERALOCK® for MHz and kHz
- Crystal Resonators
- SAW Resonators



p.20

- Ceramic Filters CERAFIL® (filters, traps and discriminators)
- SAW Filters (for TV, VCR and digital equipment)

16

18

20

Sensors

- Antennas
- Isolators
- 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
- Thin Film Circuit Substrate RUSUB®
- High Frequency Single Layer Microchip Capacitors
- Wi-Fi®/Bluetooth®/One-seg Modules



p.22

- Magnetic Pattern Recognition Sensors
- Rotary Sensors
- Rotary Position Sensors
- Angular Velocity Sensors
- Infrared Sensors
- Ultrasonic Sensors
- Shock Sensors

22

22

22

Sound Components

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



p.25

- Piezoelectric Speakers
- Piezoelectric Diaphragms
- Piezoelectric Sounders
- Piezoelectric Ringers
- Piezoelectric Buzzers

23

24

25

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

26

26

* Wi-Fi is a registered trademark of the Wi-Fi Alliance.
 * Bluetooth is a registered trademark of Bluetooth SIG, Inc. of the United States.

Automotive

p.34

Air Conditioners

p.36

LED Lightings

p.38

28

Capacitors

Capacitors



■ 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 for the demands of many applications.

■ Lineup

Monolithic Ceramic Capacitors (capacitors for general purpose and automotive, medium voltage capacitors, safety standard certified capacitors and lead type capacitors), Disc Ceramic Capacitors (medium voltage capacitors and safety standard certified capacitors), High Frequency Single Layer Microchip Capacitors and Ceramic Trimmer Capacitors are offered.

About Murata

Global Network



Murata has a worldwide production and sales network which meets the needs of customers throughout the world.

Selection Guides Capacitors

Selection Guide of Chip Monolithic Ceramic Capacitors

Capacitors

	Function	Type	Series	
Applications?	Decoupling, Smoothing	High Capacitance	GRM (X5R, X7R, Y5V etc.) 68pF-100μF	
		Array (2 or 4 Elements)	GNM 10pF-2.2μF	
	Frequency Control/Tuning, Impedance Matching	Class 1 TC's		GRM (C0G) 0.1pF-0.1μF
				GRM (U2J etc.)
	High Speed Decoupling	Low Inductance (Reverse Geometry)	LLL 2200pF-10μF	
		Low Inductance (Multi Termination)	LLA/LLM (From 1GHz) 0.01μF-4.7μF	
	High Frequency	Low ESR (50V to 500V)		ERB (1MHz to 1GHz) 0.5pF-1000pF
		Low ESR, Ultra Small		GJM (500MHz to 10GHz) 0.1pF-33pF
		Lowest ESR		GQM (500MHz to 10GHz) 0.1pF-100pF
	Optical Communications	Wire-Die-Bonding		GMA 100pF-0.47μF GMD 100pF-1μF
	Medium Voltage High Frequency Snubber	250V/630V/1kV/2kV/3.15kV Low Dissipation		GRM (C0G, U2J) 10pF-10000pF
	Medium Voltage LCD Backlight Inverter	3.15kV Low Dissipation		GRM (C0G) 5pF-47pF
	Medium Voltage Decoupling, Smoothing	250V/630V/1kV High Capacitance		GRM (X7R) 220pF-1μF
	Medium Voltage Only for Camera Flash Circuit	350V High Capacitance		GR7 10000pF-47000pF
	Medium Voltage Only for Information Devices	2kV High Capacitance		GR4 100pF-10000pF
		Safety Standard Certified		Type GD 10pF-4700pF Type GF 10pF-4700pF
	AC Lines Noise Removal	Safety Standard Certified		Type GC 100pF-330pF Type GF 470pF-4700pF Type GB 10000pF-56000pF
		AC250V which meet Japanese Law		GA2 470pF-0.1μF
Automotive (Powertrain, Safety Equipment)	High Capacitance		GCM (X7R etc.) 100pF-47μF	
	Class 1 TC's		GCM (C0G etc.) 1.0pF-0.1μF	
Medium Voltage for Automotive (Powertrain, Safety Equipment)	250V/630V Low Dissipation		GCM (U2J) 10pF-10000pF	

Selection Guides

Capacitors

Product Guide

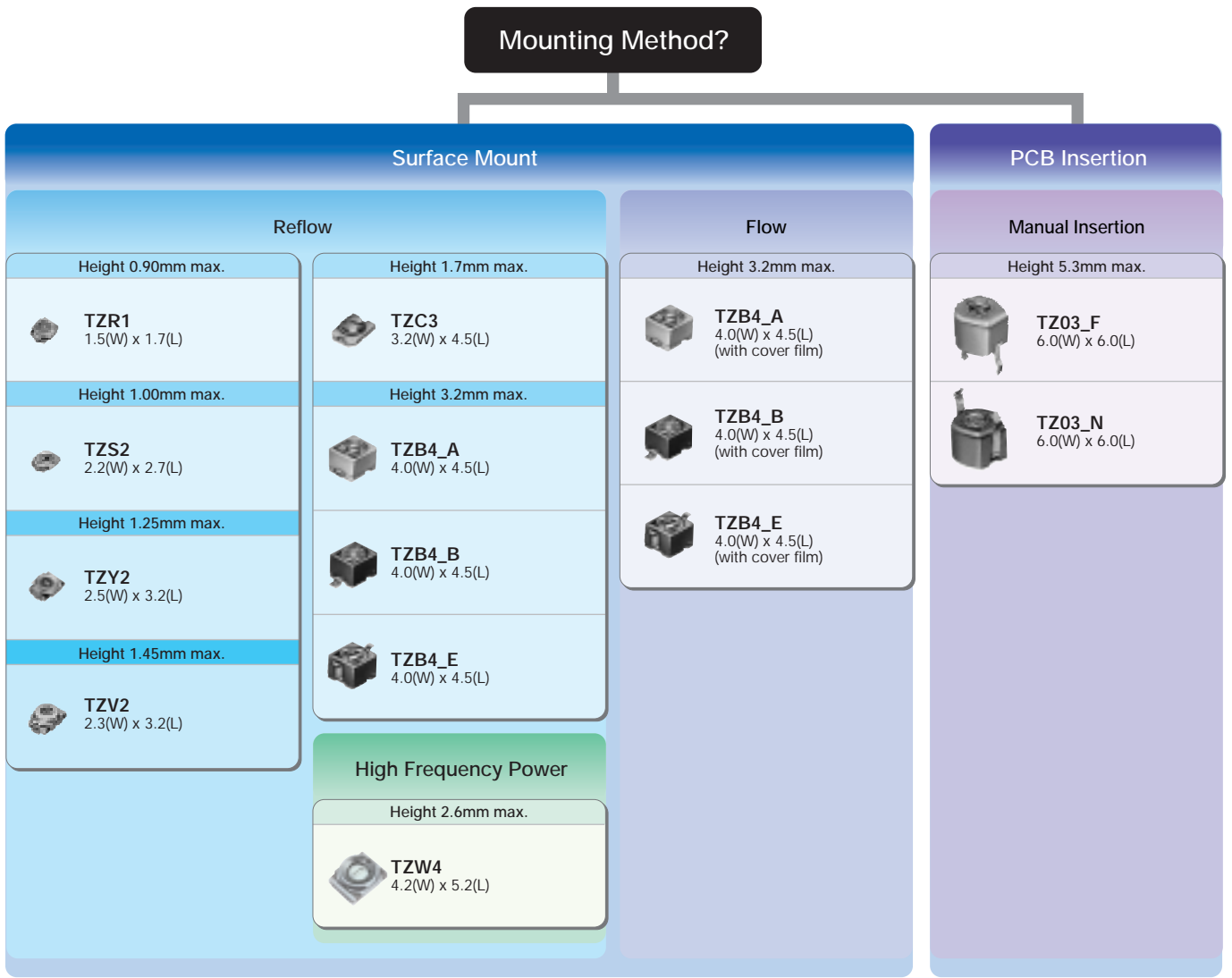
Capacitors

	Series	Dimensions (mm)	Capacitance Range (F)													
			0.1p	1p	10p	100p	1000p	0.01μ	0.1μ	1μ	10μ	100μ				
For General Electronics Equipment	GRM02	0.4X0.2	0.2pF	0.01μF												
	GRM03	0.6X0.3	0.1pF	0.047μF												
	GRM15	1.0X0.5	0.1pF	4.7μF												
	GRM18	1.6X0.8		10pF	10μF											
	GRM21	2.0X1.25			100pF	22μF										
	GRM31	3.2X1.6				1800pF	100μF									
	GRM32	3.2X2.5						0.68μF	47μF							
For Automotive	GCM03	0.6X0.3		1pF	0.01μF											
	GCM15	1.0X0.5		1pF	0.1μF											
	GCM18	1.6X0.8		1pF	2.2μF											
	GCM21	2.0X1.25			100pF	10μF										
	GCM31	3.2X1.6				1800pF	22μF									
	GCM32	3.2X2.5						1.0μF	47μF							
Array	GNM0M	0.9X0.6					0.01μF	1.0μF								
	GNM1M	1.37X1.0		10pF	2.2μF											
	GNM21	2.0X1.25		10pF	2.2μF											
	GNM31	3.2X1.6		10pF	1.0μF											
Low ESL	LLL15	0.5X1.0						0.1μF	0.47μF							
	LLL18	0.8X1.6				2200pF	2.2μF									
	LLL21	1.25X2.0					0.01μF	2.2μF								
	LLL31	1.6X3.2					0.01μF	10μF								
	LLA18	1.6X0.8						0.1μF	2.2μF							
	LLA21	2.0X1.25						0.01μF	4.7μF							
	LLA31	3.2X1.6						0.1μF	2.2μF							
	LLM21	2.0X1.25						0.01μF	2.2μF							
	LLM31	3.2X1.6						0.1μF	2.2μF							
High-Q	GJM03	0.6X0.3	0.2pF	33pF												
	GJM15	1.0X0.5	0.1pF	20pF												
High Frequency Series	GQM18	1.6X0.8	0.1pF	100pF												
	GQM21	2.0X1.25		0.5pF	100pF											
	ERB18	1.6X0.8		0.5pF	100pF											
	ERB21	2.0X1.25		0.5pF	160pF											
	ERB32	3.2X2.5		3.3pF	1000pF											
									0.01μF							
Micro Chip	GMA0D	0.38X0.38							100pF	0.1μF						
	GMA05	0.5X0.5							1500pF	0.47μF						
	GMA08	0.8X0.8							100pF	0.1μF						
	GMD03	0.6X0.3							220pF	1.0μF						
	GMD15	1.0X0.5														
Medium Voltage	GRM (Low Dissipation)	2.0X1.25-4.5X2.0	Rated Voltage				100pF	0.01μF								
			DC250V				10pF	2200pF								
			DC630V			10pF	470pF									
	GRM (High Capacitance)	1.6X0.8-5.7X5.0	DC250V				220pF	1μF								
			DC630V				1000pF	0.22μF								
	DC1kV			470pF	0.1μF											
GRM (for LCD Backlight Inverter Circuits)	4.5X2.0	DC3.15kV		5pF	47pF											
GR4 (for Information Devices)	4.5X2.0-5.7X5.0	DC2kV				100pF	0.01μF									
GR7 (for Camera Flash Circuit)	3.2X1.6	DC350V					0.01μF	0.047μF								
GCM (Automotive Low Dissipation)	2.0X1.25-3.2X2.5	DC250V				100pF	0.01μF									
		DC630V				10pF	2200pF									
AC250V	GA2	4.5X2.0-5.7X5.0	AC250V				470pF	0.1μF								
Safety Standard Certified	GA3 (Type GC)	5.7X5.0	Class / Rated Voltage				100pF	330pF								
			X1,Y2/AC250V			10pF	4700pF									
			Y3/AC250V			10pF	4700pF									
			X1,Y2/AC250V			470pF	4700pF									
GA3 (Type GB)	5.7X5.0	X2/AC250V				0.01μF	0.056μF									



Selection Guide of Trimmer Capacitors

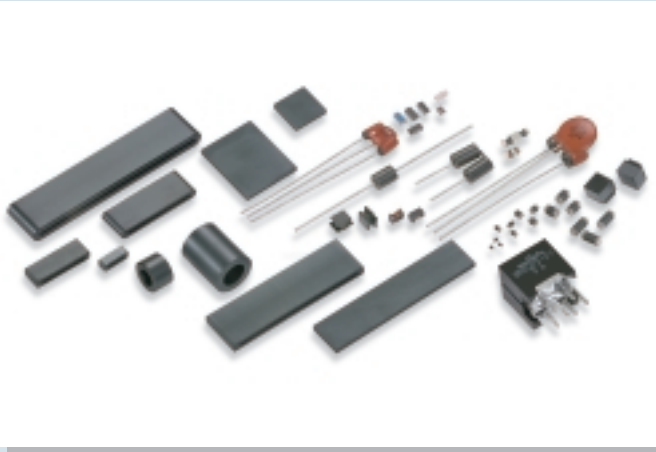
Capacitors



All products of Ceramic Trimmer Capacitor comply with RoHS and ELV

Noise Suppression Products / EMI Suppression Filters

Noise Suppression Products / EMI Suppression Filters



■ Summary

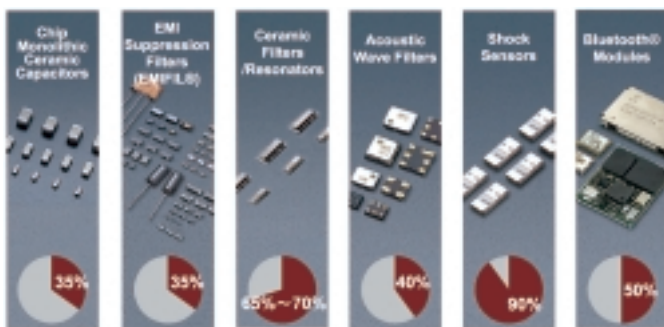
Using Murata's ceramic processing technology and unique material, we offer a variety of Noise Suppression Products and EMI Suppression Filters. Murata also offers technical support and guidance based on many years of experience operating in the field of noise suppression. Our technical support includes design kits, application manuals and a comprehensive set of software tools to simulate virtually any circuit condition.

■ Lineup

Noise Suppression Filters EMIFIL® (chip and lead type), Common Mode Chokes (chip and lead type), AC Line Filters, Noise Suppression Products for Automotive, Microwave Absorbers, Ferrite Cores and ESD Protection Devices are offered.

About Murata

Global Market Share

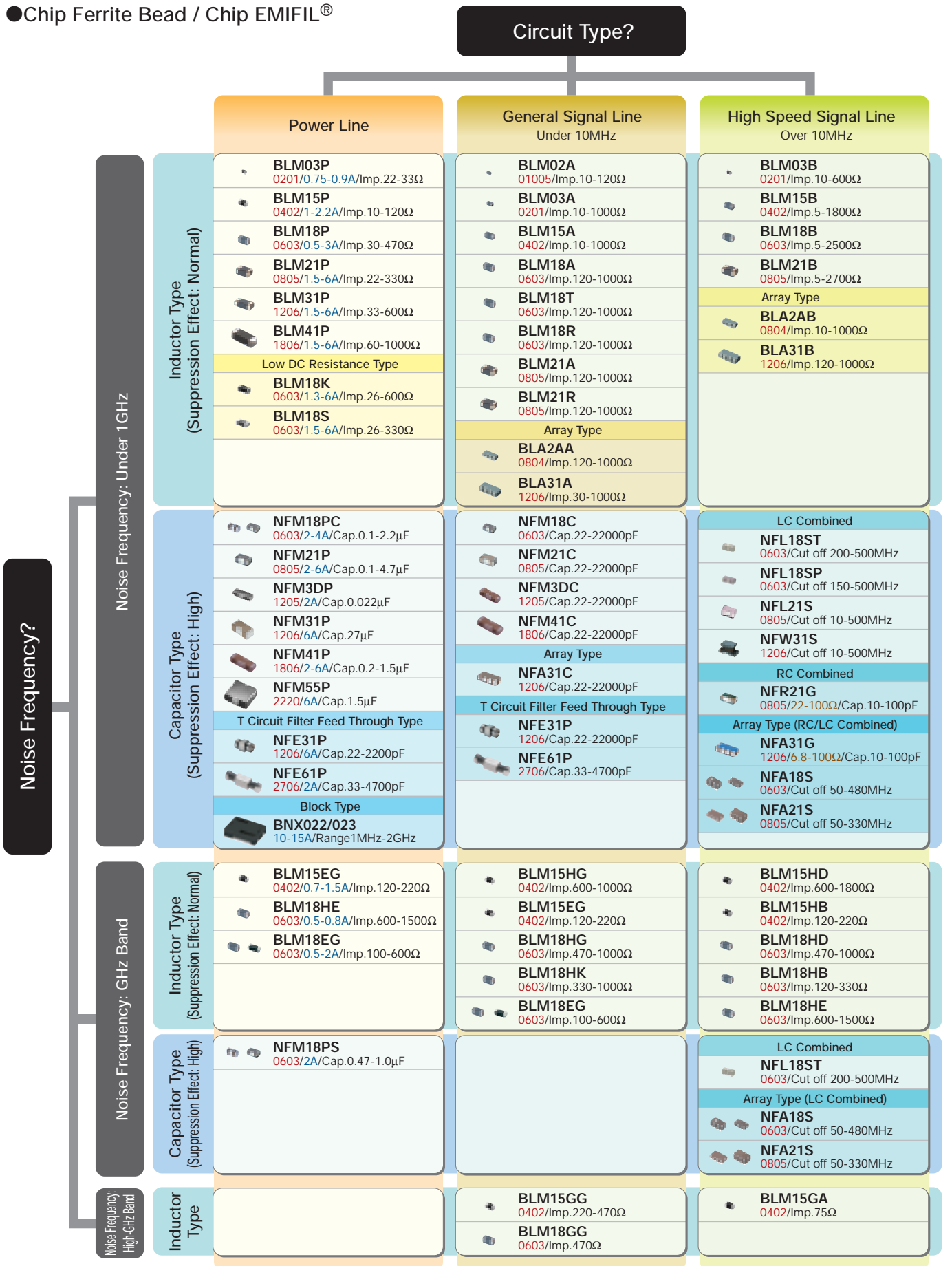


<Market Share Estimation>

Murata's product lineup occupies an extremely high share of the world market, and leads the industry.

EMI Filter Selection by Circuits and Noise Frequency

●Chip Ferrite Bead / Chip EMIFIL®

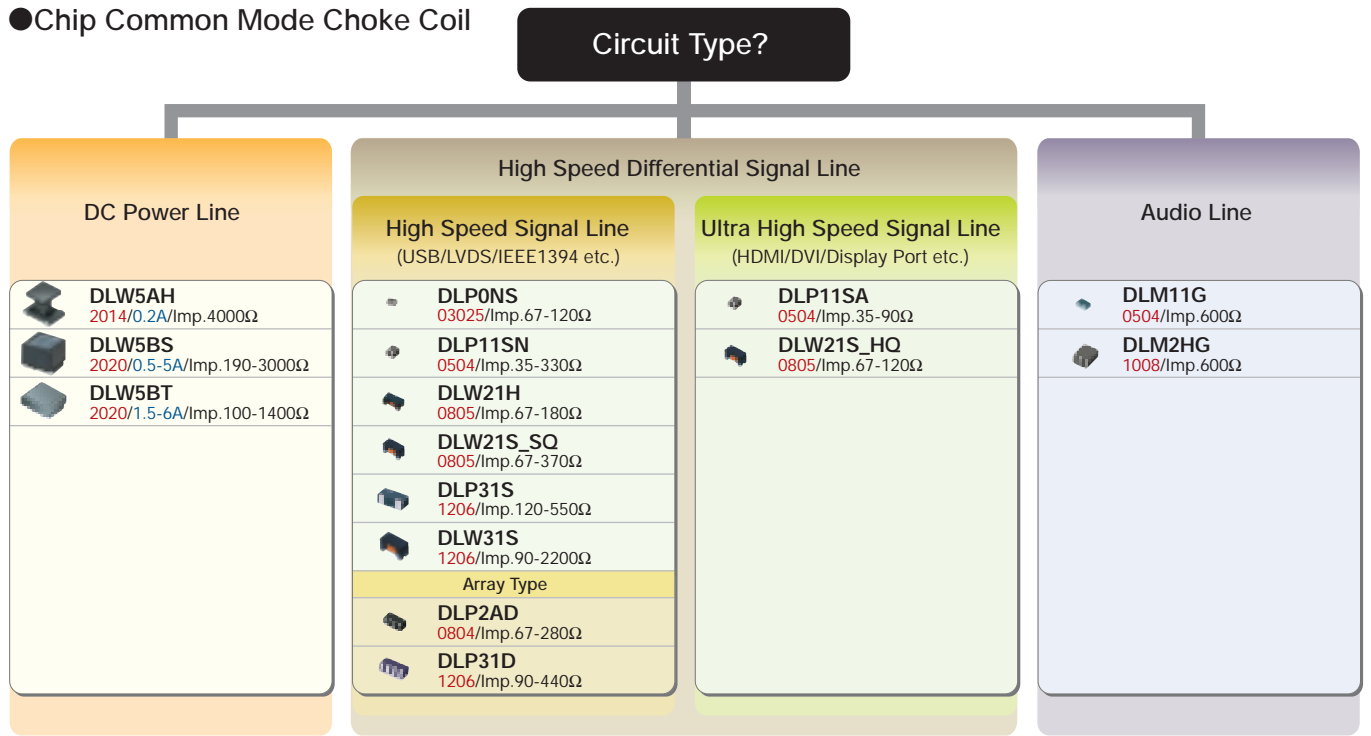


Noise Suppression Products / EMI Suppression Filters

EMI Filter Selection by Circuits and Noise Frequency

●Chip Common Mode Choke Coil

Noise Suppression Products / EMI Suppression Filters



Guide for Digits in this Chart:

●for BLM03P

0201/0.75-0.9A/Imp.22-33Ω
 Size (inch) Rated Current Impedance

●for BNX022/023

10-15A/Range1MHz-2GHz
 Rated Current Effective Frequency Range

●for NFR21G

0805/22-100Ω/Cap.10-100pF
 Size (inch) Resistance Capacitance

●for NFA18S

0603/Cut off 50-480MHz
 Size (inch) Cut-off Frequency

●for DLW5BS

2020/0.5-5A/Imp.190-3000Ω
 Size (inch) Rated Current Impedance

Product Guide

Noise Suppression Products / EMI Suppression Filters

Inductor Type	Series	Size Code Inch (mm)	Impedance (Ω) at 100MHz			Effective Frequency Range						
			10	100	1000	10kHz	100kHz	1MHz	10MHz	100MHz	1GHz	10GHz
for High-GHz Band Noise Suppression	BLM15GG	0402 (1005)		220	470							
	BLM15GA	0402 (1005)		75								
	BLM18GG	0603 (1608)			470							

Capacitor Type	Series	Size Code Inch (mm)	Capacitance (F)							Effective Frequency Range						
			10p	100p	1000p	10000p	0.1μ	1μ	10μ	10kHz	100kHz	1MHz	10MHz	100MHz	1GHz	10GHz
For General Signal	NFM18C	0603 (1608)			470	2200										
	NFM21C	0805 (2012)			470	2200										
	NFM3DC	1205 (3212)			470	2200										
	NFM41C	1806 (4516)			470	2200										
	NFA31C (4 circuits array)	1206 (3216)			470	2200										
	NFM18P	0603 (1608)							0.22	1.0						
For Large Current	NFM21P	0805 (2012)						0.1	0.47	2.2						
	NFM3DP*	1205 (3212)														
	NFM31P	1206 (3216)														
	NFM41P	1806 (4516)							0.2	1.5						
	NFM55P	2220 (5750)								1.5						
T Circuit Filter Feed Through Type	NFE31P	1206 (3216)			470	2200										
	NFE61P	2706 (6816)			100	360	1000									

LC(RC) Combined Type	Series	Size Code Inch (mm)	Cut-off Frequency (MHz)			Effective Frequency Range									
			10	100	500	10kHz	100kHz	1MHz	10MHz	100MHz	1GHz	10GHz			
For Signal Line	NFL18ST	0603 (1608)			200	300	500								
	NFL18SP	0603 (1608)			150	200	300	500							
	NFL21S	0805 (2012)													
	NFA18S (4 circuits array)	0603 (1608)	10	20	50	70	100	150	200	300	400				
	NFA21S (4 circuits array)	0805 (2012)			50		130	180	220	300	480				
	NFW31S	1206 (3216)													
	NFR21G	0805 (2012)	10	47	100										
	NFA31G (4 circuits array)	1206 (3216)	10	47	100										

Selection Guides Noise Suppression Products / EMI Suppression Filters

Product Guide

DL□ Common Mode Choke Coils		Series	Size Code Inch (mm)	Common Mode Impedance (Ω) at 100MHz			Effective Frequency Range						
				100	500	1000	10kHz	100kHz	1MHz	10MHz	100MHz	1GHz	10GHz
For Audio Line		DLM11G	0504 (1210)	600			[10MHz - 100MHz]						
		DLM2HG	1008 (2520)	600									
For Differential Signal Line		DLP0NS	03025 (0806)	90 67 120			[10MHz - 100MHz]						
		DLP11S	0504 (1210)	67 90 120 160 200 280 330									
		DLP31S	1206 (3216)	120 220 550									
		DLP2AD (2 circuits array)	0804 (2010)	90 120 160 200 280									
		DLP31D (2 circuits array)	1206 (3216)	90 130 200 320 440									
		DLW21S	0805 (2012)	90 67 120 180 260 370									
		DLW21H	0805 (2012)	90 67 120 180									
		DLW31S	1206 (3216)	90 160 260 600 1000 2200									
For Large Current		DLW5BS*/DLW5AH	2020 (5050) / 2014 (5036)	190 350 1000 1500 4000 3000			[10MHz - 100MHz]						
		DLW5BT*	2020 (5050)	100 250 500 1000 1400									

BNX Block EMIFIL®		Series	Height (mm)	Rated Voltage (Vdc)	Rated Current (A)	Effective Frequency Range							
						10kHz	100kHz	1MHz	10MHz	100MHz	1GHz	10GHz	
SMD Type		BNX022*	3.1	50	10	[100kHz - 10MHz]							
		BNX023*	3.1	100	15								
Lead Type		BNX002	18 max.	50	10	[100kHz - 10MHz]							
		BNX003	18 max.	150	10								
		BNX005	18.5 max.	50	15								
		BNX012*	12.0	50	15								
		BNX016*	12.0	25	15								

BL/DS□/VF□ Lead Type EMIFIL®	Effective Frequency Range						
	10kHz	100kHz	1MHz	10MHz	100MHz	1GHz	10GHz
(EMI Filters with varistor functions)	[100kHz - 10MHz]						
	[100kHz - 10MHz]						

PL/EA/FS□ Common Mode Choke Coils	Effective Frequency Range						
	10kHz	100kHz	1MHz	10MHz	100MHz	1GHz	10GHz
Microwave Absorbers	[10MHz - 100MHz]						
Ferrite Core	[10MHz - 100MHz]						

Inductors (Coils)

Inductors (Coils)



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) and Chip Inductors (for general purpose, for RF circuit and for automotive) are offered.

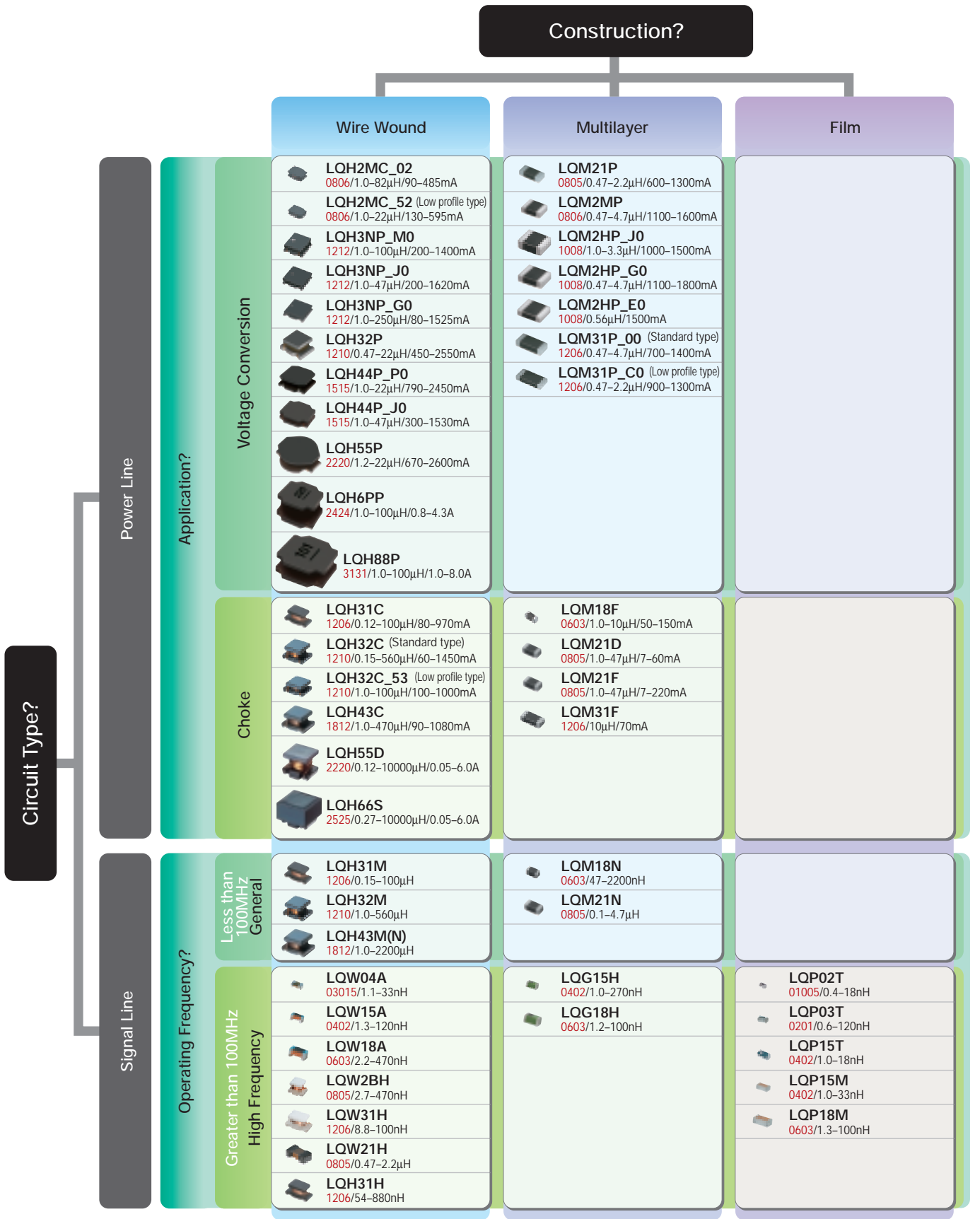
About Murata

Function of Electronic Ceramics



Inside this wonder stone called ceramics, hid various intriguing electric properties. Murata's technology unleashed the possibilities inherent in ceramics.

Selection Guide of Chip Inductors (Chip Coils)



Guide for Digits in this Chart:

● for LQH2MC_02 **0806/1.0-82μH/90-485mA**
 Size (inch) Inductance Rated Current

Selection Guides Inductors (Coils)

Product Guide

Murata's LQ□ series of chip inductors (chip coils) consists of compact, high-performance inductors. Their innovative coil and case structures mean low DC resistance and outstanding high-frequency characteristics. The series is designed for a variety of applications, facilitating component selection for individual circuit requirements.

Inductors (Coils)

	Part Number	Structure	Size Code Inch (mm)	Inductance Range							Rated Current (mA)					
				1n	10n	100n	1μ	10μ	100μ	1m	10m	10	100	1000	10000	
Power Inductor	LQM21P	Magnetically Shielded Multilayer	0805 (2012)				470nH	2.2μH					600	1300		
	LQM2MP		0806 (2016)				470nH	4.7μH					1100	1600		
	LQM2HP_J0		1008 (2520)				1.0μH	3.3μH					1000	1500		
	LQM2HP_G0		1008 (2520)				470nH	4.7μH					1100	1800		
	LQM2HP_E0		1008 (2520)				560nH							1500		
	LQM31P_00		1206 (3216)				470nH	4.7μH					700	1400		
	LQM31P_C0	1206 (3216)				470nH	2.2μH					900	1300			
	LQH2MC_02	Wire Wound	0806 (2016)				1.0μH	82μH					90	485		
	LQH2MC_52		0806 (2016)				1.0μH	22μH					130	595		
	LQH3NP_M0		1212 (3030)				1.0μH	100μH					200	1400		
	LQH3NP_J0		1212 (3030)				1.0μH	47μH					200	1620		
	LQH3NP_G0		1212 (3030)				1.0μH	250μH					80	1525		
	LQH32P		1210 (3225)				470nH	22μH					450	2550		
	LQH44P_P0		1515 (4040)				1.0μH	22μH					790	2450		
	LQH44P_J0		1515 (4040)				1.0μH	47μH					300	1530		
	LQH55P		2220 (5852)				1.2μH	22μH					670	2600		
	LQH6PP		2424 (6060)				1.0μH	100μH					800	4300		
	LQH88P		3131 (8080)				1.0μH	100μH					1000	8000		
	Chokes		LQM18F	Magnetically Shielded Multilayer	0603 (1608)				1.0μH	10μH					50	150
			LQM21D		0805 (2012)				1.0μH	47μH					7	60
LQM21F			0805 (2012)					1.0μH	47μH					7	220	
LQM31F		1206 (3216)					10μH						70			
LQH31C		Wire Wound	1206 (3216)			120nH	100μH					80	970			
LQH32C_23/_33			1210 (3225)			150nH	560μH					60	1450			
LQH32C_53			1210 (3225)			1.0μH	100μH					100	1000			
LQH43C			1812 (4532)			1.0μH	470μH					90	1080			
LQH55D			2220 (5750)			120nH	10mH					50	6000			
LQH66S			Magnetically Shielded	2525 (6363)			270nH	10mH					50	6000		
General Frequency Range	LQM18N	Magnetically Shielded Multilayer	0603 (1608)			47nH	2.2μH					15	50			
	LQM21N		0805 (2012)			100nH	4.7μH					30	250			
	LQH31M	Wire Wound (ferrite core)	1206 (3216)			150nH	100μH					45	250			
	LQH32M		1210 (3225)			1.0μH	560μH					40	445			
	LQH43M(N)		1812 (4532)			1.0μH	2.2mH					30	500			
High Frequency Range	LQG15H	Multilayer	0402 (1005)	1.0nH			270nH					110	300			
	LQG18H		0603 (1608)	1.2nH			100nH					300	500			
	LQP02T	Film	01005 (0402)	0.4nH			18nH					140	320			
	LQP03T_02		0201 (0603)	0.6nH			120nH					40	850			
	LQP03T_00		0201 (0603)	0.6nH			56nH					100	840			
	LQP03T_04		0201 (0603)	0.6nH			56nH					50	420			
	LQP15T		0402 (1005)	1.0nH			18nH					80	300			
	LQP15M		0402 (1005)	1.0nH			33nH					60	400			
	LQP18M		0603 (1608)	1.3nH			100nH					50	300			
	LQW04A		Wire Wound (air core)	03015 (0804)	1.1nH			33nH					140	990		
	LQW15A	0402 (1005)		1.3nH			120nH					110	1200			
	LQW18A	0603 (1608)		2.2nH			470nH					75	1400			
	LQW2BH	0805 (2015)		2.7nH			470nH					160	1900			
	LQW31H	1206 (3216)		8.8nH			100nH					230	750			
	LQW21H	Wire Wound (ferrite core)	0805 (2012)				470nH	2.2μH					75	160		
	LQH31H		1206 (3216)				54nH	880nH					180	920		

Inductance Lineup

- : E-24 or Higher
- : E-12
- : Other

*There are some items which do not match to E step.

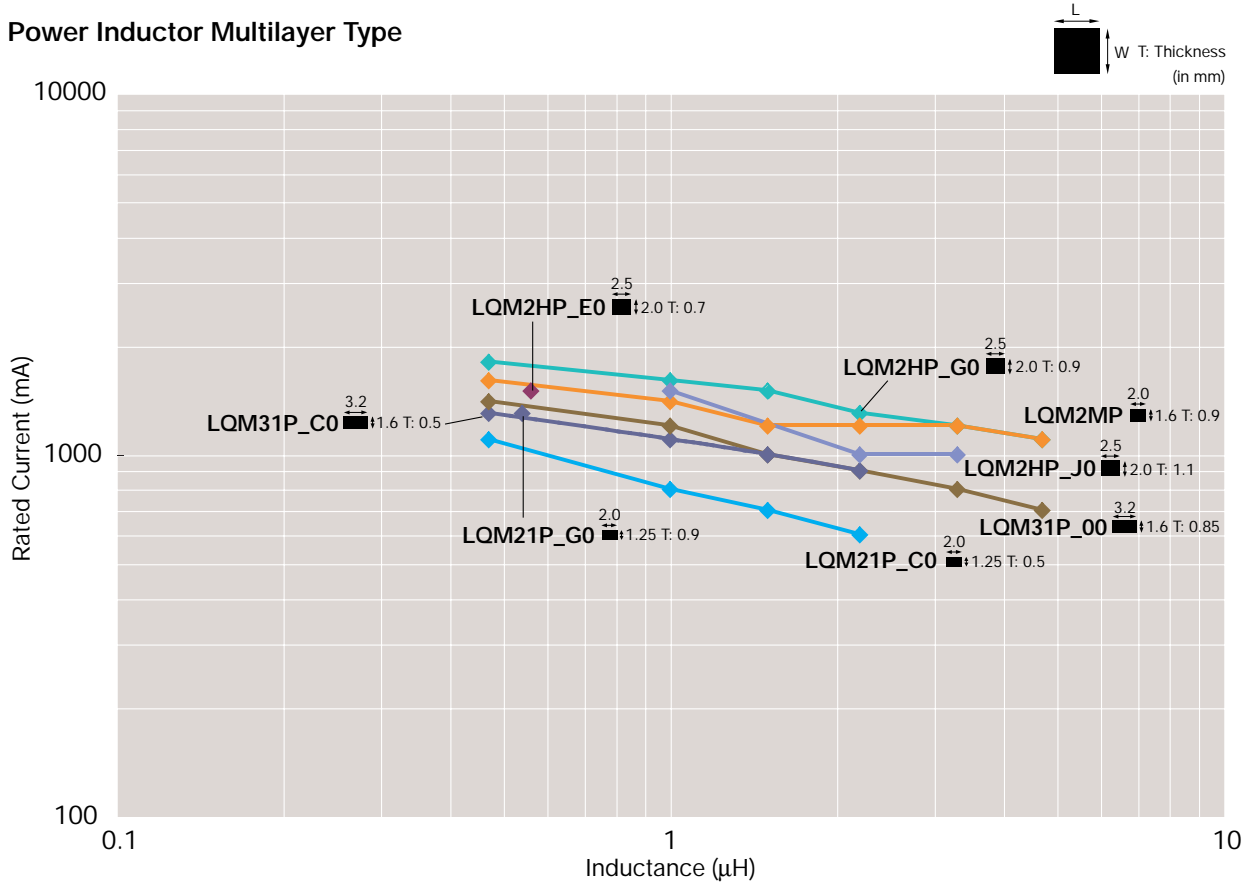
CAUTION: Use rosin-based flux, but not strong acidic flux (with chlorine content exceeding 0.2wt%) when soldering chip inductor (chip coil). Do not use water-soluble flux.



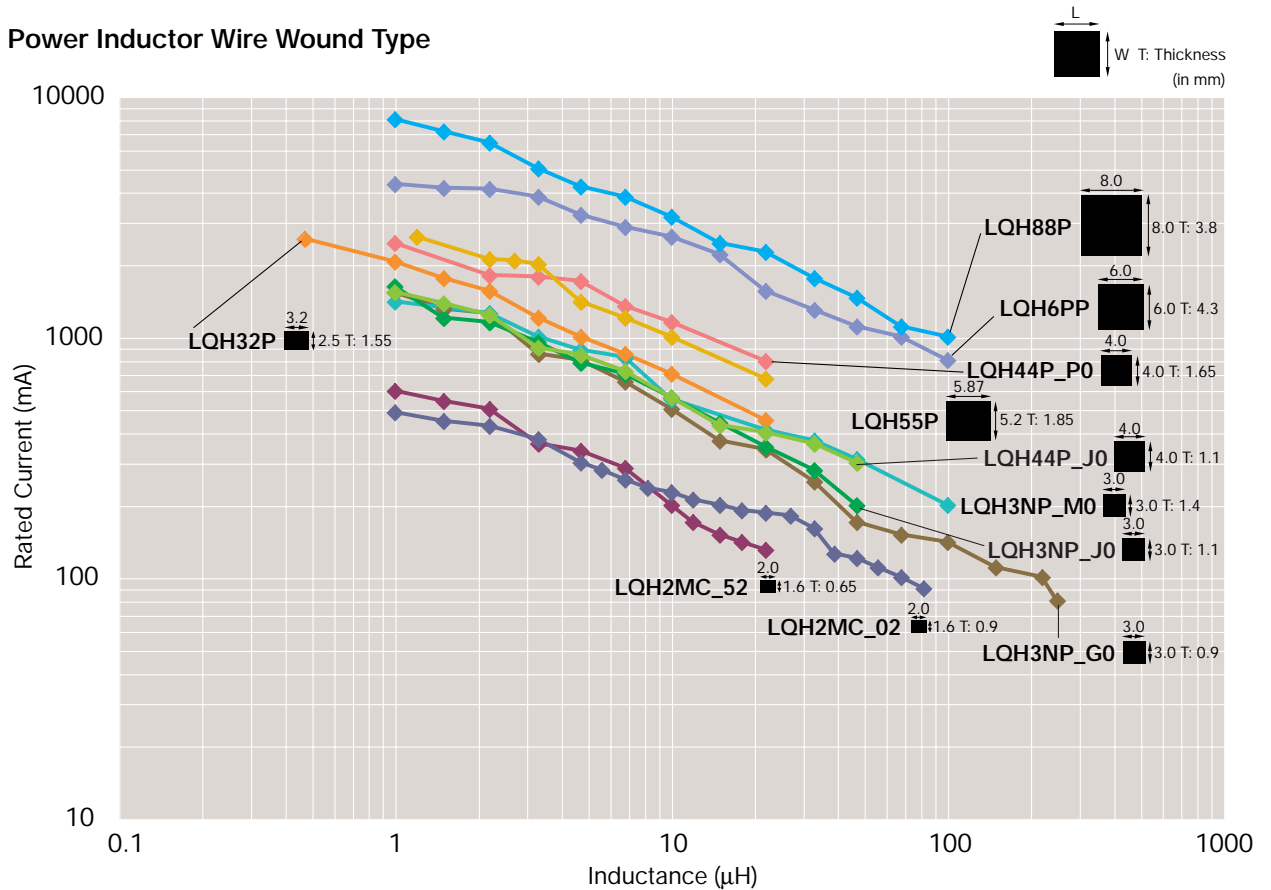
Selection Guides Inductors (Coils)

Power Inductor Product Guide

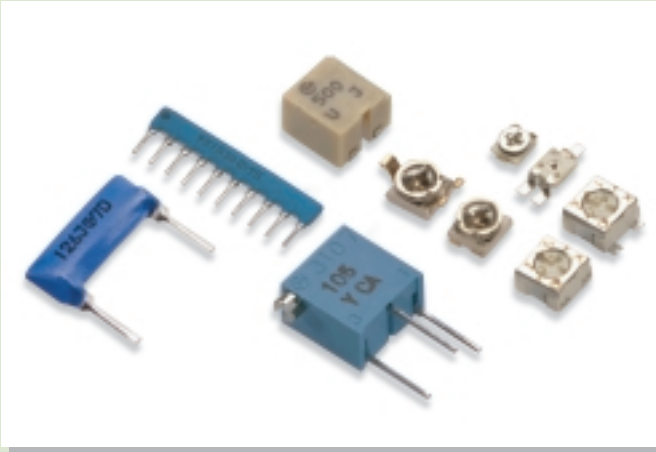
Power Inductor Multilayer Type



Power Inductor Wire Wound Type



Resistors



Resistors

■ Summary

Using Murata's ceramic processing technology and unique material we offer resistor products.

■ Lineup

Trimmer Potentiometers, High Voltage Resistors and Network Resistors are offered.

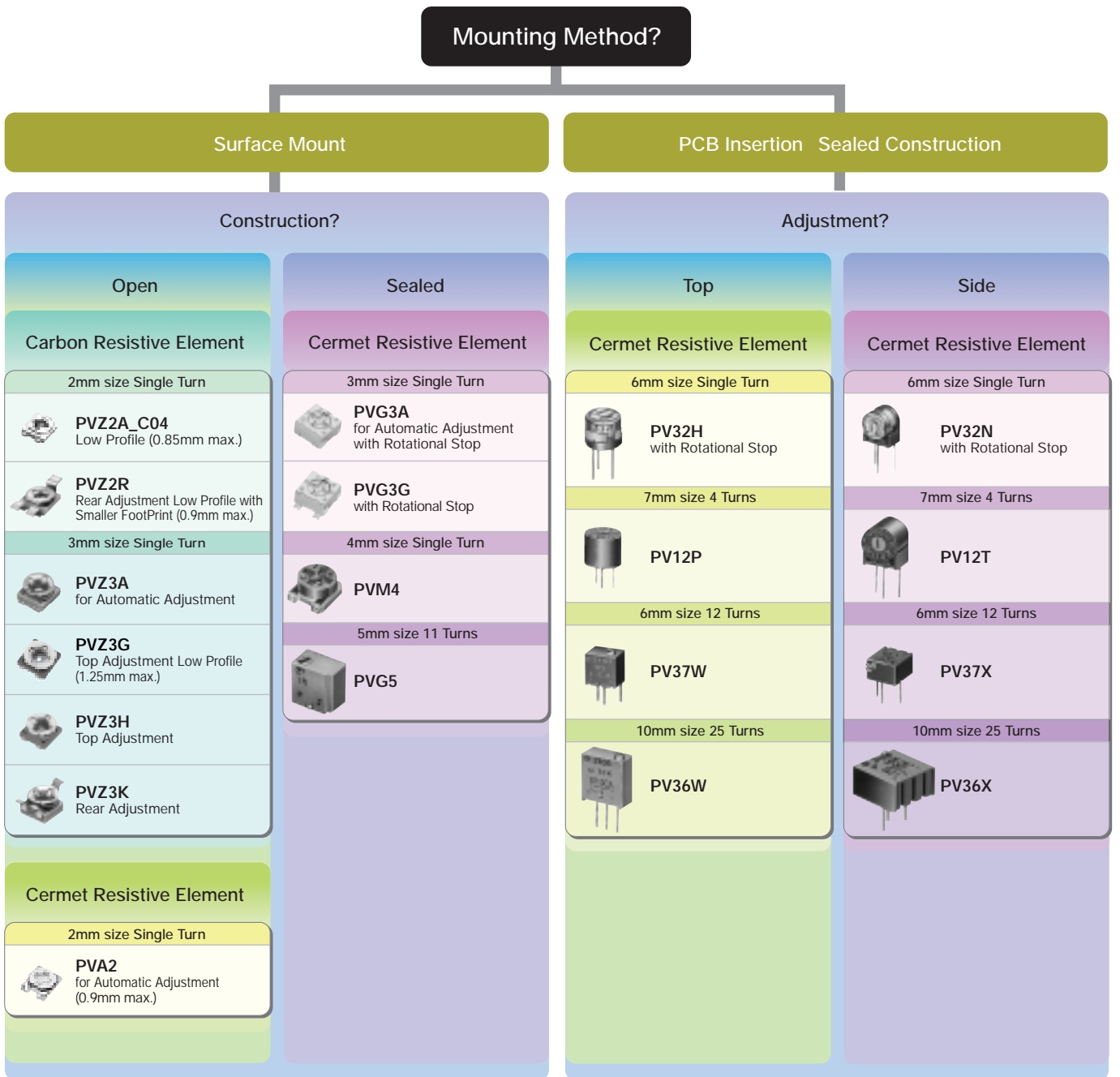
About Murata

We offer catalogs.



Murata has a range of catalogs which describe its substantial product lineup. We offer detailed product specification information through our product information search system called "Murata Product Search Engine" which you can use on the Web. This system supports a variety of search methods.

Selection Guide of Trimmer Potentiometers



Resonators



Resonators

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

Ceramic Resonators CERALOCK® for MHz, kHz , Crystal Resonators and SAW Resonators are offered.

About Murata

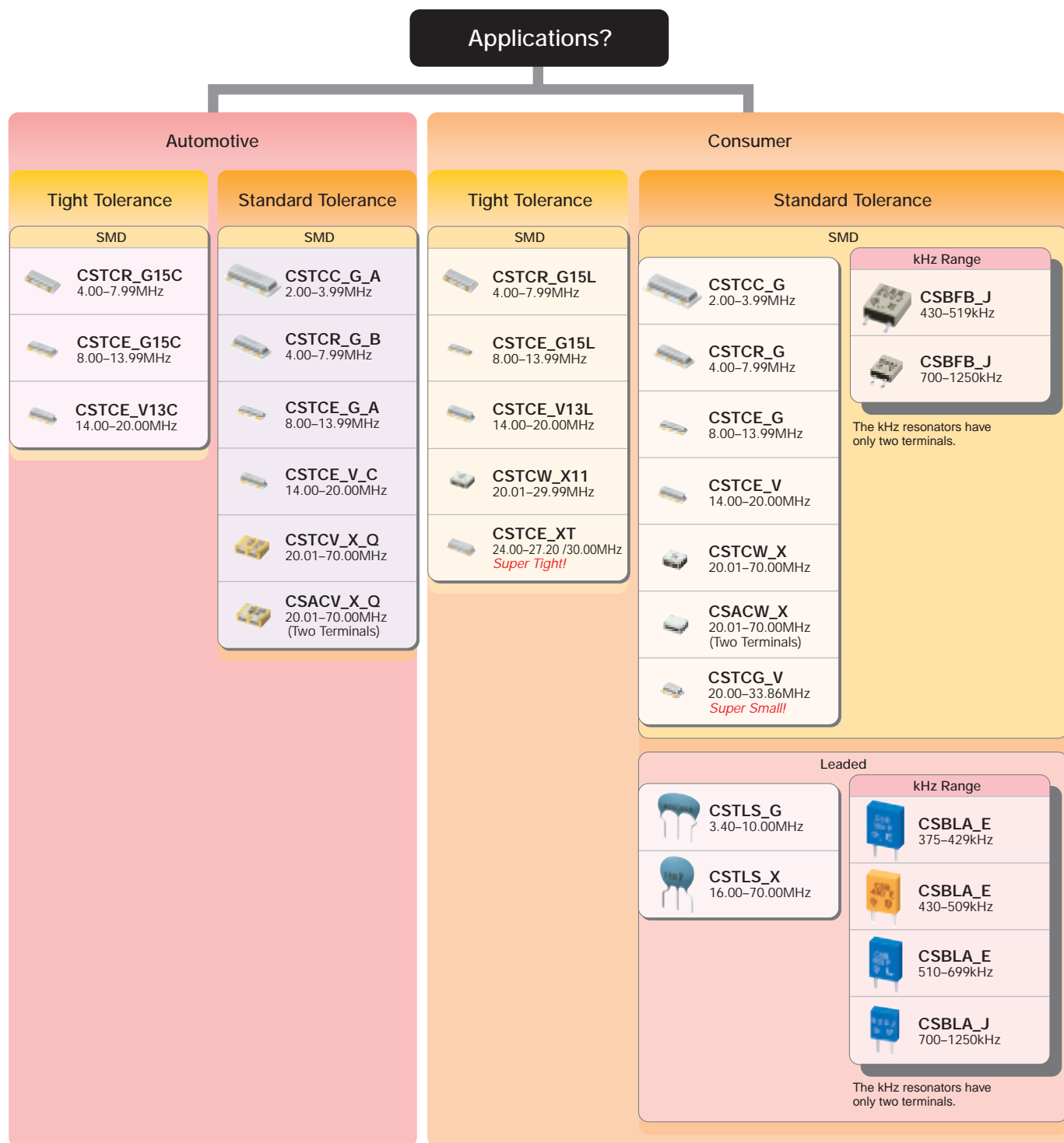
We offer design tools.



Murata has various circuit simulation data and software to assist you with circuit design. We offer these tools free of charge from our website. We hope you will make use of them.

(http://www.murata.com/products/design_support/index.html)

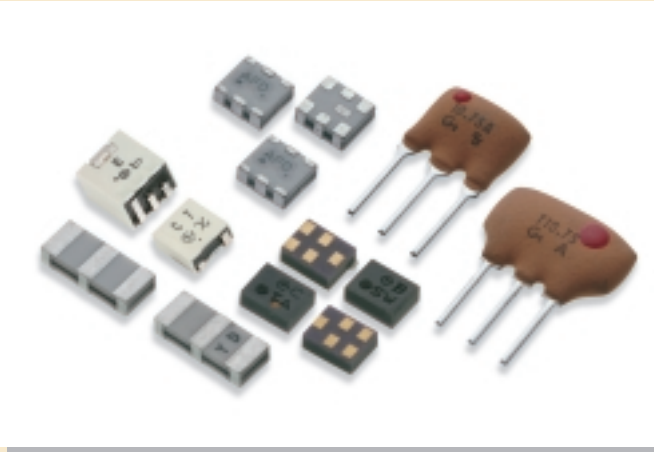
Selection Guide of CERALOCK®



Resonators

Notice: "CERALOCK® for consumer" and "CERALOCK® for automotive" is different in the specification of Operating Temperature Range, Environmental Characteristics, Physical Characteristics and so on. Please choose either "for consumer" or "for automotive" according to the required specification.

Filters for Audio Visual Equipment



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 audiovisual systems and home PC's.

Lineup

Ceramic Filters CERAFIL® (filters, traps and discriminators) and SAW Filters (for TV, VCR and digital equipment) are offered.

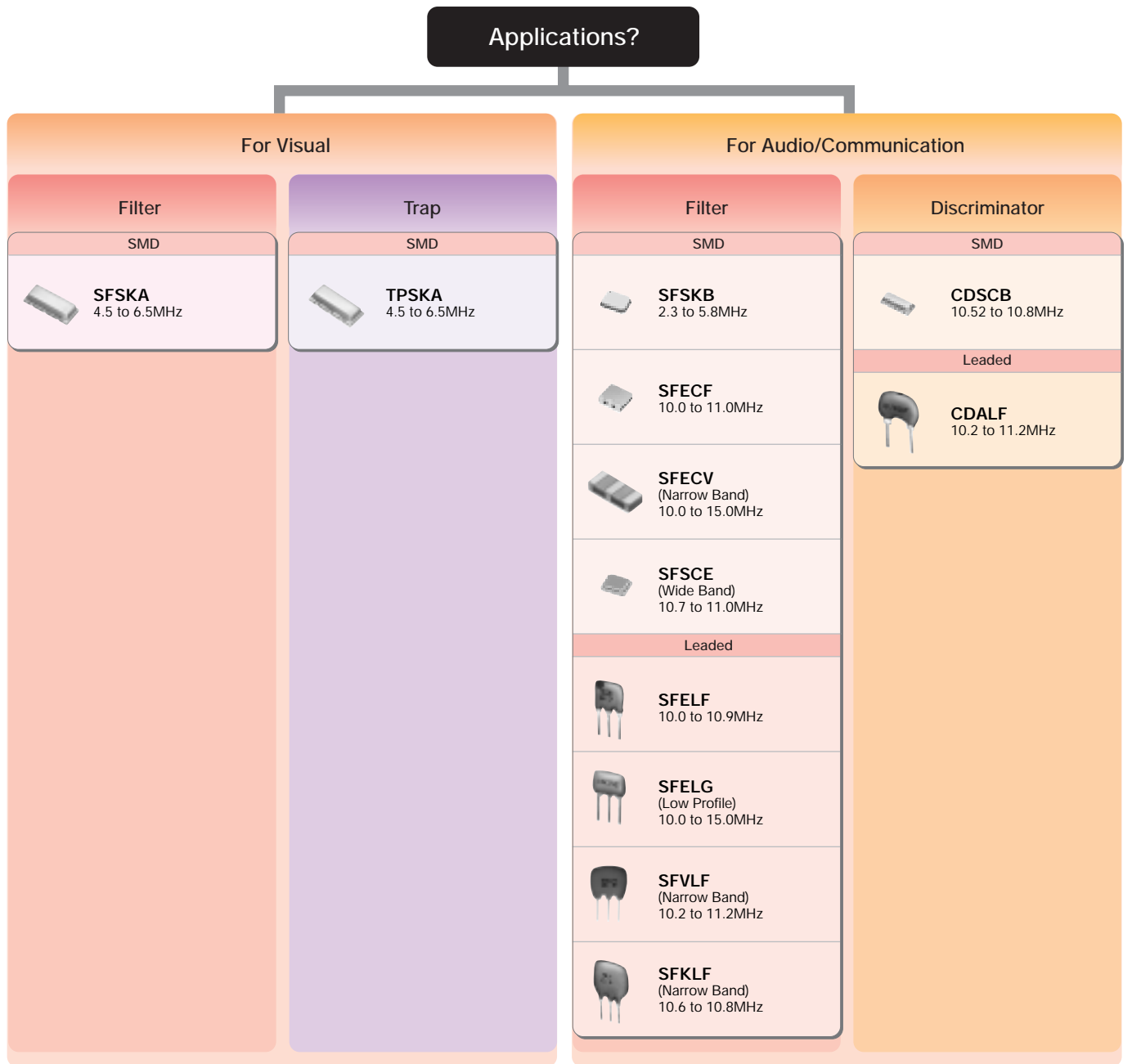
About Murata

We offer the latest information.

News	News Releases	Products News	Topics	Information	IR News
Sep 26, 2009	NEWS RELEASE	Announcing the Development of MURATAGRL (DS Model)			
Sep 15, 2009	NEWS RELEASE	CEATEC JAPAN 2009 Exhibition			
Sep 15, 2009	PRODUCT NEWS	Murata Develops a Small and Cost Effective RFID UHF Reader/Writer Module.			
Sep 2, 2009	PRODUCT NEWS	Catalytic Combustion Type Gas Sensor Operable under Low Temperature is Developed			
Sep 1, 2009	NEWS RELEASE	Ceremony to Mark the Opening of the New Murata (China) Investment Co., Ltd. Head Office			
INFORMATION	Regarding Counterfeit Murata Products				
INFORMATION	Murata's approach for EU RoHS				
INFORMATION	Restriction of Weapons and Military End-Use				
News List	RSS feed				

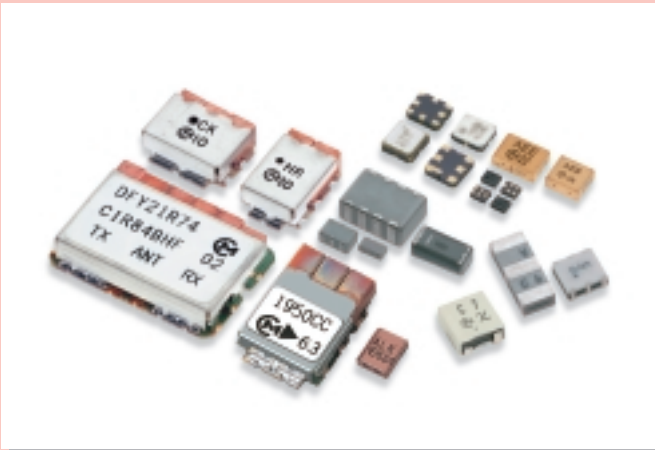
We distribute news concerning new products and other matters in the RSS format from our website. Online registration for RSS enables you to keep abreast of the latest information concerning Murata.

Selection Guide of CERAFIL®



Filters for Audio Visual Equipment

Filters for Communication Equipment



■ Summary

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

■ Lineup

Duplexers (SAW duplexers and dielectric duplexers GIGAFIL®), Filters for RF/local (SAW filters, dielectric filters GIGAFIL® and LC filters) and for IF (ceramic filters CERAFIL® and SAW filters) are offered.

RF Components / Modules



■ Summary

To enhance the technical advantages of communication equipment, Murata offers miniaturized, sophisticated components and modules for the demands of many applications.

■ Lineup

Antennas, Isolators, 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, Thin Film Circuit Substrate RUSUB®, High Frequency Single Layer Microchip Capacitors and Wi-Fi®/Bluetooth®/One-seg Modules are offered.

Sensors



■ 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, and will improve the users experience and ease of use.

■ Lineup

Magnetic Pattern Recognition Sensors, Rotary Sensors, Rotary Position Sensors, Angular Velocity Sensors, Infrared Sensors, Ultrasonic Sensors and Shock Sensors are offered.

Thermistors



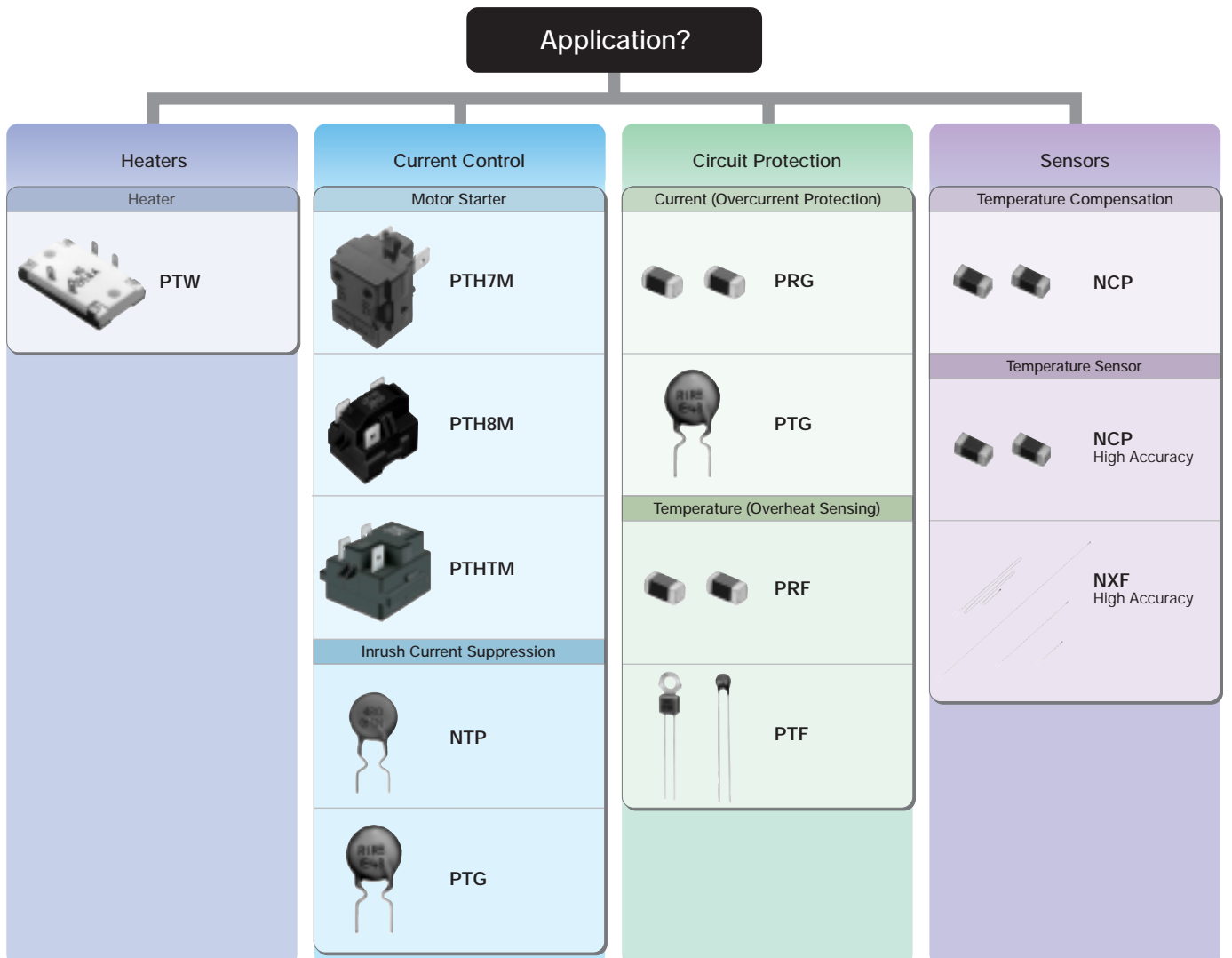
Summary

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

Lineup

PTC Thermistors POSISTOR® (for heaters, motor starters, over current protection, overheat sensing and automotive), NTC Thermistors (for inrush current suppression, temperature sensor/compensation and automotive) are offered.

Selection Guide of Thermistors



Thermistors

Power Supplies



■ Summary

To meet the needs Murata offers power supply products 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 that use highly reliable, Murata-made components which make full use of advanced design and high-density packaging technology.

■ Lineup

DC-DC Converters, Switching Power Supplies, High Voltage Power Supplies and Ionizer Modules are offered.

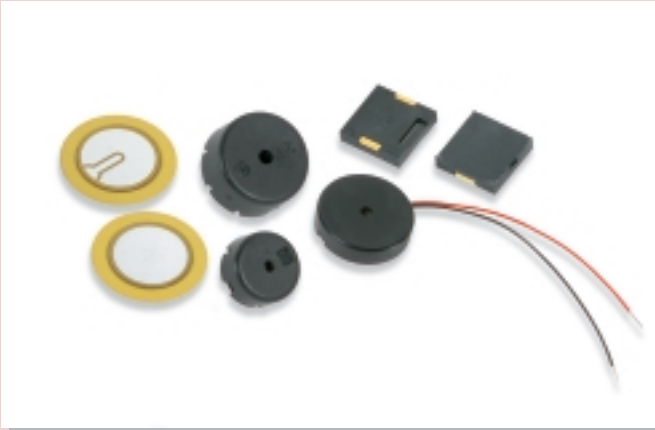
About Murata

MURATA BOY MURATA GIRL



Our bicycle-riding robot, MURATA BOY and unicycle-riding robot, MURATA GIRL. These robots perform at various exhibitions around the world showing off their impressive skills to promote Murata's leading technology. The profiles of these two robots are included on our website: (http://www.murata.com/corporate/boy_girl/index.html)

Sound Components



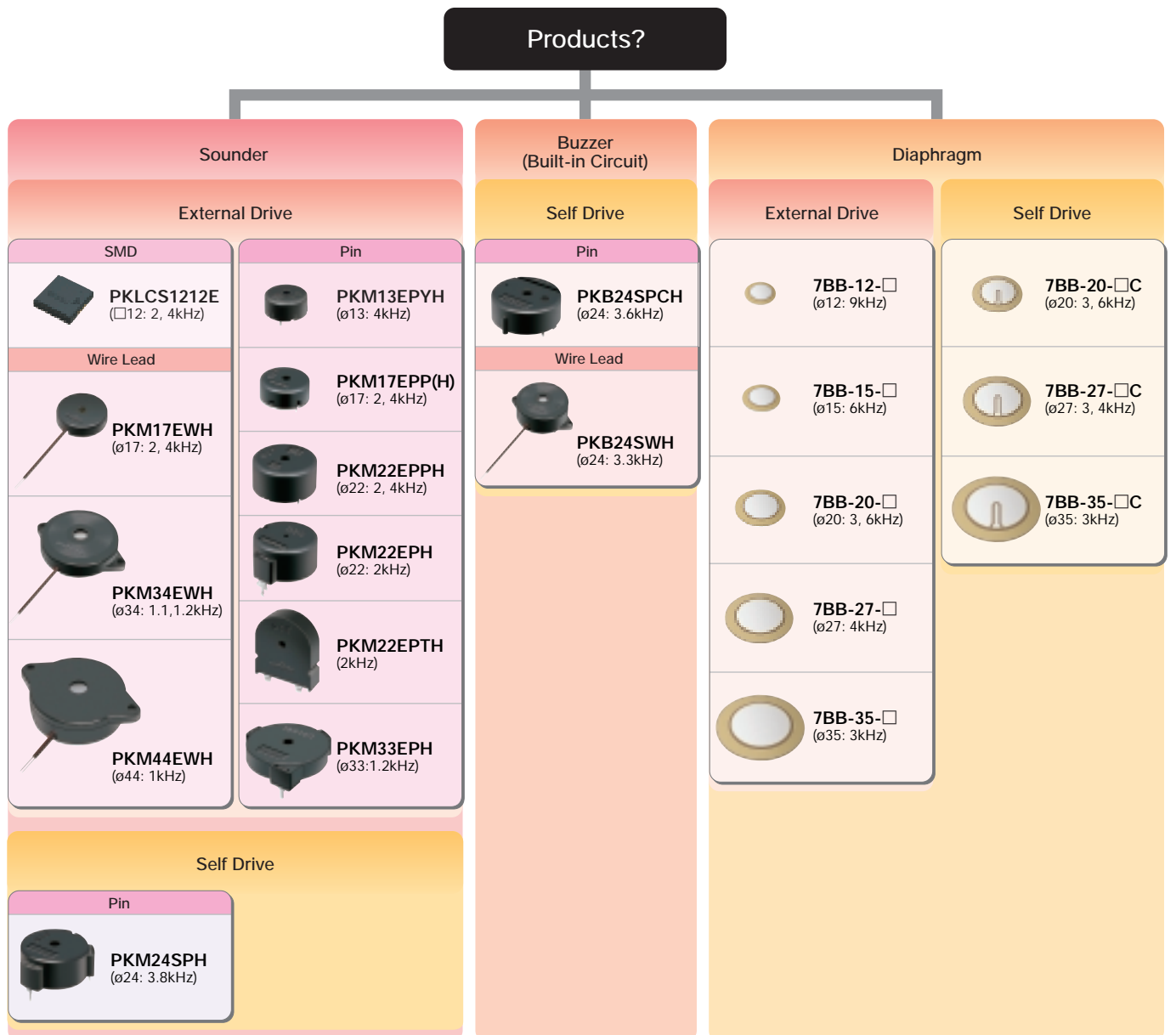
Summary

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

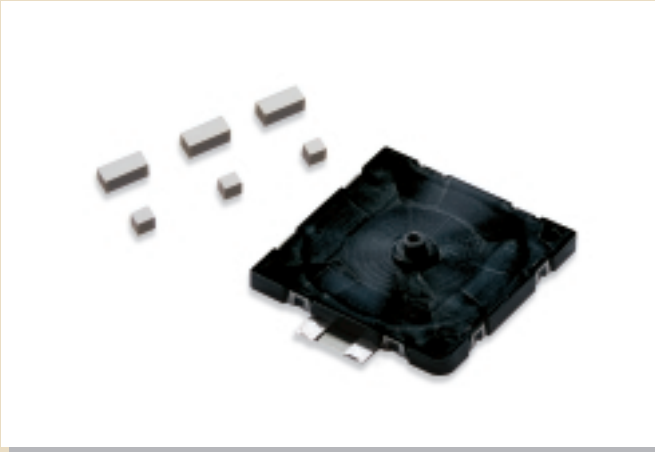
Lineup

Piezoelectric Speakers, Piezoelectric Diaphragms, Piezoelectric Sounders, Piezoelectric Ringers and Piezoelectric Buzzers are offered.

Selection Guide of Sound Components



Micromechatronics



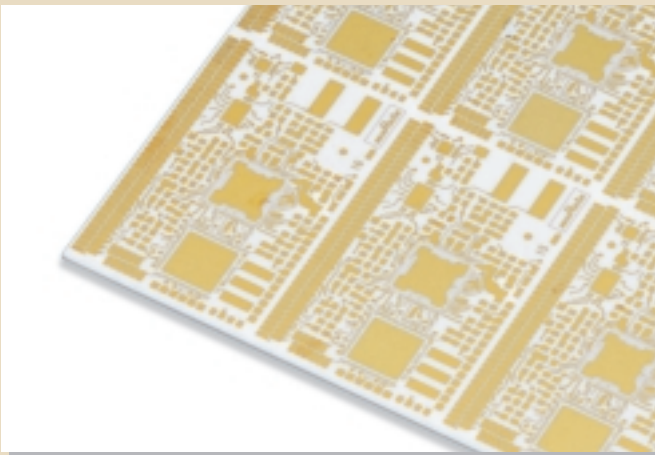
■ Summary

By utilizing the vibration and deformation of Piezoelectric materials, Murata's microblower and actuator products can meet various application needs.

■ Lineup

Microblowers and Piezoelectric Actuators are offered.

Ceramic Applied Products



■ Summary

Using Murata's unique ceramic material we offer a variety of Ceramic Applied Products.

■ Lineup

LTCC (Low Temperature Co-fired Ceramics) Multilayer Substrates LFC[®] are offered.

Application Guides

Mobile Phones



Personal Computers



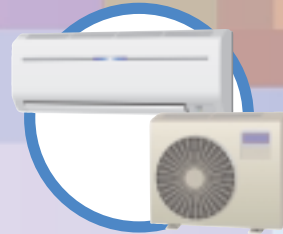
Televisions



Automotive



Air Conditioners

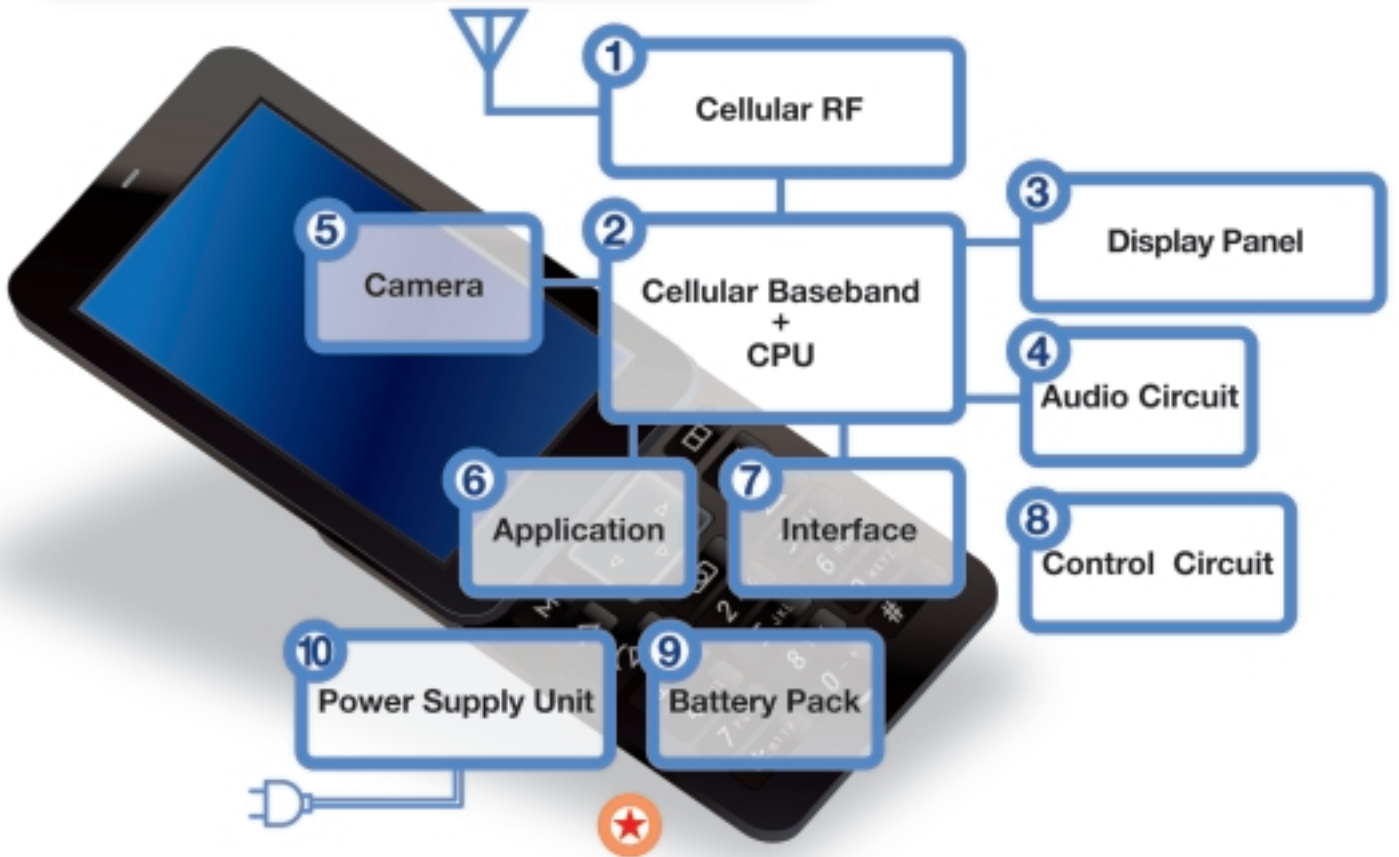


LED Lightings



Application Guides

Mobile Phones



1 Cellular RF

Chip Multilayer Antennas
LDA Series



RF Diode Switches (SWITCHPLEXER®)
LMSP Series



Chip Multilayer Diplexers
LFD Series



SAW Duplexers
SAY Series



SAW Filters
SAF Series



Chip Multilayer LC Filters
LFB Series



Chip Multilayer Hybrid Baluns
LDB/LDM Series



Chip Multilayer Hybrid Dividers
LDD Series



Coaxial Connectors



GaAs MMIC



Isolators
CEG23 Series



Trimmer Capacitors
TZS2 Series



ESD Protection Devices
LXES Series



Thermistors
NCP Series



2 Cellular Baseband+CPU

Ceramic Resonators (CERALOCK®)
CSTCE Series



3 Terminal Capacitors
NFM Series



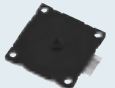
Chip Common Mode Choke Coils
DLW/DLP Series



Thermistors
PRF/NCP Series



Micro Blowers



3 Display Panel

Trimmer Potentiometers
PVZ2 Series



Thermistors
PRF/NCP Series



4 Audio Circuit




Piezoelectric Speakers
VSLBP Series








Chip Common Mode Choke Coils
DLM Series







5 Camera

- Actuators
PALPRM Series 
- Trimmer Potentiometers
PVZ2 series 
- Thermistors
NCP Series 


6 Application

- Bluetooth® Modules 
- Wi-Fi® Modules 
- GPS Modules 
- Tuner Modules for One Segment Broadcasting SUMU Series 
- MAGICSTRAP® for RFID Tag LXMS Series 
- UHF RFID Reader/Writer Devices 
- Chip Multilayer Antennas LDA Series 
- Chip Dielectric Antennas ANC Series 
- Coaxial Connectors 
- Chip Multilayer LC Filters LFB Series 
- Chip Multilayer Hybrid Couplers LDC Series 
- Chip Multilayer Hybrid Dividers LDD Series 
- Chip Multilayer Hybrid Baluns LDB/LDM Series 
- GaAs MMIC 
- Trimmer Capacitors TZS2 Series 
- Ceramic Resonators (CERALOCK®) CSTCE Series 


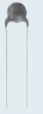


7 Interface

- Shock Sensors PKGS Series 
- Ceramic Resonators (CERALOCK®) CSTCE Series 
- Chip Common Mode Choke Coils DLW/DLP Series 
- ESD Protection Devices LXES Series 




9 Battery Pack

- Thermistors NCP Series 


10 Power Supply Unit











- Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series 
- High Voltage Ceramic Capacitors DEA/DES Series 
- Safety Certified Ceramic Capacitors Type KX/KY 
- Micro Blowers 

8 Control Circuit

- Pyroelectric Infrared Sensors IRS Series 
- Magnetic Switches AS Series 
- Multifunction Smart Sensors AES Series 

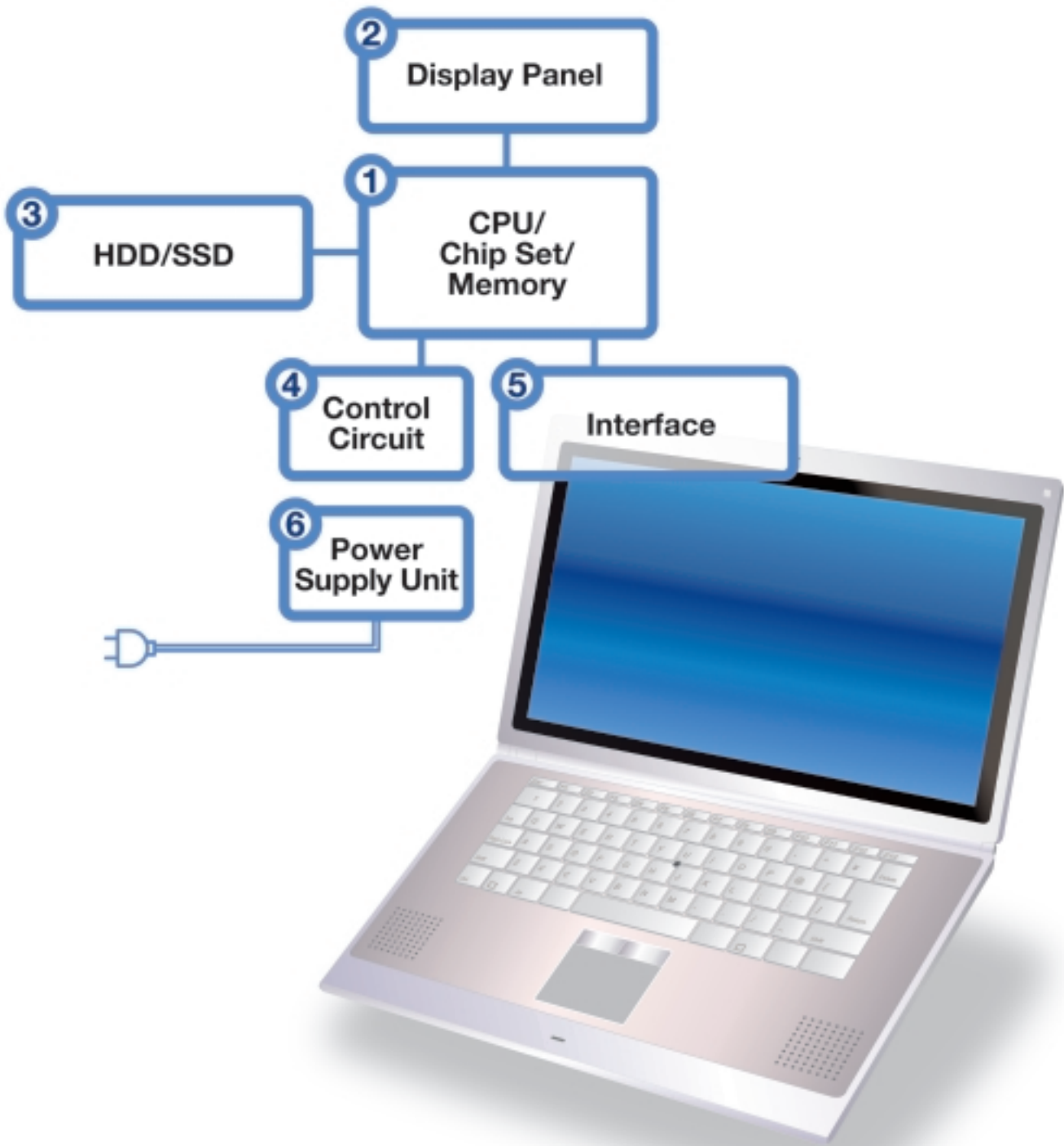
★ TOPICS

- Wireless Quick Charge Modules 

General Purpose	Monolithic Ceramic Capacitors	GRM/GJM Series	Impedance Matching		p03
	Monolithic Ceramic Capacitors	GRM/GNM Series	Coupling/Decoupling/For Step-up		p03
	Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance		p13
	Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion		p13
	Chip Ferrite Beads	BLM Series	Noise Suppression		p07
	EMI Suppression Filters (EMIFIL®)	NF Series	Noise Suppression		p07
	Chip Common Mode Choke Coils	DLW/DLP Series	Noise Suppression		p08
	Microwave Absorbers	EA Series	Noise Suppression		p11
	Ferrite Cores	FS Series	Noise Suppression		p11
	Thin Type Sandwich Cores	FSSA Series	Noise Suppression		p11

Application Guides

Personal Computers



1 CPU/Chip Set/Memory

Ceramic Resonators (CERALOCK®)
CSTCE/CSTCR Series

3 terminal Capacitors
NFM Series

Low ESL Monolithic Ceramic Capacitors
LLL/LLA/LLM Series

Thermistors
PRF/NCP Series

Micro Blowers

2 Display Panel

Trimmer Potentiometers
PVZ2 Series

Thermistors
PRF/NCP Series

Pyroelectric Infrared Sensors
IRS Series

3 HDD/SSD

Shock Sensors
PKGS Series

Ceramic Resonators (CERALOCK®)
CSTCE Series

Crystal Resonators
XRCGA Series

Thermistors
PRF/NCP Series

4 Control Circuit

Magnetic Switches
AS Series

Multifunction Smart Sensors
AES Series

5 Interface

Bluetooth® Modules

Wi-Fi® Modules

Coaxial Connectors

Ceramic Resonators (CERALOCK®)
CSTCE/CSTCR Series

Chip Common Mode Choke Coils
DLW/DLP Series

ESD Protection Devices
LXES Series

6 Power Supply Unit

Monolithic Ceramic Capacitors for Medium Voltage
GR/GA Series

High Voltage Ceramic Capacitors
DEA/DES Series

Safety Certified Ceramic Capacitors
Type KX/KY

Trimmer Potentiometers
PVG3 Series

Chip Common Mode Choke Coils
DLW/DLP Series

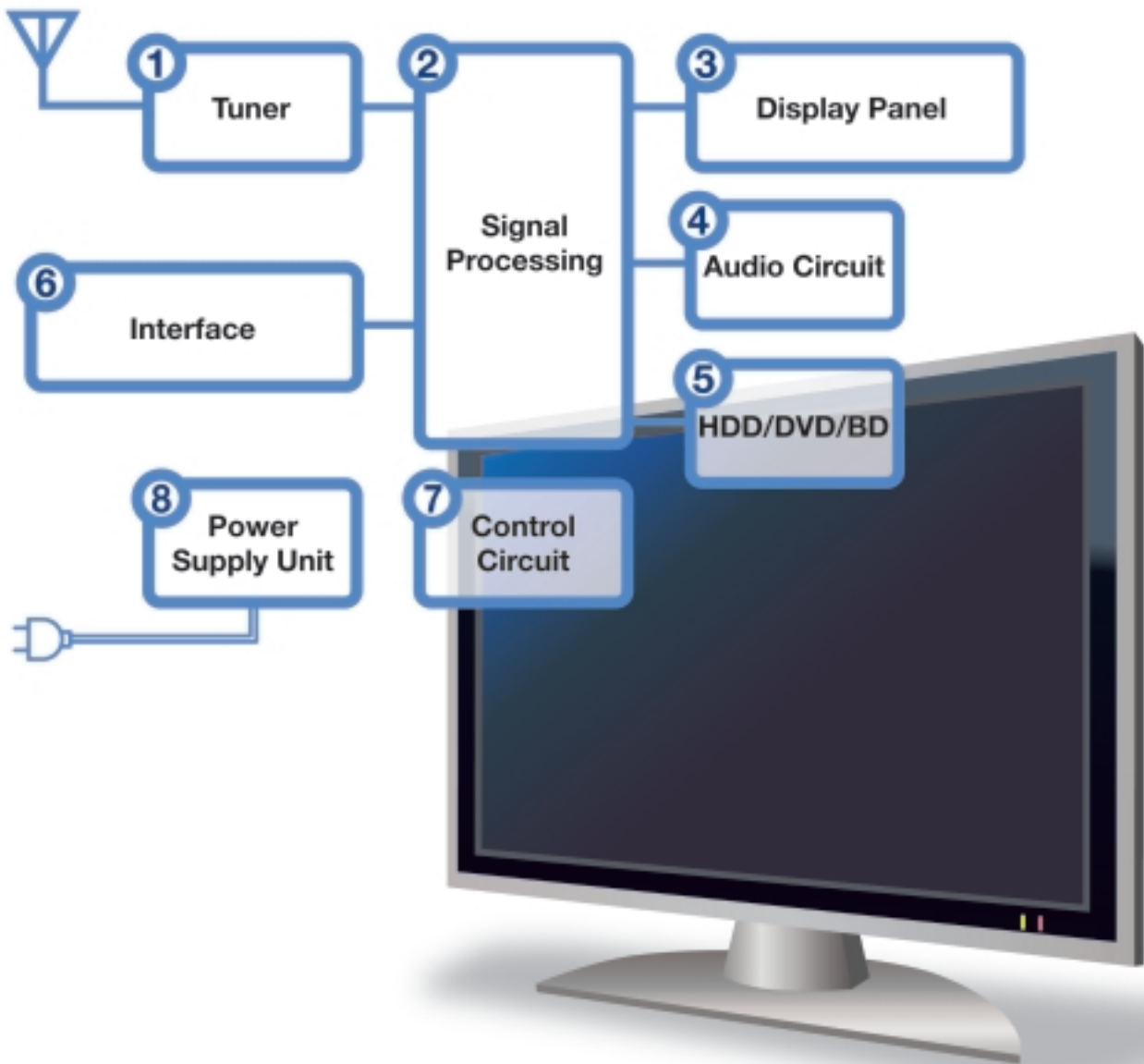
Thermistors
PRF/PRG/NCP/NTP Series

General Purpose

Monolithic Ceramic Capacitors	GRM/GNM Series	Coupling/Decoupling		p03
Radial Lead Type Monolithic Ceramic Capacitors	RPE Series	Coupling/Decoupling		
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion		p13
Chip Ferrite Beads	BLM Series	Noise Suppression		p07
EMI Suppression Filters (EMIFIL®)	NF Series	Noise Suppression		p07
Microwave Absorbers	EA Series	Noise Suppression		p11
Ferrite Cores	FS Series	Noise Suppression		p11

Application Guides

Televisions



1 Tuner

Microchip Transformers (Baluns)
DXP18B Series

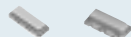


Trimmer Potentiometers
PVZ2 Series



2 Signal Processing

Ceramic Resonators (CERALOCK®)
CSTCE/CSTCR Series



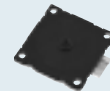
3 Terminal Capacitors
NFM Series









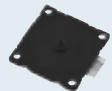
Thermistors
PRF/NCP Series



Micro Blowers








3 Display Panel

Switching Power Supplies MPF/MPH Series 	DC-DC Converters 	Chip Common Mode Choke Coils DLW/DLP Series 
Rotary Position Sensors SV Series 	Trimmer Potentiometers PVZ2 Series 	Thermistors PRF/NCP Series 
		Micro Blowers 






4 Audio Circuit

Chip Common Mode Choke Coils
DLW/DLP Series






5 HDD/DVD/BD

Shock Sensors PKGS Series 	Ceramic Resonators (CERALOCK®) CSTCE Series 	Crystal Resonators XRCGA Series 
	Trimmer Potentiometers PVZ2 Series 	Thermistors PRF/NCP Series 



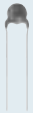


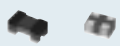

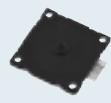
6 Interface










Wireless HD® Modules 	11n Modules 
Ceramic Resonators (CERALOCK®) CSTCE/CSTCR Series 	Chip Common Mode Choke Coils DLW/DLP Series 
ESD Protection Devices LXES Series 	

7 Control Circuit

Bluetooth® Modules 	Pyroelectric Infrared Sensors IRS Series 
Ceramic Resonators (CERALOCK®) CSTCE/CSTCR Series 	Anti-fuse Devices 

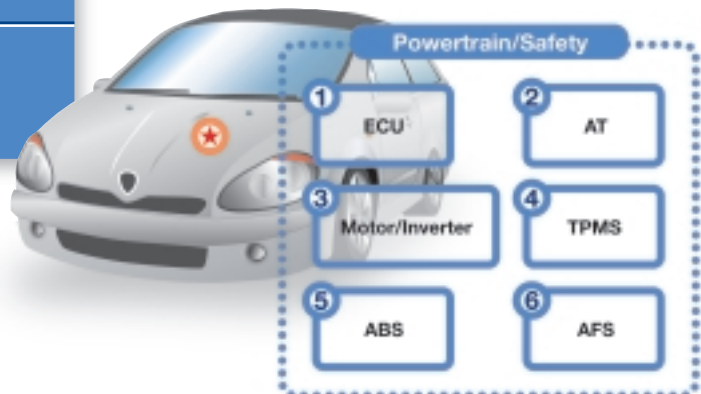
8 Power Supply Unit

Switching Power Supplies MPF Series 	Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series 	High Voltage Ceramic Capacitors DEA/DES Series 
Safety Certified Ceramic Capacitors Type KX/KY 	Trimmer Potentiometers PVG3 Series 	Chip Common Mode Choke Coils DLW/DLP Series 
Thermistors PRF/PTG/NCP/NTP Series 		Micro Blowers 

General Purpose	Monolithic Ceramic Capacitors	GRM Series	Impedance Matching/Frequency Control		p03
	Monolithic Ceramic Capacitors	GRM/GNM Series	Coupling/Decoupling		p03
	Radial Lead Type Monolithic Ceramic Capacitors	RPE Series	Coupling/Decoupling		
	Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	High Frequency Circuit-Impedance Matching/Resonance		p13
	Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion		p13
	Chip Ferrite Beads	BLM Series	Noise Suppression		p07
	EMI Suppression Filters (EMIFIL®)	NF Series	Noise Suppression		p07
	Ferrite Cores	FS Series	Noise Suppression		p11
	Thin Type Sandwich Cores	FSSA Series	Noise Suppression		p11

Application Guides

Automotive



1 ECU

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

Soft Termination Type Monolithic Ceramic Capacitors
GCJ Series

Monolithic Ceramic Capacitors for Conductive Glue Mounting
GCG Series

Ceramic Resonators (CERALOCK®)
CSTCE/CSTCR Series

Thermistors
PTG/PRF/NCP Series

★ TOPICS

Actuator for Fuel Injector

2 AT

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

Ceramic Resonators (CERALOCK®)
CSTCE/CSTCR Series

Thermistors
PTG/PRF/NCP Series

3 Motor/Inverter

Monolithic Ceramic Capacitors for High Power Applications
EVC Series

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

Ceramic Resonators (CERALOCK®)
CSTCE/CSTCR Series

Thermistors
PTG/PRF/NCP Series

4 TPMS

SAW Filters
SAF Series

Ceramic Filters (CERAFIL®)
SFEFCF Series

Ceramic Discriminators
CDSCB Series

Ceramic Resonators (CERALOCK®)
CSTCE/CSTCR Series

SAW Resonators
SAR Series

Piezoelectric Sounders
PKLCS Series

Thermistors
PRF/NCP Series

5 ABS

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

Soft Termination Type Monolithic Ceramic Capacitors
GCJ Series

Monolithic Ceramic Capacitors for Conductive Glue Mounting
GCG Series

Ferrite Beads for Conductive Glue Mounting
BLM18AG_WH1 Series

Thermistors for Conductive Glue Mounting
NCG18 Series

Ceramic Resonators (CERALOCK®)
CSTCE/CSTCR Series

6 AFS

Soft Termination Type Monolithic Ceramic Capacitors
GCJ Series

Monolithic Ceramic Capacitors for Conductive Glue Mounting
GCG Series

Ferrite Beads for Conductive Glue Mounting
BLM18AG_WH1 Series

Thermistors for Conductive Glue Mounting
NCG18 Series

Ceramic Resonators (CERALOCK®)
CSTCE/CSTCR Series

Monolithic Ceramic Capacitors	GCM Series	Coupling/Decoupling		150°C	p03
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	
Chip Inductors (Chip Coils)	LQH32CH Series	Voltage Conversion		105°C	p13
Chip Inductors (Chip Coils)	LQG15HH Series	Impedance Matching/Choke		125°C	p13
Chip Ferrite Beads	BLM_SH Series	Noise Suppression		125°C	p07
EMI Suppression Filters (EMIFIL®)	NFM_H/NFE_H Series	Noise Suppression		125°C	p07
Chip Common Mode Choke Coils	DLW31SH/DLW43SH Series	Common Mode Noise Suppression		125°C	p08

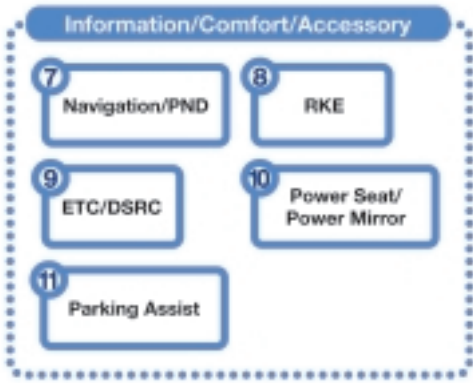
Application Guides

For Powertrain and Safety

For more information, please ask for catalog shown above or visit our website.
<http://www.murata.com/>
<http://search.murata.co.jp/>



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



7 Navigation/PND

Angular Rate Sensors MEV Series 	Rotary Position Sensors SV Series 	SAW Filters SAF Series 	Ceramic Filters (CERAFIL®) SFEFCF Series
Ceramic Discriminators CDSCB Series 	Piezoelectric Sounders PKLCS Series 	Bluetooth® Modules LBCA Series 	DC-DC Converters
Ceramic Resonators (CERALOCK®) CSTCE/CSTCR Series 	Trimmer Potentiometers PV Series 	Thermistors PRG/PTG/PRF/NCP Series 	

8 RKE

SAW Filters SAF Series 	Ceramic Filters (CERAFIL®) SFEFCF Series 	Ceramic Discriminators CDSCB Series 	SAW Resonators SAR Series 	Piezoelectric Sounders PKLCS Series
	Trimmer Capacitors TZY2 Series 	Ceramic Resonators (CERALOCK®) CSTCE/CSTCR Series 	Trimmer Potentiometers PVM4 Series 	

9 ETC/DSRC

BGS Filters MKFCC Series 	Piezoelectric Sounders PKLCS Series 	Ceramic Resonators (CERALOCK®) CSTCE/CSTCR Series
Trimmer Potentiometers PV Series 	Thermistors PTG/PRF/NCP Series 	

10 Power Seat/Power Mirror

Rotary Position Sensors SV Series 	Ceramic Resonators (CERALOCK®) CSTCE/CSTCR Series
Thermistors PTG/PRF/NCP Series 	

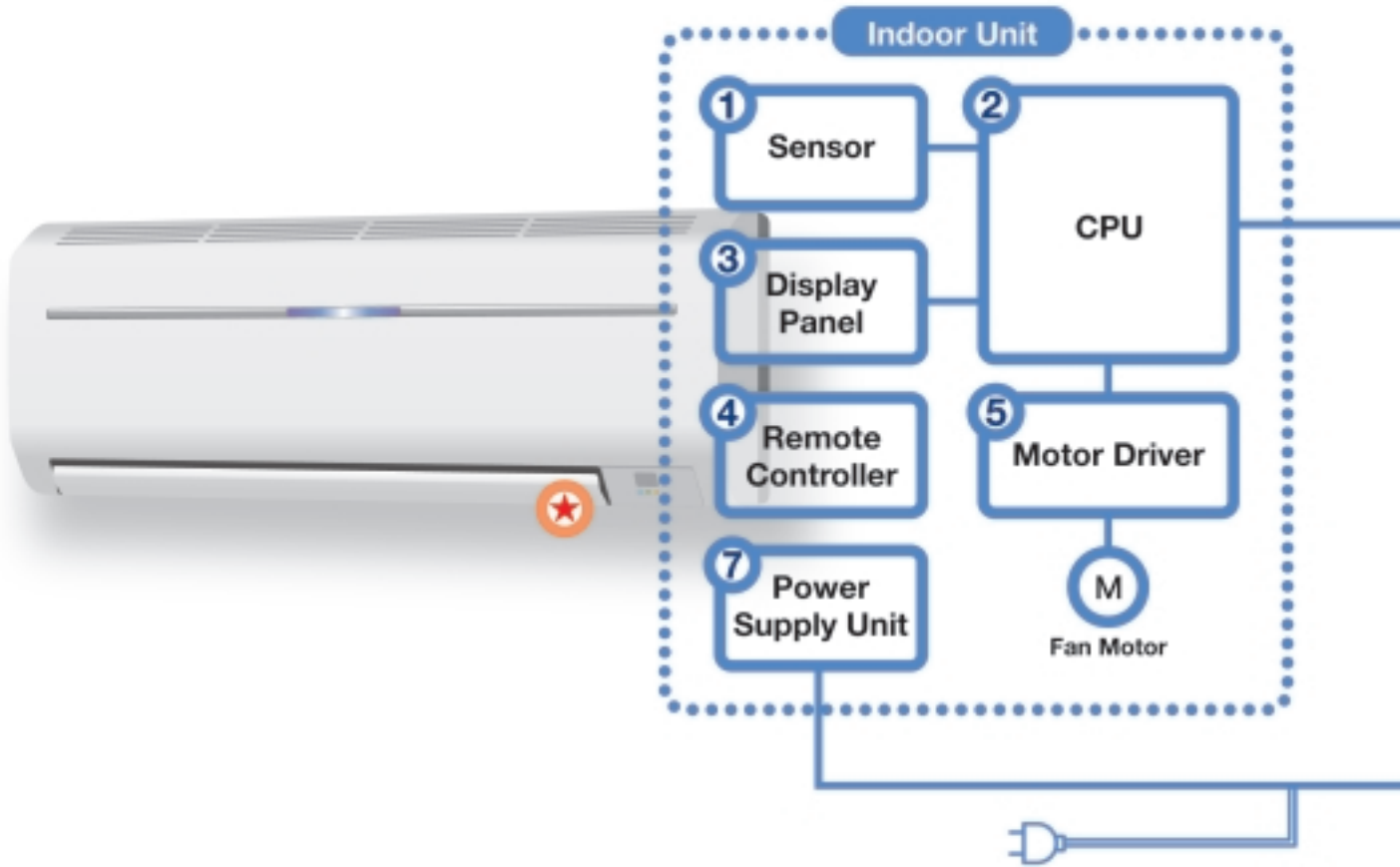
11 Parking Assist

Ultrasonic Sensors MA Series 	Piezoelectric Sounders PKLCS Series 	Ceramic Resonators (CERALOCK®) CSTCE/CSTCR Series 	Trimmer Potentiometers PV Series 	Thermistors PTG/PRF/NCP Series
-------------------------------------	--	--	---	---------------------------------------



For Information, Comfort and Accessory	Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling		p03
	Monolithic Ceramic Capacitors for Medium Voltage	GRM Series	For Snubber		p03
	Radial Lead Type Monolithic Ceramic Capacitors	RPE Series	Noise Suppression/Decoupling		
	Chip Inductors (Chip Coils)	LQW/LQP/LQG Series	Voltage Conversion		p13
	Chip Ferrite Beads	BLM Series	Noise Suppression		p07
	EMI Suppression Filters (EMIFIL®)	NFM/NFA/NFL/NFE/NFW/NFR Series	Noise Suppression		p07
	Chip Common Mode Choke Coils	DLP/DLW/DLM Series	Common Mode Noise Suppression		p08
	Ferrite Cores	FS Series	Noise Suppression		p11

Application Guides



Air Conditioners





★ TOPICS

<p>Rotary Position Sensors SV Series</p> 	<p>Ionizer Modules (Ionissimo™) MHM Series</p> 
--	--


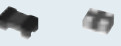


1 Sensor

<p>Pyroelectric Infrared Sensors IRS Series</p> 	<p>Thermistors PRF/NCP/NXFT Series</p> 
---	--






2 CPU

<p>Ceramic Resonators (CERALOCK®) CSTLS/CSTCE/CSTCR Series</p> 	<p>Thermistors PRF/NCP/NXFT Series</p> 
--	--

3 Display Panel


<p>Ceramic Resonators (CERALOCK®) CSTCE/CSTCR Series</p> 	<p>Chip Common Mode Choke Coils DLW/DLP Series</p> 
<p>Thermistors PRF/NCP Series</p> 	<p>Piezoelectric Buzzers PKM/PKB Series</p> 

4 Remote Controller

<p>Bluetooth® Modules</p> 	<p>Chip Multilayer Antennas LDA series</p> 	<p>Chip Dielectric Antennas ANC Series</p> 
<p>Coaxial Connectors</p> 	<p>Chip Common Mode Choke Coils DLW/DLP Series</p> 	

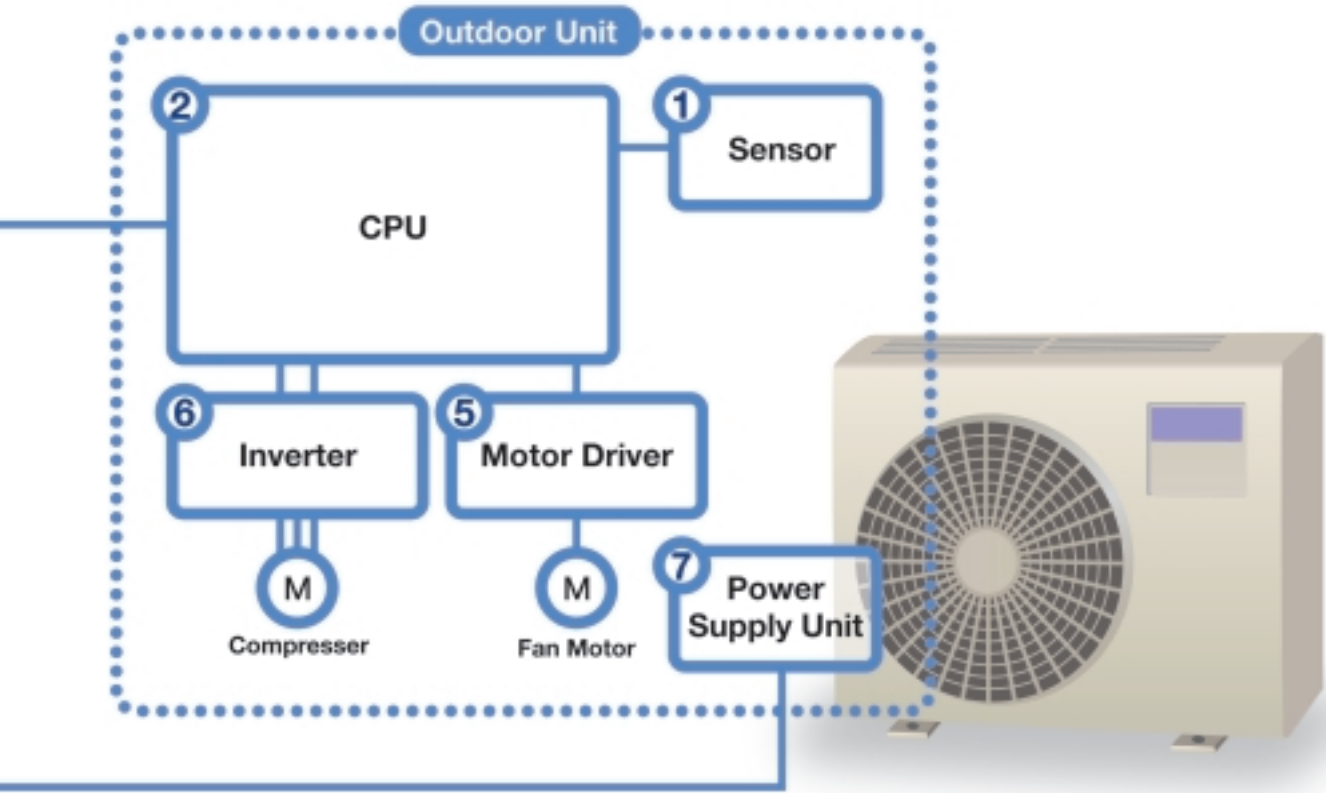
5 Motor Driver

Thermistors
PRF/NCP/NXFT Series



Application Guides





6 Inverter

- Chip Common Mode Choke Coils DLW/DLP Series
- Trimmer Potentiometers PVG3 Series
- Thermistors PRF/NCP/NXFT Series

7 Power Supply Unit

- Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series
- High Voltage Ceramic Capacitors DEA/DES Series
- Safety Certified Ceramic Capacitors Type KX/KY
- High Voltage Resistors MHR Series
- Trimmer Potentiometers PVG3 Series
- Thermistors PRF/PRG/PTG/NCP/NTP Series

General Purpose

Monolithic Ceramic Capacitors	GRM Series	Coupling/Decoupling/For Snubber		p03
Monolithic Ceramic Capacitors for Medium Voltage	GR Series	Coupling/Decoupling		p03
Radial Lead Type Monolithic Ceramic Capacitors	RPE Series	Coupling/Decoupling		
Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion		p13
Chip Ferrite Beads	BLM Series	Noise Suppression		p07
EMI Suppression Filters (EMIFIL®)	NF Series	Noise Suppression		p07
Ferrite Cores	FS Series	Noise Suppression		p11

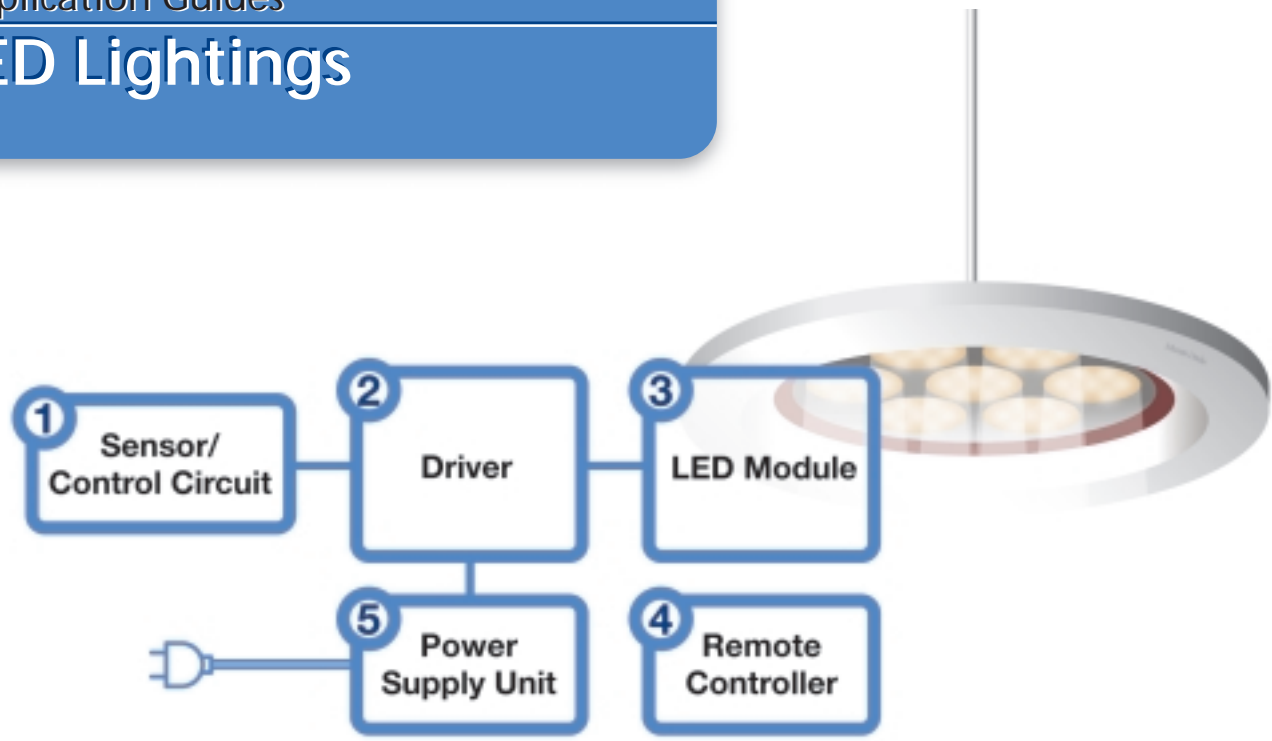
For more information, please ask for catalog shown above or visit our website.
<http://www.murata.com/>
<http://search.murata.co.jp/>



Application Guides

Application Guides

LED Lightings



1 Sensor/Control Circuit

Pyroelectric Infrared Sensors IRS Series

Ceramic Resonators (CERALOCK®) CSTLS/CSTCE/CSTCR Series

Trimmer Potentiometers PVG3 Series

Thermistors PRF/NCP Series

2 Driver

Ceramic Resonators (CERALOCK®) CSTLS/CSTCE/CSTCR Series

Thermistors PRF/NCP/NXFT Series

3 LED Module

Anti-fuse Devices

Thermistors PRF/PTF/NCP Series

Micro Blowers

4 Remote Controller

Bluetooth® Modules

Chip Multilayer Antennas LDA Series

Chip Dielectric Antennas ANC Series

Coaxial Connectors

5 Power Supply Unit

Monolithic Ceramic Capacitors for Medium Voltage GR/GA Series

High Voltage Ceramic Capacitors DEA/DES Series

Safety Certified Ceramic Capacitors Type KX/KY

Trimmer Potentiometers PVG3 Series

Thermistors PRF/PRG/PTG/NCP/NTP Series

General Purpose	Monolithic Ceramic Capacitors	GRM Series	Decoupling/Smoothing		p03
	Radial Lead Type Monolithic Ceramic Capacitors	RPE Series	Coupling/Decoupling		
	Chip Inductors (Chip Coils)	LQM/LQH Series	Voltage Conversion		p13
	Chip Ferrite Beads	BLM Series	Noise Suppression		p07
	EMI Suppression Filters (EMIFIL®)	NF Series	Noise Suppression		p07

Application Guides



Memo

Website <http://www.murata.com/products/index.html>

How do I find the latest information?

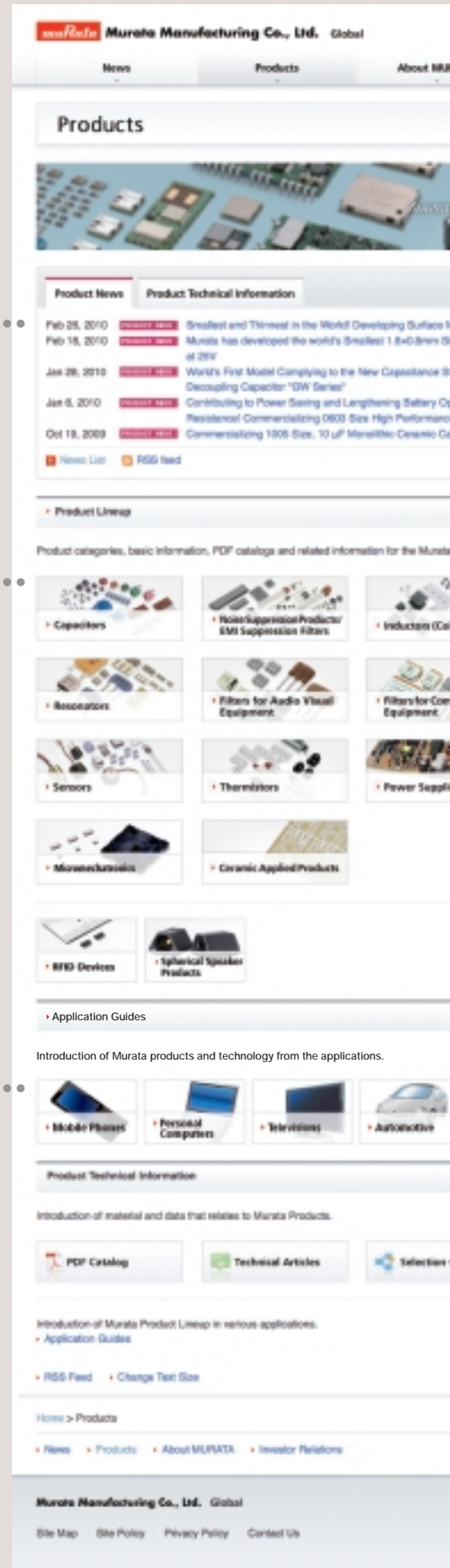
It is possible to confirm information updates regarding both new product news and new product content. RSS feeds are also available.

How is the information about a specific product organized?

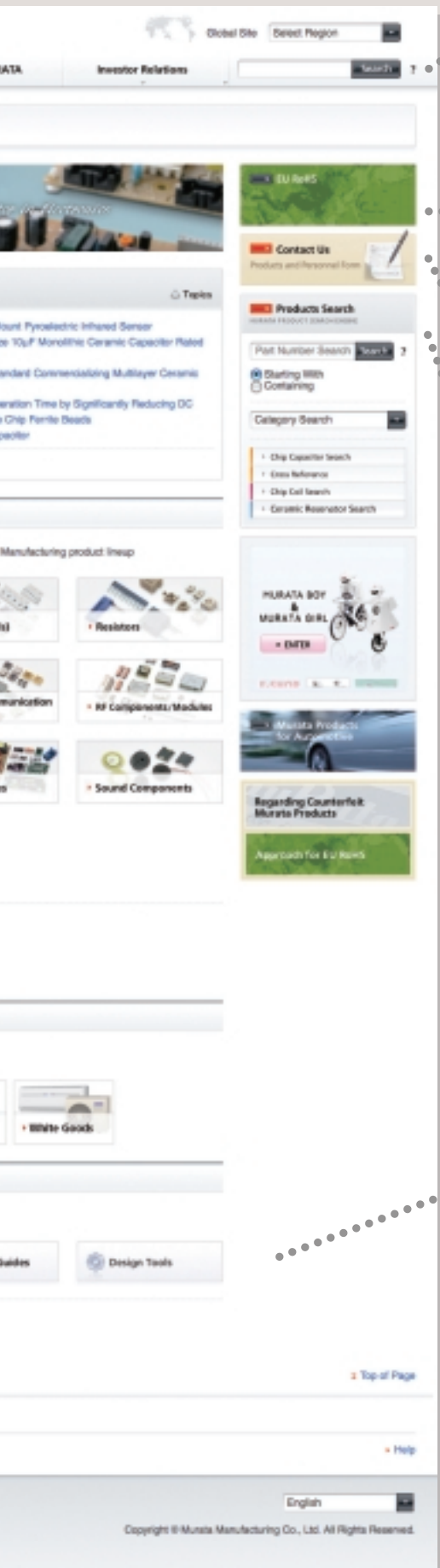
Product information listed on the website is organized into different product categories. The wealth of information provided ranges in complexity from basic product knowledge to specialist engineer information.

Can I find product information for specific applications?

It is possible to search Murata products, technical documentation and topics in various applications.



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



How do I find the information I want?

Please try and find the information you desire by using the keyword search function. Using such searches, it is possible to search all of the pages within the Murata website.

What about EU RoHS, how is Murata responding to this?

Using the Murata website, it is possible to confirm the company's approach to RoHS, the management methods being employed, and RoHS confirmation-compliance with regard to individual products, etc.

How do I get more detailed information?

Please make any inquiries using the "Contact Us (Products and Personnel) Form".

How do I confirm product specifications?

Please search out the product in question using the web catalog. Using the web catalog, it is possible to search for products by: (1) the part number, (2) the product category, or (3) the product specifications. Using individual part numbers, it is possible to confirm detailed catalog specifications.

Is other information about specific technologies offered on Murata's website?

The website offers a wide variety of information regarding different technologies. In particular, the website offers an extensive coverage of the following topics:

- PDF Catalog: The website provides a wide range of catalogs in PDF format.
- Technical Articles: The website provides articles written about Murata products that have been featured in various magazines.
- Selection Guides: The website offers guides that are designed to assist in the selection of purpose-matched circuitry components.
- Design Tools: To assist with circuitry design, the website offers software tools, S parameter, and a data library of equivalent circuit models.

△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 March 2010. 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 because there is no space for detailed specifications. Therefore, please approve our product specifications or transact 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/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 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. K31E