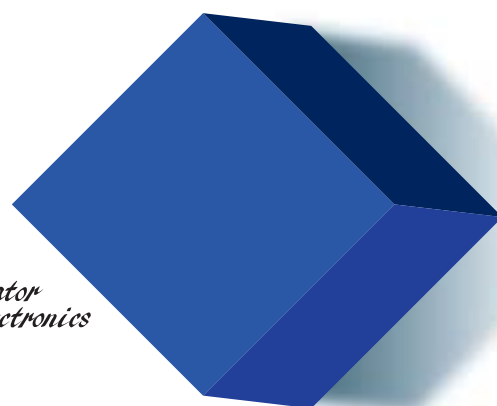


Chip Monolithic Ceramic Capacitors



Murata
Manufacturing Co., Ltd.

*Innovator
in Electronics*

Explanation of Symbols in This Catalog

Ultra-compact	Lx W dimension: products of 0.6 x 0.3 mm or less
HiQ	Low dissipation for high frequency By devising ceramic materials and electrode materials, low dissipation is achieved in frequency bands of VHF, UHF and microwave or beyond.
Low ESL	Low inductance This capacitor is designed so that the parasitic inductance component (ESL) that the capacitor has on the high frequency side becomes lower.
Anti-noise	Product suitable for acoustic noise reduction and low distortion This product suppresses acoustic noise, which occurs when a ceramic capacitor is used, by devising the materials and configuration.
Deflecting crack	Product resistant to deflection cracking This capacitor is designed to prevent failures as much as possible by short mode caused by cracking when there is board deflection.
Soldering crack	Product with solder cracking suppression This capacitor is configured with metal terminals and leads connected to the chip. The metal terminals and leads relieve the stress from expansion and contraction of the solder, to suppress solder cracking.

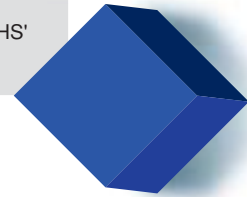
Derating Voltage and temperature derating recommended product
This product is suitable when a voltage continuously applied to a capacitor in an operating circuit, is used below (derated) the rated voltage of the capacitor.
This model guarantees the test conditions in the endurance test, at a rated voltage x 100% at the maximum operating temperature. A reliability assurance level equivalent to a common product can be secured, by using this product within the voltage and temperature derated conditions recommended in the figure below.

Recommended Conditions of the Derating Operating Voltage and Temperature

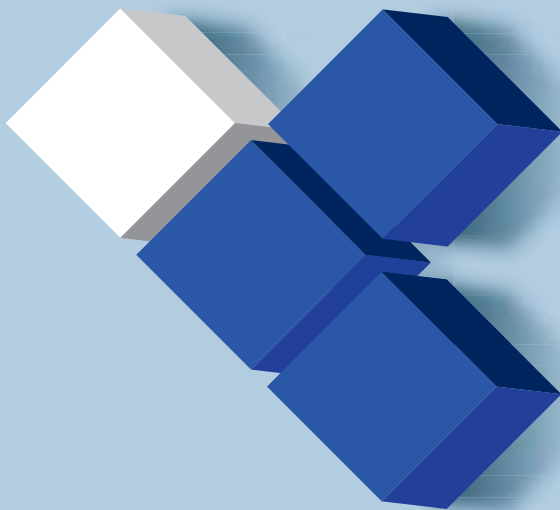


EU RoHS Compliant

- All the products in this catalog comply with EU RoHS.
- EU RoHS is "the European Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment."
- For more details, please refer to our website 'Murata's Approach for EU RoHS' (<http://www.murata.com/info/rohs.html>).



For General Purpose GRM Series Capacitance Table



Contents



Product specifications are as of August 2013.

Part Numbering	p2
Selection Guide	p5
Capacitance Table	p6

Chip Monolithic Ceramic Capacitors

Cap. Table

For General Purpose GRM Series	p16	separate volume
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High Frequency High Q Type 1005(in mm)/0402(in inch) Size Max. GJM Series	p83	p7
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Top & Bottom Electrode Type for Bonding GMA Series	p105	p8
---	------	----

Compatible to Bonding / AuSn Soldering GMD Series	p107	p9
--	------	----

High Frequency High Q Type 1608(in mm)/0603(in inch) Size Min. GQM Series	p110	p10
--	------	-----

Resin External Electrode Type GRJ Series	p119	p11
--	------	-----

High Effective Capacitance & High Allowable Ripple Current GR3 Series	p121	p11
--	------	-----

Metal Terminal Type For General Purpose KRM Series	p123	p12
---	------	-----

Metal Terminal Type High Effective Capacitance & High Allowable Ripple Current KR3 Series	p126	p13
--	------	-----

8-Terminal Low ESL Type LLA Series	p129	p13
--	------	-----

LW Reversed Low ESL Type LLL Series	p131	p14
---	------	-----

10-Terminal Low ESL Type LLM Series	p133	p14
---	------	-----

ESR Controlled Low ESL Type LLR Series	p135	p14
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⚠Caution/Notice	p137
Qualified Standards	p158
Introduction of Website SimSurfing	p160
EMICON-FUN!	p161
Product Information	p162

Please check the MURATA home page (<http://www.murata.com/>)
if you cannot find the part number in the catalog.

● Part Numbering

Chip Monolithic Ceramic Capacitors for General

(Part Number)

GR	M	18	8	B1	1H	102	K	A01	D
----	---	----	---	----	----	-----	---	-----	---

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
---	---	---	---	---	---	---	---	---	---

① Product ID ② Series

Product ID	Code	Series
GJ	M	High frequency HiQ type 1005(in mm)/0402(in inch) size max.
	A	Top & bottom electrode type for bonding
GM	D	Product for bonding/AuSn soldering
	M	High frequency HiQ type 1608(in mm)/0603(in inch) size min.
GR	3	High effective capacitance & High allowable ripple current
	J	Resin external electrode type
	M	General purpose products
KR	3	Metal terminal type/High effective capacitance & High allowable ripple current
	M	Metal terminal type
LL	A	8-terminal low ESL type
	L	LW reversed low ESL type
	M	10-terminal low ESL type
	R	Controlled ESR low ESL type

③ Chip Dimensions (L×W)

Code	Dimensions (L×W)	Size Code (in inch)
02	0.4×0.2mm	01005
03	0.6×0.3mm	0201
05	0.5×0.5mm	0202
08	0.8×0.8mm	0303
0D	0.38×0.38mm	015015
15	1.0×0.5mm	0402
18	1.6×0.8mm	0603
1U	0.6×1.0mm	02404
21	2.0×1.25mm	0805
22	2.8×2.8mm	1111
31	3.2×1.6mm	1206
32	3.2×2.5mm	1210
42	4.5×2.0mm	1808
43	4.5×3.2mm	1812
55	5.7×5.0mm	2220

④ Height Dimension (T) (Except KR□)

Code	Dimension (T)
2	0.2mm
3	0.3mm
4	0.4mm
5	0.5mm
6	0.6mm
7	0.7mm
8	0.8mm
9	0.85mm
A	1.0mm
B	1.25mm
C	1.6mm
D	2.0mm
E	2.5mm
M	1.15mm
Q	1.5mm
R	1.8mm
S	2.8mm
X	Depends on individual standards.

④ Height Dimension (T) (KR□ Only)

Code	Dimension (T)
E	1.8mm
F	1.9mm
K	2.7mm
L	2.8mm
Q	3.7mm
T	4.8mm
W	6.4mm

Continued on the following page. 

(Part Number)

GR	M	18	8	B1	1H	102	K	A01	D
1	2	3	4	5	6	7	8	9	10

Continued from the preceding page.

⑤ Temperature Characteristics

Temperature Characteristic Codes		Temperature Characteristics				Operating Temperature Range	Capacitance Change Each Temperature (%)					
Code	Public STD Code	Reference Temperature	Temperature Range	Capacitance Change or Temperature Coefficient	-55°C		*3		-10°C			
					Max.		Min.	Max.	Min.	Max.	Min.	
1X	SL	JIS	20°C	20 to 85°C	+350 to -1000ppm/°C	-55 to 125°C	-	-	-	-	-	-
2C	CH	JIS	20°C	20 to 125°C	0±60ppm/°C	-55 to 125°C	0.82	-0.45	0.49	-0.27	0.33	-0.18
3C	CJ	JIS	20°C	20 to 125°C	0±120ppm/°C	-55 to 125°C	1.37	-0.9	0.82	-0.54	0.55	-0.36
3U	UJ	JIS	20°C	20 to 85°C	-750±120ppm/°C	-25 to 85°C	-	-	4.94	2.84	3.29	1.89
4C	CK	JIS	20°C	20 to 125°C	0±250ppm/°C	-55 to 125°C	2.56	-1.88	1.54	-1.13	1.02	-0.75
5C	C0G	EIA	25°C	25 to 125°C	0±30ppm/°C	-55 to 125°C	0.58	-0.24	0.4	-0.17	0.25	-0.11
7U	U2J	EIA	25°C	25 to 125°C *2	-750±120ppm/°C	-55 to 125°C	8.78	5.04	6.04	3.47	3.84	2.21
B1	B *1	JIS	20°C	-25 to 85°C	±10%	-25 to 85°C	-	-	-	-	-	-
B3	B	JIS	20°C	-25 to 85°C	±10%	-25 to 85°C	-	-	-	-	-	-
C6	X5S	EIA	25°C	-55 to 85°C	±22%	-55 to 85°C	-	-	-	-	-	-
C7	X7S	EIA	25°C	-55 to 125°C	±22%	-55 to 125°C	-	-	-	-	-	-
C8	X6S	EIA	25°C	-55 to 105°C	±22%	-55 to 105°C	-	-	-	-	-	-
D7	X7T	EIA	25°C	-55 to 125°C	+22%, -33%	-55 to 125°C	-	-	-	-	-	-
D8	X6T	EIA	25°C	-55 to 105°C	+22%, -33%	-55 to 105°C	-	-	-	-	-	-
E7	X7U	EIA	25°C	-55 to 125°C	+22%, -56%	-55 to 125°C	-	-	-	-	-	-
R1	R *1	JIS	20°C	-55 to 125°C	±15%	-55 to 125°C	-	-	-	-	-	-
R6	X5R	EIA	25°C	-55 to 85°C	±15%	-55 to 85°C	-	-	-	-	-	-
R7	X7R	EIA	25°C	-55 to 125°C	±15%	-55 to 125°C	-	-	-	-	-	-

*1 Capacitance change is specified with 50% rated voltage applied.

*2 Rated Voltage 100Vdc max: 25 to 85°C

*3 -25°C (Reference Temperature 20°C) / -30°C (Reference Temperature 25°C)

⑥ Rated Voltage

Code	Rated Voltage
0E	DC2.5V
0G	DC4V
0J	DC6.3V
1A	DC10V
1C	DC16V
1E	DC25V
1H	DC50V
1J	DC63V
1K	DC80V
2A	DC100V
2D	DC200V
2E	DC250V
2W	DC450V
2H	DC500V
2J	DC630V
3A	DC1kV
3D	DC2kV
3F	DC3.15kV
YA	DC35V

⑦ Capacitance

Expressed by three-digit alphanumerics. The unit is picofarad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers. If there is a decimal point, it is expressed by the capital letter "R." In this case, all figures are significant digits. If any alphabet, other than "R", is included, this indicates the specific part number is a non-standard part.

Ex.)

Code	Capacitance
R50	0.50pF
1R0	1.0pF
100	10pF
103	10000pF

⑧ Capacitance Tolerance

Code	Capacitance Tolerance
B	±0.1pF
C	±0.25pF
D	±0.5pF (10pF and below)
	±0.5% (10pF and over)
F	±1%
G	±2%
J	±5%
K	±10%
M	±20%
W	±0.05pF

Continued on the following page. ➤

Please check the MURATA home page (<http://www.murata.com/>) if you cannot find the part number in the catalog.

(Part Number)

GR	M	18	8	B1	1H	102	K	A01	D
1	2	3	4	5	6	7	8	9	10

☐ Continued from the preceding page.

⑨ Individual Specification Code (Except LLR)

Expressed by three figures.

⑨ ESR (LLR Only)

Code	ESR
E01	100mΩ
E03	220mΩ
E05	470mΩ
E07	1000mΩ

⑩ Packaging

Code	Packaging
L	ø180mm Embossed Taping
D/E/W	ø180mm Paper Taping
K	ø330mm Embossed Taping
J/F	ø330mm Paper Taping
B	Bulk
C	Bulk Case
T	Bulk Tray

Please contact us if you find any part number not provided in this table.

Selection Guide for Chip Monolithic Ceramic Capacitors

	Series	Ultra-small (smaller than 0201)	Low dissipation/HiQ	Low ESL	Fail safe	Anti-deflecting crack	Anti-soldering crack	Anti-noise, low distortion	For bonding	Specific applications	Safety standard certified type
For General Purpose	GRM page p16										
	GA2										
	GA3										
	GJM p83										
	GJ4										
	GJ8										
	GMA p105										
	GMD p107										
	GQM p110										
	GRJ p119										
	GR3 p121										
	GR4										
	GR7										
	KRM p123										
	KR3 p126										
	LLA p129										
	LLL p131										
	LLM p133										
	LLR p135										
	ZRA										
For Automotive (Cat. No. C03)	GCM										
	GCD										
	GCE										
	GCG										
	GCJ										
	GC3										
	KCM										
	KC3										

Capacitance Table

How to read the Capacitance Table

LxW (mm)	0.4×0.2		0.6×0.3		1.0
T max. (mm)	0.22		0.33		0.4
Rated Voltage (Vdc)	25		25		50
Cap. / TC Code	C0G	CΔ	C0G	CΔ	C0G
0.10pF					p97
0.20pF	p84	p87	p90	p93	p97
1.0pF	p84	p87	p90	p94	p97
2.0pF	p84	p87	p91	p94	p97
3.0pF	p84	p87	p91	p94	p98

→ The values can be narrowed down in the order of size, rated voltage, and temperature characteristics.

→ Refers to the page of the part number list.
Check the part number list for the applicable product number.

Temperature Characteristics Table

The Table is colored by temperature characteristic codes.
Refer to the following Table for the meaning of each code.

EIA:	C0G	U2J	X7R	X7S	X7T	X7U	X6S	X6T	X5R	X5S
JIS:	CK	CJ	CH	SL	UJ	R	B			

Temperature Characteristic Codes		Temperature Characteristics			Operating Temperature Range	Capacitance Change Each Temperature (%)					
						-55°C		*2		-10°C	
Public STD Code		Reference Temperature	Temperature Range	Capacitance Change or Temperature Coefficient		Max.	Min.	Max.	Min.	Max.	Min.
C0G	EIA	25°C	25 to 125°C	0±30ppm/°C	-55 to 125°C	0.58	-0.24	0.4	-0.17	0.25	-0.11
CK	JIS	20°C	20 to 125°C	0±250ppm/°C	-55 to 125°C	2.56	-1.88	1.54	-1.13	1.02	-0.75
CJ	JIS	20°C	20 to 125°C	0±120ppm/°C	-55 to 125°C	1.37	-0.9	0.82	-0.54	0.55	-0.36
CH	JIS	20°C	20 to 125°C	0±60ppm/°C	-55 to 125°C	0.82	-0.45	0.49	-0.27	0.33	-0.18
SL	JIS	20°C	20 to 85°C	+350 to -1000ppm/°C	-55 to 125°C	-	-	-	-	-	-
U2J	EIA	25°C	25 to 125°C *1	-750±120ppm/°C	-55 to 125°C	8.78	5.04	6.04	3.47	3.84	2.21
UJ	JIS	20°C	20 to 85°C	-750±120ppm/°C	-25 to 85°C	-	-	4.94	2.84	3.29	1.89
X7R	EIA	25°C	-55 to 125°C	±15%	-55 to 125°C	-	-	-	-	-	-
X7S	EIA	25°C	-55 to 125°C	±22%	-55 to 125°C	-	-	-	-	-	-
X7T	EIA	25°C	-55 to 125°C	+22%, -33%	-55 to 125°C	-	-	-	-	-	-
X7U	EIA	25°C	-55 to 125°C	+22%, -56%	-55 to 125°C	-	-	-	-	-	-
R	JIS	20°C	-55 to 125°C	±15%	-55 to 125°C	-	-	-	-	-	-
X6S	EIA	25°C	-55 to 105°C	±22%	-55 to 105°C	-	-	-	-	-	-
X6T	EIA	25°C	-55 to 105°C	+22%, -33%	-55 to 105°C	-	-	-	-	-	-
X5R	EIA	25°C	-55 to 85°C	±15%	-55 to 85°C	-	-	-	-	-	-
X5S	EIA	25°C	-55 to 85°C	±22%	-55 to 85°C	-	-	-	-	-	-
B	JIS	20°C	-25 to 85°C	±10%	-25 to 85°C	-	-	-	-	-	-

*1 Rated Voltage 100Vdc max: 25 to 85°C

*2 -25°C (Reference Temperature 20°C) / -30°C (Reference Temperature 25°C)

■ GRM Series



For the Capacitance Table of General Purpose GRM Series, please review the inserted Capacitance Table of "Chip Monolithic Ceramic Capacitors For General Purpose GRM Series".

Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

■ GRM Series Temperature Compensating Type

p00

← Part Number List

JIS:

CK

CJ

CH

SL

UJ

EIA:

C0G

U2J

LxW (mm)	0.4x0.2				0.6x0.3				1.0x0.5				1.6x0.8										
T max. (mm)	0.22				0.33				0.55				0.5										
Rated Voltage (Vdc)	16		10		100		50		100		50		10			50			10			100	
Cap. / TC Code	C0G	CΔ	C0G	CH	C0G	CΔ	C0G	CΔ	C0G	CΔ	C0G	CΔ	SL	U2J	UJ	SL	U2J	UJ	SL	U2J	UJ	C0G	CΔ
0.10pF					p23	p26	p30	p33	p36	p40	p43	p47											
0.20pF	p17	p20			p23	p26	p30	p33	p36	p40	p43	p47											
0.50pF	p17	p20			p23	p26	p30	p33	p36	p40	p43	p47										p51	p54
1.0pF	p17	p20			p23	p27	p30	p33	p37	p40	p43	p47										p51	p54
2.0pF	p17	p20			p24	p27	p30	p33	p37	p40	p44	p47										p51	p54
3.0pF	p17	p20			p24	p27	p30	p34	p37	p40	p44	p47										p51	p55
4.0pF	p18	p21			p24	p27	p31	p34	p37	p41	p44	p48										p52	p55
5.0pF	p18	p21			p25	p28	p31	p34	p38	p41	p44	p48										p52	p55
6.0pF	p18	p21			p25	p28	p31	p35	p38	p41	p45	p48										p52	p56
7.0pF	p19	p22			p25	p28	p32	p35	p38	p42	p45	p49										p53	p56
8.0pF	p19	p22			p26	p29	p32	p35	p39	p42	p45	p49										p53	p56
9.0pF	p19	p23			p26	p29	p32	p36	p39	p42	p46	p49										p53	p57
10pF	p20	p23			p26	p30	p33	p36	p39	p43	p46	p50										p54	p57
12pF	p20	p23			p26	p30	p33	p36	p40	p43	p46	p50										p54	p57
15pF	p20	p23			p26	p30	p33	p36	p40	p43	p46	p50										p54	p57
18pF	p20	p23					p33	p36	p40	p43	p46	p50										p54	p57
22pF	p20	p23					p33	p36	p40	p43	p46	p50										p54	p57
27pF	p20	p23					p33	p36	p40	p43	p46	p50										p54	p57
33pF	p20	p23					p33	p36	p40	p43	p46	p50										p54	p57
39pF	p20	p23					p33	p36	p40	p43	p46	p50										p54	p57
47pF	p20	p23					p33	p36	p40	p43	p46	p50										p54	p57
56pF			p23	p23			p33	p36	p40	p43	p46	p50										p54	p57
68pF			p23	p23			p33	p36	p40	p43	p46	p50										p54	p57
82pF			p23	p23			p33	p36	p40	p43	p46	p50										p54	p57
100pF			p23	p23			p33	p36	p40	p43	p46	p50										p54	p57
120pF							p33	p36			p46	p50										p54	p57
150pF											p46	p50										p54	p57
180pF											p46	p50										p54	p57
220pF											p46	p50										p54	p57
270pF											p47	p50										p54	p57
330pF											p47	p50										p54	p57
390pF											p47	p50										p54	p57
470pF											p47	p50										p54	p57
560pF											p47	p50										p54	p57
680pF											p47	p50										p54	p57
820pF											p47	p50										p54	p57
1000pF											p47	p50										p54	p57
1200pF													p50	p50	p50							p54	p57
1500pF													p50	p50	p50							p54	p57
1800pF													p50	p50	p50								
2200pF													p50	p50	p50	p50	p51	p51					
2700pF													p50	p50	p50	p51	p51	p51					
3300pF													p50	p50	p50	p51	p51	p51					
3900pF													p50	p50	p50	p51	p51	p51					
4700pF													p50	p50	p50	p51	p51	p51					
5600pF																			p51	p51	p51		
6800pF																			p51	p51	p51		
8200pF																			p51	p51	p51		
10000pF																			p51	p51	p51		

The indication for every 0.1 pF has been omitted for less than 10 pF. Refer to the Part Number List for details.



Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series Temperature Compensating Type)

p00

← Part Number List

JIS:

CK

CJ

CH

SL

UJ

EIA:

C0G

U2J

LxW (mm)	1.6x0.8									2.0x1.25																
T max. (mm)	0.9									0.7									0.95							
Rated Voltage (Vdc)	50						10			100	50						50						10			
Cap. / TC Code	C0G	CΔ	SL	U2J	UJ	SL	UJ	U2J	C0G	CH	C0G	CH	SL	U2J	UJ	C0G	CH	SL	U2J	UJ	SL	U2J	UJ	SL	U2J	UJ
0.50pF	p57	p61																								
1.0pF	p57	p61																								
2.0pF	p58	p61																								
3.0pF	p58	p61																								
4.0pF	p58	p62																								
5.0pF	p59	p62																								
6.0pF	p59	p62																								
7.0pF	p59	p63																								
8.0pF	p60	p63																								
9.0pF	p60	p63																								
10pF	p60	p64																								
12pF	p60	p64																								
15pF	p60	p64																								
18pF	p60	p64																								
22pF	p60	p64																								
27pF	p60	p64																								
33pF	p60	p64																								
39pF	p60	p64																								
47pF	p60	p64																								
56pF	p60	p64																								
68pF	p60	p64																								
82pF	p60	p64																								
100pF	p60	p64							p65	p65																
120pF	p61	p64							p65	p65																
150pF	p61	p64							p65	p65																
180pF	p61	p64							p65	p65																
220pF	p61	p64							p65	p65																
270pF	p61	p64							p65	p65																
330pF	p61	p64							p65	p65																
390pF	p61	p64							p65	p65																
470pF	p61	p64							p65	p65																
560pF	p61	p64							p65	p65																
680pF	p61	p64							p65	p65																
820pF	p61	p64							p65	p65																
1000pF	p61	p64						p64	p65	p65																
1200pF	p61	p64	p64	p64	p64				p65	p65	p65	p65														
1500pF	p61	p64	p64	p64	p64				p65	p65	p65	p65														
1800pF	p61	p64	p64	p64	p64				p65	p65	p65	p65														
2200pF	p61	p64	p64	p64	p64				p65	p65	p65	p65														
2700pF	p61	p64	p64	p64	p64				p65	p65	p65	p65														
3300pF	p61	p64	p64	p64	p64				p65	p65	p65	p65														
3900pF	p61	p64	p64	p64	p64						p65	p65														
4700pF	p61	p64	p64	p64	p64						p65	p65														
5600pF	p61	p64	p64	p64	p64												p65	p65								
6800pF	p61	p64	p64	p64	p64												p65	p65								
8200pF	p61	p64	p64	p64	p64												p65	p65								
10000pF	p61	p64	p64	p64	p64												p65	p65	p65							
12000pF						p64	p64	p65						p65	p65	p65	p65	p65								
15000pF						p64	p65	p65						p65	p65	p65	p65	p65								
18000pF						p64	p65	p65						p65	p65	p65										
22000pF						p64	p65	p65											p65	p65	p65					
27000pF																			p65	p65	p65					
33000pF																										
39000pF																										
47000pF																										
56000pF																								p65	p65	p65

The indication for every 0.1 pF has been omitted for less than 10 pF. Refer to the Part Number List for details.

Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series Temperature Compensating Type)

p00

← Part Number List

JIS:

CK

CJ

CH

SL

UJ

EIA:

C0G

U2J

LxW (mm)	3.2x1.6																						
T max. (mm)	0.95	1.0										1.25										1.8	
Rated Voltage (Vdc)	50	2000	1000	630	500	250	200	1000	630	500	250	200	1000	630	500	250	200	1000	630	500	250	200	
Cap. / TC Code	UJ	U2J	C0G	U2J	C0G	U2J	C0G	U2J	U2J	U2J	U2J	C0G	U2J	C0G	U2J	U2J	U2J	C0G	CH	SL	U2J	UJ	U2J
10pF		p67	p67	p67	p67	p67	p68	p68															
12pF		p67	p67	p67	p67	p67	p68	p68															
15pF		p67	p67	p67	p67	p67	p68	p68															
18pF		p67	p67	p67	p67	p67	p68	p68															
22pF		p67	p67	p67	p67	p68	p68	p68															
27pF		p67	p67	p67	p67	p68	p68	p68															
33pF		p67	p67	p67	p67	p68	p68	p68															
39pF		p67	p67	p67	p67	p68	p68	p68															
47pF		p67	p67	p67	p67	p68	p68	p68															
56pF		p67	p67	p67	p67	p68	p68	p68															
68pF		p67	p67	p67	p67	p68	p68	p68															
82pF			p67	p67	p67	p68	p68	p68															
100pF			p67	p67	p67	p68	p68	p68															
120pF			p67	p67	p67	p68	p68	p68															
150pF			p67	p67	p67	p68	p68	p68															
180pF			p67	p67	p67	p68	p68	p68															
220pF			p67	p67	p67	p68	p68	p68															
270pF				p67	p67	p68	p68	p68															
330pF				p67	p67	p68	p68	p68															
390pF					p67	p68	p68	p68		p68													
470pF					p67	p68	p68	p68		p68													
560pF					p67	p68	p68	p68		p68													
680pF						p68		p68		p68	p68		p68										
820pF						p68		p68			p68		p68										p69
1000pF						p68		p68			p68		p68										p69
1200pF						p68		p68															
1500pF						p68		p68															
1800pF						p68		p68															
2200pF						p68		p68															
2700pF									p68	p68			p68		p68								
3300pF									p68	p68			p68		p68								
3900pF									p68	p68													
4700pF									p68	p68													
5600pF									p68	p68													
6800pF																p68	p68						
8200pF																p68	p68						
10000pF																p68	p68						
12000pF																p68							
15000pF																							
18000pF																							
22000pF																							
27000pF																							
33000pF																							
39000pF																							
47000pF																		p68	p69				
56000pF	p67																	p69	p69				
68000pF																				p69	p69	p69	
82000pF																				p69	p69	p69	
0.10μF																				p69	p69	p69	



Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series Temperature Compensating Type)

p00

← Part Number List

JIS:

CK

CJ

CH

SL

UJ

EIA:

C0G

U2J

LxW (mm)	3.2x1.6					3.2x2.5															4.5x2.0	4.5x3.2	
T max. (mm)	1.8					1.0			1.25			1.5				2.0				1.0	1.5		
Rated Voltage (Vdc)	630	500	250	50		2000	630	500	2000	1000	630	500	1000	630	500	250	1000	630	500	250	3150	1000	630
Cap. / TC Code	U2J	U2J	U2J	C0G	CH	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J
27pF																					p69		
33pF																					p69		
39pF																					p69		
47pF																					p69		
56pF																					p69		
68pF																					p69		
82pF						p69															p69		
100pF						p69															p69		
120pF						p69																	
150pF						p69																	
180pF									p69														
220pF									p69														
270pF																							
330pF																							
390pF																							
470pF																							
560pF																							
680pF																							
820pF																							
1000pF																							
1200pF						p69	p69		p69														
1500pF						p69	p69				p69												
1800pF						p69	p69									p69							
2200pF						p69	p69									p69							
2700pF																					p69		
3300pF																					p69		
3900pF	p69	p69																					
4700pF	p69	p69																					
5600pF									p69	p69													
6800pF													p69	p69									
8200pF																	p69	p69					
10000pF																	p69	p69					
12000pF																							p69
15000pF			p69																				
18000pF			p69																				
22000pF			p69																				
27000pF															p69								
33000pF																				p69			
39000pF																				p69			
47000pF																				p69			
56000pF																							
68000pF				p69	p69																		
82000pF				p69	p69																		
0.10μF				p69	p69																		



Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series Temperature Compensating Type)

p00

← Part Number List

JIS:

CK

CJ

CH

SL

UJ

EIA:

C0G

U2J

LxW (mm)	4.5x3.2				5.7x5.0					
T max. (mm)	1.5	2.0			1.5			2.0		
Rated Voltage (Vdc)	500	1000	630	500	1000	630	500	1000	630	500
Cap. / TC Code	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J
3900pF		p69								
4700pF		p69								
5600pF					p69					
6800pF					p69					
8200pF								p69		
10000pF								p69		
12000pF	p69									
15000pF			p69	p69						
18000pF			p69	p69						
22000pF			p69	p69						
27000pF						p69	p69			
33000pF									p69	p69
39000pF									p69	p69
47000pF									p69	p70

Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

■ GRM Series High Dielectric Constant Type

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

LxW (mm)	0.4x0.2				0.6x0.3												1.0x0.5							
T max. (mm)	0.22				0.33												0.22							
Rated Voltage (Vdc)	10	6.3	4		50	25	16	10	6.3	4							10	6.3	4	2.5				
Cap. / TC Code	X7R	X5R, B	X5R, B	X5R	X7R	B	X7R, R	X5R, B	X7R, R	X5R, B	X7R, R	X5R, B	X7R, R	X6S	X5R, B	X6S	X5R, B	X6S	X5R, B	X7T	X6Δ	X5R	X7T	
100pF	p71	p71	p71		p71	p72	p72																	
150pF	p71	p71	p71		p72	p72	p72																	
220pF	p71	p71	p71		p72	p72	p72																	
330pF	p71	p71	p71		p72	p72	p72																	
470pF	p71	p71	p71		p72	p72	p72																	
680pF	p71	p71	p71		p72	p72	p72																	
820pF	p71																							
1000pF	p71	p71	p71	p71	p72	p72	p72	p72																
1500pF		p71	p71	p71	p72	p72	p72	p72																
2200pF		p71	p71	p71			p72	p72	p72	p72	p72													
3300pF		p71	p71	p71			p72	p72	p72	p72	p72													
4700pF		p71	p71	p71			p72				p72	p73	p73	p73	p73	p73		p73						
6800pF		p71	p71	p71			p72				p72	p73	p73	p73	p73	p73		p73						
10000pF		p71	p71	p71			p72	p72			p72	p72			p73	p73								
15000pF			p71	p71							p72	p72			p73	p73		p73	p73					
22000pF			p71	p71							p72	p72			p73	p73		p73	p73					
33000pF			p71	p71							p72	p72			p73	p73		p73	p73					
47000pF			p71	p71							p72	p72			p73	p73		p73						
68000pF			p71	p71							p72	p72			p73	p73		p73						
0.10μF			p71	p71							p72	p72			p73	p73		p73	p73	p73	p73	p73	p73	p73
0.15μF																								
0.22μF													p73		p73	p73	p73	p73	p73	p73	p73	p73	p73	p73
0.33μF																								
0.47μF																				p73	p73	p73		
0.68μF																								
1.0μF																				p73		p73	p73	
2.2μF																								
4.7μF																								
10μF																								
22μF																								
47μF																								
100μF																								
150μF																								



Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

LxW (mm)	1.0x0.5																						
T max. (mm)	0.3					0.33					0.55												
Rated Voltage (Vdc)	50	25	16	10	10	6.3	4	100	50	25	16	10	6.3	100	50	25	16	10	6.3				
Cap. / TC Code	X7R, R	B	X7R	B	X7R	B	X5R	X5R, B	X6T	X5R, B	X6T	X7R	X7R, R	X5R, B	X7R, R	X5R, B	X7R, R	X5R, B	X6S	X5R, B	X7R	X6S	X5R, B
100pF																							
150pF																							
220pF	p74 p73	p74										p74	p74 p74	p74									
330pF	p74 p73	p74										p74	p74 p74	p74									
470pF	p74 p73	p74										p74	p74 p74	p74									
680pF	p74 p74	p74										p74	p74 p74	p74									
820pF																							
1000pF	p74 p74	p74										p74	p74 p74	p75									
1500pF	p74 p74	p74										p74	p74 p74	p75									
2200pF			p74	p74								p74	p74 p74	p75									
3300pF					p74	p74						p74	p74 p74	p75									
4700pF					p74	p74						p74	p74 p74	p75									
6800pF					p74	p74							p74	p75	p75								
10000pF					p74	p74						p74	p74	p75	p75	p75							
15000pF							p74					p74	p75	p75	p75	p75							
22000pF							p74					p74	p75	p75	p75	p75							
33000pF							p74					p74	p75	p75	p75	p75							
47000pF												p74	p75	p75	p75	p75							
68000pF												p74	p75	p75	p75	p75	p75						
0.10μF												p74	p74 p75	p75	p75	p75							
0.15μF																	p75			p75	p75		p75
0.22μF																	p75	p75		p75	p75		p75
0.33μF																				p75	p75		p75
0.47μF																	p75			p75	p75		p75
0.68μF																				p75	p75		p75
1.0μF								p74	p74	p74	p74	p74			p75	p75		p75	p75		p75		
2.2μF																				p75		p75	p76
4.7μF																							
10μF																							
22μF																							
47μF																							
100μF																							
150μF																							



Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

LxW (mm)	1.0x0.5														1.6x0.8								
T max. (mm)	0.55	0.6						0.7						0.5		0.9							
Rated Voltage (Vdc)	4	35	25	16	6.3	4	2.5	25	16	10	6.3	4	2.5	25	16	250	200	100	50	25			
Cap. / TC Code	X7R	X5R	X6S	X6S	X5R, B	X5R, B	X6T	X5R	X6S	X5R	X7S	X6S	X7S	X5R	X5R	X5R, B	X5R, B	X7R	X7R	X7R	X7R, R	X5R, B	X7R, R
100pF																							
150pF																							
220pF																		p76	p76	p76	p76	p76	p77
330pF																		p76	p76	p76	p76	p76	p77
470pF																		p76	p76	p76	p76	p76	p77
680pF																		p76	p76	p76	p76	p76	p77
820pF																							
1000pF																		p76	p76	p76	p76	p76	p77
1500pF																		p76	p76	p76	p76	p76	p77
2200pF																		p76	p76	p76	p76	p76	p77
3300pF																				p76	p76	p77	p77
4700pF																				p76	p76	p77	p77
6800pF																				p76	p76	p77	p77
10000pF																				p76	p76	p77	p77
15000pF																				p76	p76	p77	p77
22000pF																				p76	p76	p77	p77
33000pF																					p76	p77	p77
47000pF																					p76	p77	p77
68000pF																					p76	p77	p77
0.10μF																					p76	p77	p77
0.15μF																						p77	p77
0.22μF																						p77	p77
0.33μF																							
0.47μF																						p77	
0.68μF																							
1.0μF	p76	p76	p76	p76												p76	p76	p76	p76			p77	p77
2.2μF								p76	p76	p76	p76	p76	p76										
4.7μF					p76	p76	p76	p76	p76	p76	p76												
10μF														p76	p76								
22μF																							
47μF																							
100μF																							
150μF																							



Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

LxW (mm)	1.6x0.8																			
T max. (mm)	0.9								0.95						1.0					
Rated Voltage (Vdc)	25	16		10		6.3		25	16		10		50	35	25		16		10	6.3
Cap. / TC Code	X5R, B	X7R, R	X6S	X5R, B	X7Δ	X5R, B	B	X5R	X6S	X5R, B	X7S	B	X5R	X6S	X5R	X7S	X6S	X5R	X7S	X6S
100pF																				
150pF																				
220pF																				
330pF																				
470pF																				
680pF																				
820pF																				
1000pF																				
1500pF																				
2200pF																				
3300pF																				
4700pF																				
6800pF																				
10000pF	p77																			
15000pF	p77																			
22000pF	p77																			
33000pF	p77																			
47000pF	p77																			
68000pF	p77																			
0.10μF	p77																			
0.15μF	p77	p77																		
0.22μF	p77	p77	p77																	
0.33μF		p77	p77		p77	p78	p78													
0.47μF	p77	p77	p77	p77																
0.68μF	p77	p77		p77	p78	p78														
1.0μF	p77	p77	p77																	
2.2μF	p77	p77		p77	p78	p78	p78						p78	p78		p78	p78			
4.7μF								p78	p78	p78	p78	p78			p78		p78			
10μF								p78				p78					p78	p78	p78	
22μF																				p78
47μF																				
100μF																				
150μF																				



Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00 ← Part Number List JIS: R B EIA: X7R X7S X7T X7U X6S X6T X5R X5S

LxW (mm)	1.6x0.8		2.0x1.25																				
T max. (mm)	1.0		0.7	0.95																	1.0		
Rated Voltage (Vdc)	4		16	100	50		35		25		16			10		6.3		4		2.5	250	200	
Cap. / TC Code	X6S	X5R, B	X6S	X7R	X7R, R	X5R, B	X6S	X5R	X7R, R	X6S	X5R, B	X7R, R	X6S	X5R, B	X7Δ	X5R, B	X6S	X5R, B	X6S	X5R	X6T	X7R	X7R
100pF																							
150pF																							
220pF																							
330pF																							
470pF																							
680pF																							
820pF																							
1000pF																						p79	p79
1500pF																						p79	p79
2200pF																						p79	p79
3300pF																						p79	p79
4700pF																						p79	p79
6800pF																						p79	p79
10000pF				p78	p78																		
15000pF					p78																		
22000pF																							
33000pF				p78	p78																		
47000pF																							
68000pF									p78														
0.10μF									p78														
0.15μF																							
0.22μF																							
0.33μF				p78	p78							p78											
0.47μF																							
0.68μF									p78				p78										
1.0μF		p78			p78	p78			p78														
2.2μF					p78	p78	p78			p78	p78	p78	p78			p79							
4.7μF								p78				p78	p78	p78	p79								
10μF											p78	p78		p78	p78		p79			p79			
22μF	p78	p78	p78													p79	p79		p79	p79			
47μF																					p79	p79	
100μF																							
150μF																							



Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

LxW (mm)	2.0x1.25																						
T max. (mm)	1.0		1.35								1.4										1.45		
Rated Voltage (Vdc)	50	16	100	50	25	16	50	25	16	10	6.3	4	250	200									
Cap. / TC Code	X7R	X5R	X7R	X7R, R	B	R	X6S	X5R, B	X7R	X5R, B	X5R, B	X7R, R	X5R, B	X7R	X6S	X7R	B	X7R	X6S	X7U	X6S	X7R	X7R
100pF																							
150pF																							
220pF																							
330pF																							
470pF																							
680pF																							
820pF																							
1000pF																							
1500pF																							
2200pF																							
3300pF																							
4700pF																							
6800pF																							
10000pF			p79																			p79	p79
15000pF			p79																			p79	p79
22000pF	p79		p79																			p79	p79
33000pF			p79																				
47000pF			p79	p79																			
68000pF			p79	p79																			
0.10μF			p79	p79																			
0.15μF				p79	p79	p79																	
0.22μF				p79	p79																		
0.33μF																							
0.47μF				p79	p79																		
0.68μF																							
1.0μF												p79	p79										
2.2μF							p79	p79			p79	p79											
4.7μF							p79	p79	p79		p79	p79	p79		p79		p79						
10μF									p79	p79				p79	p79		p79						
22μF		p79															p79		p79	p79	p79		
47μF																							
100μF																							
150μF																							



Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

LxW (mm)	2.0x1.25												3.2x1.6												
T max. (mm)	1.45												0.95						1.0		1.25				
Rated Voltage (Vdc)	25			16			10			6.3			4			35	25	16	10	6.3	630	500	1000	630	500
Cap. / TC Code	X6S	X5R	X7S	X6S	X5R	X7T	X6S	X5R	X7T	X5R, B	X6S	X5R, B	X5R	R	X5R, B	X5R, B	X6S	X5R, B	X7R	X7R	X7R	X7R	X7R	X7R	
100pF																									
150pF																									
220pF																									
330pF																									
470pF																									
680pF																							p80		
820pF																						p80			
1000pF																					p80	p80	p80	p80	p80
1500pF																					p80	p80	p80	p80	p80
2200pF																					p80	p80	p80	p80	p80
3300pF																					p80	p80	p80	p80	p80
4700pF																					p80	p80	p80	p80	p80
6800pF																								p80	p80
10000pF																								p80	p80
15000pF																									
22000pF																									
33000pF																									
47000pF																									
68000pF																									
0.10μF																									
0.15μF																									
0.22μF																									
0.33μF																p80									
0.47μF																									
0.68μF																									
1.0μF																									
2.2μF																									
4.7μF																									
10μF	p79		p80											p80		p80	p80								
22μF		p80		p80	p80	p80	p80	p80	p80							p80	p80	p80	p80	p80	p80	p80			
47μF																p80	p80	p80	p80						
100μF																									
150μF																									



Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

LxW (mm)	3.2x1.6																						
T max. (mm)	1.25					1.8																	
Rated Voltage (Vdc)	250	200	50		25	1000	630	500	250	200	50	25		16			10		6.3			4	
Cap. / TC Code	X7R	X7R	X7R	B	X5R	X7R	X7R	X7R	X7R	X7R	X7R	X5R, B	X7R	X5R, B	X7R	X6S	X5R, B	X7R	X5R, B	X7Δ	X6S	X5R, B	X7U
100pF																							
150pF																							
220pF																							
330pF																							
470pF																							
680pF																							
820pF																							
1000pF																							
1500pF																							
2200pF																							
3300pF																							
4700pF																							
6800pF						p80																	
10000pF						p80																	
15000pF	p80	p80					p80	p80															
22000pF	p80	p80					p80	p80															
33000pF									p80	p80													
47000pF									p80	p80													
68000pF	p80	p80																					
0.10μF									p80	p80													
0.15μF																							
0.22μF																							
0.33μF																							
0.47μF			p80																				
0.68μF			p80																				
1.0μF			p80	p80																			
2.2μF											p80	p80											
4.7μF											p80	p80	p80		p80								
10μF					p80							p80	p80	p80	p80								
22μF												p80	p80		p80	p80	p80	p81		p81			
47μF																			p81	p81	p81	p81	p81
100μF																							
150μF																							



Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00	← Part Number List	JIS:	R	B	EIA:	X7R	X7S	X7T	X7U	X6S	X6T	X5R	X5S									
LxW (mm)		3.2x1.6						3.2x2.5														
T max. (mm)		1.8	1.9					1.5					1.8			2.0					2.2	2.7
Rated Voltage (Vdc)		4	100	6.3		4		1000	630	500	250	200	6.3	4	2.5	1000	630	500	250	200	25	80
Cap. / TC Code		X6S	X7R	X6T	X5R	X7U	X6T	X5R	X7R	X7R	X7R	X7R	X5S	X6T	X5S	X6T	X7R	X7R	X7R	X7R	X7R	X7R
100pF																						
150pF																						
220pF																						
330pF																						
470pF																						
680pF																						
820pF																						
1000pF																						
1500pF																						
2200pF																						
3300pF																						
4700pF																						
6800pF									p81													
10000pF									p81													
15000pF																	p81					
22000pF										p81	p81						p81					
33000pF																		p81	p81			
47000pF																		p81	p81			
68000pF											p81	p81										
0.10μF																			p81	p81		
0.15μF											p81	p81										
0.22μF																			p81	p81		
0.33μF																						
0.47μF																						
0.68μF																						
1.0μF																						
2.2μF			p81																			
4.7μF																						p81
10μF																					p81	
22μF																						
47μF		p81																				
100μF				p81	p81	p81	p81	p81														
150μF													p81	p81	p81	p81						



Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X7S

X7T

X7U

X6S

X6T

X5R

X5S

LxW (mm)	3.2x2.5														4.5x3.2								
T max. (mm)	2.7														1.5				2.0				
Rated Voltage (Vdc)	63	50		35		25		16			10		6.3		4	630	500	250	200	1000	630	500	250
Cap. / TC Code	X7R	X7R	X5R, B	X7R	X5R, B	X7R	X5R, B	X7R	X6S	X5R, B	X7R	X5R, B	X7Δ	X5R, B	X7U	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R
100pF																							
150pF																							
220pF																							
330pF																							
470pF																							
680pF																							
820pF																							
1000pF																							
1500pF																							
2200pF																							
3300pF																							
4700pF																							
6800pF																							
10000pF																							
15000pF																							
22000pF																							
33000pF																				p81			
47000pF																				p81			
68000pF																p81	p81						
0.10μF																					p81	p81	
0.15μF																		p81	p81				
0.22μF																							p81
0.33μF																							p81
0.47μF																							p81
0.68μF																							
1.0μF																							
2.2μF																							
4.7μF		p81																					
10μF	p81	p81	p81	p81	p81	p81	p81																
22μF						p81	p81	p81	p81														
47μF										p81	p81	p81	p81	p81									
100μF												p81	p81	p81	p81								
150μF																							



Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GRM Series High Dielectric Constant Type)

p00 ← Part Number List JIS: R B EIA: X7R X7S X7T X7U X6S X6T X5R X5S

LxW (mm)	4.5x3.2	5.7x5.0				
T max. (mm)	2.0	2.0				
Rated Voltage (Vdc)	200	1000	630	500	250	200
Cap. / TC Code	X7R	X7R	X7R	X7R	X7R	X7R
100pF						
150pF						
220pF						
330pF						
470pF						
680pF						
820pF						
1000pF						
1500pF						
2200pF						
3300pF						
4700pF						
6800pF						
10000pF						
15000pF						
22000pF						
33000pF						
47000pF						
68000pF		p81				
0.10μF		p81				
0.15μF			p81	p81		
0.22μF	p81		p81	p81		
0.33μF	p81				p82	p82
0.47μF	p81				p82	p82
0.68μF					p82	p82
1.0μF					p82	p82
2.2μF						
4.7μF						
10μF						
22μF						
47μF						
100μF						
150μF						

Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

■ GJM Series Temperature Compensating Type

p00

← Part Number List

JIS:

CK

CJ

CH

EIA:

C0G

L×W (mm)	0.4×0.2		0.6×0.3		1.0×0.5	
T max. (mm)	0.22		0.33		0.55	
Rated Voltage (Vdc)	25		25		50	
Cap. / TC Code	C0G	CΔ	C0G	CΔ	C0G	CΔ
0.10pF					p97	p100
0.20pF	p84	p87	p90	p93	p97	p100
1.0pF	p84	p87	p90	p94	p97	p101
2.0pF	p84	p87	p91	p94	p97	p101
3.0pF	p84	p87	p91	p94	p98	p101
4.0pF	p85	p88	p91	p94	p98	p101
5.0pF	p85	p88	p91	p95	p98	p102
6.0pF	p85	p88	p92	p95	p98	p102
7.0pF	p86	p89	p92	p95	p99	p102
8.0pF	p86	p89	p92	p96	p99	p103
9.0pF	p86	p90	p93	p96	p100	p103
10pF	p87	p90	p93	p97	p100	p103
11pF	p87	p90	p93	p97	p100	p103
12pF	p87	p90	p93	p97	p100	p104
13pF	p87	p90	p93	p97	p100	p104
15pF	p87	p90	p93	p97	p100	p104
16pF	p87	p90	p93	p97	p100	p104
18pF	p87	p90	p93	p97	p100	p104
20pF	p87	p90	p93	p97	p100	p104
22pF	p87	p90	p93	p97	p100	p104
24pF			p93	p97	p100	p104
27pF			p93	p97	p100	p104
30pF			p93	p97	p100	p104
33pF			p93	p97	p100	p104
36pF					p100	p104
39pF					p100	p104
43pF					p100	p104
47pF					p100	p104

The indication for every 0.1 pF has been omitted for less than 10 pF. Refer to the Part Number List for details.

Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

■ GMA Series High Dielectric Constant Type

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X5R

LxW (mm)	0.38x0.38		0.5x0.5								0.8x0.8							
T max. (mm)	0.35		0.4								0.6							
Rated Voltage (Vdc)	10		100	25		10			6.3		100	25		10			6.3	
Cap. / TC Code	X7R	R	X7R	X7R	B	X7R	R	B	X5R	B	X7R	X7R	B	X7R	R	B	X5R	B
100pF			p106															
150pF			p106															
220pF			p106															
330pF			p106															
470pF			p106															
680pF			p106															
1000pF			p106															
1500pF				p106	p106						p106							
2200pF				p106	p106						p106							
3300pF				p106	p106						p106							
4700pF				p106	p106						p106							
6800pF						p106	p106	p106			p106							
10000pF	p106	p106				p106	p106	p106				p106	p106					
15000pF						p106	p106	p106				p106	p106					
22000pF						p106	p106	p106				p106	p106					
33000pF														p106	p106	p106		
47000pF														p106	p106	p106		
68000pF														p106	p106	p106		
0.10μF									p106	p106				p106	p106	p106		
0.47μF																	p106	p106

Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

■ GMD Series High Dielectric Constant Type

p00

← Part Number List

JIS:

R

B

EIA:

X7R

X5R

LxW (mm)	0.6x0.3										1.0x0.5											
T max. (mm)	0.33										0.55											
Rated Voltage (Vdc)	25			16			10			6.3		50			25			16			10	
Cap. / TC Code	X7R	R	B	X7R	R	B	X7R	R	B	X5R	B	X7R	R	B	X7R	R	B	X7R	R	B	X5R	B
100pF	p108	p108	p108																			
120pF	p108	p108	p108																			
150pF	p108	p108	p108																			
180pF	p108	p108	p108																			
220pF	p108	p108	p108									p108	p108	p109								
270pF	p108	p108	p108									p108	p109	p109								
330pF	p108	p108	p108									p108	p109	p109								
390pF	p108	p108	p108									p108	p109	p109								
470pF	p108	p108	p108									p108	p109	p109								
560pF	p108	p108	p108									p108	p109	p109								
680pF	p108	p108	p108									p108	p109	p109								
820pF	p108	p108	p108									p108	p109	p109								
1000pF	p108	p108	p108									p108	p109	p109								
1200pF	p108	p108	p108									p108	p109	p109								
1500pF	p108	p108	p108									p108	p109	p109								
1800pF				p108	p108	p108						p108	p109	p109								
2200pF				p108	p108	p108						p108	p109	p109								
2700pF				p108	p108	p108						p108	p109	p109								
3300pF				p108	p108	p108						p108	p109	p109								
3900pF							p108	p108	p108			p108	p109	p109								
4700pF							p108	p108	p108			p108	p109	p109								
5600pF							p108	p108	p108						p109	p109	p109					
6800pF							p108	p108	p108						p109	p109	p109					
8200pF							p108	p108	p108						p109	p109	p109					
10000pF							p108	p108	p108						p109	p109	p109					
12000pF															p109	p109	p109					
15000pF															p109	p109	p109					
18000pF															p109	p109	p109					
22000pF															p109	p109	p109					
27000pF															p109	p109	p109					
33000pF															p109	p109	p109					
39000pF															p109	p109	p109					
47000pF															p109	p109	p109					
56000pF										p108	p108							p109	p109	p109		
68000pF										p108	p108							p109	p109	p109		
82000pF										p108	p108							p109	p109	p109		
0.10μF										p108	p108							p109	p109	p109		
0.12μF																					p109	p109
0.15μF																					p109	p109
0.18μF																					p109	p109
0.22μF																					p109	p109
0.27μF																					p109	p109
0.33μF																					p109	p109
0.39μF																					p109	p109
0.47μF																					p109	p109

Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

■ GQM Series Temperature Compensating Type

p00

← Part Number List

JIS:

CK

CJ

CH

EIA:

C0G

LxW (mm)	1.6x0.8					2.0x1.25					2.8x2.8
T max. (mm)	0.8	0.9				0.95				1.0	1.35
Rated Voltage (Vdc)	250	100		50		100		50		250	500
Cap. / TC Code	C0G	C0G	CΔ	C0G	CH	C0G	CΔ	C0G	CH	C0G	C0G
1.0pF	p111	p111	p112			p113	p114			p116	p117
2.0pF	p111	p112	p112			p114	p114			p116	p117
3.0pF	p111	p112	p112			p114	p114			p116	p117
4.0pF	p111	p112	p112			p114	p114			p116	p117
5.0pF	p111	p112	p112			p114	p114			p116	p117
6.0pF	p111	p112	p112			p114	p115			p116	p117
7.0pF	p111			p112	p113	p114	p115			p116	p117
8.0pF	p111			p112	p113	p114	p115			p116	p117
9.0pF	p111			p112	p113	p114	p115			p116	p117
10pF	p111			p112	p113	p114	p115			p116	p117
11pF	p111			p112	p113	p114	p115			p116	p117
12pF	p111			p112	p113	p114	p115			p116	p117
13pF	p111			p112	p113	p114	p115			p116	p117
15pF	p111			p112	p113	p114	p115			p116	p117
16pF	p111			p112	p113	p114	p115			p116	p117
18pF	p111			p113	p113	p114	p115			p116	p117
20pF	p111			p113	p113			p115	p115	p116	p117
22pF	p111			p113	p113			p115	p115	p116	p117
24pF	p111			p113	p113			p115	p115	p116	p117
27pF	p111			p113	p113			p115	p115	p116	p117
30pF	p111			p113	p113			p115	p115	p116	p117
33pF	p111			p113	p113			p115	p115	p116	p117
36pF	p111			p113	p113			p115	p115	p116	p117
39pF	p111			p113	p113			p115	p115	p116	p117
43pF	p111			p113	p113			p115	p115	p116	p117
47pF	p111			p113	p113			p115	p115	p116	p117
51pF				p113	p113			p115	p115	p116	p117
56pF				p113	p113			p115	p115	p116	p117
62pF				p113	p113			p115	p115	p116	p117
68pF				p113	p113			p115	p115	p116	p118
75pF				p113	p113			p115	p115	p116	p118
82pF				p113	p113			p115	p115	p116	p118
91pF				p113	p113			p115	p115	p116	p118
100pF				p113	p113			p115	p115	p117	p118

The indication for every 0.1 pF has been omitted for less than 10 pF. Refer to the Part Number List for details.

Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

GRJ Series High Dielectric Constant Type

p00

← Part Number List

EIA:

X7R

LxW (mm)	2.0x1.25		3.2x1.6						3.2x2.5						4.5x3.2						5.7x5.0					
T max. (mm)	1.0	1.45	1.25		1.8		1.5		2.0		1.5		2.0		1.5		2.0		2.0		2.0		2.0			
Rated Voltage (Vdc)	250	250	1000	630	250	1000	630	250	1000	630	250	1000	630	250	630	250	1000	630	250	1000	630	250	1000	630	250	
Cap. / TC Code	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	
470pF			p120																							
680pF			p120																							
1000pF	p120		p120	p120																						
1500pF	p120		p120	p120																						
2200pF	p120		p120	p120																						
3300pF	p120		p120	p120																						
4700pF	p120		p120	p120																						
6800pF	p120			p120		p120			p120																	
10000pF		p120		p120		p120			p120																	
15000pF		p120			p120		p120					p120		p120												
22000pF		p120			p120		p120			p120		p120														
33000pF								p120					p120					p120								
47000pF								p120					p120					p120								
68000pF					p120					p120					p120					p120						
0.10μF								p120						p120				p120			p120					
0.15μF										p120						p120				p120				p120		
0.22μF													p120							p120			p120			
0.33μF																				p120				p120		
0.47μF																				p120				p120		
0.68μF																								p120		
1.0μF																									p120	

GR3 Series High Dielectric Constant Type

p00

← Part Number List

EIA:

X7T

LxW (mm)	2.0x1.25		3.2x1.6						3.2x2.5						4.5x3.2						5.7x5.0					
T max. (mm)	1.0	1.45	1.0	1.25	1.8	1.5	2.0	1.5	2.0	1.5	2.0	1.5	2.0	2.0	2.7	2.0	2.7	2.0	2.7	2.0	2.7	2.0	2.7	2.0	2.7	
Rated Voltage (Vdc)	250	250	450	250	630	450	250	630	450	250	630	450	250	630	450	250	630	450	250	630	450	250	630	450	250	
Cap. / TC Code	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	
10000pF	p122		p122		p122																					
15000pF	p122		p122				p122																			
22000pF		p122			p122			p122																		
33000pF				p122	p122					p122																
47000pF					p122		p122					p122														
68000pF							p122					p122				p122										
0.10μF								p122				p122						p122								
0.15μF										p122				p122				p122								
0.22μF												p122				p122				p122			p122			
0.27μF														p122								p122				
0.33μF																p122				p122						
0.47μF																		p122	p122							
0.56μF																								p122		
0.68μF																				p122						
1.0μF																									p122	

Capacitance Table

p00 Each number in the Part Number List refers to the page number printed at the bottom of the page.

KRM Series High Dielectric Constant Type

p00 ← Part Number List EIA: X7R X6S X5R

LxW (mm)	2.2x1.25		3.5x1.7				3.6x 1.7	3.7x 1.85	6.1x5.3													
T max. (mm)	1.9		2.0	2.9				2.9	2.9	3.0								3.9				
Rated Voltage (Vdc)	25	16	25	100	50	35	25	50	100	1000	630	250	100	63	50	35	25	100	63	50	35	25
Cap. / TC Code	X5R	X5R	X5R	X7R	X7R	X6S	X6S	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R
68000pF										p125												
0.10μF										p125												
0.15μF											p125											
0.22μF											p125											
0.33μF																						
0.47μF																						
0.68μF																						
1.0μF				p125																		
1.5μF																						
2.2μF								p125	p125													
4.7μF					p125										p125	p125	p125					
6.8μF																			p125			
10μF	p125	p125	p125			p125	p125										p125		p125	p125		
15μF																	p125					
17μF																					p125	
22μF																						p125
33μF																						
47μF																						



LxW (mm)	6.1x5.3										
T max. (mm)	5.0						6.7				
Rated Voltage (Vdc)	1000	630	250	100	35	25	100	63	50	35	25
Cap. / TC Code	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R
68000pF											
0.10μF											
0.15μF	p125										
0.22μF	p125										
0.33μF		p125									
0.47μF		p125									
0.68μF											
1.0μF											
1.5μF			p125								
2.2μF			p125								
4.7μF											
6.8μF											
10μF				p125							
15μF							p125				
17μF											
22μF					p125			p125	p125		
33μF						p125				p125	
47μF											p125

Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

■ KR3 Series High Dielectric Constant Type

p00

← Part Number List

EIA:

X7T

LxW (mm)	6.1x5.3										
T max. (mm)	3.0			3.9			5.0		6.7		
Rated Voltage (Vdc)	630	450	250	630	450	250	450	250	630	450	250
Cap. / TC Code	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T
0.10μF	p128										
0.15μF	p128										
0.22μF		p128		p128							
0.27μF				p128							
0.33μF		p128									
0.47μF		p128	p128							p128	
0.56μF					p128					p128	
0.68μF			p128				p128				
1.0μF						p128	p128				
1.2μF										p128	
1.5μF								p128			
2.2μF											p128

■ LLA Series High Dielectric Constant Type

p00

← Part Number List

EIA:

X7R

X7S

LxW (mm)	1.6×0.8	2.0×1.25										3.2×1.6							
T max. (mm)	0.55	0.55					0.95					0.55			0.95		1.25		
Rated Voltage (Vdc)	4	25	16	10	6.3	4	25	16	10	6.3	4	16	10	6.3	16	10	16	10	
Cap. / TC Code	X7S	X7R	X7R	X7R	X7R	X7S	X7R	X7R	X7R	X7R	X7S	X7R	X7R	X7R	X7R	X7R	X7R	X7R	
10000pF		p130					p130												
22000pF		p130					p130												
47000pF			p130				p130												
0.10μF	p130		p130					p130											
0.22μF	p130			p130				p130				p130							
0.47μF	p130				p130				p130				p130		p130				
1.0μF						p130				p130				p130		p130	p130		
2.2μF	p130										p130			p130				p130	
4.7μF						p130													

Capacitance Table

p00

Each number in the Part Number List refers to the page number printed at the bottom of the page.

■ LLL Series High Dielectric Constant Type

p00

← Part Number List

EIA:

X7R

X7S

X6S

X5R

LxW (mm)	0.5x1.0			0.6x1.0	0.8x1.6										1.25x2.0									
T max. (mm)	0.35			0.45	0.5				0.55	0.6					0.5									
Rated Voltage (Vdc)	6.3	4			4	25	16	10	4	4	50	25	16	10	4	50	25	16	10	6.3	4	50	25	
Cap. / TC Code	X6S	X7S	X6S	X5R	X7R	X7R	X7R	X7S	X7S	X7R	X7R	X7R	X7R	X7S	X7R	X7R	X7R	X7R	X7R	X7S	X7R	X7R		
2200pF										p132														
4700pF										p132														
10000pF					p132							p132				p132						p132		
22000pF						p132						p132					p132					p132		
47000pF						p132							p132					p132					p132	
0.10μF	p132						p132						p132					p132					p132	
0.22μF	p132							p132						p132					p132				p132	
0.47μF		p132													p132					p132				
1.0μF			p132																		p132			
2.2μF									p132															
4.3μF				p132																				
4.7μF																								
10μF																								



LxW (mm)	1.25x2.0				1.6x3.2													
T max. (mm)	0.7	0.95			0.5				0.8					1.25				
Rated Voltage (Vdc)	10	16	10	4	50	25	16	10	50	25	16	10	6.3	50	25	16	10	6.3
Cap. / TC Code	X7R	X7R	X7R	X7S	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X5R
2200pF																		
4700pF																		
10000pF					p132				p132									
22000pF					p132				p132									
47000pF						p132			p132									
0.10μF						p132			p132					p132				
0.22μF	p132	p132					p132			p132					p132			
0.47μF			p132					p132		p132					p132			
1.0μF			p132								p132					p132		
2.2μF				p132								p132					p132	
4.3μF																		
4.7μF																	p132	
10μF																		p132

■ LLM Series High Dielectric Constant Type

p00

← Part Number List

EIA:

X7R

X7S

LxW (mm)	2.0x1.25				3.2x1.6		
T max. (mm)	0.55				0.55		
Rated Voltage (Vdc)	25	16	6.3	4	16	10	6.3
Cap. / TC Code	X7R	X7R	X7R	X7S	X7R	X7R	X7R
10000pF	p134						
22000pF	p134						
47000pF		p134					
0.10μF		p134			p134		
0.22μF			p134		p134		
0.47μF			p134			p134	
1.0μF				p134			
2.2μF							p134

■ LLR Series High Dielectric Constant Type

p00

← Part Number List

EIA:

X7S

LxW (mm)	0.8x1.6			
T max. (mm)	0.55			
Rated Voltage (Vdc)	4			
TC Code	X7S			
Cap. / ESR (mΩ)	100	220	470	1000
1.0μF	p136	p136	p136	p136

Search Capacitors

Specifications and Test Methods, Package, Chart of Characteristic Data, please refer to the search web page.

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

Data Sheet

The product details page can be output in PDF.

Status and Features Icons

The status and features of products can be checked at once. When ? is clicked, a description of each icon will be displayed.

Characteristics & Applications

This links to the introduction page of each series.

Detailed Specifications Sheet

- Rated value
- Specifications and Test Methods
- Package
- Caution, Notice
(Storage, Soldering and Mounting,etc.)

Characteristics Data

The following characteristics data of the main products can be acquired.

- SPICE Netlist (mod type)
- S parameter (S2P type)
- Reliability Test Data *Typical data

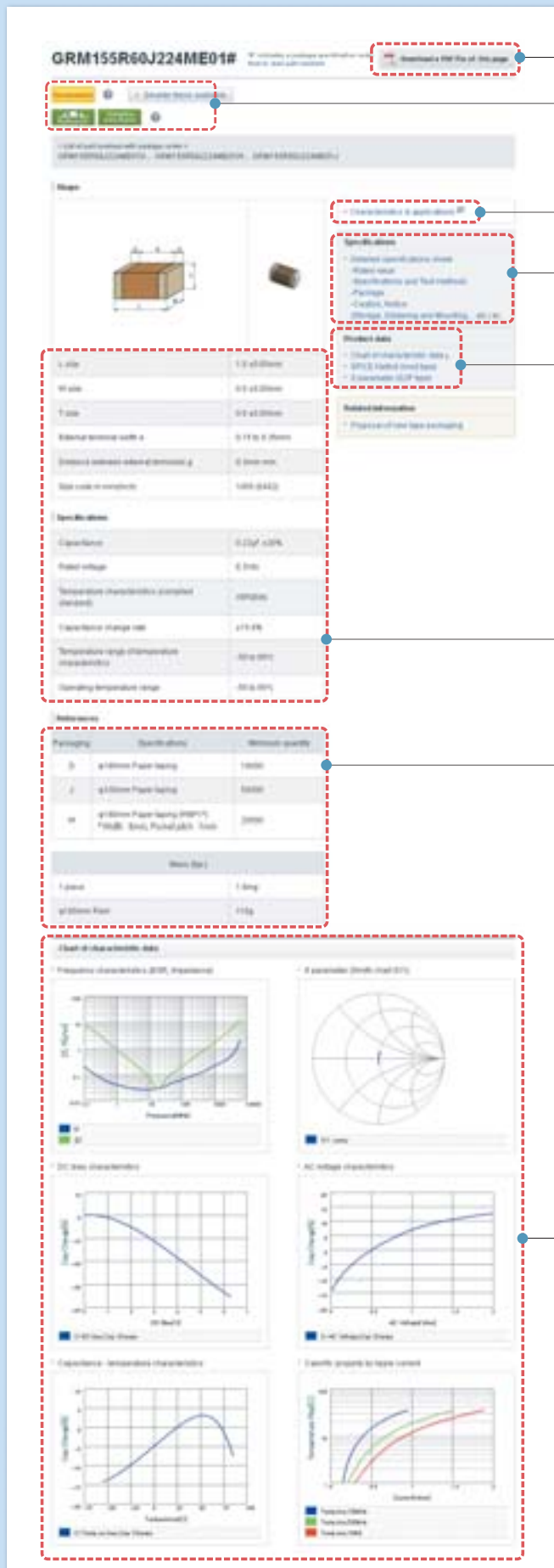
- Shape (Dimensions)
- Rated Values

- Specification by Packaging Code/
Minimum Order Quantity
- Weight (1 pc/ø180mm reel)

Chart of Characteristic Data

The main products published characteristic data.

- Frequency characteristics (ESR, Impedance)
- S parameter (Smith chart S11)
- DC bias characteristics
- AC voltage characteristics
- Capacitance - temperature characteristics
- Calorific property by ripple current



For General Purpose

GRM Series



This is Murata primary products renowned for both small size and large capacitance value with latest advanced technology.

Features

1 Achieves large-capacity and small size in a multilayer structure.



2 Sn plating is applied to the external electrodes; excellent solderability.

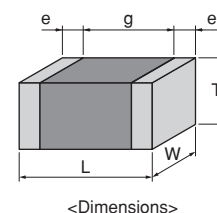
3 High reliability with no polarity.

	Ceramic Capacitor	Tantalum Capacitor	Aluminum Electrolytic Capacitor	Conductive Polymer Capacitor
Price	○	○	◎	○
Comparison between Impedance Frequency Characteristics	◎	△	△	○
Capacitance temperature characteristics	○	◎	○	○
DC breakdown voltage	◎	△	△	△
Polarity	No	Yes	Yes	Yes
Pulse response	◎	△	△	○
Allowable ripple current	◎	△	△	△
Reliability	◎	○	○	○
DC bias characteristics	△	◎	◎	◎

◎: Particularly excellent ○: Excellent △: Inferior

Specifications

Size	0.4×0.2mm to 5.7×5.0mm
Rated Voltage	DC2.5V to 3.15kV
Capacitance	0.1pF to 150μF
Main Applications	1. Rated voltage 100V Max. High Dielectric Constant Type . . . For decoupling and smoothing circuits Temperature Compensating Type . . . For tuning circuits, oscillating circuits, and high frequency filter circuits 2. Rated voltage 200V min. High Dielectric Constant Type . . . For clamp snubber circuits and smoothing circuits Temperature Compensating Type . . . Power supply damper snubber



This catalog contains only a portion of the product lineup.
Please refer to the capacitor search tool on the Murata Web site for details.

GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.4×0.2mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.22mm	16Vdc	C0G	4.0pF	±0.05pF	GRM0225C1C4R0WD05#	
				±0.1pF	GRM0225C1C4R0BD05#	
				±0.25pF	GRM0225C1C4R0CD05#	
			4.1pF	±0.05pF	GRM0225C1C4R1WD05#	
				±0.1pF	GRM0225C1C4R1BD05#	
				±0.25pF	GRM0225C1C4R1CD05#	
			4.2pF	±0.05pF	GRM0225C1C4R2WD05#	
				±0.1pF	GRM0225C1C4R2BD05#	
				±0.25pF	GRM0225C1C4R2CD05#	
			4.3pF	±0.05pF	GRM0225C1C4R3WD05#	
				±0.1pF	GRM0225C1C4R3BD05#	
				±0.25pF	GRM0225C1C4R3CD05#	
			4.4pF	±0.05pF	GRM0225C1C4R4WD05#	
				±0.1pF	GRM0225C1C4R4BD05#	
				±0.25pF	GRM0225C1C4R4CD05#	
			4.5pF	±0.05pF	GRM0225C1C4R5WD05#	
				±0.1pF	GRM0225C1C4R5BD05#	
				±0.25pF	GRM0225C1C4R5CD05#	
			4.6pF	±0.05pF	GRM0225C1C4R6WD05#	
				±0.1pF	GRM0225C1C4R6BD05#	
				±0.25pF	GRM0225C1C4R6CD05#	
			4.7pF	±0.05pF	GRM0225C1C4R7WD05#	
				±0.1pF	GRM0225C1C4R7BD05#	
				±0.25pF	GRM0225C1C4R7CD05#	
			4.8pF	±0.05pF	GRM0225C1C4R8WD05#	
				±0.1pF	GRM0225C1C4R8BD05#	
				±0.25pF	GRM0225C1C4R8CD05#	
			4.9pF	±0.05pF	GRM0225C1C4R9WD05#	
				±0.1pF	GRM0225C1C4R9BD05#	
				±0.25pF	GRM0225C1C4R9CD05#	
			5.0pF	±0.05pF	GRM0225C1C5R0WD05#	
				±0.1pF	GRM0225C1C5R0BD05#	
				±0.25pF	GRM0225C1C5R0CD05#	
			5.1pF	±0.05pF	GRM0225C1C5R1WD05#	
				±0.1pF	GRM0225C1C5R1BD05#	
				±0.25pF	GRM0225C1C5R1CD05#	
			5.2pF	±0.05pF	GRM0225C1C5R2WD05#	
				±0.1pF	GRM0225C1C5R2BD05#	
				±0.25pF	GRM0225C1C5R2CD05#	
			5.3pF	±0.05pF	GRM0225C1C5R3WD05#	
				±0.1pF	GRM0225C1C5R3BD05#	
				±0.25pF	GRM0225C1C5R3CD05#	
			5.4pF	±0.05pF	GRM0225C1C5R4WD05#	
				±0.1pF	GRM0225C1C5R4BD05#	
				±0.25pF	GRM0225C1C5R4CD05#	
			5.5pF	±0.05pF	GRM0225C1C5R5WD05#	
				±0.1pF	GRM0225C1C5R5BD05#	
				±0.25pF	GRM0225C1C5R5CD05#	
			5.6pF	±0.05pF	GRM0225C1C5R5DD05#	
				±0.5pF	GRM0225C1C5R5DD05#	
			5.6pF	±0.05pF	GRM0225C1C5R6WD05#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.22mm	16Vdc	C0G	5.6pF	±0.1pF	GRM0225C1C5R6BD05#	
				±0.25pF	GRM0225C1C5R6CD05#	
				±0.5pF	GRM0225C1C5R6DD05#	
			5.7pF	±0.05pF	GRM0225C1C5R7WD05#	
				±0.1pF	GRM0225C1C5R7BD05#	
				±0.25pF	GRM0225C1C5R7CD05#	
			5.8pF	±0.05pF	GRM0225C1C5R8WD05#	
				±0.1pF	GRM0225C1C5R8BD05#	
				±0.25pF	GRM0225C1C5R8CD05#	
			5.9pF	±0.05pF	GRM0225C1C5R9WD05#	
				±0.1pF	GRM0225C1C5R9BD05#	
				±0.25pF	GRM0225C1C5R9CD05#	
			6.0pF	±0.05pF	GRM0225C1C6R0WD05#	
				±0.1pF	GRM0225C1C6R0BD05#	
				±0.25pF	GRM0225C1C6R0CD05#	
			6.1pF	±0.05pF	GRM0225C1C6R1WD05#	
				±0.1pF	GRM0225C1C6R1BD05#	
				±0.25pF	GRM0225C1C6R1CD05#	
			6.2pF	±0.05pF	GRM0225C1C6R2WD05#	
				±0.1pF	GRM0225C1C6R2BD05#	
				±0.25pF	GRM0225C1C6R2CD05#	
			6.3pF	±0.05pF	GRM0225C1C6R3WD05#	
				±0.1pF	GRM0225C1C6R3BD05#	
				±0.25pF	GRM0225C1C6R3CD05#	
			6.4pF	±0.05pF	GRM0225C1C6R4WD05#	
				±0.1pF	GRM0225C1C6R4BD05#	
				±0.25pF	GRM0225C1C6R4CD05#	
			6.5pF	±0.05pF	GRM0225C1C6R5WD05#	
				±0.1pF	GRM0225C1C6R5BD05#	
				±0.25pF	GRM0225C1C6R5CD05#	
			6.6pF	±0.05pF	GRM0225C1C6R6WD05#	
				±0.1pF	GRM0225C1C6R6BD05#	
				±0.25pF	GRM0225C1C6R6CD05#	
			6.7pF	±0.05pF	GRM0225C1C6R7WD05#	
				±0.1pF	GRM0225C1C6R7BD05#	
				±0.25pF	GRM0225C1C6R7CD05#	
			6.8pF	±0.05pF	GRM0225C1C6R8WD05#	
				±0.1pF	GRM0225C1C6R8BD05#	
				±0.25pF	GRM0225C1C6R8CD05#	
			6.9pF	±0.05pF	GRM0225C1C6R9WD05#	
				±0.1pF	GRM0225C1C6R9BD05#	
				±0.25pF	GRM0225C1C6R9CD05#	

Part number # indicates the package specification code.

GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.4×0.2mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.22mm	16Vdc	C0G	9.6pF	±0.5pF	GRM0225C1C9R6DD05#	
				±0.05pF	GRM0225C1C9R7WD05#	
			9.7pF	±0.1pF	GRM0225C1C9R7BD05#	
				±0.25pF	GRM0225C1C9R7CD05#	
				±0.5pF	GRM0225C1C9R7DD05#	
			9.8pF	±0.05pF	GRM0225C1C9R8WD05#	
				±0.1pF	GRM0225C1C9R8BD05#	
				±0.25pF	GRM0225C1C9R8CD05#	
				±0.5pF	GRM0225C1C9R8DD05#	
			9.9pF	±0.05pF	GRM0225C1C9R9WD05#	
				±0.1pF	GRM0225C1C9R9BD05#	
				±0.25pF	GRM0225C1C9R9CD05#	
				±0.5pF	GRM0225C1C9R9DD05#	
			10pF	±2%	GRM0225C1C100GD05#	
				±5%	GRM0225C1C100JD05#	
			12pF	±2%	GRM0225C1C120GD05#	
				±5%	GRM0225C1C120JD05#	
			15pF	±2%	GRM0225C1C150GD05#	
				±5%	GRM0225C1C150JD05#	
			18pF	±2%	GRM0225C1C180GD05#	
				±5%	GRM0225C1C180JD05#	
			22pF	±2%	GRM0225C1C220GD05#	
				±5%	GRM0225C1C220JD05#	
			27pF	±2%	GRM0225C1C270GD05#	
				±5%	GRM0225C1C270JD05#	
			33pF	±2%	GRM0225C1C330GD05#	
				±5%	GRM0225C1C330JD05#	
			39pF	±2%	GRM0225C1C390GD05#	
				±5%	GRM0225C1C390JD05#	
			47pF	±2%	GRM0225C1C470GD05#	
				±5%	GRM0225C1C470JD05#	
		CK	0.20pF	±0.05pF	GRM0224C1CR20WD05#	
				±0.1pF	GRM0224C1CR20BD05#	
			0.30pF	±0.05pF	GRM0224C1CR30WD05#	
				±0.1pF	GRM0224C1CR30BD05#	
			0.40pF	±0.05pF	GRM0224C1CR40WD05#	
				±0.1pF	GRM0224C1CR40BD05#	
			0.50pF	±0.05pF	GRM0224C1CR50WD05#	
				±0.1pF	GRM0224C1CR50BD05#	
			0.60pF	±0.05pF	GRM0224C1CR60WD05#	
				±0.1pF	GRM0224C1CR60BD05#	
			0.70pF	±0.05pF	GRM0224C1CR70WD05#	
				±0.1pF	GRM0224C1CR70BD05#	
			0.80pF	±0.05pF	GRM0224C1CR80WD05#	
				±0.1pF	GRM0224C1CR80BD05#	
			0.90pF	±0.05pF	GRM0224C1CR90WD05#	
				±0.1pF	GRM0224C1CR90BD05#	
			1.0pF	±0.05pF	GRM0224C1C1R0WD05#	
				±0.1pF	GRM0224C1C1R0BD05#	
				±0.25pF	GRM0224C1C1R0CD05#	
			1.1pF	±0.05pF	GRM0224C1C1R1WD05#	
				±0.1pF	GRM0224C1C1R1BD05#	
				±0.25pF	GRM0224C1C1R1CD05#	
			1.2pF	±0.05pF	GRM0224C1C1R2WD05#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.22mm	16Vdc	CK	1.2pF	±0.1pF	GRM0224C1C1R2BD05#	
				±0.25pF	GRM0224C1C1R2CD05#	
			1.3pF	±0.05pF	GRM0224C1C1R3WD05#	
				±0.1pF	GRM0224C1C1R3BD05#	
				±0.25pF	GRM0224C1C1R3CD05#	
			1.4pF	±0.05pF	GRM0224C1C1R4WD05#	
				±0.1pF	GRM0224C1C1R4BD05#	
				±0.25pF	GRM0224C1C1R4CD05#	
			1.5pF	±0.05pF	GRM0224C1C1R5WD05#	
				±0.1pF	GRM0224C1C1R5BD05#	
				±0.25pF	GRM0224C1C1R5CD05#	
			1.6pF	±0.05pF	GRM0224C1C1R6WD05#	
				±0.1pF	GRM0224C1C1R6BD05#	
				±0.25pF	GRM0224C1C1R6CD05#	
			1.7pF	±0.05pF	GRM0224C1C1R7WD05#	
				±0.1pF	GRM0224C1C1R7BD05#	
				±0.25pF	GRM0224C1C1R7CD05#	
			1.8pF	±0.05pF	GRM0224C1C1R8WD05#	
				±0.1pF	GRM0224C1C1R8BD05#	
				±0.25pF	GRM0224C1C1R8CD05#	
			1.9pF	±0.05pF	GRM0224C1C1R9WD05#	
				±0.1pF	GRM0224C1C1R9BD05#	
				±0.25pF	GRM0224C1C1R9CD05#	
			2.0pF	±0.05pF	GRM0224C1C2R0WD05#	
				±0.1pF	GRM0224C1C2R0BD05#	
				±0.25pF	GRM0224C1C2R0CD05#	
		CJ	2.1pF	±0.05pF	GRM0223C1C2R1WD05#	
				±0.1pF	GRM0223C1C2R1BD05#	
				±0.25pF	GRM0223C1C2R1CD05#	
			2.2pF	±0.05pF	GRM0223C1C2R2WD05#	
				±0.1pF	GRM0223C1C2R2BD05#	
				±0.25pF	GRM0223C1C2R2CD05#	
			2.3pF	±0.05pF	GRM0223C1C2R3WD05#	
				±0.1pF	GRM0223C1C2R3BD05#	
				±0.25pF	GRM0223C1C2R3CD05#	
			2.4pF	±0.05pF	GRM0223C1C2R4WD05#	
				±0.1pF	GRM0223C1C2R4BD05#	
				±0.25pF	GRM0223C1C2R4CD05#	
			2.5pF	±0.05pF	GRM0223C1C2R5WD05#	
				±0.1pF	GRM0223C1C2R5BD05#	
				±0.25pF	GRM0223C1C2R5CD05#	
			2.6pF	±0.05pF	GRM0223C1C2R6WD05#	
				±0.1pF	GRM0223C1C2R6BD05#	
				±0.25pF	GRM0223C1C2R6CD05#	
			2.7pF	±0.05pF	GRM0223C1C2R7WD05#	
				±0.1pF	GRM0223C1C2R7BD05#	
				±0.25pF	GRM0223C1C2R7CD05#	
			2.8pF	±0.05pF	GRM0223C1C2R8WD05#	
				±0.1pF	GRM0223C1C2R8BD05#	
				±0.25pF	GRM0223C1C2R8CD05#	
			2.9pF	±0.05pF	GRM0223C1C2R9WD05#	
				±0.1pF	GRM0223C1C2R9BD05#	
				±0.25pF	GRM0223C1C2R9CD05#	
			3.0pF	±0.05pF	GRM0223C1C3R0WD05#	

Part number # indicates the package specification code.

GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.4×0.2mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.22mm	16Vdc	CJ	3.0pF	±0.1pF	GRM0223C1C3R0BD05#	
				±0.25pF	GRM0223C1C3R0CD05#	
			3.1pF	±0.05pF	GRM0223C1C3R1WD05#	
				±0.1pF	GRM0223C1C3R1BD05#	
				±0.25pF	GRM0223C1C3R1CD05#	
			3.2pF	±0.05pF	GRM0223C1C3R2WD05#	
				±0.1pF	GRM0223C1C3R2BD05#	
				±0.25pF	GRM0223C1C3R2CD05#	
			3.3pF	±0.05pF	GRM0223C1C3R3WD05#	
				±0.1pF	GRM0223C1C3R3BD05#	
				±0.25pF	GRM0223C1C3R3CD05#	
			3.4pF	±0.05pF	GRM0223C1C3R4WD05#	
				±0.1pF	GRM0223C1C3R4BD05#	
				±0.25pF	GRM0223C1C3R4CD05#	
			3.5pF	±0.05pF	GRM0223C1C3R5WD05#	
				±0.1pF	GRM0223C1C3R5BD05#	
				±0.25pF	GRM0223C1C3R5CD05#	
			3.6pF	±0.05pF	GRM0223C1C3R6WD05#	
				±0.1pF	GRM0223C1C3R6BD05#	
				±0.25pF	GRM0223C1C3R6CD05#	
			3.7pF	±0.05pF	GRM0223C1C3R7WD05#	
				±0.1pF	GRM0223C1C3R7BD05#	
				±0.25pF	GRM0223C1C3R7CD05#	
			3.8pF	±0.05pF	GRM0223C1C3R8WD05#	
				±0.1pF	GRM0223C1C3R8BD05#	
				±0.25pF	GRM0223C1C3R8CD05#	
			3.9pF	±0.05pF	GRM0223C1C3R9WD05#	
				±0.1pF	GRM0223C1C3R9BD05#	
				±0.25pF	GRM0223C1C3R9CD05#	
		CH	4.0pF	±0.05pF	GRM0222C1C4R0WD05#	
				±0.1pF	GRM0222C1C4R0BD05#	
				±0.25pF	GRM0222C1C4R0CD05#	
			4.1pF	±0.05pF	GRM0222C1C4R1WD05#	
				±0.1pF	GRM0222C1C4R1BD05#	
				±0.25pF	GRM0222C1C4R1CD05#	
			4.2pF	±0.05pF	GRM0222C1C4R2WD05#	
				±0.1pF	GRM0222C1C4R2BD05#	
				±0.25pF	GRM0222C1C4R2CD05#	
			4.3pF	±0.05pF	GRM0222C1C4R3WD05#	
				±0.1pF	GRM0222C1C4R3BD05#	
				±0.25pF	GRM0222C1C4R3CD05#	
			4.4pF	±0.05pF	GRM0222C1C4R4WD05#	
				±0.1pF	GRM0222C1C4R4BD05#	
				±0.25pF	GRM0222C1C4R4CD05#	
			4.5pF	±0.05pF	GRM0222C1C4R5WD05#	
				±0.1pF	GRM0222C1C4R5BD05#	
				±0.25pF	GRM0222C1C4R5CD05#	
			4.6pF	±0.05pF	GRM0222C1C4R6WD05#	
				±0.1pF	GRM0222C1C4R6BD05#	
				±0.25pF	GRM0222C1C4R6CD05#	
			4.7pF	±0.05pF	GRM0222C1C4R7WD05#	
				±0.1pF	GRM0222C1C4R7BD05#	
				±0.25pF	GRM0222C1C4R7CD05#	
			4.8pF	±0.05pF	GRM0222C1C4R8WD05#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.22mm	16Vdc	CH	4.8pF	±0.1pF	GRM0222C1C4R8BD05#	
				±0.25pF	GRM0222C1C4R8CD05#	
			4.9pF	±0.05pF	GRM0222C1C4R9WD05#	
				±0.1pF	GRM0222C1C4R9BD05#	
				±0.25pF	GRM0222C1C4R9CD05#	
			5.0pF	±0.05pF	GRM0222C1C5R0WD05#	
				±0.1pF	GRM0222C1C5R0BD05#	
				±0.25pF	GRM0222C1C5R0CD05#	
			5.1pF	±0.05pF	GRM0222C1C5R1WD05#	
				±0.1pF	GRM0222C1C5R1BD05#	
				±0.25pF	GRM0222C1C5R1CD05#	
			5.2pF	±0.05pF	GRM0222C1C5R2WD05#	
				±0.1pF	GRM0222C1C5R2BD05#	
				±0.25pF	GRM0222C1C5R2CD05#	
			5.3pF	±0.05pF	GRM0222C1C5R3WD05#	
				±0.1pF	GRM0222C1C5R3BD05#	
				±0.25pF	GRM0222C1C5R3CD05#	
			5.4pF	±0.05pF	GRM0222C1C5R4WD05#	
				±0.1pF	GRM0222C1C5R4BD05#	
				±0.25pF	GRM0222C1C5R4CD05#	
			5.5pF	±0.05pF	GRM0222C1C5R5WD05#	
				±0.1pF	GRM0222C1C5R5BD05#	
				±0.25pF	GRM0222C1C5R5CD05#	
			5.6pF	±0.05pF	GRM0222C1C5R6WD05#	
				±0.1pF	GRM0222C1C5R6BD05#	
				±0.25pF	GRM0222C1C5R6CD05#	
			5.7pF	±0.05pF	GRM0222C1C5R7WD05#	
				±0.1pF	GRM0222C1C5R7BD05#	
				±0.25pF	GRM0222C1C5R7CD05#	
			5.8pF	±0.05pF	GRM0222C1C5R8WD05#	
				±0.1pF	GRM0222C1C5R8BD05#	
				±0.25pF	GRM0222C1C5R8CD05#	
			5.9pF	±0.05pF	GRM0222C1C5R9WD05#	
				±0.1pF	GRM0222C1C5R9BD05#	
				±0.25pF	GRM0222C1C5R9CD05#	
			6.0pF	±0.05pF	GRM0222C1C6R0WD05#	
				±0.1pF	GRM0222C1C6R0BD05#	
				±0.25pF	GRM0222C1C6R0CD05#	
			6.1pF	±0.05pF	GRM0222C1C6R1WD05#	
				±0.1pF	GRM0222C1C6R1BD05#	
				±0.25pF	GRM0222C1C6R1CD05#	
			6.2pF	±0.05pF	GRM0222C1C6R2WD05#	
				±0.1pF	GRM0222C1C6R2BD05#	

Part number # indicates the package specification code.

GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.4×0.2mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.22mm	16Vdc	CH	6.2pF	±0.25pF	GRM0222C1C6R2CD05#	
				±0.5pF	GRM0222C1C6R2DD05#	
			6.3pF	±0.05pF	GRM0222C1C6R3WD05#	
				±0.1pF	GRM0222C1C6R3BD05#	
				±0.25pF	GRM0222C1C6R3CD05#	
				±0.5pF	GRM0222C1C6R3DD05#	
			6.4pF	±0.05pF	GRM0222C1C6R4WD05#	
				±0.1pF	GRM0222C1C6R4BD05#	
				±0.25pF	GRM0222C1C6R4CD05#	
				±0.5pF	GRM0222C1C6R4DD05#	
			6.5pF	±0.05pF	GRM0222C1C6R5WD05#	
				±0.1pF	GRM0222C1C6R5BD05#	
				±0.25pF	GRM0222C1C6R5CD05#	
				±0.5pF	GRM0222C1C6R5DD05#	
			6.6pF	±0.05pF	GRM0222C1C6R6WD05#	
				±0.1pF	GRM0222C1C6R6BD05#	
				±0.25pF	GRM0222C1C6R6CD05#	
				±0.5pF	GRM0222C1C6R6DD05#	
			6.7pF	±0.05pF	GRM0222C1C6R7WD05#	
				±0.1pF	GRM0222C1C6R7BD05#	
				±0.25pF	GRM0222C1C6R7CD05#	
				±0.5pF	GRM0222C1C6R7DD05#	
			6.8pF	±0.05pF	GRM0222C1C6R8WD05#	
				±0.1pF	GRM0222C1C6R8BD05#	
				±0.25pF	GRM0222C1C6R8CD05#	
				±0.5pF	GRM0222C1C6R8DD05#	
			6.9pF	±0.05pF	GRM0222C1C6R9WD05#	
				±0.1pF	GRM0222C1C6R9BD05#	
				±0.25pF	GRM0222C1C6R9CD05#	
				±0.5pF	GRM0222C1C6R9DD05#	
			7.0pF	±0.05pF	GRM0222C1C7R0WD05#	
				±0.1pF	GRM0222C1C7R0BD05#	
				±0.25pF	GRM0222C1C7R0CD05#	
				±0.5pF	GRM0222C1C7R0DD05#	
			7.1pF	±0.05pF	GRM0222C1C7R1WD05#	
				±0.1pF	GRM0222C1C7R1BD05#	
				±0.25pF	GRM0222C1C7R1CD05#	
				±0.5pF	GRM0222C1C7R1DD05#	
			7.2pF	±0.05pF	GRM0222C1C7R2WD05#	
				±0.1pF	GRM0222C1C7R2BD05#	
				±0.25pF	GRM0222C1C7R2CD05#	
				±0.5pF	GRM0222C1C7R2DD05#	
			7.3pF	±0.05pF	GRM0222C1C7R3WD05#	
				±0.1pF	GRM0222C1C7R3BD05#	
				±0.25pF	GRM0222C1C7R3CD05#	
				±0.5pF	GRM0222C1C7R3DD05#	
			7.4pF	±0.05pF	GRM0222C1C7R4WD05#	
				±0.1pF	GRM0222C1C7R4BD05#	
				±0.25pF	GRM0222C1C7R4CD05#	
				±0.5pF	GRM0222C1C7R4DD05#	
			7.5pF	±0.05pF	GRM0222C1C7R5WD05#	
				±0.1pF	GRM0222C1C7R5BD05#	
				±0.25pF	GRM0222C1C7R5CD05#	
				±0.5pF	GRM0222C1C7R5DD05#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.22mm	16Vdc	CH	7.6pF	±0.05pF	GRM0222C1C7R6WD05#	
				±0.1pF	GRM0222C1C7R6BD05#	
				±0.25pF	GRM0222C1C7R6CD05#	
				±0.5pF	GRM0222C1C7R6DD05#	
			7.7pF	±0.05pF	GRM0222C1C7R7WD05#	
				±0.1pF	GRM0222C1C7R7BD05#	
				±0.25pF	GRM0222C1C7R7CD05#	
				±0.5pF	GRM0222C1C7R7DD05#	
			7.8pF	±0.05pF	GRM0222C1C7R8WD05#	
				±0.1pF	GRM0222C1C7R8BD05#	
				±0.25pF	GRM0222C1C7R8CD05#	
				±0.5pF	GRM0222C1C7R8DD05#	
			7.9pF	±0.05pF	GRM0222C1C7R9WD05#	
				±0.1pF	GRM0222C1C7R9BD05#	
				±0.25pF	GRM0222C1C7R9CD05#	
				±0.5pF	GRM0222C1C7R9DD05#	
			8.0pF	±0.05pF	GRM0222C1C8R0WD05#	
				±0.1pF	GRM0222C1C8R0BD05#	
				±0.25pF	GRM0222C1C8R0CD05#	
				±0.5pF	GRM0222C1C8R0DD05#	
			8.1pF	±0.05pF	GRM0222C1C8R1WD05#	
				±0.1pF	GRM0222C1C8R1BD05#	
				±0.25pF	GRM0222C1C8R1CD05#	
				±0.5pF	GRM0222C1C8R1DD05#	
			8.2pF	±0.05pF	GRM0222C1C8R2WD05#	
				±0.1pF	GRM0222C1C8R2BD05#	
				±0.25pF	GRM0222C1C8R2CD05#	
				±0.5pF	GRM0222C1C8R2DD05#	
			8.3pF	±0.05pF	GRM0222C1C8R3WD05#	
				±0.1pF	GRM0222C1C8R3BD05#	
				±0.25pF	GRM0222C1C8R3CD05#	
				±0.5pF	GRM0222C1C8R3DD05#	
			8.4pF	±0.05pF	GRM0222C1C8R4WD05#	
				±0.1pF	GRM0222C1C8R4BD05#	
				±0.25pF	GRM0222C1C8R4CD05#	
				±0.5pF	GRM0222C1C8R4DD05#	
			8.5pF	±0.05pF	GRM0222C1C8R5WD05#	
				±0.1pF	GRM0222C1C8R5BD05#	
				±0.25pF	GRM0222C1C8R5CD05#	
				±0.5pF	GRM0222C1C8R5DD05#	
			8.6pF	±0.05pF	GRM0222C1C8R6WD05#	
				±0.1pF	GRM0222C1C8R6BD05#	
				±0.25pF	GRM0222C1C8R6CD05#	
				±0.5pF	GRM0222C1C8R6DD05#	
			8.7pF	±0.05pF	GRM0222C1C8R7WD05#	
				±0.1pF	GRM0222C1C8R7BD05#	
				±0.25pF	GRM0222C1C8R7CD05#	
				±0.5pF	GRM0222C1C8R7DD05#	
			8.8pF	±0.05pF	GRM0222C1C8R8WD05#	
				±0.1pF	GRM0222C1C8R8BD05#	
				±0.25pF	GRM0222C1C8R8CD05#	
				±0.5pF	GRM0222C1C8R8DD05#	
			8.9pF	±0.05pF	GRM0222C1C8R9WD05#	
				±0.1pF	GRM0222C1C8R9BD05#	

Part number # indicates the package specification code.

GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.6×0.3mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.33mm	100Vdc	C0G	4.9pF	±0.1pF	GRM0335C2A4R9BA01#	
				±0.25pF	GRM0335C2A4R9CA01#	
			5.0pF	±0.05pF	GRM0335C2A5R0WA01#	
				±0.1pF	GRM0335C2A5R0BA01#	
				±0.25pF	GRM0335C2A5R0CA01#	
			5.1pF	±0.05pF	GRM0335C2A5R1WA01#	
				±0.1pF	GRM0335C2A5R1BA01#	
				±0.25pF	GRM0335C2A5R1CA01#	
				±0.5pF	GRM0335C2A5R1DA01#	
			5.2pF	±0.05pF	GRM0335C2A5R2WA01#	
				±0.1pF	GRM0335C2A5R2BA01#	
				±0.25pF	GRM0335C2A5R2CA01#	
				±0.5pF	GRM0335C2A5R2DA01#	
			5.3pF	±0.05pF	GRM0335C2A5R3WA01#	
				±0.1pF	GRM0335C2A5R3BA01#	
				±0.25pF	GRM0335C2A5R3CA01#	
				±0.5pF	GRM0335C2A5R3DA01#	
			5.4pF	±0.05pF	GRM0335C2A5R4WA01#	
				±0.1pF	GRM0335C2A5R4BA01#	
				±0.25pF	GRM0335C2A5R4CA01#	
				±0.5pF	GRM0335C2A5R4DA01#	
			5.5pF	±0.05pF	GRM0335C2A5R5WA01#	
				±0.1pF	GRM0335C2A5R5BA01#	
				±0.25pF	GRM0335C2A5R5CA01#	
				±0.5pF	GRM0335C2A5R5DA01#	
			5.6pF	±0.05pF	GRM0335C2A5R6WA01#	
				±0.1pF	GRM0335C2A5R6BA01#	
				±0.25pF	GRM0335C2A5R6CA01#	
				±0.5pF	GRM0335C2A5R6DA01#	
			5.7pF	±0.05pF	GRM0335C2A5R7WA01#	
				±0.1pF	GRM0335C2A5R7BA01#	
				±0.25pF	GRM0335C2A5R7CA01#	
				±0.5pF	GRM0335C2A5R7DA01#	
			5.8pF	±0.05pF	GRM0335C2A5R8WA01#	
				±0.1pF	GRM0335C2A5R8BA01#	
				±0.25pF	GRM0335C2A5R8CA01#	
				±0.5pF	GRM0335C2A5R8DA01#	
			5.9pF	±0.05pF	GRM0335C2A5R9WA01#	
				±0.1pF	GRM0335C2A5R9BA01#	
				±0.25pF	GRM0335C2A5R9CA01#	
				±0.5pF	GRM0335C2A5R9DA01#	
			6.0pF	±0.05pF	GRM0335C2A6R0WA01#	
				±0.1pF	GRM0335C2A6R0BA01#	
				±0.25pF	GRM0335C2A6R0CA01#	
				±0.5pF	GRM0335C2A6R0DA01#	
			6.1pF	±0.05pF	GRM0335C2A6R1WA01#	
				±0.1pF	GRM0335C2A6R1BA01#	
				±0.25pF	GRM0335C2A6R1CA01#	
				±0.5pF	GRM0335C2A6R1DA01#	
			6.2pF	±0.05pF	GRM0335C2A6R2WA01#	
				±0.1pF	GRM0335C2A6R2BA01#	
				±0.25pF	GRM0335C2A6R2CA01#	
				±0.5pF	GRM0335C2A6R2DA01#	
			6.3pF	±0.05pF	GRM0335C2A6R3WA01#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.33mm	100Vdc	C0G	6.3pF	±0.1pF	GRM0335C2A6R3BA01#	
				±0.25pF	GRM0335C2A6R3CA01#	
				±0.5pF	GRM0335C2A6R3DA01#	
			6.4pF	±0.05pF	GRM0335C2A6R4WA01#	
				±0.1pF	GRM0335C2A6R4BA01#	
				±0.25pF	GRM0335C2A6R4CA01#	
			6.5pF	±0.05pF	GRM0335C2A6R5WA01#	
				±0.1pF	GRM0335C2A6R5BA01#	
				±0.25pF	GRM0335C2A6R5CA01#	
			6.6pF	±0.05pF	GRM0335C2A6R6WA01#	
				±0.1pF	GRM0335C2A6R6BA01#	
				±0.25pF	GRM0335C2A6R6CA01#	
			6.7pF	±0.05pF	GRM0335C2A6R7WA01#	
				±0.1pF	GRM0335C2A6R7BA01#	
				±0.25pF	GRM0335C2A6R7CA01#	
			6.8pF	±0.05pF	GRM0335C2A6R8WA01#	
				±0.1pF	GRM0335C2A6R8BA01#	
				±0.25pF	GRM0335C2A6R8CA01#	
			6.9pF	±0.05pF	GRM0335C2A6R9WA01#	
				±0.1pF	GRM0335C2A6R9BA01#	
				±0.25pF	GRM0335C2A6R9CA01#	
			7.0pF	±0.05pF	GRM0335C2A7R0WA01#	
				±0.1pF	GRM0335C2A7R0BA01#	
				±0.25pF	GRM0335C2A7R0CA01#	
			7.1pF	±0.05pF	GRM0335C2A7R1WA01#	
				±0.1pF	GRM0335C2A7R1BA01#	
				±0.25pF	GRM0335C2A7R1CA01#	
			7.2pF	±0.05pF	GRM0335C2A7R2WA01#	
				±0.1pF	GRM0335C2A7R2BA01#	
				±0.25pF	GRM0335C2A7R2CA01#	
			7.3pF	±0.05pF	GRM0335C2A7R3WA01#	
				±0.1pF	GRM0335C2A7R3BA01#	
				±0.25pF	GRM0335C2A7R3CA01#	
			7.4pF	±0.05pF	GRM0335C2A7R4WA01#	
				±0.1pF	GRM0335C2A7R4BA01#	
				±0.25pF	GRM0335C2A7R4CA01#	
			7.5pF	±0.05pF	GRM0335C2A7R5WA01#	
				±0.1pF	GRM0335C2A7R5BA01#	
				±0.25pF	GRM0335C2A7R5CA01#	
			7.6pF	±0.05pF	GRM0335C2A7R6WA01#	
				±0.1pF	GRM0335C2A7R6BA01#	
				±0.25pF	GRM0335C2A7R6CA01#	

Part number # indicates the package specification code.

GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.6×0.3mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.33mm	100Vdc	CH	4.3pF	±0.1pF	GRM0332C2A4R3BA01#	
				±0.25pF	GRM0332C2A4R3CA01#	
			4.4pF	±0.05pF	GRM0332C2A4R4WA01#	
				±0.1pF	GRM0332C2A4R4BA01#	
				±0.25pF	GRM0332C2A4R4CA01#	
			4.5pF	±0.05pF	GRM0332C2A4R5WA01#	
				±0.1pF	GRM0332C2A4R5BA01#	
				±0.25pF	GRM0332C2A4R5CA01#	
			4.6pF	±0.05pF	GRM0332C2A4R6WA01#	
				±0.1pF	GRM0332C2A4R6BA01#	
				±0.25pF	GRM0332C2A4R6CA01#	
			4.7pF	±0.05pF	GRM0332C2A4R7WA01#	
				±0.1pF	GRM0332C2A4R7BA01#	
				±0.25pF	GRM0332C2A4R7CA01#	
			4.8pF	±0.05pF	GRM0332C2A4R8WA01#	
				±0.1pF	GRM0332C2A4R8BA01#	
				±0.25pF	GRM0332C2A4R8CA01#	
			4.9pF	±0.05pF	GRM0332C2A4R9WA01#	
				±0.1pF	GRM0332C2A4R9BA01#	
				±0.25pF	GRM0332C2A4R9CA01#	
			5.0pF	±0.05pF	GRM0332C2A5R0WA01#	
				±0.1pF	GRM0332C2A5R0BA01#	
				±0.25pF	GRM0332C2A5R0CA01#	
			5.1pF	±0.05pF	GRM0332C2A5R1WA01#	
				±0.1pF	GRM0332C2A5R1BA01#	
				±0.25pF	GRM0332C2A5R1CA01#	
				±0.5pF	GRM0332C2A5R1DA01#	
			5.2pF	±0.05pF	GRM0332C2A5R2WA01#	
				±0.1pF	GRM0332C2A5R2BA01#	
				±0.25pF	GRM0332C2A5R2CA01#	
				±0.5pF	GRM0332C2A5R2DA01#	
			5.3pF	±0.05pF	GRM0332C2A5R3WA01#	
				±0.1pF	GRM0332C2A5R3BA01#	
				±0.25pF	GRM0332C2A5R3CA01#	
				±0.5pF	GRM0332C2A5R3DA01#	
			5.4pF	±0.05pF	GRM0332C2A5R4WA01#	
				±0.1pF	GRM0332C2A5R4BA01#	
				±0.25pF	GRM0332C2A5R4CA01#	
				±0.5pF	GRM0332C2A5R4DA01#	
			5.5pF	±0.05pF	GRM0332C2A5R5WA01#	
				±0.1pF	GRM0332C2A5R5BA01#	
				±0.25pF	GRM0332C2A5R5CA01#	
				±0.5pF	GRM0332C2A5R5DA01#	
			5.6pF	±0.05pF	GRM0332C2A5R6WA01#	
				±0.1pF	GRM0332C2A5R6BA01#	
				±0.25pF	GRM0332C2A5R6CA01#	
				±0.5pF	GRM0332C2A5R6DA01#	
			5.7pF	±0.05pF	GRM0332C2A5R7WA01#	
				±0.1pF	GRM0332C2A5R7BA01#	
				±0.25pF	GRM0332C2A5R7CA01#	
				±0.5pF	GRM0332C2A5R7DA01#	
			5.8pF	±0.05pF	GRM0332C2A5R8WA01#	
				±0.1pF	GRM0332C2A5R8BA01#	
				±0.25pF	GRM0332C2A5R8CA01#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.33mm	100Vdc	CH	5.8pF	±0.5pF	GRM0332C2A5R8DA01#	
			5.9pF	±0.05pF	GRM0332C2A5R9WA01#	
				±0.1pF	GRM0332C2A5R9BA01#	
				±0.25pF	GRM0332C2A5R9CA01#	
				±0.5pF	GRM0332C2A5R9DA01#	
			6.0pF	±0.05pF	GRM0332C2A6R0WA01#	
				±0.1pF	GRM0332C2A6R0BA01#	
				±0.25pF	GRM0332C2A6R0CA01#	
				±0.5pF	GRM0332C2A6R0DA01#	
			6.1pF	±0.05pF	GRM0332C2A6R1WA01#	
				±0.1pF	GRM0332C2A6R1BA01#	
				±0.25pF	GRM0332C2A6R1CA01#	
				±0.5pF	GRM0332C2A6R1DA01#	
			6.2pF	±0.05pF	GRM0332C2A6R2WA01#	
				±0.1pF	GRM0332C2A6R2BA01#	
				±0.25pF	GRM0332C2A6R2CA01#	
				±0.5pF	GRM0332C2A6R2DA01#	
			6.3pF	±0.05pF	GRM0332C2A6R3WA01#	
				±0.1pF	GRM0332C2A6R3BA01#	
				±0.25pF	GRM0332C2A6R3CA01#	
				±0.5pF	GRM0332C2A6R3DA01#	
			6.4pF	±0.05pF	GRM0332C2A6R4WA01#	
				±0.1pF	GRM0332C2A6R4BA01#	
				±0.25pF	GRM0332C2A6R4CA01#	
				±0.5pF	GRM0332C2A6R4DA01#	
			6.5pF	±0.05pF	GRM0332C2A6R5WA01#	
				±0.1pF	GRM0332C2A6R5BA01#	
				±0.25pF	GRM0332C2A6R5CA01#	
				±0.5pF	GRM0332C2A6R5DA01#	
			6.6pF	±0.05pF	GRM0332C2A6R6WA01#	
				±0.1pF	GRM0332C2A6R6BA01#	
				±0.25pF	GRM0332C2A6R6CA01#	
				±0.5pF	GRM0332C2A6R6DA01#	
			6.7pF	±0.05pF	GRM0332C2A6R7WA01#	
				±0.1pF	GRM0332C2A6R7BA01#	
				±0.25pF	GRM0332C2A6R7CA01#	
				±0.5pF	GRM0332C2A6R7DA01#	
			6.8pF	±0.05pF	GRM0332C2A6R8WA01#	
				±0.1pF	GRM0332C2A6R8BA01#	
				±0.25pF	GRM0332C2A6R8CA01#	
				±0.5pF	GRM0332C2A6R8DA01#	
			6.9pF	±0.05pF	GRM0332C2A6R9WA01#	
				±0.1pF	GRM0332C2A6R9BA01#	
				±0.25pF	GRM0332C2A6R9CA01#	
				±0.5pF	GRM0332C2A6R9DA01#	
			7.0pF	±0.05pF	GRM0332C2A7R0WA01#	
				±0.1pF	GRM0332C2A7R0BA01#	
				±0.25pF	GRM0332C2A7R0CA01#	
				±0.5pF	GRM0332C2A7R0DA01#	
			7.1pF	±0.05pF	GRM0332C2A7R1WA01#	
				±0.1pF	GRM0332C2A7R1BA01#	
				±0.25pF	GRM0332C2A7R1CA01#	
				±0.5pF	GRM0332C2A7R1DA01#	
			7.2pF	±0.05pF	GRM0332C2A7R2WA01#	

Part number # indicates the package specification code.

GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.6×0.3mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.33mm	100Vdc	CH	7.2pF	±0.1pF	GRM0332C2A7R2BA01#	
				±0.25pF	GRM0332C2A7R2CA01#	
				±0.5pF	GRM0332C2A7R2DA01#	
			7.3pF	±0.05pF	GRM0332C2A7R3WA01#	
				±0.1pF	GRM0332C2A7R3BA01#	
				±0.25pF	GRM0332C2A7R3CA01#	
			7.4pF	±0.05pF	GRM0332C2A7R4WA01#	
				±0.1pF	GRM0332C2A7R4BA01#	
				±0.25pF	GRM0332C2A7R4CA01#	
			7.5pF	±0.05pF	GRM0332C2A7R5WA01#	
				±0.1pF	GRM0332C2A7R5BA01#	
				±0.25pF	GRM0332C2A7R5CA01#	
			7.6pF	±0.05pF	GRM0332C2A7R6WA01#	
				±0.1pF	GRM0332C2A7R6BA01#	
				±0.25pF	GRM0332C2A7R6CA01#	
			7.7pF	±0.05pF	GRM0332C2A7R7WA01#	
				±0.1pF	GRM0332C2A7R7BA01#	
				±0.25pF	GRM0332C2A7R7CA01#	
			7.8pF	±0.05pF	GRM0332C2A7R8WA01#	
				±0.1pF	GRM0332C2A7R8BA01#	
				±0.25pF	GRM0332C2A7R8CA01#	
			7.9pF	±0.05pF	GRM0332C2A7R9WA01#	
				±0.1pF	GRM0332C2A7R9BA01#	
				±0.25pF	GRM0332C2A7R9CA01#	
			8.0pF	±0.05pF	GRM0332C2A8R0WA01#	
				±0.1pF	GRM0332C2A8R0BA01#	
				±0.25pF	GRM0332C2A8R0CA01#	
			8.1pF	±0.05pF	GRM0332C2A8R1WA01#	
				±0.1pF	GRM0332C2A8R1BA01#	
				±0.25pF	GRM0332C2A8R1CA01#	
			8.2pF	±0.05pF	GRM0332C2A8R2WA01#	
				±0.1pF	GRM0332C2A8R2BA01#	
				±0.25pF	GRM0332C2A8R2CA01#	
			8.3pF	±0.05pF	GRM0332C2A8R3WA01#	
				±0.1pF	GRM0332C2A8R3BA01#	
				±0.25pF	GRM0332C2A8R3CA01#	
			8.4pF	±0.05pF	GRM0332C2A8R4WA01#	
				±0.1pF	GRM0332C2A8R4BA01#	
				±0.25pF	GRM0332C2A8R4CA01#	
			8.5pF	±0.05pF	GRM0332C2A8R5WA01#	
				±0.1pF	GRM0332C2A8R5BA01#	
				±0.25pF	GRM0332C2A8R5CA01#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.33mm	100Vdc	CH	8.5pF	±0.5pF	GRM0332C2A8R5DA01#	
				±0.05pF	GRM0332C2A8R6WA01#	
				±0.1pF	GRM0332C2A8R6BA01#	
			8.6pF	±0.25pF	GRM0332C2A8R6CA01#	
				±0.5pF	GRM0332C2A8R6DA01#	
			8.7pF	±0.05pF	GRM0332C2A8R7WA01#	
				±0.1pF	GRM0332C2A8R7BA01#	
				±0.25pF	GRM0332C2A8R7CA01#	
			8.8pF	±0.05pF	GRM0332C2A8R8WA01#	
				±0.1pF	GRM0332C2A8R8BA01#	
				±0.25pF	GRM0332C2A8R8CA01#	
			8.9pF	±0.05pF	GRM0332C2A8R9WA01#	
				±0.1pF	GRM0332C2A8R9BA01#	
				±0.25pF	GRM0332C2A8R9CA01#	
			9.0pF	±0.05pF	GRM0332C2A9R0WA01#	
				±0.1pF	GRM0332C2A9R0BA01#	
				±0.25pF	GRM0332C2A9R0CA01#	
			9.1pF	±0.05pF	GRM0332C2A9R1WA01#	
				±0.1pF	GRM0332C2A9R1BA01#	
				±0.25pF	GRM0332C2A9R1CA01#	
			9.2pF	±0.05pF	GRM0332C2A9R2WA01#	
				±0.1pF	GRM0332C2A9R2BA01#	
				±0.25pF	GRM0332C2A9R2CA01#	
			9.3pF	±0.05pF	GRM0332C2A9R3WA01#	
				±0.1pF	GRM0332C2A9R3BA01#	
				±0.25pF	GRM0332C2A9R3CA01#	
			9.4pF	±0.05pF	GRM0332C2A9R4WA01#	
				±0.1pF	GRM0332C2A9R4BA01#	
				±0.25pF	GRM0332C2A9R4CA01#	
			9.5pF	±0.05pF	GRM0332C2A9R5WA01#	
				±0.1pF	GRM0332C2A9R5BA01#	
				±0.25pF	GRM0332C2A9R5CA01#	
			9.6pF	±0.05pF	GRM0332C2A9R6WA01#	
				±0.1pF	GRM0332C2A9R6BA01#	
				±0.25pF	GRM0332C2A9R6CA01#	
			9.7pF	±0.05pF	GRM0332C2A9R7WA01#	
				±0.1pF	GRM0332C2A9R7BA01#	
				±0.25pF	GRM0332C2A9R7CA01#	
			9.8pF	±0.05pF	GRM0332C2A9R8WA01#	
				±0.1pF	GRM0332C2A9R8BA01#	
				±0.25pF	GRM0332C2A9R8CA01#	
			9.9pF	±0.05pF	GRM0332C2A9R9WA01#	
				±0.1pF	GRM0332C2A9R9BA01#	
				±0.25pF	GRM0332C2A9R9CA01#	

Part number # indicates the package specification code.

GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.6×0.3mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.33mm	50Vdc	C0G	6.7pF	±0.5pF	GRM0335C1H6R7DA01#	
				±0.05pF	GRM0335C1H6R8WA01#	
				±0.1pF	GRM0335C1H6R8BA01#	
				±0.25pF	GRM0335C1H6R8CA01#	
			6.8pF	±0.5pF	GRM0335C1H6R8DA01#	
				±0.05pF	GRM0335C1H6R9WA01#	
				±0.1pF	GRM0335C1H6R9BA01#	
				±0.25pF	GRM0335C1H6R9CA01#	
			6.9pF	±0.5pF	GRM0335C1H6R9DA01#	
				±0.05pF	GRM0335C1H7R0WA01#	
				±0.1pF	GRM0335C1H7R0BA01#	
				±0.25pF	GRM0335C1H7R0CA01#	
			7.0pF	±0.5pF	GRM0335C1H7R0DA01#	
				±0.05pF	GRM0335C1H7R1WA01#	
				±0.1pF	GRM0335C1H7R1BA01#	
				±0.25pF	GRM0335C1H7R1CA01#	
			7.1pF	±0.5pF	GRM0335C1H7R1DA01#	
				±0.05pF	GRM0335C1H7R2WA01#	
				±0.1pF	GRM0335C1H7R2BA01#	
				±0.25pF	GRM0335C1H7R2CA01#	
			7.2pF	±0.5pF	GRM0335C1H7R2DA01#	
				±0.05pF	GRM0335C1H7R3WA01#	
				±0.1pF	GRM0335C1H7R3BA01#	
				±0.25pF	GRM0335C1H7R3CA01#	
			7.3pF	±0.5pF	GRM0335C1H7R3DA01#	
				±0.05pF	GRM0335C1H7R4WA01#	
				±0.1pF	GRM0335C1H7R4BA01#	
				±0.25pF	GRM0335C1H7R4CA01#	
			7.4pF	±0.5pF	GRM0335C1H7R4DA01#	
				±0.05pF	GRM0335C1H7R5WA01#	
				±0.1pF	GRM0335C1H7R5BA01#	
				±0.25pF	GRM0335C1H7R5CA01#	
			7.5pF	±0.5pF	GRM0335C1H7R5DA01#	
				±0.05pF	GRM0335C1H7R6WA01#	
				±0.1pF	GRM0335C1H7R6BA01#	
				±0.25pF	GRM0335C1H7R6CA01#	
			7.6pF	±0.5pF	GRM0335C1H7R6DA01#	
				±0.05pF	GRM0335C1H7R7WA01#	
				±0.1pF	GRM0335C1H7R7BA01#	
				±0.25pF	GRM0335C1H7R7CA01#	
			7.7pF	±0.5pF	GRM0335C1H7R7DA01#	
				±0.05pF	GRM0335C1H7R8WA01#	
				±0.1pF	GRM0335C1H7R8BA01#	
				±0.25pF	GRM0335C1H7R8CA01#	
			7.8pF	±0.5pF	GRM0335C1H7R8DA01#	
				±0.05pF	GRM0335C1H7R9WA01#	
				±0.1pF	GRM0335C1H7R9BA01#	
				±0.25pF	GRM0335C1H7R9CA01#	
			7.9pF	±0.5pF	GRM0335C1H7R9DA01#	
				±0.05pF	GRM0335C1H8R0WA01#	
				±0.1pF	GRM0335C1H8R0BA01#	
				±0.25pF	GRM0335C1H8R0CA01#	
			8.0pF	±0.5pF	GRM0335C1H8R0DA01#	
				±0.05pF	GRM0335C1H8R1WA01#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.33mm	50Vdc	C0G	8.1pF	±0.1pF	GRM0335C1H8R1BA01#	
				±0.25pF	GRM0335C1H8R1CA01#	
				±0.5pF	GRM0335C1H8R1DA01#	
			8.2pF	±0.05pF	GRM0335C1H8R2WA01#	
				±0.1pF	GRM0335C1H8R2BA01#	
				±0.25pF	GRM0335C1H8R2CA01#	
				±0.5pF	GRM0335C1H8R2DA01#	
			8.3pF	±0.05pF	GRM0335C1H8R3WA01#	
				±0.1pF	GRM0335C1H8R3BA01#	
				±0.25pF	GRM0335C1H8R3CA01#	
				±0.5pF	GRM0335C1H8R3DA01#	
			8.4pF	±0.05pF	GRM0335C1H8R4WA01#	
				±0.1pF	GRM0335C1H8R4BA01#	
				±0.25pF	GRM0335C1H8R4CA01#	
				±0.5pF	GRM0335C1H8R4DA01#	
			8.5pF	±0.05pF	GRM0335C1H8R5WA01#	
				±0.1pF	GRM0335C1H8R5BA01#	
				±0.25pF	GRM0335C1H8R5CA01#	
				±0.5pF	GRM0335C1H8R5DA01#	
			8.6pF	±0.05pF	GRM0335C1H8R6WA01#	
				±0.1pF	GRM0335C1H8R6BA01#	
				±0.25pF	GRM0335C1H8R6CA01#	
				±0.5pF	GRM0335C1H8R6DA01#	
			8.7pF	±0.05pF	GRM0335C1H8R7WA01#	
				±0.1pF	GRM0335C1H8R7BA01#	
				±0.25pF	GRM0335C1H8R7CA01#	
				±0.5pF	GRM0335C1H8R7DA01#	
			8.8pF	±0.05pF	GRM0335C1H8R8WA01#	
				±0.1pF	GRM0335C1H8R8BA01#	
				±0.25pF	GRM0335C1H8R8CA01#	
				±0.5pF	GRM0335C1H8R8DA01#	
			8.9pF	±0.05pF	GRM0335C1H8R9WA01#	
				±0.1pF	GRM0335C1H8R9BA01#	
				±0.25pF	GRM0335C1H8R9CA01#	
				±0.5pF	GRM0335C1H8R9DA01#	
			9.0pF	±0.05pF	GRM0335C1H9R0WA01#	
				±0.1pF	GRM0335C1H9R0BA01#	
				±0.25pF	GRM0335C1H9R0CA01#	
				±0.5pF	GRM0335C1H9R0DA01#	
			9.1pF	±0.05pF	GRM0335C1H9R1WA01#	
				±0.1pF	GRM0335C1H9R1BA01#	
				±0.25pF	GRM0335C1H9R1CA01#	
				±0.5pF	GRM0335C1H9R1DA01#	
			9.2pF	±0.05pF	GRM0335C1H9R2WA01#	
				±0.1pF	GRM0335C1H9R2BA01#	
				±0.25pF	GRM0335C1H9R2CA01#	
				±0.5pF	GRM0335C1H9R2DA01#	
			9.3pF	±0.05pF	GRM0335C1H9R3WA01#	
				±0.1pF	GRM0335C1H9R3BA01#	
				±0.25pF	GRM0335C1H9R3CA01#	
				±0.5pF	GRM0335C1H9R3DA01#	
			9.4pF	±0.05pF	GRM0335C1H9R4WA01#	
				±0.1pF	GRM0335C1H9R4BA01#	
				±0.25pF	GRM0335C1H9R4CA01#	

Part number # indicates the package specification code.

GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.6×0.3mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.33mm	50Vdc	CJ	2.4pF	±0.05pF	GRM0333C1H2R4WA01#	
				±0.1pF	GRM0333C1H2R4BA01#	
				±0.25pF	GRM0333C1H2R4CA01#	
			2.5pF	±0.05pF	GRM0333C1H2R5WA01#	
				±0.1pF	GRM0333C1H2R5BA01#	
				±0.25pF	GRM0333C1H2R5CA01#	
			2.6pF	±0.05pF	GRM0333C1H2R6WA01#	
				±0.1pF	GRM0333C1H2R6BA01#	
				±0.25pF	GRM0333C1H2R6CA01#	
			2.7pF	±0.05pF	GRM0333C1H2R7WA01#	
				±0.1pF	GRM0333C1H2R7BA01#	
				±0.25pF	GRM0333C1H2R7CA01#	
			2.8pF	±0.05pF	GRM0333C1H2R8WA01#	
				±0.1pF	GRM0333C1H2R8BA01#	
				±0.25pF	GRM0333C1H2R8CA01#	
			2.9pF	±0.05pF	GRM0333C1H2R9WA01#	
				±0.1pF	GRM0333C1H2R9BA01#	
				±0.25pF	GRM0333C1H2R9CA01#	
			3.0pF	±0.05pF	GRM0333C1H3R0WA01#	
				±0.1pF	GRM0333C1H3R0BA01#	
				±0.25pF	GRM0333C1H3R0CA01#	
			3.1pF	±0.05pF	GRM0333C1H3R1WA01#	
				±0.1pF	GRM0333C1H3R1BA01#	
				±0.25pF	GRM0333C1H3R1CA01#	
			3.2pF	±0.05pF	GRM0333C1H3R2WA01#	
				±0.1pF	GRM0333C1H3R2BA01#	
				±0.25pF	GRM0333C1H3R2CA01#	
			3.3pF	±0.05pF	GRM0333C1H3R3WA01#	
				±0.1pF	GRM0333C1H3R3BA01#	
				±0.25pF	GRM0333C1H3R3CA01#	
			3.4pF	±0.05pF	GRM0333C1H3R4WA01#	
				±0.1pF	GRM0333C1H3R4BA01#	
				±0.25pF	GRM0333C1H3R4CA01#	
			3.5pF	±0.05pF	GRM0333C1H3R5WA01#	
				±0.1pF	GRM0333C1H3R5BA01#	
				±0.25pF	GRM0333C1H3R5CA01#	
			3.6pF	±0.05pF	GRM0333C1H3R6WA01#	
				±0.1pF	GRM0333C1H3R6BA01#	
				±0.25pF	GRM0333C1H3R6CA01#	
			3.7pF	±0.05pF	GRM0333C1H3R7WA01#	
				±0.1pF	GRM0333C1H3R7BA01#	
				±0.25pF	GRM0333C1H3R7CA01#	
			3.8pF	±0.05pF	GRM0333C1H3R8WA01#	
				±0.1pF	GRM0333C1H3R8BA01#	
				±0.25pF	GRM0333C1H3R8CA01#	
			3.9pF	±0.05pF	GRM0333C1H3R9WA01#	
				±0.1pF	GRM0333C1H3R9BA01#	
				±0.25pF	GRM0333C1H3R9CA01#	
		CH	4.0pF	±0.05pF	GRM0332C1H4R0WA01#	
				±0.1pF	GRM0332C1H4R0BA01#	
				±0.25pF	GRM0332C1H4R0CA01#	
			4.1pF	±0.05pF	GRM0332C1H4R1WA01#	
				±0.1pF	GRM0332C1H4R1BA01#	
				±0.25pF	GRM0332C1H4R1CA01#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.33mm	50Vdc	CH	4.2pF	±0.05pF	GRM0332C1H4R2WA01#	
				±0.1pF	GRM0332C1H4R2BA01#	
				±0.25pF	GRM0332C1H4R2CA01#	
			4.3pF	±0.05pF	GRM0332C1H4R3WA01#	
				±0.1pF	GRM0332C1H4R3BA01#	
				±0.25pF	GRM0332C1H4R3CA01#	
			4.4pF	±0.05pF	GRM0332C1H4R4WA01#	
				±0.1pF	GRM0332C1H4R4BA01#	
				±0.25pF	GRM0332C1H4R4CA01#	
			4.5pF	±0.05pF	GRM0332C1H4R5WA01#	
				±0.1pF	GRM0332C1H4R5BA01#	
				±0.25pF	GRM0332C1H4R5CA01#	
			4.6pF	±0.05pF	GRM0332C1H4R6WA01#	
				±0.1pF	GRM0332C1H4R6BA01#	
				±0.25pF	GRM0332C1H4R6CA01#	
			4.7pF	±0.05pF	GRM0332C1H4R7WA01#	
				±0.1pF	GRM0332C1H4R7BA01#	
				±0.25pF	GRM0332C1H4R7CA01#	
			4.8pF	±0.05pF	GRM0332C1H4R8WA01#	
				±0.1pF	GRM0332C1H4R8BA01#	
				±0.25pF	GRM0332C1H4R8CA01#	
			4.9pF	±0.05pF	GRM0332C1H4R9WA01#	
				±0.1pF	GRM0332C1H4R9BA01#	
				±0.25pF	GRM0332C1H4R9CA01#	
			5.0pF	±0.05pF	GRM0332C1H5R0WA01#	
				±0.1pF	GRM0332C1H5R0BA01#	
				±0.25pF	GRM0332C1H5R0CA01#	
			5.1pF	±0.05pF	GRM0332C1H5R1WA01#	
				±0.1pF	GRM0332C1H5R1BA01#	
				±0.25pF	GRM0332C1H5R1CA01#	
			5.2pF	±0.05pF	GRM0332C1H5R2WA01#	
				±0.1pF	GRM0332C1H5R2BA01#	
				±0.25pF	GRM0332C1H5R2CA01#	
			5.3pF	±0.05pF	GRM0332C1H5R3WA01#	
				±0.1pF	GRM0332C1H5R3BA01#	
				±0.25pF	GRM0332C1H5R3CA01#	
			5.4pF	±0.05pF	GRM0332C1H5R4WA01#	
				±0.1pF	GRM0332C1H5R4BA01#	
				±0.25pF	GRM0332C1H5R4CA01#	
			5.5pF	±0.05pF	GRM0332C1H5R5WA01#	
				±0.1pF	GRM0332C1H5R5BA01#	
				±0.25pF	GRM0332C1H5R5CA01#	
			5.6pF	±0.05pF	GRM0332C1H5R6WA01#	
				±0.1pF	GRM0332C1H5R6BA01#	
				±0.25pF	GRM0332C1H5R6CA01#	
			5.7pF	±0.05pF	GRM0332C1H5R7WA01#	
				±0.1pF	GRM0332C1H5R7BA01#	
				±0.25pF	GRM0332C1H5R7CA01#	

Part number # indicates the package specification code.

GRM Series Temperature Compensating Type Part Number List

(→ ■ 0.6×0.3mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.33mm	50Vdc	CH	8.4pF	±0.5pF	GRM0332C1H8R4DA01#	
				±0.05pF	GRM0332C1H8R5WA01#	
				±0.1pF	GRM0332C1H8R5BA01#	
				±0.25pF	GRM0332C1H8R5CA01#	
				±0.5pF	GRM0332C1H8R5DA01#	
			8.6pF	±0.05pF	GRM0332C1H8R6WA01#	
				±0.1pF	GRM0332C1H8R6BA01#	
				±0.25pF	GRM0332C1H8R6CA01#	
				±0.5pF	GRM0332C1H8R6DA01#	
			8.7pF	±0.05pF	GRM0332C1H8R7WA01#	
				±0.1pF	GRM0332C1H8R7BA01#	
				±0.25pF	GRM0332C1H8R7CA01#	
				±0.5pF	GRM0332C1H8R7DA01#	
			8.8pF	±0.05pF	GRM0332C1H8R8WA01#	
				±0.1pF	GRM0332C1H8R8BA01#	
				±0.25pF	GRM0332C1H8R8CA01#	
				±0.5pF	GRM0332C1H8R8DA01#	
			8.9pF	±0.05pF	GRM0332C1H8R9WA01#	
				±0.1pF	GRM0332C1H8R9BA01#	
				±0.25pF	GRM0332C1H8R9CA01#	
				±0.5pF	GRM0332C1H8R9DA01#	
			9.0pF	±0.05pF	GRM0332C1H9R0WA01#	
				±0.1pF	GRM0332C1H9R0BA01#	
				±0.25pF	GRM0332C1H9R0CA01#	
				±0.5pF	GRM0332C1H9R0DA01#	
			9.1pF	±0.05pF	GRM0332C1H9R1WA01#	
				±0.1pF	GRM0332C1H9R1BA01#	
				±0.25pF	GRM0332C1H9R1CA01#	
				±0.5pF	GRM0332C1H9R1DA01#	
			9.2pF	±0.05pF	GRM0332C1H9R2WA01#	
				±0.1pF	GRM0332C1H9R2BA01#	
				±0.25pF	GRM0332C1H9R2CA01#	
				±0.5pF	GRM0332C1H9R2DA01#	
			9.3pF	±0.05pF	GRM0332C1H9R3WA01#	
				±0.1pF	GRM0332C1H9R3BA01#	
				±0.25pF	GRM0332C1H9R3CA01#	
				±0.5pF	GRM0332C1H9R3DA01#	
			9.4pF	±0.05pF	GRM0332C1H9R4WA01#	
				±0.1pF	GRM0332C1H9R4BA01#	
				±0.25pF	GRM0332C1H9R4CA01#	
				±0.5pF	GRM0332C1H9R4DA01#	
			9.5pF	±0.05pF	GRM0332C1H9R5WA01#	
				±0.1pF	GRM0332C1H9R5BA01#	
				±0.25pF	GRM0332C1H9R5CA01#	
				±0.5pF	GRM0332C1H9R5DA01#	
			9.6pF	±0.05pF	GRM0332C1H9R6WA01#	
				±0.1pF	GRM0332C1H9R6BA01#	
				±0.25pF	GRM0332C1H9R6CA01#	
				±0.5pF	GRM0332C1H9R6DA01#	
			9.7pF	±0.05pF	GRM0332C1H9R7WA01#	
				±0.1pF	GRM0332C1H9R7BA01#	
				±0.25pF	GRM0332C1H9R7CA01#	
				±0.5pF	GRM0332C1H9R7DA01#	
			9.8pF	±0.05pF	GRM0332C1H9R8WA01#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.33mm	50Vdc	CH	9.8pF	±0.1pF	GRM0332C1H9R8BA01#	
				±0.25pF	GRM0332C1H9R8CA01#	
				±0.5pF	GRM0332C1H9R8DA01#	
			9.9pF	±0.05pF	GRM0332C1H9R9WA01#	
				±0.1pF	GRM0332C1H9R9BA01#	
				±0.25pF	GRM0332C1H9R9CA01#	
				±0.5pF	GRM0332C1H9R9DA01#	
			10pF	±2%	GRM0332C1H100GA01#	
				±5%	GRM0332C1H100JA01#	
			12pF	±2%	GRM0332C1H120GA01#	
				±5%	GRM0332C1H120JA01#	
			15pF	±2%	GRM0332C1H150GA01#	
				±5%	GRM0332C1H150JA01#	
			18pF	±2%	GRM0332C1H180GA01#	
				±5%	GRM0332C1H180JA01#	
			22pF	±2%	GRM0332C1H220GA01#	
				±5%	GRM0332C1H220JA01#	
			27pF	±2%	GRM0332C1H270GA01#	
				±5%	GRM0332C1H270JA01#	
			33pF	±2%	GRM0332C1H330GA01#	
				±5%	GRM0332C1H330JA01#	
			39pF	±2%	GRM0332C1H390GA01#	
				±5%	GRM0332C1H390JA01#	
			47pF	±2%	GRM0332C1H470GA01#	
				±5%	GRM0332C1H470JA01#	
			56pF	±2%	GRM0332C1H560GA01#	
				±5%	GRM0332C1H560JA01#	
			68pF	±2%	GRM0332C1H680GA01#	
				±5%	GRM0332C1H680JA01#	
			82pF	±2%	GRM0332C1H820GA01#	
				±5%	GRM0332C1H820JA01#	
			100pF	±2%	GRM0332C1H101GA01#	
				±5%	GRM0332C1H101JA01#	
			120pF	±2%	GRM0332C1H121GA01#	
				±5%	GRM0332C1H121JA01#	

■ 1.0×0.5mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	100Vdc	C0G	0.10pF	±0.05pF	GRM1555C2AR10WA01#	
				±0.05pF	GRM1555C2AR20WA01#	
			0.20pF	±0.05pF	GRM1555C2AR20BA01#	
				±0.1pF	GRM1555C2AR20CA01#	
			0.30pF	±0.05pF	GRM1555C2AR30WA01#	
				±0.1pF	GRM1555C2AR30BA01#	
			0.40pF	±0.05pF	GRM1555C2AR40WA01#	
				±0.1pF	GRM1555C2AR40BA01#	
			0.50pF	±0.05pF	GRM1555C2AR50WA01#	
				±0.1pF	GRM1555C2AR50BA01#	
			0.60pF	±0.05pF	GRM1555C2AR60WA01#	
				±0.1pF	GRM1555C2AR60BA01#	
			0.70pF	±0.05pF	GRM1555C2AR70WA01#	
				±0.1pF	GRM1555C2AR70BA01#	
			0.80pF	±0.05pF	GRM1555C2AR80WA01#	
				±0.05pF	GRM1555C2AR80BA01#	

Part number # indicates the package specification code.

GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.0×0.5mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	100Vdc	C0G	4.5pF	±0.05pF	GRM1555C2A4R5WA01#	
				±0.1pF	GRM1555C2A4R5BA01#	
				±0.25pF	GRM1555C2A4R5CA01#	
			4.6pF	±0.05pF	GRM1555C2A4R6WA01#	
				±0.1pF	GRM1555C2A4R6BA01#	
				±0.25pF	GRM1555C2A4R6CA01#	
			4.7pF	±0.05pF	GRM1555C2A4R7WA01#	
				±0.1pF	GRM1555C2A4R7BA01#	
				±0.25pF	GRM1555C2A4R7CA01#	
			4.8pF	±0.05pF	GRM1555C2A4R8WA01#	
				±0.1pF	GRM1555C2A4R8BA01#	
				±0.25pF	GRM1555C2A4R8CA01#	
			4.9pF	±0.05pF	GRM1555C2A4R9WA01#	
				±0.1pF	GRM1555C2A4R9BA01#	
				±0.25pF	GRM1555C2A4R9CA01#	
			5.0pF	±0.05pF	GRM1555C2A5R0WA01#	
				±0.1pF	GRM1555C2A5R0BA01#	
				±0.25pF	GRM1555C2A5R0CA01#	
			5.1pF	±0.05pF	GRM1555C2A5R1WA01#	
				±0.1pF	GRM1555C2A5R1BA01#	
				±0.25pF	GRM1555C2A5R1CA01#	
				±0.5pF	GRM1555C2A5R1DA01#	
			5.2pF	±0.05pF	GRM1555C2A5R2WA01#	
				±0.1pF	GRM1555C2A5R2BA01#	
				±0.25pF	GRM1555C2A5R2CA01#	
				±0.5pF	GRM1555C2A5R2DA01#	
			5.3pF	±0.05pF	GRM1555C2A5R3WA01#	
				±0.1pF	GRM1555C2A5R3BA01#	
				±0.25pF	GRM1555C2A5R3CA01#	
				±0.5pF	GRM1555C2A5R3DA01#	
			5.4pF	±0.05pF	GRM1555C2A5R4WA01#	
				±0.1pF	GRM1555C2A5R4BA01#	
				±0.25pF	GRM1555C2A5R4CA01#	
				±0.5pF	GRM1555C2A5R4DA01#	
			5.5pF	±0.05pF	GRM1555C2A5R5WA01#	
				±0.1pF	GRM1555C2A5R5BA01#	
				±0.25pF	GRM1555C2A5R5CA01#	
				±0.5pF	GRM1555C2A5R5DA01#	
			5.6pF	±0.05pF	GRM1555C2A5R6WA01#	
				±0.1pF	GRM1555C2A5R6BA01#	
				±0.25pF	GRM1555C2A5R6CA01#	
				±0.5pF	GRM1555C2A5R6DA01#	
			5.7pF	±0.05pF	GRM1555C2A5R7WA01#	
				±0.1pF	GRM1555C2A5R7BA01#	
				±0.25pF	GRM1555C2A5R7CA01#	
				±0.5pF	GRM1555C2A5R7DA01#	
			5.8pF	±0.05pF	GRM1555C2A5R8WA01#	
				±0.1pF	GRM1555C2A5R8BA01#	
				±0.25pF	GRM1555C2A5R8CA01#	
				±0.5pF	GRM1555C2A5R8DA01#	
			5.9pF	±0.05pF	GRM1555C2A5R9WA01#	
				±0.1pF	GRM1555C2A5R9BA01#	
				±0.25pF	GRM1555C2A5R9CA01#	
				±0.5pF	GRM1555C2A5R9DA01#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	100Vdc	C0G	6.0pF	±0.05pF	GRM1555C2A6R0WA01#	
				±0.1pF	GRM1555C2A6R0BA01#	
				±0.25pF	GRM1555C2A6R0CA01#	
				±0.5pF	GRM1555C2A6R0DA01#	
			6.1pF	±0.05pF	GRM1555C2A6R1WA01#	
				±0.1pF	GRM1555C2A6R1BA01#	
				±0.25pF	GRM1555C2A6R1CA01#	
				±0.5pF	GRM1555C2A6R1DA01#	
			6.2pF	±0.05pF	GRM1555C2A6R2WA01#	
				±0.1pF	GRM1555C2A6R2BA01#	
				±0.25pF	GRM1555C2A6R2CA01#	
				±0.5pF	GRM1555C2A6R2DA01#	
			6.3pF	±0.05pF	GRM1555C2A6R3WA01#	
				±0.1pF	GRM1555C2A6R3BA01#	
				±0.25pF	GRM1555C2A6R3CA01#	
				±0.5pF	GRM1555C2A6R3DA01#	
			6.4pF	±0.05pF	GRM1555C2A6R4WA01#	
				±0.1pF	GRM1555C2A6R4BA01#	
				±0.25pF	GRM1555C2A6R4CA01#	
				±0.5pF	GRM1555C2A6R4DA01#	
			6.5pF	±0.05pF	GRM1555C2A6R5WA01#	
				±0.1pF	GRM1555C2A6R5BA01#	
				±0.25pF	GRM1555C2A6R5CA01#	
				±0.5pF	GRM1555C2A6R5DA01#	
			6.6pF	±0.05pF	GRM1555C2A6R6WA01#	
				±0.1pF	GRM1555C2A6R6BA01#	
				±0.25pF	GRM1555C2A6R6CA01#	
				±0.5pF	GRM1555C2A6R6DA01#	
			6.7pF	±0.05pF	GRM1555C2A6R7WA01#	
				±0.1pF	GRM1555C2A6R7BA01#	
				±0.25pF	GRM1555C2A6R7CA01#	
				±0.5pF	GRM1555C2A6R7DA01#	
			6.8pF	±0.05pF	GRM1555C2A6R8WA01#	
				±0.1pF	GRM1555C2A6R8BA01#	
				±0.25pF	GRM1555C2A6R8CA01#	
				±0.5pF	GRM1555C2A6R8DA01#	
			6.9pF	±0.05pF	GRM1555C2A6R9WA01#	
				±0.1pF	GRM1555C2A6R9BA01#	
				±0.25pF	GRM1555C2A6R9CA01#	
				±0.5pF	GRM1555C2A6R9DA01#	
			7.0pF	±0.05pF	GRM1555C2A7R0WA01#	
				±0.1pF	GRM1555C2A7R0BA01#	
				±0.25pF	GRM1555C2A7R0CA01#	
				±0.5pF	GRM1555C2A7R0DA01#	
			7.1pF	±0.05pF	GRM1555C2A7R1WA01#	
				±0.1pF	GRM1555C2A7R1BA01#	
				±0.25pF	GRM1555C2A7R1CA01#	
				±0.5pF	GRM1555C2A7R1DA01#	
			7.2pF	±0.05pF	GRM1555C2A7R2WA01#	
				±0.1pF	GRM1555C2A7R2BA01#	
				±0.25pF	GRM1555C2A7R2CA01#	
				±0.5pF	GRM1555C2A7R2DA01#	
			7.3pF	±0.05pF	GRM1555C2A7R3WA01#	
				±0.1pF	GRM1555C2A7R3BA01#	

Part number # indicates the package specification code.

GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.0×0.5mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	100Vdc	C0G	12pF	±2%	GRM1555C2A120GA01#	
				±5%	GRM1555C2A120JA01#	
			15pF	±2%	GRM1555C2A150GA01#	
				±5%	GRM1555C2A150JA01#	
			18pF	±2%	GRM1555C2A180GA01#	
				±5%	GRM1555C2A180JA01#	
			22pF	±2%	GRM1555C2A220GA01#	
				±5%	GRM1555C2A220JA01#	
			27pF	±2%	GRM1555C2A270GA01#	
				±5%	GRM1555C2A270JA01#	
			33pF	±2%	GRM1555C2A330GA01#	
				±5%	GRM1555C2A330JA01#	
			39pF	±2%	GRM1555C2A390GA01#	
				±5%	GRM1555C2A390JA01#	
			47pF	±2%	GRM1555C2A470GA01#	
				±5%	GRM1555C2A470JA01#	
			56pF	±2%	GRM1555C2A560GA01#	
				±5%	GRM1555C2A560JA01#	
			68pF	±2%	GRM1555C2A680GA01#	
				±5%	GRM1555C2A680JA01#	
			82pF	±2%	GRM1555C2A820GA01#	
				±5%	GRM1555C2A820JA01#	
			100pF	±2%	GRM1555C2A101GA01#	
				±5%	GRM1555C2A101JA01#	
		CK	0.10pF	±0.05pF	GRM1554C2AR10WA01#	
				±0.1pF	GRM1554C2AR20BA01#	
			0.20pF	±0.05pF	GRM1554C2AR20WA01#	
				±0.1pF	GRM1554C2AR20BA01#	
			0.30pF	±0.05pF	GRM1554C2AR30WA01#	
				±0.1pF	GRM1554C2AR30BA01#	
			0.40pF	±0.05pF	GRM1554C2AR40WA01#	
				±0.1pF	GRM1554C2AR40BA01#	
			0.50pF	±0.05pF	GRM1554C2AR50WA01#	
				±0.1pF	GRM1554C2AR50BA01#	
			0.60pF	±0.05pF	GRM1554C2AR60WA01#	
				±0.1pF	GRM1554C2AR60BA01#	
			0.70pF	±0.05pF	GRM1554C2AR70WA01#	
				±0.1pF	GRM1554C2AR70BA01#	
			0.80pF	±0.05pF	GRM1554C2AR80WA01#	
				±0.1pF	GRM1554C2AR80BA01#	
			0.90pF	±0.05pF	GRM1554C2AR90WA01#	
				±0.1pF	GRM1554C2AR90BA01#	
			1.0pF	±0.05pF	GRM1554C2A1R0WA01#	
				±0.1pF	GRM1554C2A1R0BA01#	
			1.1pF	±0.05pF	GRM1554C2A1R1WA01#	
				±0.1pF	GRM1554C2A1R1BA01#	
			1.2pF	±0.05pF	GRM1554C2A1R2WA01#	
				±0.1pF	GRM1554C2A1R2BA01#	
			1.3pF	±0.05pF	GRM1554C2A1R3WA01#	
				±0.1pF	GRM1554C2A1R3BA01#	
			1.4pF	±0.05pF	GRM1554C2A1R3CA01#	
				±0.25pF	GRM1554C2A1R3CA01#	
			1.4pF	±0.05pF	GRM1554C2A1R4WA01#	
				±0.25pF	GRM1554C2A1R4WA01#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	100Vdc	CK	1.4pF	±0.1pF	GRM1554C2A1R4BA01#	
				±0.25pF	GRM1554C2A1R4CA01#	
			1.5pF	±0.05pF	GRM1554C2A1R5WA01#	
				±0.1pF	GRM1554C2A1R5BA01#	
			1.6pF	±0.05pF	GRM1554C2A1R6WA01#	
				±0.1pF	GRM1554C2A1R6BA01#	
			1.7pF	±0.05pF	GRM1554C2A1R7WA01#	
				±0.1pF	GRM1554C2A1R7BA01#	
			1.8pF	±0.05pF	GRM1554C2A1R8WA01#	
				±0.1pF	GRM1554C2A1R8BA01#	
			1.9pF	±0.05pF	GRM1554C2A1R9WA01#	
				±0.1pF	GRM1554C2A1R9BA01#	
			2.0pF	±0.05pF	GRM1554C2A2R0WA01#	
				±0.1pF	GRM1554C2A2R0BA01#	
			2.1pF	±0.05pF	GRM1553C2A2R1WA01#	
				±0.1pF	GRM1553C2A2R1BA01#	
			2.2pF	±0.05pF	GRM1553C2A2R2WA01#	
				±0.1pF	GRM1553C2A2R2BA01#	
			2.3pF	±0.05pF	GRM1553C2A2R3WA01#	
				±0.1pF	GRM1553C2A2R3BA01#	
			2.4pF	±0.05pF	GRM1553C2A2R4WA01#	
				±0.1pF	GRM1553C2A2R4BA01#	
			2.5pF	±0.05pF	GRM1553C2A2R5WA01#	
				±0.1pF	GRM1553C2A2R5BA01#	
			2.6pF	±0.05pF	GRM1553C2A2R6WA01#	
				±0.1pF	GRM1553C2A2R6BA01#	
			2.7pF	±0.05pF	GRM1553C2A2R7WA01#	
				±0.1pF	GRM1553C2A2R7BA01#	
			2.8pF	±0.05pF	GRM1553C2A2R8WA01#	
				±0.1pF	GRM1553C2A2R8BA01#	
			2.9pF	±0.05pF	GRM1553C2A2R9WA01#	
				±0.1pF	GRM1553C2A2R9BA01#	
			3.0pF	±0.05pF	GRM1553C2A3R0WA01#	
				±0.1pF	GRM1553C2A3R0BA01#	
			3.1pF	±0.05pF	GRM1553C2A3R1WA01#	
				±0.1pF	GRM1553C2A3R1BA01#	
			3.2pF	±0.05pF	GRM1553C2A3R2WA01#	
				±0.25pF	GRM1553C2A3R2CA01#	

Part number # indicates the package specification code.

GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.0×0.5mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	100Vdc	CJ	3.2pF	±0.1pF	GRM1553C2A3R2BA01#	
				±0.25pF	GRM1553C2A3R2CA01#	
			3.3pF	±0.05pF	GRM1553C2A3R3WA01#	
				±0.1pF	GRM1553C2A3R3BA01#	
				±0.25pF	GRM1553C2A3R3CA01#	
			3.4pF	±0.05pF	GRM1553C2A3R4WA01#	
				±0.1pF	GRM1553C2A3R4BA01#	
				±0.25pF	GRM1553C2A3R4CA01#	
			3.5pF	±0.05pF	GRM1553C2A3R5WA01#	
				±0.1pF	GRM1553C2A3R5BA01#	
				±0.25pF	GRM1553C2A3R5CA01#	
			3.6pF	±0.05pF	GRM1553C2A3R6WA01#	
				±0.1pF	GRM1553C2A3R6BA01#	
				±0.25pF	GRM1553C2A3R6CA01#	
			3.7pF	±0.05pF	GRM1553C2A3R7WA01#	
				±0.1pF	GRM1553C2A3R7BA01#	
				±0.25pF	GRM1553C2A3R7CA01#	
			3.8pF	±0.05pF	GRM1553C2A3R8WA01#	
				±0.1pF	GRM1553C2A3R8BA01#	
				±0.25pF	GRM1553C2A3R8CA01#	
			3.9pF	±0.05pF	GRM1553C2A3R9WA01#	
				±0.1pF	GRM1553C2A3R9BA01#	
				±0.25pF	GRM1553C2A3R9CA01#	
		CH	4.0pF	±0.05pF	GRM1552C2A4R0WA01#	
				±0.1pF	GRM1552C2A4R0BA01#	
				±0.25pF	GRM1552C2A4R0CA01#	
			4.1pF	±0.05pF	GRM1552C2A4R1WA01#	
				±0.1pF	GRM1552C2A4R1BA01#	
				±0.25pF	GRM1552C2A4R1CA01#	
			4.2pF	±0.05pF	GRM1552C2A4R2WA01#	
				±0.1pF	GRM1552C2A4R2BA01#	
				±0.25pF	GRM1552C2A4R2CA01#	
			4.3pF	±0.05pF	GRM1552C2A4R3WA01#	
				±0.1pF	GRM1552C2A4R3BA01#	
				±0.25pF	GRM1552C2A4R3CA01#	
			4.4pF	±0.05pF	GRM1552C2A4R4WA01#	
				±0.1pF	GRM1552C2A4R4BA01#	
				±0.25pF	GRM1552C2A4R4CA01#	
			4.5pF	±0.05pF	GRM1552C2A4R5WA01#	
				±0.1pF	GRM1552C2A4R5BA01#	
				±0.25pF	GRM1552C2A4R5CA01#	
			4.6pF	±0.05pF	GRM1552C2A4R6WA01#	
				±0.1pF	GRM1552C2A4R6BA01#	
				±0.25pF	GRM1552C2A4R6CA01#	
			4.7pF	±0.05pF	GRM1552C2A4R7WA01#	
				±0.1pF	GRM1552C2A4R7BA01#	
				±0.25pF	GRM1552C2A4R7CA01#	
			4.8pF	±0.05pF	GRM1552C2A4R8WA01#	
				±0.1pF	GRM1552C2A4R8BA01#	
				±0.25pF	GRM1552C2A4R8CA01#	
			4.9pF	±0.05pF	GRM1552C2A4R9WA01#	
				±0.1pF	GRM1552C2A4R9BA01#	
				±0.25pF	GRM1552C2A4R9CA01#	
			5.0pF	±0.05pF	GRM1552C2A5R0WA01#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	100Vdc	CH	5.0pF	±0.1pF	GRM1552C2A5R0BA01#	
				±0.25pF	GRM1552C2A5R0CA01#	
			5.1pF	±0.05pF	GRM1552C2A5R1WA01#	
				±0.1pF	GRM1552C2A5R1BA01#	
				±0.25pF	GRM1552C2A5R1CA01#	
			5.2pF	±0.05pF	GRM1552C2A5R2WA01#	
				±0.1pF	GRM1552C2A5R2BA01#	
				±0.25pF	GRM1552C2A5R2CA01#	
			5.3pF	±0.05pF	GRM1552C2A5R3WA01#	
				±0.1pF	GRM1552C2A5R3BA01#	
				±0.25pF	GRM1552C2A5R3CA01#	
			5.4pF	±0.05pF	GRM1552C2A5R4WA01#	
				±0.1pF	GRM1552C2A5R4BA01#	
				±0.25pF	GRM1552C2A5R4CA01#	
			5.5pF	±0.05pF	GRM1552C2A5R5WA01#	
				±0.1pF	GRM1552C2A5R5BA01#	
				±0.25pF	GRM1552C2A5R5CA01#	
			5.6pF	±0.05pF	GRM1552C2A5R6WA01#	
				±0.1pF	GRM1552C2A5R6BA01#	
				±0.25pF	GRM1552C2A5R6CA01#	
			5.7pF	±0.05pF	GRM1552C2A5R7WA01#	
				±0.1pF	GRM1552C2A5R7BA01#	
				±0.25pF	GRM1552C2A5R7CA01#	
			5.8pF	±0.05pF	GRM1552C2A5R8WA01#	
				±0.1pF	GRM1552C2A5R8BA01#	
				±0.25pF	GRM1552C2A5R8CA01#	
			5.9pF	±0.05pF	GRM1552C2A5R9WA01#	
				±0.1pF	GRM1552C2A5R9BA01#	
				±0.25pF	GRM1552C2A5R9CA01#	
			6.0pF	±0.05pF	GRM1552C2A6R0WA01#	
				±0.1pF	GRM1552C2A6R0BA01#	
				±0.25pF	GRM1552C2A6R0CA01#	
			6.1pF	±0.05pF	GRM1552C2A6R1WA01#	
				±0.1pF	GRM1552C2A6R1BA01#	
				±0.25pF	GRM1552C2A6R1CA01#	
			6.2pF	±0.05pF	GRM1552C2A6R2WA01#	
				±0.1pF	GRM1552C2A6R2BA01#	
				±0.25pF	GRM1552C2A6R2CA01#	
			6.3pF	±0.05pF	GRM1552C2A6R3WA01#	
				±0.1pF	GRM1552C2A6R3BA01#	
				±0.25pF	GRM1552C2A6R3CA01#	
			6.4pF	±0.05pF	GRM1552C2A6R4WA01#	
				±0.25pF	GRM1552C2A6R4CA01#	

Part number # indicates the package specification code.

GRM Series Temperature Compensating Type Part Number List

(→ ■ 1.0×0.5mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	100Vdc	CH	6.4pF	±0.05pF	GRM1552C2A6R4WA01#	
				±0.1pF	GRM1552C2A6R4BA01#	
				±0.25pF	GRM1552C2A6R4CA01#	
				±0.5pF	GRM1552C2A6R4DA01#	
			6.5pF	±0.05pF	GRM1552C2A6R5WA01#	
				±0.1pF	GRM1552C2A6R5BA01#	
				±0.25pF	GRM1552C2A6R5CA01#	
				±0.5pF	GRM1552C2A6R5DA01#	
			6.6pF	±0.05pF	GRM1552C2A6R6WA01#	
				±0.1pF	GRM1552C2A6R6BA01#	
				±0.25pF	GRM1552C2A6R6CA01#	
				±0.5pF	GRM1552C2A6R6DA01#	
			6.7pF	±0.05pF	GRM1552C2A6R7WA01#	
				±0.1pF	GRM1552C2A6R7BA01#	
				±0.25pF	GRM1552C2A6R7CA01#	
				±0.5pF	GRM1552C2A6R7DA01#	
			6.8pF	±0.05pF	GRM1552C2A6R8WA01#	
				±0.1pF	GRM1552C2A6R8BA01#	
				±0.25pF	GRM1552C2A6R8CA01#	
				±0.5pF	GRM1552C2A6R8DA01#	
			6.9pF	±0.05pF	GRM1552C2A6R9WA01#	
				±0.1pF	GRM1552C2A6R9BA01#	
				±0.25pF	GRM1552C2A6R9CA01#	
				±0.5pF	GRM1552C2A6R9DA01#	
			7.0pF	±0.05pF	GRM1552C2A7R0WA01#	
				±0.1pF	GRM1552C2A7R0BA01#	
				±0.25pF	GRM1552C2A7R0CA01#	
				±0.5pF	GRM1552C2A7R0DA01#	
			7.1pF	±0.05pF	GRM1552C2A7R1WA01#	
				±0.1pF	GRM1552C2A7R1BA01#	
				±0.25pF	GRM1552C2A7R1CA01#	
				±0.5pF	GRM1552C2A7R1DA01#	
			7.2pF	±0.05pF	GRM1552C2A7R2WA01#	
				±0.1pF	GRM1552C2A7R2BA01#	
				±0.25pF	GRM1552C2A7R2CA01#	
				±0.5pF	GRM1552C2A7R2DA01#	
			7.3pF	±0.05pF	GRM1552C2A7R3WA01#	
				±0.1pF	GRM1552C2A7R3BA01#	
				±0.25pF	GRM1552C2A7R3CA01#	
				±0.5pF	GRM1552C2A7R3DA01#	
			7.4pF	±0.05pF	GRM1552C2A7R4WA01#	
				±0.1pF	GRM1552C2A7R4BA01#	
				±0.25pF	GRM1552C2A7R4CA01#	
				±0.5pF	GRM1552C2A7R4DA01#	
			7.5pF	±0.05pF	GRM1552C2A7R5WA01#	
				±0.1pF	GRM1552C2A7R5BA01#	
				±0.25pF	GRM1552C2A7R5CA01#	
				±0.5pF	GRM1552C2A7R5DA01#	
			7.6pF	±0.05pF	GRM1552C2A7R6WA01#	
				±0.1pF	GRM1552C2A7R6BA01#	
				±0.25pF	GRM1552C2A7R6CA01#	
				±0.5pF	GRM1552C2A7R6DA01#	
			7.7pF	±0.05pF	GRM1552C2A7R7WA01#	
				±0.1pF	GRM1552C2A7R7BA01#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	100Vdc	CH	7.7pF	±0.25pF	GRM1552C2A7R7CA01#	
				±0.5pF	GRM1552C2A7R7DA01#	
			7.8pF	±0.05pF	GRM1552C2A7R8WA01#	
				±0.1pF	GRM1552C2A7R8BA01#	
				±0.25pF	GRM1552C2A7R8CA01#	
				±0.5pF	GRM1552C2A7R8DA01#	
			7.9pF	±0.05pF	GRM1552C2A7R9WA01#	
				±0.1pF	GRM1552C2A7R9BA01#	
				±0.25pF	GRM1552C2A7R9CA01#	
				±0.5pF	GRM1552C2A7R9DA01#	
			8.0pF	±0.05pF	GRM1552C2A8R0WA01#	
				±0.1pF	GRM1552C2A8R0BA01#	
				±0.25pF	GRM1552C2A8R0CA01#	
				±0.5pF	GRM1552C2A8R0DA01#	
			8.1pF	±0.05pF	GRM1552C2A8R1WA01#	
				±0.1pF	GRM1552C2A8R1BA01#	
				±0.25pF	GRM1552C2A8R1CA01#	
				±0.5pF	GRM1552C2A8R1DA01#	
			8.2pF	±0.05pF	GRM1552C2A8R2WA01#	
				±0.1pF	GRM1552C2A8R2BA01#	
				±0.25pF	GRM1552C2A8R2CA01#	
				±0.5pF	GRM1552C2A8R2DA01#	
			8.3pF	±0.05pF	GRM1552C2A8R3WA01#	
				±0.1pF	GRM1552C2A8R3BA01#	
				±0.25pF	GRM1552C2A8R3CA01#	
				±0.5pF	GRM1552C2A8R3DA01#	
			8.4pF	±0.05pF	GRM1552C2A8R4WA01#	
				±0.1pF	GRM1552C2A8R4BA01#	
				±0.25pF	GRM1552C2A8R4CA01#	
				±0.5pF	GRM1552C2A8R4DA01#	
			8.5pF	±0.05pF	GRM1552C2A8R5WA01#	
				±0.1pF	GRM1552C2A8R5BA01#	
				±0.25pF	GRM1552C2A8R5CA01#	
				±0.5pF	GRM1552C2A8R5DA01#	
			8.6pF	±0.05pF	GRM1552C2A8R6WA01#	
				±0.1pF	GRM1552C2A8R6BA01#	
				±0.25pF	GRM1552C2A8R6CA01#	
				±0.5pF	GRM1552C2A8R6DA01#	
			8.7pF	±0.05pF	GRM1552C2A8R7WA01#	
				±0.1pF	GRM1552C2A8R7BA01#	
				±0.25pF	GRM1552C2A8R7CA01#	
				±0.5pF	GRM1552C2A8R7DA01#	
			8.8pF	±0.05pF	GRM1552C2A8R8WA01#	
				±0.1pF	GRM1552C2A8R8BA01#	
				±0.25pF	GRM1552C2A8R8CA01#	
				±0.5pF	GRM1552C2A8R8DA01#	
			8.9pF	±0.05pF	GRM1552C2A8R9WA01#	
				±0.1pF	GRM1552C2A8R9BA01#	
				±0.25pF	GRM1552C2A8R9CA01#	
				±0.5pF	GRM1552C2A8R9DA01#	
			9.0pF	±0.05pF	GRM1552C2A9R0WA01#	
				±0.1pF	GRM1552C2A9R0BA01#	
				±0.25pF	GRM1552C2A9R0CA01#	
				±0.5pF	GRM1552C2A9R0DA01#	

Part number # indicates the package specification code.

GRM Series

GJM Series

GMA Series

GMD Series

GQM Series

GRJ Series

GR3 Series

KRM Series

KR3 Series

LLA Series

LLL Series

LLM Series

LLR Series

⚠Caution/
 Notice

GRM Series Temperature Compensating Type Part Number List

(→ ■ 5.7×5.0mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
2.0mm	500Vdc	U2J	47000pF	±5%	GRM55D7U2H473JW31#	

Part number # indicates the package specification code.

GRM Series

GJM Series

GMA Series

GMD Series

GQM Series

GRJ Series

GR3 Series

KRM Series

KR3 Series

LLA Series

LLL Series

LLM Series

LLR Series

⚠Caution/
Notice

GRM Series High Dielectric Constant Type Part Number List

(→ ■ 5.7×5.0mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
2.0mm	250Vdc	X7R	0.33μF	±10%	GRM55DR72E334KW01#	
			0.47μF	±10%	GRM55DR72E474KW01#	
			0.68μF	±10%	GRM55DR72E684KW01#	
			1.0μF	±10%	GRM55DR72E105KW01#	
	200Vdc	X7R	0.33μF	±10%	GRM55DR72D334KW01#	
			0.47μF	±10%	GRM55DR72D474KW01#	
			0.68μF	±10%	GRM55DR72D684KW01#	
			1.0μF	±10%	GRM55DR72D105KW01#	

Part number # indicates the package specification code.



High Frequency High Q Type 1005(in mm)/0402(in inch) Size Max.

GJM Series



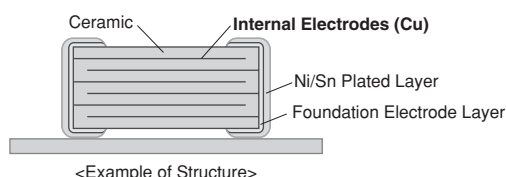
HiQ

This product improves the high frequency characteristics and contributes to a reduction of power consumption by the High Q and low ESR.

Features

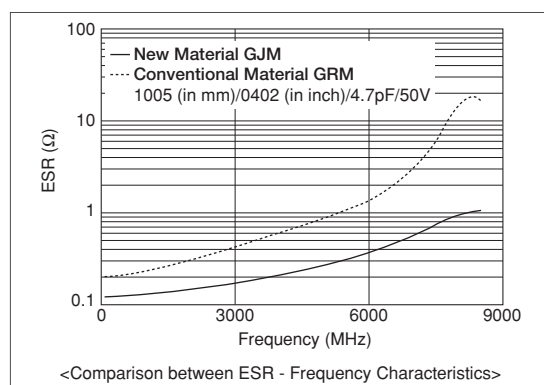
① Mainly ideal for mobile communication devices and temperature compensation of related modules.

This product is ideal for temperature compensation of high frequency circuits, such as resonant circuits, tuning circuits, and impedance matching circuits where the operating characteristics of the device are greatly affected by the capacitance fluctuation.



② High Q and low ESR in VHF, UHF and microwave frequency bands.

High Q and low ESR were achieved at a high frequency by adopting ceramic material as the dielectric material which enables an extremely low loss at high frequency, and base metal electrodes as the internal electrodes.



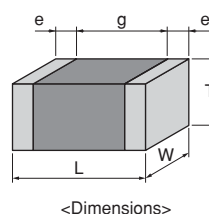
③ Can be used for tight tolerance.

In addition to standard tolerance, the allowable range of this product is also suitable for the following tight tolerance.

Capacitance Range	Standard Capacitance Tolerance (Capacitance Tolerance Symbol)	Narrow Capacitance Tolerance (Capacitance Tolerance Symbol)
≤0.9pF	±0.1pF (B)	±0.05pF (W)
1.0 to 5.0pF	±0.25pF (C)	±0.05pF (W), ±0.1pF (B)
5.1 to 9.9pF	±0.5pF (D)	±0.05pF (W), ±0.1pF (B), ±0.25pF (C)
≥10pF	±5% (J)	±2% (G)

Specifications

Size	0.4×0.2mm to 1.0×0.5mm
Rated Voltage	DC6.3V to 50V
Capacitance	0.1pF to 47pF
Main Applications	Small communication devices, such as mobile phones and high frequency communication modules



This catalog contains only a portion of the product lineup.
Please refer to the capacitor search tool on the Murata Web site for details.

GJM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 1.0×0.5mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	50Vdc	C0G	2.8pF	±0.05pF	GJM1555C1H2R8WB01#	
				±0.1pF	GJM1555C1H2R8BB01#	
				±0.25pF	GJM1555C1H2R8CB01#	
			2.9pF	±0.05pF	GJM1555C1H2R9WB01#	
				±0.1pF	GJM1555C1H2R9BB01#	
				±0.25pF	GJM1555C1H2R9CB01#	
			3.0pF	±0.05pF	GJM1555C1H3R0WB01#	
				±0.1pF	GJM1555C1H3R0BB01#	
				±0.25pF	GJM1555C1H3R0CB01#	
			3.1pF	±0.05pF	GJM1555C1H3R1WB01#	
				±0.1pF	GJM1555C1H3R1BB01#	
				±0.25pF	GJM1555C1H3R1CB01#	
			3.2pF	±0.05pF	GJM1555C1H3R2WB01#	
				±0.1pF	GJM1555C1H3R2BB01#	
				±0.25pF	GJM1555C1H3R2CB01#	
			3.3pF	±0.05pF	GJM1555C1H3R3WB01#	
				±0.1pF	GJM1555C1H3R3BB01#	
				±0.25pF	GJM1555C1H3R3CB01#	
			3.4pF	±0.05pF	GJM1555C1H3R4WB01#	
				±0.1pF	GJM1555C1H3R4BB01#	
				±0.25pF	GJM1555C1H3R4CB01#	
			3.5pF	±0.05pF	GJM1555C1H3R5WB01#	
				±0.1pF	GJM1555C1H3R5BB01#	
				±0.25pF	GJM1555C1H3R5CB01#	
			3.6pF	±0.05pF	GJM1555C1H3R6WB01#	
				±0.1pF	GJM1555C1H3R6BB01#	
				±0.25pF	GJM1555C1H3R6CB01#	
			3.7pF	±0.05pF	GJM1555C1H3R7WB01#	
				±0.1pF	GJM1555C1H3R7BB01#	
				±0.25pF	GJM1555C1H3R7CB01#	
			3.8pF	±0.05pF	GJM1555C1H3R8WB01#	
				±0.1pF	GJM1555C1H3R8BB01#	
				±0.25pF	GJM1555C1H3R8CB01#	
			3.9pF	±0.05pF	GJM1555C1H3R9WB01#	
				±0.1pF	GJM1555C1H3R9BB01#	
				±0.25pF	GJM1555C1H3R9CB01#	
			4.0pF	±0.05pF	GJM1555C1H4R0WB01#	
				±0.1pF	GJM1555C1H4R0BB01#	
				±0.25pF	GJM1555C1H4R0CB01#	
			4.1pF	±0.05pF	GJM1555C1H4R1WB01#	
				±0.1pF	GJM1555C1H4R1BB01#	
				±0.25pF	GJM1555C1H4R1CB01#	
			4.2pF	±0.05pF	GJM1555C1H4R2WB01#	
				±0.1pF	GJM1555C1H4R2BB01#	
				±0.25pF	GJM1555C1H4R2CB01#	
			4.3pF	±0.05pF	GJM1555C1H4R3WB01#	
				±0.1pF	GJM1555C1H4R3BB01#	
				±0.25pF	GJM1555C1H4R3CB01#	
			4.4pF	±0.05pF	GJM1555C1H4R4WB01#	
				±0.1pF	GJM1555C1H4R4BB01#	
				±0.25pF	GJM1555C1H4R4CB01#	
			4.5pF	±0.05pF	GJM1555C1H4R5WB01#	
				±0.1pF	GJM1555C1H4R5BB01#	
				±0.25pF	GJM1555C1H4R5CB01#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	50Vdc	C0G	4.6pF	±0.05pF	GJM1555C1H4R6WB01#	
				±0.1pF	GJM1555C1H4R6BB01#	
				±0.25pF	GJM1555C1H4R6CB01#	
			4.7pF	±0.05pF	GJM1555C1H4R7WB01#	
				±0.1pF	GJM1555C1H4R7BB01#	
				±0.25pF	GJM1555C1H4R7CB01#	
			4.8pF	±0.05pF	GJM1555C1H4R8WB01#	
				±0.1pF	GJM1555C1H4R8BB01#	
				±0.25pF	GJM1555C1H4R8CB01#	
			4.9pF	±0.05pF	GJM1555C1H4R9WB01#	
				±0.1pF	GJM1555C1H4R9BB01#	
				±0.25pF	GJM1555C1H4R9CB01#	
			5.0pF	±0.05pF	GJM1555C1H5R0WB01#	
				±0.1pF	GJM1555C1H5R0BB01#	
				±0.25pF	GJM1555C1H5R0CB01#	
			5.1pF	±0.05pF	GJM1555C1H5R1WB01#	
				±0.1pF	GJM1555C1H5R1BB01#	
				±0.25pF	GJM1555C1H5R1CB01#	
			5.2pF	±0.05pF	GJM1555C1H5R2WB01#	
				±0.1pF	GJM1555C1H5R2BB01#	
				±0.25pF	GJM1555C1H5R2CB01#	
			5.3pF	±0.05pF	GJM1555C1H5R3WB01#	
				±0.1pF	GJM1555C1H5R3BB01#	
				±0.25pF	GJM1555C1H5R3CB01#	
			5.4pF	±0.05pF	GJM1555C1H5R4WB01#	
				±0.1pF	GJM1555C1H5R4BB01#	
				±0.25pF	GJM1555C1H5R4CB01#	
			5.5pF	±0.05pF	GJM1555C1H5R5WB01#	
				±0.1pF	GJM1555C1H5R5BB01#	
				±0.25pF	GJM1555C1H5R5CB01#	
			5.6pF	±0.05pF	GJM1555C1H5R6WB01#	
				±0.1pF	GJM1555C1H5R6BB01#	
				±0.25pF	GJM1555C1H5R6CB01#	
			5.7pF	±0.05pF	GJM1555C1H5R7WB01#	
				±0.1pF	GJM1555C1H5R7BB01#	
				±0.25pF	GJM1555C1H5R7CB01#	
			5.8pF	±0.05pF	GJM1555C1H5R8WB01#	
				±0.1pF	GJM1555C1H5R8BB01#	
				±0.25pF	GJM1555C1H5R8CB01#	
			5.9pF	±0.05pF	GJM1555C1H5R9WB01#	
				±0.1pF	GJM1555C1H5R9BB01#	
				±0.25pF	GJM1555C1H5R9CB01#	
			6.0pF	±0.05pF	GJM1555C1H6R0WB01#	
				±0.1pF	GJM1555C1H6R0BB01#	
				±0.25pF	GJM1555C1H6R0CB01#	

Part number # indicates the package specification code.

GJM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 1.0×0.5mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	50Vdc	CH	11pF	±5%	GJM1552C1H110JB01#	
				±2%	GJM1552C1H120GB01#	
				±5%	GJM1552C1H120JB01#	
			13pF	±2%	GJM1552C1H130GB01#	
				±5%	GJM1552C1H130JB01#	
			15pF	±2%	GJM1552C1H150GB01#	
				±5%	GJM1552C1H150JB01#	
			16pF	±2%	GJM1552C1H160GB01#	
				±5%	GJM1552C1H160JB01#	
			18pF	±2%	GJM1552C1H180GB01#	
				±5%	GJM1552C1H180JB01#	
			20pF	±2%	GJM1552C1H200GB01#	
				±5%	GJM1552C1H200JB01#	
			22pF	±1%	GJM1552C1H220FB01#	
				±2%	GJM1552C1H220GB01#	
				±5%	GJM1552C1H220JB01#	
			24pF	±1%	GJM1552C1H240FB01#	
				±2%	GJM1552C1H240GB01#	
				±5%	GJM1552C1H240JB01#	
			27pF	±1%	GJM1552C1H270FB01#	
				±2%	GJM1552C1H270GB01#	
				±5%	GJM1552C1H270JB01#	
			30pF	±1%	GJM1552C1H300FB01#	
				±2%	GJM1552C1H300GB01#	
				±5%	GJM1552C1H300JB01#	
			33pF	±1%	GJM1552C1H330FB01#	
				±2%	GJM1552C1H330GB01#	
				±5%	GJM1552C1H330JB01#	
			36pF	±1%	GJM1552C1H360FB01#	
				±2%	GJM1552C1H360GB01#	
				±5%	GJM1552C1H360JB01#	
			39pF	±1%	GJM1552C1H390FB01#	
				±2%	GJM1552C1H390GB01#	
				±5%	GJM1552C1H390JB01#	
			43pF	±1%	GJM1552C1H430FB01#	
				±2%	GJM1552C1H430GB01#	
				±5%	GJM1552C1H430JB01#	
			47pF	±1%	GJM1552C1H470FB01#	
				±2%	GJM1552C1H470GB01#	
				±5%	GJM1552C1H470JB01#	

Part number # indicates the package specification code.

Top & Bottom Electrode Type for Bonding

GMA Series

This capacitor is suitable for wire bonding mounting by the external electrodes of Au plating.
Mounting in IC packages is also possible with the upper/lower electrode structure!

Features

① Allows for high density mounting.

Noise can be reduced by eliminating the routing of the wire, and high efficiency can be achieved with a built-in capacitor in a package, such as IC. Miniaturization of the set is also possible.



② Ideal for bypass applications.

Achieved small size and large capacity with a multilayer structure.

③ Excellent in high frequency characteristics.

Since the capacitor consists of an upper/lower electrode structure, the current path becomes shorter and lowers the ESL. Compared with the general purpose GRM series of the same capacity, the impedance of this product becomes lower at high frequencies.



Specifications

Size	0.38×0.38mm to 0.8×0.8mm
Rated Voltage	DC6.3V to 100V
Capacitance	100pF to 0.47μF
Main Applications	1. Optical communication related equipment 2. Various device related, such as GaAsIC (mounted in IC packages) 3. Measuring instruments, other ultra compact/thin devices



This catalog contains only a portion of the product lineup.
Please refer to the capacitor search tool on the Murata Web site for details.

GMA Series High Dielectric Constant Type Part Number List

■ 0.38×0.38mm Ultra-compact

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.35mm	10Vdc	X7R	10000pF	±20%	GMA0D3R71A103MA01#	
		R	10000pF	±20%	GMA0D3R11A103MA01#	

■ 0.5×0.5mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.4mm	100Vdc	X7R	100pF	±20%	GMA05XR72A101MA01#	
			150pF	±20%	GMA05XR72A151MA01#	
			220pF	±20%	GMA05XR72A221MA01#	
			330pF	±20%	GMA05XR72A331MA01#	
			470pF	±20%	GMA05XR72A471MA01#	
			680pF	±20%	GMA05XR72A681MA01#	
			1000pF	±20%	GMA05XR72A102MA01#	
	25Vdc	X7R	1500pF	±20%	GMA05XR71E152MA11#	
			2200pF	±20%	GMA05XR71E222MA11#	
			3300pF	±20%	GMA05XR71E332MA11#	
			4700pF	±20%	GMA05XR71E472MA11#	
		B	1500pF	±20%	GMA05XB31E152MA11#	
			2200pF	±20%	GMA05XB31E222MA11#	
			3300pF	±20%	GMA05XB31E332MA11#	
			4700pF	±20%	GMA05XB31E472MA11#	
	10Vdc	X7R	6800pF	±20%	GMA05XR71A682MA01#	
			10000pF	±20%	GMA05XR71A103MA01#	
			15000pF	±20%	GMA05XR71A153MA01#	
			22000pF	±20%	GMA05XR71A223MA01#	
		R	6800pF	±20%	GMA05XR11A682MA01#	
			10000pF	±20%	GMA05XR11A103MA01#	
			15000pF	±20%	GMA05XR11A153MA01#	
			22000pF	±20%	GMA05XR11A223MA01#	
		B	6800pF	±20%	GMA05XB11A682MA01#	
			10000pF	±20%	GMA05XB11A103MA01#	
			15000pF	±20%	GMA05XB11A153MA01#	
			22000pF	±20%	GMA05XB11A223MA01#	
	6.3Vdc	X5R	0.10μF	±20%	GMA05XR60J104ME12#	
		B	0.10μF	±20%	GMA05XB30J104ME12#	

■ 0.8×0.8mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.6mm	100Vdc	X7R	1500pF	±20%	GMA085R72A152MA01#	
			2200pF	±20%	GMA085R72A222MA01#	
			3300pF	±20%	GMA085R72A332MA01#	
			4700pF	±20%	GMA085R72A472MA01#	
			6800pF	±20%	GMA085R72A682MA01#	
	25Vdc	X7R	10000pF	±20%	GMA085R71E103MA11#	
			15000pF	±20%	GMA085R71E153MA11#	
			22000pF	±20%	GMA085R71E223MA11#	
		B	10000pF	±20%	GMA085B31E103MA11#	
			15000pF	±20%	GMA085B31E153MA11#	
			22000pF	±20%	GMA085B31E223MA11#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.6mm	10Vdc	X7R	33000pF	±20%	GMA085R71A333MA01#	
			47000pF	±20%	GMA085R71A473MA01#	
			68000pF	±20%	GMA085R71A683MA01#	
			0.10μF	±20%	GMA085R71A104MA01#	
		R	33000pF	±20%	GMA085R11A333MA01#	
			47000pF	±20%	GMA085R11A473MA01#	
			68000pF	±20%	GMA085R11A683MA01#	
			0.10μF	±20%	GMA085R11A104MA01#	
	6.3Vdc	B	33000pF	±20%	GMA085B11A333MA01#	
			47000pF	±20%	GMA085B11A473MA01#	
			68000pF	±20%	GMA085B11A683MA01#	
			0.10μF	±20%	GMA085B11A104MA01#	
		X5R	0.47μF	±20%	GMA085R60J474ME12#	
			0.47μF	±20%	GMA085B30J474ME12#	

Part number # indicates the package specification code.

Compatible to Bonding / AuSn Soldering

GMD Series

This capacitor is compatible to wire bonding mounting by the external electrodes of Au plating.

Features

① Can be mounted by wire bonding and AuSn soldering.

Since the external electrodes are based on the Au plating specification, mounting by wire/die bonding is possible.



② Ideal for mounting in packages, such as optical communication related devices , IC and etc.

Noise can be reduced by eliminating the routing of the wire, and high efficiency can be achieved with a built-in capacitor in the package, such as TO-CAN, IC and etc. by wire bonding mounting.

③ Contributes to the miniaturization of the set.

Murata offers a lineup of small size products, such as the 0603 (0201) and 1005 (0402) in mm (inch).

Specifications

Size	0.6×0.3mm to 1.0×0.5mm
Rated Voltage	DC6.3V to 50V
Capacitance	100pF to 1.0μF
Main Applications	1. Optical communication related equipment 2. Mounting in IC packages



This catalog contains only a portion of the product lineup.
Please refer to the capacitor search tool on the Murata Web site for details.

GMD Series High Dielectric Constant Type Part Number List

■ 0.6×0.3mm **Ultra-compact**

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.33mm	25Vdc	X7R	100pF	±10%	GMD033R71E101KA01#	
			120pF	±10%	GMD033R71E121KA01#	
			150pF	±10%	GMD033R71E151KA01#	
			180pF	±10%	GMD033R71E181KA01#	
			220pF	±10%	GMD033R71E221KA01#	
			270pF	±10%	GMD033R71E271KA01#	
			330pF	±10%	GMD033R71E331KA01#	
			390pF	±10%	GMD033R71E391KA01#	
			470pF	±10%	GMD033R71E471KA01#	
			560pF	±10%	GMD033R71E561KA01#	
			680pF	±10%	GMD033R71E681KA01#	
			820pF	±10%	GMD033R71E821KA01#	
			1000pF	±10%	GMD033R71E102KA01#	
			1200pF	±10%	GMD033R71E122KA01#	
			1500pF	±10%	GMD033R71E152KA01#	
		R	100pF	±10%	GMD033R11E101KA01#	
			120pF	±10%	GMD033R11E121KA01#	
			150pF	±10%	GMD033R11E151KA01#	
			180pF	±10%	GMD033R11E181KA01#	
			220pF	±10%	GMD033R11E221KA01#	
			270pF	±10%	GMD033R11E271KA01#	
			330pF	±10%	GMD033R11E331KA01#	
			390pF	±10%	GMD033R11E391KA01#	
			470pF	±10%	GMD033R11E471KA01#	
			560pF	±10%	GMD033R11E561KA01#	
		B	100pF	±10%	GMD033B11E101KA01#	
			120pF	±10%	GMD033B11E121KA01#	
			150pF	±10%	GMD033B11E151KA01#	
			180pF	±10%	GMD033B11E181KA01#	
			220pF	±10%	GMD033B11E221KA01#	
			270pF	±10%	GMD033B11E271KA01#	
			330pF	±10%	GMD033B11E331KA01#	
			390pF	±10%	GMD033B11E391KA01#	
			470pF	±10%	GMD033B11E471KA01#	
			560pF	±10%	GMD033B11E561KA01#	
	16Vdc	X7R	1800pF	±10%	GMD033R71C182KA11#	
			2200pF	±10%	GMD033R71C222KA11#	
			2700pF	±10%	GMD033R71C272KA11#	
			3300pF	±10%	GMD033R71C332KA11#	
			1800pF	±10%	GMD033R11C182KA11#	
		R	2200pF	±10%	GMD033R11C222KA11#	
			2700pF	±10%	GMD033R11C272KA11#	
			3300pF	±10%	GMD033R11C332KA11#	
			1800pF	±10%	GMD033R11C182KA11#	
			2200pF	±10%	GMD033R11C222KA11#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.33mm	16Vdc	R	3300pF	±10%	GMD033R11C332KA11#	
			1800pF	±10%	GMD033B31C182KA11#	
			2200pF	±10%	GMD033B31C222KA11#	
			2700pF	±10%	GMD033B31C272KA11#	
		X7R	3300pF	±10%	GMD033B31C332KA11#	
			3900pF	±10%	GMD033R71A392KA01#	
			4700pF	±10%	GMD033R71A472KA01#	
			5600pF	±10%	GMD033R71A562KA01#	
			6800pF	±10%	GMD033R71A682KA01#	
			8200pF	±10%	GMD033R71A822KA01#	
			10000pF	±10%	GMD033R71A103KA01#	
	10Vdc	R	3900pF	±10%	GMD033R11A392KA01#	
			4700pF	±10%	GMD033R11A472KA01#	
			5600pF	±10%	GMD033R11A562KA01#	
			6800pF	±10%	GMD033R11A682KA01#	
			8200pF	±10%	GMD033R11A822KA01#	
			10000pF	±10%	GMD033R11A103KA01#	
		B	3900pF	±10%	GMD033B11A392KA01#	
			4700pF	±10%	GMD033B11A472KA01#	
			5600pF	±10%	GMD033B11A562KA01#	
			6800pF	±10%	GMD033B11A682KA01#	
	6.3Vdc	X5R	56000pF	±10%	GMD033R60J563KE11#	
			68000pF	±10%	GMD033R60J683KE11#	
			82000pF	±10%	GMD033R60J823KE11#	
			0.10μF	±10%	GMD033R60J104KE11#	
		B	56000pF	±10%	GMD033B30J563KE11#	
			68000pF	±10%	GMD033B30J683KE11#	
			82000pF	±10%	GMD033B30J823KE11#	
			0.10μF	±10%	GMD033B30J104KE11#	

■ 1.0×0.5mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	50Vdc	X7R	220pF	±10%	GMD155R71H221KA01#	
			270pF	±10%	GMD155R71H271KA01#	
			330pF	±10%	GMD155R71H331KA01#	
			390pF	±10%	GMD155R71H391KA01#	
			470pF	±10%	GMD155R71H471KA01#	
			560pF	±10%	GMD155R71H561KA01#	
			680pF	±10%	GMD155R71H681KA01#	
			820pF	±10%	GMD155R71H821KA01#	
			1000pF	±10%	GMD155R71H102KA01#	
			1200pF	±10%	GMD155R71H122KA01#	
			1500pF	±10%	GMD155R71H152KA01#	
			1800pF	±10%	GMD155R71H182KA01#	
			2200pF	±10%	GMD155R71H222KA01#	
			2700pF	±10%	GMD155R71H272KA01#	
			3300pF	±10%	GMD155R71H332KA01#	
			3900pF	±10%	GMD155R71H392KA01#	
			4700pF	±10%	GMD155R71H472KA01#	
		R	220pF	±10%	GMD155R11H221KA01#	

Part number # indicates the package specification code.

GMD Series High Dielectric Constant Type Part Number List

(→ ■ 1.0×0.5mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	50Vdc	R	270pF	±10%	GMD155R11H271KA01#	
			330pF	±10%	GMD155R11H331KA01#	
			390pF	±10%	GMD155R11H391KA01#	
			470pF	±10%	GMD155R11H471KA01#	
			560pF	±10%	GMD155R11H561KA01#	
			680pF	±10%	GMD155R11H681KA01#	
			820pF	±10%	GMD155R11H821KA01#	
			1000pF	±10%	GMD155R11H102KA01#	
			1200pF	±10%	GMD155R11H122KA01#	
			1500pF	±10%	GMD155R11H152KA01#	
			1800pF	±10%	GMD155R11H182KA01#	
			2200pF	±10%	GMD155R11H222KA01#	
			2700pF	±10%	GMD155R11H272KA01#	
			3300pF	±10%	GMD155R11H332KA01#	
			3900pF	±10%	GMD155R11H392KA01#	
			4700pF	±10%	GMD155R11H472KA01#	
		B	220pF	±10%	GMD155B11H221KA01#	
			270pF	±10%	GMD155B11H271KA01#	
			330pF	±10%	GMD155B11H331KA01#	
			390pF	±10%	GMD155B11H391KA01#	
			470pF	±10%	GMD155B11H471KA01#	
			560pF	±10%	GMD155B11H561KA01#	
			680pF	±10%	GMD155B11H681KA01#	
			820pF	±10%	GMD155B11H821KA01#	
			1000pF	±10%	GMD155B11H102KA01#	
			1200pF	±10%	GMD155B11H122KA01#	
			1500pF	±10%	GMD155B11H152KA01#	
			1800pF	±10%	GMD155B11H182KA01#	
			2200pF	±10%	GMD155B11H222KA01#	
			2700pF	±10%	GMD155B11H272KA01#	
			3300pF	±10%	GMD155B11H332KA01#	
			3900pF	±10%	GMD155B11H392KA01#	
			4700pF	±10%	GMD155B11H472KA01#	
	25Vdc	X7R	5600pF	±10%	GMD155R71E562KA01#	
			6800pF	±10%	GMD155R71E682KA01#	
			8200pF	±10%	GMD155R71E822KA01#	
			10000pF	±10%	GMD155R71E103KA01#	
			12000pF	±10%	GMD155R71E123KA01#	
			15000pF	±10%	GMD155R71E153KA01#	
			18000pF	±10%	GMD155R71E183KA01#	
			22000pF	±10%	GMD155R71E223KA01#	
			27000pF	±10%	GMD155R71E273KA11#	
			33000pF	±10%	GMD155R71E333KA11#	
			39000pF	±10%	GMD155R71E393KA11#	
			47000pF	±10%	GMD155R71E473KA11#	
		R	5600pF	±10%	GMD155R11E562KA01#	
			6800pF	±10%	GMD155R11E682KA01#	
			8200pF	±10%	GMD155R11E822KA01#	
			10000pF	±10%	GMD155R11E103KA01#	
			12000pF	±10%	GMD155R11E123KA01#	
			15000pF	±10%	GMD155R11E153KA01#	
			18000pF	±10%	GMD155R11E183KA01#	
			22000pF	±10%	GMD155R11E223KA01#	
			27000pF	±10%	GMD155R11E273KA11#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	25Vdc	R	33000pF	±10%	GMD155R11E333KA11#	
			39000pF	±10%	GMD155R11E393KA11#	
			47000pF	±10%	GMD155R11E473KA11#	
		B	5600pF	±10%	GMD155B11E562KA01#	
			6800pF	±10%	GMD155B11E682KA01#	
			8200pF	±10%	GMD155B11E822KA01#	
			10000pF	±10%	GMD155B11E103KA01#	
			12000pF	±10%	GMD155B11E123KA01#	
			15000pF	±10%	GMD155B11E153KA01#	
			18000pF	±10%	GMD155B11E183KA01#	
			22000pF	±10%	GMD155B11E223KA01#	
			27000pF	±10%	GMD155B31E273KA11#	
			33000pF	±10%	GMD155B31E333KA11#	
			39000pF	±10%	GMD155B31E393KA11#	
			47000pF	±10%	GMD155B31E473KA11#	
	16Vdc	X7R	56000pF	±10%	GMD155R71C563KA11#	
			68000pF	±10%	GMD155R71C683KA11#	
			82000pF	±10%	GMD155R71C823KA11#	
			0.10μF	±10%	GMD155R71C104KA11#	
		R	56000pF	±10%	GMD155R11C563KA11#	
			68000pF	±10%	GMD155R11C683KA11#	
			82000pF	±10%	GMD155R11C823KA11#	
			0.10μF	±10%	GMD155R11C104KA11#	
		B	56000pF	±10%	GMD155B31C563KA11#	
			68000pF	±10%	GMD155B31C683KA11#	
			82000pF	±10%	GMD155B31C823KA11#	
			0.10μF	±10%	GMD155B31C104KA11#	
	10Vdc	X5R	0.12μF	±10%	GMD155R61A124KE12#	
			0.15μF	±10%	GMD155R61A154KE12#	
			0.18μF	±10%	GMD155R61A184KE12#	
			0.22μF	±10%	GMD155R61A224KE12#	
			0.27μF	±10%	GMD155R61A274KE11#	
			0.33μF	±10%	GMD155R61A334KE11#	
			0.39μF	±10%	GMD155R61A394KE11#	
			0.47μF	±10%	GMD155R61A474KE11#	
		B	0.12μF	±10%	GMD155B31A124KE12#	
			0.15μF	±10%	GMD155B31A154KE12#	
			0.18μF	±10%	GMD155B31A184KE12#	
			0.22μF	±10%	GMD155B31A224KE12#	
			0.27μF	±10%	GMD155B31A274KE11#	
			0.33μF	±10%	GMD155B31A334KE11#	
			0.39μF	±10%	GMD155B31A394KE11#	
			0.47μF	±10%	GMD155B31A474KE11#	

Part number # indicates the package specification code.

High Frequency High Q Type 1608(in mm)/0603(in inch) Size Min.

GQM Series **HiQ**

High Frequency Capacitor Ideal for PA Design of Base Stations

Features

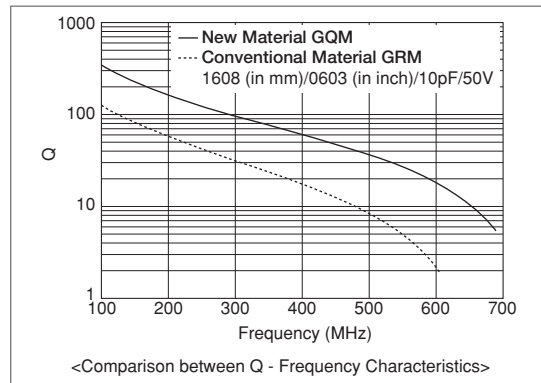
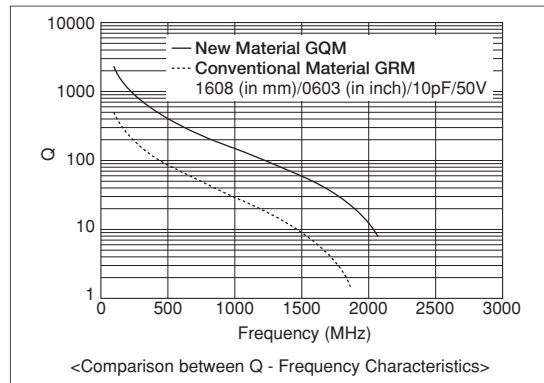
- 1 **Mainly ideal for base stations of mobile communication devices and temperature compensation of related modules.**

This product is ideal for temperature compensation of high frequency circuits, such as resonant circuits, tuning circuits, and impedance matching circuits where the operating characteristics of the device are greatly affected by the capacitance fluctuation.



- 2 **High Q and low ESR in VHF, UHF and microwave frequency bands.**

High Q and low ESR were achieved at a high frequency by adopting ceramic material as the dielectric material which enables an extremely low loss at high frequency, and base metal electrodes as the internal electrodes.



- 3 **Can be used for tight tolerance.**

In addition to standard tolerance, the allowable range of this product is also suitable for the following narrow tolerance.

Capacitance Range	Standard Capacitance Tolerance (Capacitance Tolerance Symbol)	Narrow Capacitance Tolerance (Capacitance Tolerance Symbol)
≤0.9pF	±0.1pF (B)	±0.05pF (W)
1.0 to 5.0pF	±0.25pF (C)	±0.05pF (W), ±0.1pF (B)
5.1 to 9.9pF	±0.5pF (D)	±0.05pF (W), ±0.1pF (B), ±0.25pF (C)
≥10pF	±5% (J)	±2% (G)

Specifications

Size	1.6×0.8mm to 2.8×2.8mm
Rated Voltage	DC50V to 500V
Capacitance	0.1pF to 510pF
Main Applications	Mobile phone base stations



This catalog contains only a portion of the product lineup.
Please refer to the capacitor search tool on the Murata Web site for details.

GQM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 1.6×0.8mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.9mm	50Vdc	C0G	18pF	±2%	GQM1885C1H180GB01#	
				±5%	GQM1885C1H180JB01#	
			20pF	±2%	GQM1885C1H200GB01#	
				±5%	GQM1885C1H200JB01#	
			22pF	±2%	GQM1885C1H220GB01#	
				±5%	GQM1885C1H220JB01#	
			24pF	±2%	GQM1885C1H240GB01#	
				±5%	GQM1885C1H240JB01#	
			27pF	±2%	GQM1885C1H270GB01#	
				±5%	GQM1885C1H270JB01#	
			30pF	±2%	GQM1885C1H300GB01#	
				±5%	GQM1885C1H300JB01#	
			33pF	±2%	GQM1885C1H330GB01#	
				±5%	GQM1885C1H330JB01#	
			36pF	±2%	GQM1885C1H360GB01#	
				±5%	GQM1885C1H360JB01#	
			39pF	±2%	GQM1885C1H390GB01#	
				±5%	GQM1885C1H390JB01#	
			43pF	±2%	GQM1885C1H430GB01#	
				±5%	GQM1885C1H430JB01#	
			47pF	±2%	GQM1885C1H470GB01#	
				±5%	GQM1885C1H470JB01#	
			51pF	±2%	GQM1885C1H510GB01#	
				±5%	GQM1885C1H510JB01#	
			56pF	±2%	GQM1885C1H560GB01#	
				±5%	GQM1885C1H560JB01#	
			62pF	±2%	GQM1885C1H620GB01#	
				±5%	GQM1885C1H620JB01#	
			68pF	±2%	GQM1885C1H680GB01#	
				±5%	GQM1885C1H680JB01#	
			75pF	±2%	GQM1885C1H750GB01#	
				±5%	GQM1885C1H750JB01#	
			82pF	±2%	GQM1885C1H820GB01#	
				±5%	GQM1885C1H820JB01#	
			91pF	±2%	GQM1885C1H910GB01#	
				±5%	GQM1885C1H910JB01#	
			100pF	±2%	GQM1885C1H101GB01#	
				±5%	GQM1885C1H101JB01#	
		CH	7.0pF	±0.25pF	GQM1882C1H7R0CB01#	
				±0.5pF	GQM1882C1H7R0DB01#	
			7.5pF	±0.25pF	GQM1882C1H7R5CB01#	
				±0.5pF	GQM1882C1H7R5DB01#	
			8.0pF	±0.25pF	GQM1882C1H8R0CB01#	
				±0.5pF	GQM1882C1H8R0DB01#	
			8.2pF	±0.25pF	GQM1882C1H8R2CB01#	
				±0.5pF	GQM1882C1H8R2DB01#	
			9.0pF	±0.25pF	GQM1882C1H9R0CB01#	
				±0.5pF	GQM1882C1H9R0DB01#	
			9.1pF	±0.25pF	GQM1882C1H9R1CB01#	
				±0.5pF	GQM1882C1H9R1DB01#	
			10pF	±2%	GQM1882C1H100GB01#	
				±5%	GQM1882C1H100JB01#	
			11pF	±2%	GQM1882C1H110GB01#	
				±5%	GQM1882C1H110JB01#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.9mm	50Vdc	CH	12pF	±2%	GQM1882C1H120GB01#	
				±5%	GQM1882C1H120JB01#	
			13pF	±2%	GQM1882C1H130GB01#	
				±5%	GQM1882C1H130JB01#	
			15pF	±2%	GQM1882C1H150GB01#	
				±5%	GQM1882C1H150JB01#	
			16pF	±2%	GQM1882C1H160GB01#	
				±5%	GQM1882C1H160JB01#	
			18pF	±2%	GQM1882C1H180GB01#	
				±5%	GQM1882C1H180JB01#	
			20pF	±2%	GQM1882C1H200GB01#	
				±5%	GQM1882C1H200JB01#	
			22pF	±2%	GQM1882C1H220GB01#	
				±5%	GQM1882C1H220JB01#	
			24pF	±2%	GQM1882C1H240GB01#	
				±5%	GQM1882C1H240JB01#	
			27pF	±2%	GQM1882C1H270GB01#	
				±5%	GQM1882C1H270JB01#	
			30pF	±2%	GQM1882C1H300GB01#	
				±5%	GQM1882C1H300JB01#	
			33pF	±2%	GQM1882C1H330GB01#	
				±5%	GQM1882C1H330JB01#	
			36pF	±2%	GQM1882C1H360GB01#	
				±5%	GQM1882C1H360JB01#	
			39pF	±2%	GQM1882C1H390GB01#	
				±5%	GQM1882C1H390JB01#	
			43pF	±2%	GQM1882C1H430GB01#	
				±5%	GQM1882C1H430JB01#	
			47pF	±2%	GQM1882C1H470GB01#	
				±5%	GQM1882C1H470JB01#	
			51pF	±2%	GQM1882C1H510GB01#	
				±5%	GQM1882C1H510JB01#	
			56pF	±2%	GQM1882C1H560GB01#	
				±5%	GQM1882C1H560JB01#	
			62pF	±2%	GQM1882C1H620GB01#	
				±5%	GQM1882C1H620JB01#	
			68pF	±2%	GQM1882C1H680GB01#	
				±5%	GQM1882C1H680JB01#	
			75pF	±2%	GQM1882C1H750GB01#	
				±5%	GQM1882C1H750JB01#	
			82pF	±2%	GQM1882C1H820GB01#	
				±5%	GQM1882C1H820JB01#	
			91pF	±2%	GQM1882C1H910GB01#	
				±5%	GQM1882C1H910JB01#	
			100pF	±2%	GQM1882C1H101GB01#	
				±5%	GQM1882C1H101JB01#	

■ 2.0×1.25mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.95mm	100Vdc	C0G	1.0pF	±0.1pF	GQM2195C2A1R0BB01#	
				±0.25pF	GQM2195C2A1R0CB01#	
			1.1pF	±0.1pF	GQM2195C2A1R1BB01#	

Part number # indicates the package specification code.

GQM Series Temperature Compensating Type **HiQ** Part Number List

(→ ■ 2.0×1.25mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.95mm	100Vdc	C0G	1.1pF	±0.25pF	GQM2195C2A1R1CB01#	
				±0.1pF	GQM2195C2A1R2BB01#	
			1.2pF	±0.25pF	GQM2195C2A1R2CB01#	
				±0.1pF	GQM2195C2A1R3BB01#	
			1.3pF	±0.25pF	GQM2195C2A1R3CB01#	
				±0.1pF	GQM2195C2A1R5BB01#	
			1.5pF	±0.25pF	GQM2195C2A1R5CB01#	
				±0.1pF	GQM2195C2A1R6BB01#	
			1.6pF	±0.25pF	GQM2195C2A1R6CB01#	
				±0.1pF	GQM2195C2A1R8BB01#	
			1.8pF	±0.25pF	GQM2195C2A1R8CB01#	
				±0.1pF	GQM2195C2A2R0BB01#	
			2.0pF	±0.25pF	GQM2195C2A2R0CB01#	
				±0.1pF	GQM2195C2A2R2BB01#	
			2.2pF	±0.25pF	GQM2195C2A2R2CB01#	
				±0.1pF	GQM2195C2A2R4BB01#	
			2.4pF	±0.25pF	GQM2195C2A2R4CB01#	
				±0.1pF	GQM2195C2A2R7BB01#	
			2.7pF	±0.25pF	GQM2195C2A2R7CB01#	
				±0.1pF	GQM2195C2A3R0BB01#	
			3.0pF	±0.25pF	GQM2195C2A3R0CB01#	
				±0.1pF	GQM2195C2A3R3BB01#	
			3.3pF	±0.25pF	GQM2195C2A3R3CB01#	
				±0.1pF	GQM2195C2A3R6BB01#	
			3.6pF	±0.25pF	GQM2195C2A3R6CB01#	
				±0.1pF	GQM2195C2A3R9BB01#	
			3.9pF	±0.25pF	GQM2195C2A3R9CB01#	
				±0.1pF	GQM2195C2A4R0BB01#	
			4.0pF	±0.25pF	GQM2195C2A4R0CB01#	
				±0.1pF	GQM2195C2A4R3BB01#	
			4.3pF	±0.25pF	GQM2195C2A4R3CB01#	
				±0.1pF	GQM2195C2A4R7BB01#	
			4.7pF	±0.25pF	GQM2195C2A4R7CB01#	
				±0.1pF	GQM2195C2A5R0BB01#	
			5.0pF	±0.25pF	GQM2195C2A5R0CB01#	
				±0.25pF	GQM2195C2A5R1CB01#	
			5.1pF	±0.5pF	GQM2195C2A5R1DB01#	
				±0.25pF	GQM2195C2A5R6CB01#	
			5.6pF	±0.5pF	GQM2195C2A5R6DB01#	
				±0.25pF	GQM2195C2A6R0CB01#	
			6.0pF	±0.5pF	GQM2195C2A6R0DB01#	
				±0.25pF	GQM2195C2A6R2CB01#	
			6.2pF	±0.5pF	GQM2195C2A6R2DB01#	
				±0.25pF	GQM2195C2A6R8CB01#	
			6.8pF	±0.5pF	GQM2195C2A6R8DB01#	
				±0.25pF	GQM2195C2A7R0CB01#	
			7.0pF	±0.5pF	GQM2195C2A7R0DB01#	
				±0.25pF	GQM2195C2A7R5CB01#	
			7.5pF	±0.5pF	GQM2195C2A7R5DB01#	
				±0.25pF	GQM2195C2A8R0CB01#	
			8.0pF	±0.5pF	GQM2195C2A8R0DB01#	
				±0.25pF	GQM2195C2A8R2CB01#	
			8.2pF	±0.5pF	GQM2195C2A8R2DB01#	
				±0.25pF	GQM2195C2A9R0CB01#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.95mm	100Vdc	C0G	9.0pF	±0.5pF	GQM2195C2A9R0DB01#	
				±0.25pF	GQM2195C2A9R1CB01#	
			9.1pF	±0.5pF	GQM2195C2A9R1DB01#	
				±2%	GQM2195C2A100GB01#	
			10pF	±5%	GQM2195C2A100JB01#	
				±2%	GQM2195C2A110GB01#	
			11pF	±5%	GQM2195C2A110JB01#	
				±2%	GQM2195C2A120GB01#	
			12pF	±5%	GQM2195C2A120JB01#	
				±2%	GQM2195C2A130GB01#	
			13pF	±5%	GQM2195C2A130JB01#	
				±2%	GQM2195C2A150GB01#	
			15pF	±5%	GQM2195C2A150JB01#	
				±2%	GQM2195C2A160GB01#	
			16pF	±5%	GQM2195C2A160JB01#	
				±2%	GQM2195C2A180GB01#	
			18pF	±5%	GQM2195C2A180JB01#	
		CK	1.0pF	±0.1pF	GQM2194C2A1R0BB01#	
				±0.25pF	GQM2194C2A1R0CB01#	
			1.1pF	±0.1pF	GQM2194C2A1R1BB01#	
				±0.25pF	GQM2194C2A1R1CB01#	
			1.2pF	±0.1pF	GQM2194C2A1R2BB01#	
				±0.25pF	GQM2194C2A1R2CB01#	
			1.3pF	±0.1pF	GQM2194C2A1R3BB01#	
				±0.25pF	GQM2194C2A1R3CB01#	
			1.5pF	±0.1pF	GQM2194C2A1R5BB01#	
				±0.25pF	GQM2194C2A1R5CB01#	
			1.6pF	±0.1pF	GQM2194C2A1R6BB01#	
				±0.25pF	GQM2194C2A1R6CB01#	
			1.8pF	±0.1pF	GQM2194C2A1R8BB01#	
				±0.25pF	GQM2194C2A1R8CB01#	
			2.0pF	±0.1pF	GQM2194C2A2R0BB01#	
				±0.25pF	GQM2194C2A2R0CB01#	
		CJ	2.2pF	±0.1pF	GQM2193C2A2R2BB01#	
				±0.25pF	GQM2193C2A2R2CB01#	
			2.4pF	±0.1pF	GQM2193C2A2R4BB01#	
				±0.25pF	GQM2193C2A2R4CB01#	
			2.7pF	±0.1pF	GQM2193C2A2R7BB01#	
				±0.25pF	GQM2193C2A2R7CB01#	
			3.0pF	±0.1pF	GQM2193C2A3R0BB01#	
				±0.25pF	GQM2193C2A3R0CB01#	
			3.3pF	±0.1pF	GQM2193C2A3R3BB01#	
				±0.25pF	GQM2193C2A3R3CB01#	
			3.6pF	±0.1pF	GQM2193C2A3R6BB01#	
				±0.25pF	GQM2193C2A3R6CB01#	
			3.9pF	±0.1pF	GQM2193C2A3R9BB01#	
				±0.25pF	GQM2193C2A3R9CB01#	
		CH	4.0pF	±0.1pF	GQM2192C2A4R0BB01#	
				±0.25pF	GQM2192C2A4R0CB01#	
			4.3pF	±0.1pF	GQM2192C2A4R3BB01#	
				±0.25pF	GQM2192C2A4R3CB01#	
			4.7pF	±0.1pF	GQM2192C2A4R7BB01#	
				±0.25pF	GQM2192C2A4R7CB01#	
			5.0pF	±0.1pF	GQM2192C2A5R0BB01#	

Part number # indicates the package specification code.

GQM Series Temperature Compensating Type **HiQ** Part Number List

(→ ■ 2.0×1.25mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.95mm	100Vdc	CH	5.0pF	±0.25pF	GQM2192C2A5R0CB01#	
				±0.25pF	GQM2192C2A5R1CB01#	
				±0.5pF	GQM2192C2A5R1DB01#	
			5.6pF	±0.25pF	GQM2192C2A5R6CB01#	
				±0.5pF	GQM2192C2A5R6DB01#	
			6.0pF	±0.25pF	GQM2192C2A6R0CB01#	
				±0.5pF	GQM2192C2A6R0DB01#	
			6.2pF	±0.25pF	GQM2192C2A6R2CB01#	
				±0.5pF	GQM2192C2A6R2DB01#	
			6.8pF	±0.25pF	GQM2192C2A6R8CB01#	
				±0.5pF	GQM2192C2A6R8DB01#	
			7.0pF	±0.25pF	GQM2192C2A7R0CB01#	
				±0.5pF	GQM2192C2A7R0DB01#	
			7.5pF	±0.25pF	GQM2192C2A7R5CB01#	
				±0.5pF	GQM2192C2A7R5DB01#	
			8.0pF	±0.25pF	GQM2192C2A8R0CB01#	
				±0.5pF	GQM2192C2A8R0DB01#	
			8.2pF	±0.25pF	GQM2192C2A8R2CB01#	
				±0.5pF	GQM2192C2A8R2DB01#	
			9.0pF	±0.25pF	GQM2192C2A9R0CB01#	
				±0.5pF	GQM2192C2A9R0DB01#	
			9.1pF	±0.25pF	GQM2192C2A9R1CB01#	
				±0.5pF	GQM2192C2A9R1DB01#	
			10pF	±2%	GQM2192C2A100GB01#	
				±5%	GQM2192C2A100JB01#	
			11pF	±2%	GQM2192C2A110GB01#	
				±5%	GQM2192C2A110JB01#	
			12pF	±2%	GQM2192C2A120GB01#	
				±5%	GQM2192C2A120JB01#	
			13pF	±2%	GQM2192C2A130GB01#	
				±5%	GQM2192C2A130JB01#	
			15pF	±2%	GQM2192C2A150GB01#	
				±5%	GQM2192C2A150JB01#	
			16pF	±2%	GQM2192C2A160GB01#	
				±5%	GQM2192C2A160JB01#	
			18pF	±2%	GQM2192C2A180GB01#	
				±5%	GQM2192C2A180JB01#	
	50Vdc	C0G	20pF	±2%	GQM2195C1H200GB01#	
				±5%	GQM2195C1H200JB01#	
			22pF	±2%	GQM2195C1H220GB01#	
				±5%	GQM2195C1H220JB01#	
			24pF	±2%	GQM2195C1H240GB01#	
				±5%	GQM2195C1H240JB01#	
			27pF	±2%	GQM2195C1H270GB01#	
				±5%	GQM2195C1H270JB01#	
			30pF	±2%	GQM2195C1H300GB01#	
				±5%	GQM2195C1H300JB01#	
			33pF	±2%	GQM2195C1H330GB01#	
				±5%	GQM2195C1H330JB01#	
			36pF	±2%	GQM2195C1H360GB01#	
				±5%	GQM2195C1H360JB01#	
			39pF	±2%	GQM2195C1H390GB01#	
				±5%	GQM2195C1H390JB01#	
			43pF	±2%	GQM2195C1H430GB01#	
				±5%	GQM2195C1H430JB01#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.95mm	50Vdc	C0G	43pF	±5%	GQM2195C1H430JB01#	
				±2%	GQM2195C1H470GB01#	
				±5%	GQM2195C1H470JB01#	
			51pF	±2%	GQM2195C1H510GB01#	
				±5%	GQM2195C1H510JB01#	
			56pF	±2%	GQM2195C1H560GB01#	
				±5%	GQM2195C1H560JB01#	
			62pF	±2%	GQM2195C1H620GB01#	
				±5%	GQM2195C1H620JB01#	
			68pF	±2%	GQM2195C1H680GB01#	
				±5%	GQM2195C1H680JB01#	
			75pF	±2%	GQM2195C1H750GB01#	
				±5%	GQM2195C1H750JB01#	
			82pF	±2%	GQM2195C1H820GB01#	
				±5%	GQM2195C1H820JB01#	
			91pF	±2%	GQM2195C1H910GB01#	
				±5%	GQM2195C1H910JB01#	
			100pF	±2%	GQM2195C1H101GB01#	
				±5%	GQM2195C1H101JB01#	
		CH	20pF	±2%	GQM2192C1H200GB01#	
				±5%	GQM2192C1H200JB01#	
			22pF	±2%	GQM2192C1H220GB01#	
				±5%	GQM2192C1H220JB01#	
			24pF	±2%	GQM2192C1H240GB01#	
				±5%	GQM2192C1H240JB01#	
			27pF	±2%	GQM2192C1H270GB01#	
				±5%	GQM2192C1H270JB01#	
			30pF	±2%	GQM2192C1H300GB01#	
				±5%	GQM2192C1H300JB01#	
			33pF	±2%	GQM2192C1H330GB01#	
				±5%	GQM2192C1H330JB01#	
			36pF	±2%	GQM2192C1H360GB01#	
				±5%	GQM2192C1H360JB01#	
			39pF	±2%	GQM2192C1H390GB01#	
				±5%	GQM2192C1H390JB01#	
			43pF	±2%	GQM2192C1H430GB01#	
				±5%	GQM2192C1H430JB01#	
			47pF	±2%	GQM2192C1H470GB01#	
				±5%	GQM2192C1H470JB01#	
			51pF	±2%	GQM2192C1H510GB01#	
				±5%	GQM2192C1H510JB01#	
			56pF	±2%	GQM2192C1H560GB01#	
				±5%	GQM2192C1H560JB01#	
			62pF	±2%	GQM2192C1H620GB01#	
				±5%	GQM2192C1H620JB01#	
			68pF	±2%	GQM2192C1H680GB01#	
				±5%	GQM2192C1H680JB01#	
			75pF	±2%	GQM2192C1H750GB01#	
				±5%	GQM2192C1H750JB01#	
			82pF	±2%	GQM2192C1H820GB01#	
				±5%	GQM2192C1H820JB01#	
			91pF	±2%	GQM2192C1H910GB01#	
				±5%	GQM2192C1H910JB01#	
			100pF	±2%	GQM2192C1H101GB01#	
				±5%	GQM2192C1H101JB01#	

Part number # indicates the package specification code.

GQM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 2.0×1.25mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.95mm	50Vdc	CH	100pF	±5%	GQM2192C1H101JB01#	
1.0mm	250Vdc	C0G	1.0pF	±0.1pF	GQM2195C2E1R0BB12#	
				±0.25pF	GQM2195C2E1R0CB12#	
			1.1pF	±0.1pF	GQM2195C2E1R1BB12#	
				±0.25pF	GQM2195C2E1R1CB12#	
			1.2pF	±0.1pF	GQM2195C2E1R2BB12#	
				±0.25pF	GQM2195C2E1R2CB12#	
			1.3pF	±0.1pF	GQM2195C2E1R3BB12#	
				±0.25pF	GQM2195C2E1R3CB12#	
			1.5pF	±0.1pF	GQM2195C2E1R5BB12#	
				±0.25pF	GQM2195C2E1R5CB12#	
			1.6pF	±0.1pF	GQM2195C2E1R6BB12#	
				±0.25pF	GQM2195C2E1R6CB12#	
			1.8pF	±0.1pF	GQM2195C2E1R8BB12#	
				±0.25pF	GQM2195C2E1R8CB12#	
			2.0pF	±0.1pF	GQM2195C2E2R0BB12#	
				±0.25pF	GQM2195C2E2R0CB12#	
			2.2pF	±0.1pF	GQM2195C2E2R2BB12#	
				±0.25pF	GQM2195C2E2R2CB12#	
			2.4pF	±0.1pF	GQM2195C2E2R4BB12#	
				±0.25pF	GQM2195C2E2R4CB12#	
			2.7pF	±0.1pF	GQM2195C2E2R7BB12#	
				±0.25pF	GQM2195C2E2R7CB12#	
			3.0pF	±0.1pF	GQM2195C2E3R0BB12#	
				±0.25pF	GQM2195C2E3R0CB12#	
			3.3pF	±0.1pF	GQM2195C2E3R3BB12#	
				±0.25pF	GQM2195C2E3R3CB12#	
			3.6pF	±0.1pF	GQM2195C2E3R6BB12#	
				±0.25pF	GQM2195C2E3R6CB12#	
			3.9pF	±0.1pF	GQM2195C2E3R9BB12#	
				±0.25pF	GQM2195C2E3R9CB12#	
			4.0pF	±0.1pF	GQM2195C2E4R0BB12#	
				±0.25pF	GQM2195C2E4R0CB12#	
			4.3pF	±0.1pF	GQM2195C2E4R3BB12#	
				±0.25pF	GQM2195C2E4R3CB12#	
			4.7pF	±0.1pF	GQM2195C2E4R7BB12#	
				±0.25pF	GQM2195C2E4R7CB12#	
			5.0pF	±0.1pF	GQM2195C2E5R0BB12#	
				±0.25pF	GQM2195C2E5R0CB12#	
			5.1pF	±0.25pF	GQM2195C2E5R1CB12#	
				±0.5pF	GQM2195C2E5R1DB12#	
			5.6pF	±0.25pF	GQM2195C2E5R6CB12#	
				±0.5pF	GQM2195C2E5R6DB12#	
			6.0pF	±0.25pF	GQM2195C2E6R0CB12#	
				±0.5pF	GQM2195C2E6R0DB12#	
			6.2pF	±0.25pF	GQM2195C2E6R2CB12#	
				±0.5pF	GQM2195C2E6R2DB12#	
			6.8pF	±0.25pF	GQM2195C2E6R8CB12#	
				±0.5pF	GQM2195C2E6R8DB12#	
			7.0pF	±0.25pF	GQM2195C2E7R0CB12#	
				±0.5pF	GQM2195C2E7R0DB12#	
			7.5pF	±0.25pF	GQM2195C2E7R5CB12#	
				±0.5pF	GQM2195C2E7R5DB12#	
			8.0pF	±0.25pF	GQM2195C2E8R0CB12#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
1.0mm	250Vdc	C0G	8.0pF	±0.5pF	GQM2195C2E8R0DB12#	
			8.2pF	±0.25pF	GQM2195C2E8R2CB12#	
				±0.5pF	GQM2195C2E8R2DB12#	
			9.0pF	±0.25pF	GQM2195C2E9R0CB12#	
				±0.5pF	GQM2195C2E9R0DB12#	
			9.1pF	±0.25pF	GQM2195C2E9R1CB12#	
				±0.5pF	GQM2195C2E9R1DB12#	
			10pF	±2%	GQM2195C2E100GB12#	
				±5%	GQM2195C2E100JB12#	
			11pF	±2%	GQM2195C2E110GB12#	
				±5%	GQM2195C2E110JB12#	
			12pF	±2%	GQM2195C2E120GB12#	
				±5%	GQM2195C2E120JB12#	
			13pF	±2%	GQM2195C2E130GB12#	
				±5%	GQM2195C2E130JB12#	
			15pF	±2%	GQM2195C2E150GB12#	
				±5%	GQM2195C2E150JB12#	
			16pF	±2%	GQM2195C2E160GB12#	
				±5%	GQM2195C2E160JB12#	
			18pF	±2%	GQM2195C2E180GB12#	
				±5%	GQM2195C2E180JB12#	
			20pF	±2%	GQM2195C2E200GB12#	
				±5%	GQM2195C2E200JB12#	
			22pF	±2%	GQM2195C2E220GB12#	
				±5%	GQM2195C2E220JB12#	
			24pF	±2%	GQM2195C2E240GB12#	
				±5%	GQM2195C2E240JB12#	
			27pF	±2%	GQM2195C2E270GB12#	
				±5%	GQM2195C2E270JB12#	
			30pF	±2%	GQM2195C2E300GB12#	
				±5%	GQM2195C2E300JB12#	
			33pF	±2%	GQM2195C2E330GB12#	
				±5%	GQM2195C2E330JB12#	
			36pF	±2%	GQM2195C2E360GB12#	
				±5%	GQM2195C2E360JB12#	
			39pF	±2%	GQM2195C2E390GB12#	
				±5%	GQM2195C2E390JB12#	
			43pF	±2%	GQM2195C2E430GB12#	
				±5%	GQM2195C2E430JB12#	
			47pF	±2%	GQM2195C2E470GB12#	
				±5%	GQM2195C2E470JB12#	
			51pF	±2%	GQM2195C2E510GB12#	
				±5%	GQM2195C2E510JB12#	
			56pF	±2%	GQM2195C2E560GB12#	
				±5%	GQM2195C2E560JB12#	
			62pF	±2%	GQM2195C2E620GB12#	
				±5%	GQM2195C2E620JB12#	
			68pF	±2%	GQM2195C2E680GB12#	
				±5%	GQM2195C2E680JB12#	
			75pF	±2%	GQM2195C2E750GB12#	
				±5%	GQM2195C2E750JB12#	
			82pF	±2%	GQM2195C2E820GB12#	
				±5%	GQM2195C2E820JB12#	
			91pF	±2%	GQM2195C2E910GB12#	

Part number # indicates the package specification code.

GQM Series Temperature Compensating Type **HiQ** Part Number List

(→ ■ 2.0×1.25mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
1.0mm	250Vdc	C0G	91pF	±5%	GQM2195C2E910JB12#	
				±2%	GQM2195C2E101GB12#	
			100pF	±5%	GQM2195C2E101JB12#	

■ 2.8×2.8mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
1.35mm	500Vdc	C0G	1.0pF	±0.1pF	GQM22M5C2H1R0BB01#	
				±0.25pF	GQM22M5C2H1R0CB01#	
			1.1pF	±0.1pF	GQM22M5C2H1R1BB01#	
				±0.25pF	GQM22M5C2H1R1CB01#	
			1.2pF	±0.1pF	GQM22M5C2H1R2BB01#	
				±0.25pF	GQM22M5C2H1R2CB01#	
			1.3pF	±0.1pF	GQM22M5C2H1R3BB01#	
				±0.25pF	GQM22M5C2H1R3CB01#	
			1.5pF	±0.1pF	GQM22M5C2H1R5BB01#	
				±0.25pF	GQM22M5C2H1R5CB01#	
			1.6pF	±0.1pF	GQM22M5C2H1R6BB01#	
				±0.25pF	GQM22M5C2H1R6CB01#	
			1.8pF	±0.1pF	GQM22M5C2H1R8BB01#	
				±0.25pF	GQM22M5C2H1R8CB01#	
			2.0pF	±0.1pF	GQM22M5C2H2R0BB01#	
				±0.25pF	GQM22M5C2H2R0CB01#	
			2.2pF	±0.1pF	GQM22M5C2H2R2BB01#	
				±0.25pF	GQM22M5C2H2R2CB01#	
			2.4pF	±0.1pF	GQM22M5C2H2R4BB01#	
				±0.25pF	GQM22M5C2H2R4CB01#	
			2.7pF	±0.1pF	GQM22M5C2H2R7BB01#	
				±0.25pF	GQM22M5C2H2R7CB01#	
			3.0pF	±0.1pF	GQM22M5C2H3R0BB01#	
				±0.25pF	GQM22M5C2H3R0CB01#	
			3.3pF	±0.1pF	GQM22M5C2H3R3BB01#	
				±0.25pF	GQM22M5C2H3R3CB01#	
			3.6pF	±0.1pF	GQM22M5C2H3R6BB01#	
				±0.25pF	GQM22M5C2H3R6CB01#	
			3.9pF	±0.1pF	GQM22M5C2H3R9BB01#	
				±0.25pF	GQM22M5C2H3R9CB01#	
			4.0pF	±0.1pF	GQM22M5C2H4R0BB01#	
				±0.25pF	GQM22M5C2H4R0CB01#	
			4.3pF	±0.1pF	GQM22M5C2H4R3BB01#	
				±0.25pF	GQM22M5C2H4R3CB01#	
			4.7pF	±0.1pF	GQM22M5C2H4R7BB01#	
				±0.25pF	GQM22M5C2H4R7CB01#	
			5.0pF	±0.1pF	GQM22M5C2H5R0BB01#	
				±0.25pF	GQM22M5C2H5R0CB01#	
			5.1pF	±0.25pF	GQM22M5C2H5R1CB01#	
				±0.5pF	GQM22M5C2H5R1DB01#	
			5.6pF	±0.25pF	GQM22M5C2H5R6CB01#	
				±0.5pF	GQM22M5C2H5R6DB01#	
			6.0pF	±0.25pF	GQM22M5C2H6R0CB01#	
				±0.5pF	GQM22M5C2H6R0DB01#	
			6.2pF	±0.25pF	GQM22M5C2H6R2CB01#	
				±0.5pF	GQM22M5C2H6R2DB01#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
1.35mm	500Vdc	C0G	6.8pF	±0.25pF	GQM22M5C2H6R8CB01#	
				±0.5pF	GQM22M5C2H6R8DB01#	
			7.0pF	±0.25pF	GQM22M5C2H7R0CB01#	
				±0.5pF	GQM22M5C2H7R0DB01#	
			7.5pF	±0.25pF	GQM22M5C2H7R5CB01#	
				±0.5pF	GQM22M5C2H7R5DB01#	
			8.0pF	±0.25pF	GQM22M5C2H8R0CB01#	
				±0.5pF	GQM22M5C2H8R0DB01#	
			8.2pF	±0.25pF	GQM22M5C2H8R2CB01#	
				±0.5pF	GQM22M5C2H8R2DB01#	
			9.0pF	±0.25pF	GQM22M5C2H9R0CB01#	
				±0.5pF	GQM22M5C2H9R0DB01#	
			9.1pF	±0.25pF	GQM22M5C2H9R1CB01#	
				±0.5pF	GQM22M5C2H9R1DB01#	
			10pF	±2%	GQM22M5C2H100GB01#	
				±5%	GQM22M5C2H100JB01#	
			11pF	±2%	GQM22M5C2H110GB01#	
				±5%	GQM22M5C2H110JB01#	
			12pF	±2%	GQM22M5C2H120GB01#	
				±5%	GQM22M5C2H120JB01#	
			13pF	±2%	GQM22M5C2H130GB01#	
				±5%	GQM22M5C2H130JB01#	
			15pF	±2%	GQM22M5C2H150GB01#	
				±5%	GQM22M5C2H150JB01#	
			16pF	±2%	GQM22M5C2H160GB01#	
				±5%	GQM22M5C2H160JB01#	
			18pF	±2%	GQM22M5C2H180GB01#	
				±5%	GQM22M5C2H180JB01#	
			20pF	±2%	GQM22M5C2H200GB01#	
				±5%	GQM22M5C2H200JB01#	
			22pF	±2%	GQM22M5C2H220GB01#	
				±5%	GQM22M5C2H220JB01#	
			24pF	±2%	GQM22M5C2H240GB01#	
				±5%	GQM22M5C2H240JB01#	
			27pF	±2%	GQM22M5C2H270GB01#	
				±5%	GQM22M5C2H270JB01#	
			30pF	±2%	GQM22M5C2H300GB01#	
				±5%	GQM22M5C2H300JB01#	
			33pF	±2%	GQM22M5C2H330GB01#	
				±5%	GQM22M5C2H330JB01#	
			36pF	±2%	GQM22M5C2H360GB01#	
				±5%	GQM22M5C2H360JB01#	
			39pF	±2%	GQM22M5C2H390GB01#	
				±5%	GQM22M5C2H390JB01#	
			43pF	±2%	GQM22M5C2H430GB01#	
				±5%	GQM22M5C2H430JB01#	
			47pF	±2%	GQM22M5C2H470GB01#	
				±5%	GQM22M5C2H470JB01#	
			51pF	±2%	GQM22M5C2H510GB01#	
				±5%	GQM22M5C2H510JB01#	
			56pF	±2%	GQM22M5C2H560GB01#	
				±5%	GQM22M5C2H560JB01#	
			62pF	±2%	GQM22M5C2H620GB01#	
				±5%	GQM22M5C2H620JB01#	

Part number # indicates the package specification code.

GRRM Series

GJRM Series

GMA Series

GMD Series

GQM Series

GRJ Series

GR3 Series

KRM Series

KR3 Series

LLA Series

LLL Series

LLM Series

LLR Series

⚠Caution/
Notice

GQM Series Temperature Compensating Type HiQ Part Number List

(→ ■ 2.8×2.8mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
1.35mm	500Vdc	C0G	68pF	±2%	GQM22M5C2H680GB01#	
				±5%	GQM22M5C2H680JB01#	
			75pF	±2%	GQM22M5C2H750GB01#	
				±5%	GQM22M5C2H750JB01#	
			82pF	±2%	GQM22M5C2H820GB01#	
				±5%	GQM22M5C2H820JB01#	
			91pF	±2%	GQM22M5C2H910GB01#	
				±5%	GQM22M5C2H910JB01#	
			100pF	±2%	GQM22M5C2H101GB01#	
				±5%	GQM22M5C2H101JB01#	

Part number # indicates the package specification code.

Resin External Electrode Type

GRJ Series



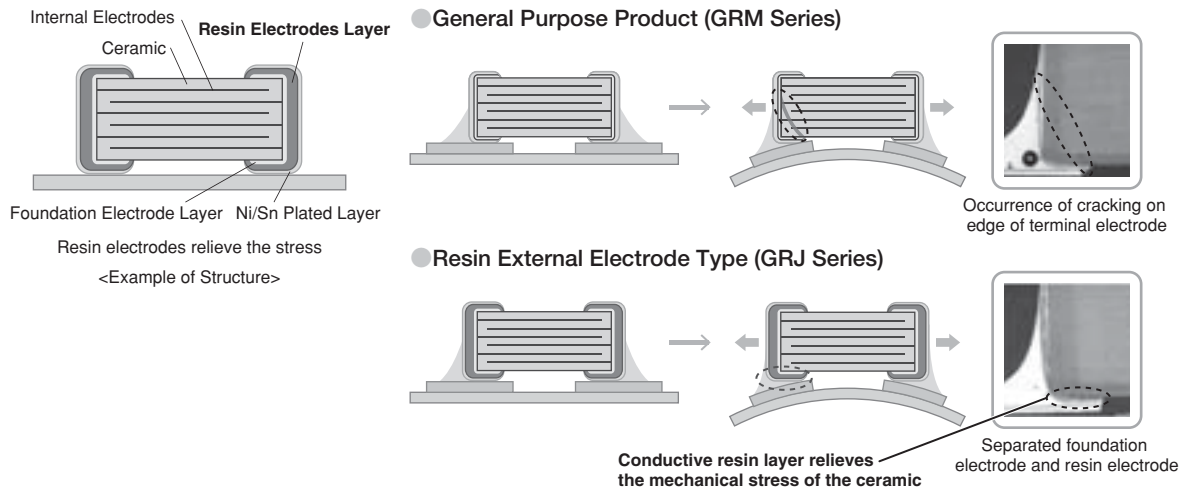
Deflecting crack

The resin external electrodes prevent the occurrence of cracking caused by deflection stress after board mounting!

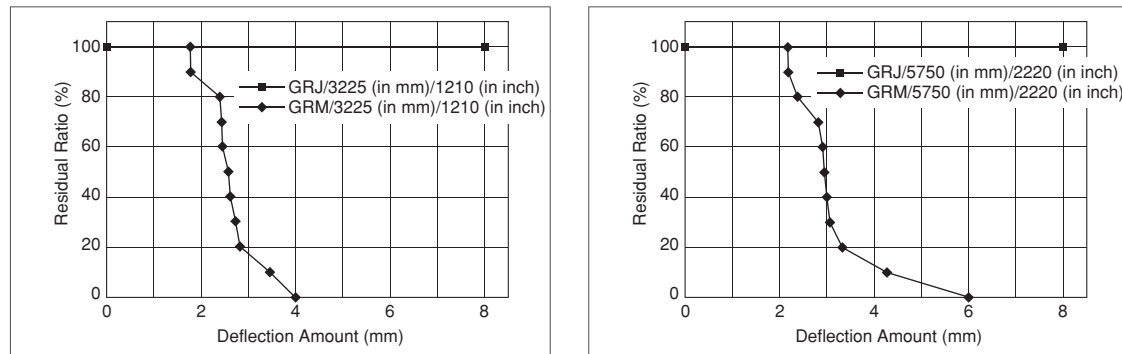
Features

① The resin external electrodes suppress cracks by board deflection.

Cracking of the ceramic element is suppressed by the resin of the external electrodes, which releases the stress.



② Suppresses the occurrence of cracking caused by deflection stress at the time of board mounting, etc.



Due to the specification of the measuring instrument, measurements can be performed up to 8mm.

③ Ideal for consumer and industrial electronic equipment, etc. where there heat stress, vibration and impact are applied.

Specifications

Size	2.0×1.25mm to 5.7×5.0mm
Rated Voltage	DC250V to 1kV
Capacitance	470pF to 1.0μF
Main Applications	Consumer & Industrial Electronic Equipment



This catalog contains only a portion of the product lineup.
Please refer to the capacitor search tool on the Murata Web site for details.

GRJ Series High Dielectric Constant Type Part Number List

■ 2.0×1.25mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
1.0mm	250Vdc	X7R	1000pF	±10%	GRJ21AR72E102KWJ1#	
			1500pF	±10%	GRJ21AR72E152KWJ1#	
			2200pF	±10%	GRJ21AR72E222KWJ1#	
			3300pF	±10%	GRJ21AR72E332KWJ1#	
			4700pF	±10%	GRJ21AR72E472KWJ1#	
			6800pF	±10%	GRJ21AR72E682KWJ1#	
1.45mm	250Vdc	X7R	10000pF	±10%	GRJ21BR72E103KWJ3#	
			15000pF	±10%	GRJ21BR72E153KWJ3#	
			22000pF	±10%	GRJ21BR72E223KWJ3#	

■ 3.2×1.6mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
1.25mm	1000Vdc	X7R	470pF	±10%	GRJ31BR73A471KWJ1#	
			680pF	±10%	GRJ31BR73A681KWJ1#	
			1000pF	±10%	GRJ31BR73A102KWJ1#	
			1500pF	±10%	GRJ31BR73A152KWJ1#	
			2200pF	±10%	GRJ31BR73A222KWJ1#	
			3300pF	±10%	GRJ31BR73A332KWJ1#	
			4700pF	±10%	GRJ31BR73A472KWJ1#	
	630Vdc	X7R	1000pF	±10%	GRJ31BR72J102KWJ1#	
			1500pF	±10%	GRJ31BR72J152KWJ1#	
			2200pF	±10%	GRJ31BR72J222KWJ1#	
			3300pF	±10%	GRJ31BR72J332KWJ1#	
			4700pF	±10%	GRJ31BR72J472KWJ1#	
			6800pF	±10%	GRJ31BR72J682KWJ1#	
			10000pF	±10%	GRJ31BR72J103KWJ1#	
	250Vdc	X7R	15000pF	±10%	GRJ31BR72E153KWJ1#	
			22000pF	±10%	GRJ31BR72E223KWJ1#	
			68000pF	±10%	GRJ31BR72E683KWJ1#	
1.8mm	1000Vdc	X7R	6800pF	±10%	GRJ31CR73A682KWJ3#	
			10000pF	±10%	GRJ31CR73A103KWJ3#	
	630Vdc	X7R	15000pF	±10%	GRJ31CR72J153KWJ3#	
			22000pF	±10%	GRJ31CR72J223KWJ3#	
	250Vdc	X7R	33000pF	±10%	GRJ31CR72E333KWJ3#	
			47000pF	±10%	GRJ31CR72E473KWJ3#	
			0.10μF	±10%	GRJ31CR72E104KWJ3#	

■ 3.2×2.5mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
1.5mm	1000Vdc	X7R	6800pF	±10%	GRJ32QR73A682KWJ1#	
			10000pF	±10%	GRJ32QR73A103KWJ1#	
	630Vdc	X7R	22000pF	±10%	GRJ32QR72J223KWJ1#	
	250Vdc	X7R	68000pF	±10%	GRJ32QR72E683KWJ1#	
			0.15μF	±10%	GRJ32QR72E154KWJ1#	
2.0mm	1000Vdc	X7R	15000pF	±10%	GRJ32DR73A153KWJ1#	
			22000pF	±10%	GRJ32DR73A223KWJ1#	
	630Vdc	X7R	33000pF	±10%	GRJ32DR72J333KWJ1#	
			47000pF	±10%	GRJ32DR72J473KWJ1#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
2.0mm	250Vdc	X7R	0.10μF	±10%	GRJ32DR72E104KWJ1#	
			0.22μF	±10%	GRJ32DR72E224KWJ1#	

■ 4.5×3.2mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
1.5mm	630Vdc	X7R	68000pF	±10%	GRJ43QR72J683KWJ1#	
	250Vdc	X7R	0.15μF	±10%	GRJ43QR72E154KWJ1#	
2.0mm	1000Vdc	X7R	33000pF	±10%	GRJ43DR73A333KWJ1#	
			47000pF	±10%	GRJ43DR73A473KWJ1#	
	630Vdc	X7R	0.10μF	±10%	GRJ43DR72J104KWJ1#	
			0.22μF	±10%	GRJ43DR72E224KWJ1#	
	250Vdc	X7R	0.33μF	±10%	GRJ43DR72E334KWJ1#	
			0.47μF	±10%	GRJ43DR72E474KWJ1#	

■ 5.7×5.0mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
2.0mm	1000Vdc	X7R	68000pF	±10%	GRJ55DR73A683KWJ1#	
			0.10μF	±10%	GRJ55DR73A104KWJ1#	
	630Vdc	X7R	0.15μF	±10%	GRJ55DR72J154KWJ1#	
			0.22μF	±10%	GRJ55DR72J224KWJ1#	
	250Vdc	X7R	0.33μF	±10%	GRJ55DR72E334KWJ1#	
			0.47μF	±10%	GRJ55DR72E474KWJ1#	
			0.68μF	±10%	GRJ55DR72E684KWJ1#	
			1.0μF	±10%	GRJ55DR72E105KWJ1#	

Part number # indicates the package specification code.

High Effective Capacitance & High Allowable Ripple Current

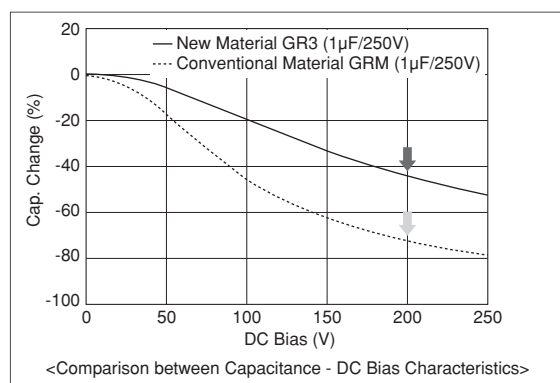
GR3 Series **Anti-noise**

This is a general purpose high ripple resistance product excellent in DC bias characteristics.

Features

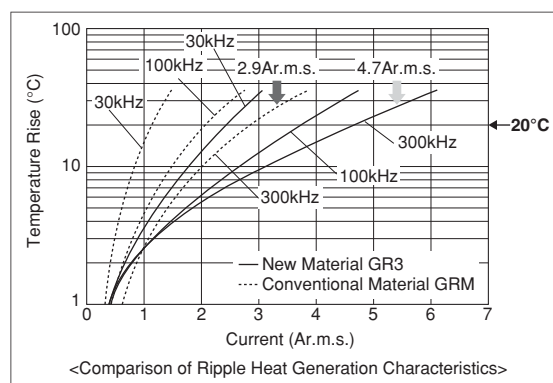
- ① When a DC bias is applied, a capacitance higher than conventional products (X7R characteristics) can be acquired.

About twice the capacitance can be secured when DC200V is applied.



- ② Improved ripple resistance performance compared to conventional products (X7R characteristics).

In the case of a product with a capacitance of 1μF, when the exothermic temperature reaches 20°C at frequency f=300kHz, the amount of resistance of a product with conventional material is 2.9Ar.m.s.; however, the new material is 4.7Ar.m.s..



- ③ This product has a noise reduction effect.

Since dielectric materials which enable a reduction of noise are used, this product is more effective for reducing noise compared to the general purpose GRM series.



Specifications

Size	2.0×1.25mm to 5.7×5.0mm
Rated Voltage	DC250V to 630V
Capacitance	0.01μF to 1.0μF
Main Applications	For PFC (Power Factor Correction) Circuits of Power Supplies, EMI Suppression and Smoothing Circuits



This catalog contains only a portion of the product lineup.
Please refer to the capacitor search tool on the Murata Web site for details.

GR3 Series High Dielectric Constant Type Anti-noise Part Number List

■ 2.0×1.25mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
1.0mm	250Vdc	X7T	10000pF	±10%	GR321AD72E103KW01#	
			15000pF	±10%	GR321AD72E153KW01#	
1.45mm	250Vdc	X7T	22000pF	±10%	GR321BD72E223KW03#	

■ 3.2×1.6mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
1.0mm	450Vdc	X7T	10000pF	±10%	GR331AD72W103KW01#	
			15000pF	±10%	GR331AD72W153KW01#	
	250Vdc	X7T	33000pF	±10%	GR331AD72E333KW01#	
1.25mm	630Vdc	X7T	10000pF	±10%	GR331BD72J103KW01#	
	450Vdc	X7T	22000pF	±10%	GR331BD72W223KW01#	
			33000pF	±10%	GR331BD72W333KW01#	
	250Vdc	X7T	47000pF	±10%	GR331BD72E473KW01#	
1.8mm	630Vdc	X7T	15000pF	±10%	GR331CD72J153KW03#	
	450Vdc	X7T	47000pF	±10%	GR331CD72W473KW03#	
	250Vdc	X7T	68000pF	±10%	GR331CD72E683KW03#	

■ 3.2×2.5mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
1.5mm	630Vdc	X7T	22000pF	±10%	GR332QD72J223KW01#	
	250Vdc	X7T	0.10μF	±10%	GR332QD72E104KW01#	
2.0mm	630Vdc	X7T	33000pF	±10%	GR332DD72J333KW01#	
			47000pF	±10%	GR332DD72J473KW01#	
	450Vdc	X7T	68000pF	±10%	GR332DD72W683KW01#	
			0.10μF	±10%	GR332DD72W104KW01#	
	250Vdc	X7T	0.15μF	±10%	GR332DD72E154KW01#	

■ 4.5×3.2mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
1.5mm	250Vdc	X7T	0.22μF	±10%	GR343QD72E224KW01#	
2.0mm	630Vdc	X7T	68000pF	±10%	GR343DD72J683KW01#	
	450Vdc	X7T	0.15μF	±10%	GR343DD72W154KW01#	
	250Vdc	X7T	0.33μF	±10%	GR343DD72E334KW01#	

■ 5.7×5.0mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
2.0mm	630Vdc	X7T	0.10μF	±10%	GR355DD72J104KW01#	
			0.15μF	±10%	GR355DD72J154KW01#	
	450Vdc	X7T	0.22μF	±10%	GR355DD72W224KW01#	
			0.33μF	±10%	GR355DD72W334KW01#	
			0.47μF	±10%	GR355DD72W474KW01#	
	250Vdc	X7T	0.47μF	±10%	GR355DD72E474KW01#	
			0.68μF	±10%	GR355DD72E684KW01#	
2.7mm	630Vdc	X7T	0.22μF	±10%	GR355XD72J224KW05#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
2.7mm	630Vdc	X7T	0.27μF	±10%	GR355XD72J274KW05#	
	450Vdc	X7T	0.56μF	±10%	GR355XD72W564KW05#	
	250Vdc	X7T	1.0μF	±10%	GR355XD72E105KW05#	

Part number # indicates the package specification code.

Metal Terminal Type For General Purpose

KRM Series



Anti-noise

Deflecting crack

Soldering crack

Bonding the metal terminals to external electrodes solves design issues by mounting large size MLCC!

Features

① Bond metal terminals to the external electrodes of chips.

The stress applied to the chip is relieved by the elastic action of the metal terminal.



② Substantially reduces noise, board deflection cracks and soldering cracks.

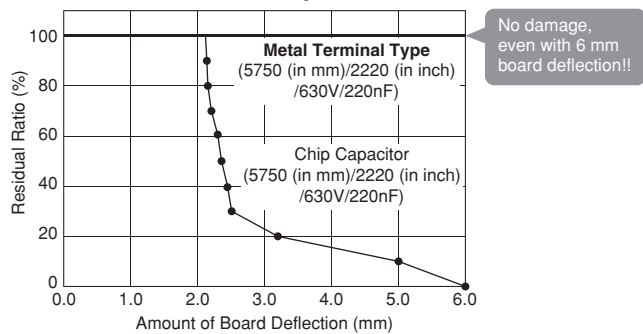
This product is not damaged even with a board deflection of 6 mm.

Solder cracks do not occur even with 2,000 cycles of heat stress.

● Acoustic Noise is Reduced with Metal Terminals



● Reduces Stress Caused by Board Deflection



● Suppresses Solder Cracks Caused by Heat Stress

Chip Size	Chip Only (5750 (in mm)/2220 (in inch) size)		Metal Terminal Type (5750 (in mm)/2220 (in inch) size)	
1000 Cycle				
2000 Cycle				

Test Condition: -55 to +125°C, 5min.,(Tank)
Board Used: Glass Epoxy Board (FR-4)

Compared with chips only, this product is excellent in solder cracking resistance.

Demonstrates replacement value of low noise capacitors Experience the effectiveness of the KRM Series.

▶ Examples of Noise Countermeasures

GRM Series

GJM Series

GMA Series

GMD Series

GQM Series

GRJ Series

GR3 Series

KRM Series

KR3 Series

LLA Series

LLL Series

LLM Series

LLR Series

⚠Caution/
 Notice

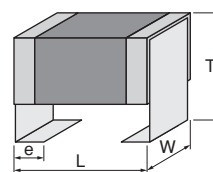
③ 2 chips can be stacked.

Realize large capacity by stacking 2 capacitors.

Specifications

Size	2.2×1.25mm to 6.1×5.3mm
Rated Voltage	DC16V to 1kV
Capacitance	0.068μF to 47μF
Main Applications	For smoothing and noise suppression of DC-DC converters

This catalog contains only a portion of the product lineup.
 Please refer to the capacitor search tool on the Murata Web site for details.



<Dimensions>

KRM Series High Dielectric Constant Type Anti-noise Deflecting crack Soldering crack Part Number List

■ 2.2×1.25mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
1.9mm	25Vdc	X5R	10μF	±10%	KRM21ER61E106KHA1#	
	16Vdc	X5R	10μF	±10%	KRM21ER61C106KHA1#	

■ 3.5×1.7mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
2.0mm	25Vdc	X5R	10μF	±10%	KRM31FR61E106KH01#	
2.9mm	100Vdc	X7R	1.0μF	±10%	KRM31KR72A105KH01#	
	50Vdc	X7R	4.7μF	±10%	KRM31KR71H475KH01#	
	35Vdc	X6S	10μF	±10%	KRM31KC8YA106KH01#	
	25Vdc	X6S	10μF	±10%	KRM31KC81E106KH01#	

■ 3.6×1.7mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
2.9mm	50Vdc	X7R	2.2μF	±10%	KRM31KR71H225KH01#	

■ 3.7×1.85mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
2.9mm	100Vdc	X7R	2.2μF	±10%	KRM31KR72A225KH01#	

■ 6.1×5.3mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
3.0mm	1000Vdc	X7R	68000pF	±10%	KRM55LR73A683KH01#	
			0.10μF	±10%	KRM55LR73A104KH01#	
	630Vdc	X7R	0.15μF	±10%	KRM55LR72J154KH01#	
			0.22μF	±10%	KRM55LR72J224KH01#	
	250Vdc	X7R	0.68μF	±10%	KRM55LR72E684KH01#	
			1.0μF	±10%	KRM55LR72E105KH01#	
	100Vdc	X7R	4.7μF	±10%	KRM55LR72A475KH01#	
	63Vdc	X7R	4.7μF	±10%	KRM55LR71J475KH01#	
	50Vdc	X7R	4.7μF	±10%	KRM55LR71H475KH01#	
	35Vdc	X7R	10μF	±10%	KRM55LR7YA106KH01#	
3.9mm	25Vdc	X7R	15μF	±10%	KRM55LR71E156KH01#	
	100Vdc	X7R	6.8μF	±10%	KRM55QR72A685KH01#	
	63Vdc	X7R	10μF	±10%	KRM55QR71J106KH01#	
	50Vdc	X7R	10μF	±10%	KRM55QR71H106KH01#	
	35Vdc	X7R	17μF	±10%	KRM55QR7YA176KH01#	
5.0mm	25Vdc	X7R	22μF	±10%	KRM55QR71E226KH01#	
	1000Vdc	X7R	0.15μF	±20%	KRM55TR73A154MH01#	
			0.22μF	±20%	KRM55TR73A224MH01#	
	630Vdc	X7R	0.33μF	±20%	KRM55TR72J334MH01#	
			0.47μF	±20%	KRM55TR72J474MH01#	
	250Vdc	X7R	1.5μF	±20%	KRM55TR72E155MH01#	
			2.2μF	±20%	KRM55TR72E225MH01#	
	100Vdc	X7R	10μF	±20%	KRM55TR72A106MH01#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
5.0mm	35Vdc	X7R	22μF	±20%	KRM55TR7YA226MH01#	
	25Vdc	X7R	33μF	±20%	KRM55TR71E336MH01#	
6.7mm	100Vdc	X7R	15μF	±20%	KRM55WR72A156MH01#	
	63Vdc	X7R	22μF	±20%	KRM55WR71J226MH01#	
	50Vdc	X7R	22μF	±20%	KRM55WR71H226MH01#	
	35Vdc	X7R	33μF	±20%	KRM55WR7YA336MH01#	
	25Vdc	X7R	47μF	±20%	KRM55WR71E476MH01#	

Part number # indicates the package specification code.

Metal Terminal Type High Effective Capacitance & High Allowable Ripple Current

KR3 Series



Anti-noise

Deflecting crack

Soldering crack

Bonding the metal terminals to external electrodes solves design issues by mounting large size MLCC!

Features

① Bond metal terminals to the external electrodes of chips.

The stress applied to the chip is relieved by the elastic action of the metal terminal.



② Substantially reduces noise, board deflection cracks and soldering cracks.

This product is not damaged even with a board deflection of 6 mm.

Solder cracks do not occur even with 2,000 cycles of heat stress.

● Comparison of Noise Reduction Effects



Evaluation Items: 5750 (in mm)/2220 (in inch) size/DC630V/220nF
Test Method: DC50V, AC10Vp-p/3kHz
Test Board: Glass Epoxy Board (T: 1.6mm)
Test Quantity: 3pc
Distance Between Microphone and Board: 3mm

Note: Results Using Murata's Evaluation Board

● Reduces Stress Caused by Board Deflection



No damage, even with 6 mm board deflection!!

● Suppresses Solder Cracks Caused by Heat Stress

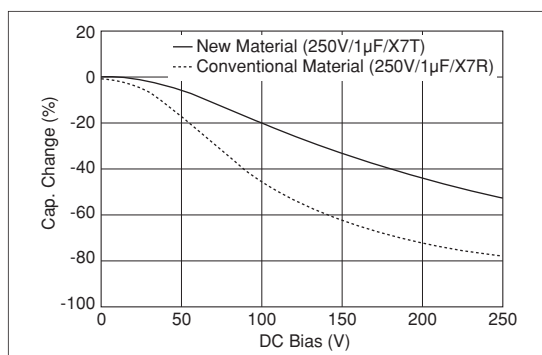
Chip Size	Chip Only (5750 (in mm)/2220 (in inch) size)		Metal Terminal Type (5750 (in mm)/2220 (in inch) size)	
1000 Cycle				
2000 Cycle				

Compared with chips only, this product is excellent in solder cracking resistance.

Test Condition: -55 to +125°C, 5min.,(Tank)
Board Used: Glass Epoxy Board (FR-4)

③ Adopted Low Dielectric Constant Materials

Improved effective capacity and ripple resistant performance, compared to conventional products (X7R characteristics).



Specifications

Size	6.1×5.3mm
Rated Voltage	DC250V to 630V
Capacitance	0.1μF to 2.2μF
Main Applications	For DC-DC converters of general electronic equipment

This catalog contains only a portion of the product lineup.
 Please refer to the capacitor search tool on the Murata Web site for details.



GRM Series

GJM Series

GMA Series

GMD Series

GQM Series

GRJ Series

GR3 Series

KRM Series

KR3 Series

LLA Series

LLL Series

LLM Series

LLR Series

⚠Caution/
 Notice

KR3 Series High Dielectric Constant Type Anti-noise Deflecting crack Soldering crack Part Number List

■ 6.1×5.3mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
3.0mm	630Vdc	X7T	0.10μF	±10%	KR355LD72J104KH01#	
			0.15μF	±10%	KR355LD72J154KH01#	
	450Vdc	X7T	0.22μF	±10%	KR355LD72W224KH01#	
			0.33μF	±10%	KR355LD72W334KH01#	
			0.47μF	±10%	KR355LD72W474KH01#	
	250Vdc	X7T	0.47μF	±10%	KR355LD72E474KH01#	
			0.68μF	±10%	KR355LD72E684KH01#	
3.9mm	630Vdc	X7T	0.22μF	±10%	KR355QD72J224KH01#	
			0.27μF	±10%	KR355QD72J274KH01#	
	450Vdc	X7T	0.56μF	±10%	KR355QD72W564KH01#	
	250Vdc	X7T	1.0μF	±10%	KR355QD72E105KH01#	
5.0mm	450Vdc	X7T	0.68μF	±20%	KR355TD72W684MH01#	
			1.0μF	±20%	KR355TD72W105MH01#	
	250Vdc	X7T	1.5μF	±20%	KR355TD72E155MH01#	
6.7mm	630Vdc	X7T	0.47μF	±20%	KR355WD72J474MH01#	
			0.56μF	±20%	KR355WD72J564MH01#	
	450Vdc	X7T	1.2μF	±20%	KR355WD72W125MH01#	
	250Vdc	X7T	2.2μF	±20%	KR355WD72E225MH01#	

8-Terminal Low ESL Type

LLA Series



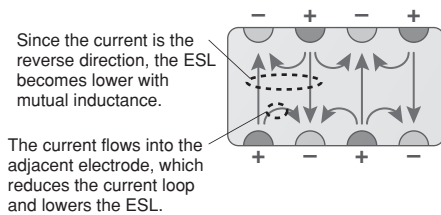
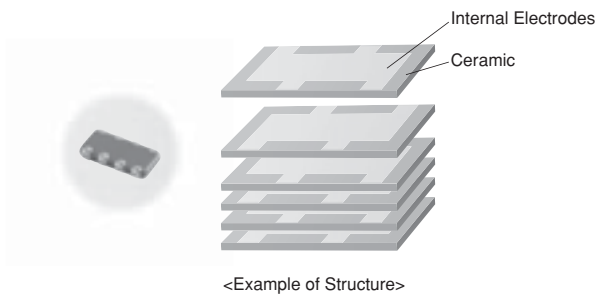
Low
ESL

8-Terminal Type Low ESL Capacitor Ideal for Power Supply Decoupling of High-speed Operation IC

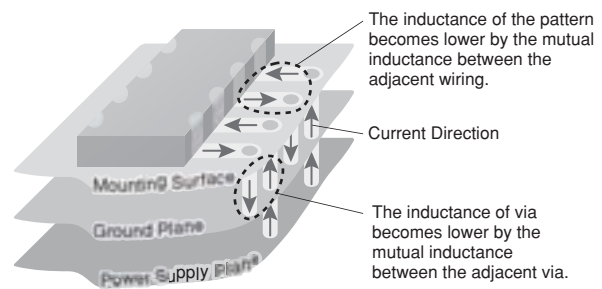
Features

① Ultra-low ESL

Since the equivalent series inductance (ESL) is very low with excellent high frequency characteristics due to the design structure, this capacitor is ideal for power supply decoupling of high-speed operation IC.



<Effectiveness of Cancelling Out Inductance by Mutual Inductance>



<Effectiveness of Suppressing Inductance when Mounting a Multi-terminal Capacitor>

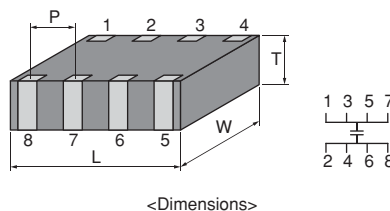
The inductance for the boards also becomes lower, not only the capacitor.

② A maximum operating temperature up to 125°C.

This product is applicable to high temperatures (X7* characteristics); however, Murata also offers numerous thin type products, which are ideal as decoupling capacitors on IC package.

Specifications

Size	1.6×0.8mm to 3.2×1.6mm
Rated Voltage	DC4V to 25V
Capacitance	0.01μF to 4.7μF
Main Applications	Application processor/CPU/GPU



This catalog contains only a portion of the product lineup.
Please refer to the capacitor search tool on the Murata Web site for details.

LLA Series High Dielectric Constant Type Low ESL Part Number List

■ 1.6×0.8mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	4Vdc	X7S	0.10μF	±20%	LLA185C70G104MA01#	
			0.22μF	±20%	LLA185C70G224MA01#	
			0.47μF	±20%	LLA185C70G474MA01#	
			2.2μF	±20%	LLA185C70G225ME16#	

■ 2.0×1.25mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	25Vdc	X7R	10000pF	±20%	LLA215R71E103MA14#	
			22000pF	±20%	LLA215R71E223MA14#	
	16Vdc	X7R	47000pF	±20%	LLA215R71C473MA14#	
			0.10μF	±20%	LLA215R71C104MA14#	
	10Vdc	X7R	0.22μF	±20%	LLA215R71A224MA14#	
	6.3Vdc	X7R	0.47μF	±20%	LLA215R70J474MA14#	
	4Vdc	X7S	1.0μF	±20%	LLA215C70G105MA14#	
			4.7μF	±20%	LLA215C70G475ME19#	
0.95mm	25Vdc	X7R	10000pF	±20%	LLA219R71E103MA01#	
			22000pF	±20%	LLA219R71E223MA01#	
			47000pF	±20%	LLA219R71E473MA01#	
	16Vdc	X7R	0.10μF	±20%	LLA219R71C104MA01#	
			0.22μF	±20%	LLA219R71C224MA01#	
	10Vdc	X7R	0.47μF	±20%	LLA219R71A474MA01#	
	6.3Vdc	X7R	1.0μF	±20%	LLA219R70J105MA01#	
	4Vdc	X7S	2.2μF	±20%	LLA219C70G225MA01#	

■ 3.2×1.6mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	16Vdc	X7R	0.22μF	±20%	LLA315R71C224MA14#	
	10Vdc	X7R	0.47μF	±20%	LLA315R71A474MA14#	
	6.3Vdc	X7R	1.0μF	±20%	LLA315R70J105MA14#	
			2.2μF	±20%	LLA315R70J225MA14#	
0.95mm	16Vdc	X7R	0.47μF	±20%	LLA319R71C474MA01#	
	10Vdc	X7R	1.0μF	±20%	LLA319R71A105MA01#	
1.25mm	16Vdc	X7R	1.0μF	±20%	LLA31MR71C105MA01#	
	10Vdc	X7R	2.2μF	±20%	LLA31MR71A225MA01#	

LW Reversed Low ESL Type

LLL Series



Low
ESL

This low ESL capacitor is ideal for power supply decoupling of high-speed operation electronic equipment.

Features

① Low ESL

Since the equivalent series inductance (ESL) is low and excellent in high frequency characteristics, this capacitor is suitable for power supply decoupling of high-speed operation electronic equipment.

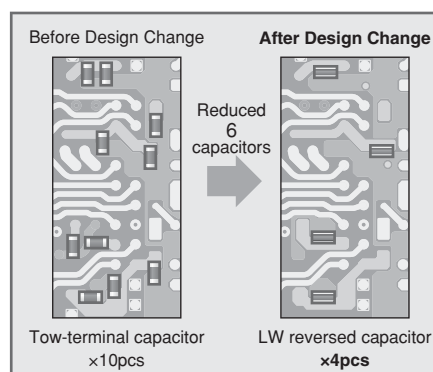


② Contributes to a reduction in the number of components.

The number of components can be reduced by using low ESL capacitors, while maintaining functions equivalent to general purpose capacitors (GRM Series).

Murata proposes the use of the LLL series to reduce the number of components and high costs. Simulation is also possible.

Proposal for Cost Reductions

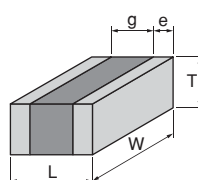


③ A maximum operating temperature up to 125°C.

We also offer an abundant lineup of X7* characteristics that can be used in high temperature locations, such as IC packages.

Specifications

Size	0.5×1.0mm to 1.6×3.2mm
Rated Voltage	DC2.5V to 50V
Capacitance	2,200pF to 10μF
Main Applications	Application processor/CPU/GPU



<Dimensions>

This catalog contains only a portion of the product lineup.
Please refer to the capacitor search tool on the Murata Web site for details.

LLL Series High Dielectric Constant Type Low ESL Part Number List

0.5×1.0mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.35mm	6.3Vdc	X6S	0.10μF	±20%	LLL153C80J104ME01#	
			0.22μF	±20%	LLL153C80J224ME14#	
	4Vdc	X7S	0.47μF	±20%	LLL153C70G474ME17#	
		X6S	1.0μF	±20%	LLL153C80G105ME21#	

0.6×1.0mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.45mm	4Vdc	X5R	4.3μF	±20%	LLL1U4R60G435ME22#	

0.8×1.6mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.5mm	25Vdc	X7R	10000pF	±20%	LLL185R71E103MA11#	
	16Vdc	X7R	22000pF	±20%	LLL185R71C223MA11#	
			47000pF	±20%	LLL185R71C473MA11#	
	10Vdc	X7R	0.10μF	±20%	LLL185R71A104MA11#	
	4Vdc	X7S	0.22μF	±20%	LLL185C70G224MA11#	
0.55mm	4Vdc	X7S	2.2μF	±20%	LLL185C70G225ME01#	
0.6mm	50Vdc	X7R	2200pF	±20%	LLL185R71H222MA01#	
			4700pF	±20%	LLL185R71H472MA01#	
	25Vdc	X7R	10000pF	±20%	LLL185R71E103MA01#	
			22000pF	±20%	LLL185R71E223MA01#	
	16Vdc	X7R	47000pF	±20%	LLL185R71C473MA01#	
	10Vdc	X7R	0.10μF	±20%	LLL185R71A104MA01#	
			0.22μF	±20%	LLL185R71A224MA01#	
	4Vdc	X7S	0.47μF	±20%	LLL185C70G474MA01#	

1.25×2.0mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.5mm	50Vdc	X7R	10000pF	±20%	LLL215R71H103MA11#	
	25Vdc	X7R	22000pF	±20%	LLL215R71E223MA11#	
	16Vdc	X7R	47000pF	±20%	LLL215R71C473MA11#	
			0.10μF	±20%	LLL215R71C104MA11#	
	10Vdc	X7R	0.22μF	±20%	LLL215R71A224MA11#	
	6.3Vdc	X7R	0.47μF	±20%	LLL215R70J474MA11#	
	4Vdc	X7S	1.0μF	±20%	LLL215C70G105MA11#	
0.7mm	50Vdc	X7R	10000pF	±20%	LLL216R71H103MA01#	
			22000pF	±20%	LLL216R71H223MA01#	
	25Vdc	X7R	47000pF	±20%	LLL216R71E473MA01#	
			0.10μF	±20%	LLL216R71E104MA01#	
	10Vdc	X7R	0.22μF	±20%	LLL216R71A224MA01#	
0.95mm	16Vdc	X7R	0.22μF	±20%	LLL219R71C224MA01#	
	10Vdc	X7R	0.47μF	±20%	LLL219R71A474MA01#	
			1.0μF	±20%	LLL219R71A105MA01#	
	4Vdc	X7S	2.2μF	±20%	LLL219C70G225MA01#	

1.6×3.2mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.5mm	50Vdc	X7R	10000pF	±20%	LLL315R71H103MA11#	
			22000pF	±20%	LLL315R71H223MA11#	
	25Vdc	X7R	47000pF	±20%	LLL315R71E473MA11#	
			0.10μF	±20%	LLL315R71E104MA11#	
	16Vdc	X7R	0.22μF	±20%	LLL315R71C224MA11#	
	10Vdc	X7R	0.47μF	±20%	LLL315R71A474MA11#	
0.8mm	50Vdc	X7R	10000pF	±20%	LLL317R71H103MA01#	
			22000pF	±20%	LLL317R71H223MA01#	
			47000pF	±20%	LLL317R71H473MA01#	
	25Vdc	X7R	0.10μF	±20%	LLL317R71E104MA01#	
	16Vdc	X7R	0.22μF	±20%	LLL317R71C224MA01#	
			0.47μF	±20%	LLL317R71C474MA01#	
	10Vdc	X7R	1.0μF	±20%	LLL317R71A105MA01#	
	6.3Vdc	X7R	2.2μF	±20%	LLL317R70J225MA01#	
1.25mm	50Vdc	X7R	0.10μF	±20%	LLL31MR71H104MA01#	
				±20%	LLL31MR71E224MA01#	
				±20%	LLL31MR71E474MA01#	
	16Vdc	X7R	1.0μF	±20%	LLL31MR71C105MA01#	
	10Vdc	X7R	2.2μF	±20%	LLL31MR71A225MA01#	
	6.3Vdc	X7R	4.7μF	±20%	LLL31MR70J475MA01#	
			X5R	10μF	±20%	LLL31MR60J106ME01#

Part number # indicates the package specification code.

10-Terminal Low ESL Type

LLM Series



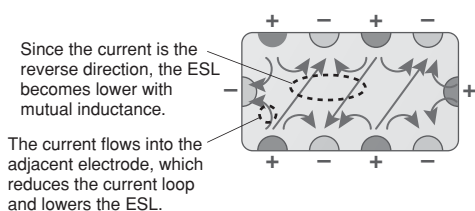
Low
ESL

10-Terminal Type Low ESL Capacitor Ideal for Power Supply Decoupling of High-speed Operation IC

Features

① This is the lowest ESL LW reversed type capacitor.

Since the equivalent series inductance (ESL) of this product is even lower than the LLA series (8-terminal product) with excellent high frequency characteristics, this capacitor is ideal for power supply decoupling of high-speed operation IC.



<Effectiveness of Cancelling Out Inductance by Mutual Inductance>



<Effectiveness of Suppressing Inductance when Mounting a Multi-terminal Capacitor>

The inductance for the boards also becomes lower, not only the capacitor.

② A maximum operating temperature up to 125°C.

This product is applicable to high temperatures (X7* characteristics); however, Murata also offers numerous thin type products, which are ideal as decoupling capacitors on IC package.

Specifications

Size	2.0×1.25mm to 3.2×1.6mm
Rated Voltage	DC4V to 25V
Capacitance	0.01μF to 2.2μF
Main Applications	Application processor/CPU/GPU



This catalog contains only a portion of the product lineup.
Please refer to the capacitor search tool on the Murata Web site for details.

LLM Series High Dielectric Constant Type Low ESL Part Number List

■ 2.0×1.25mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	25Vdc	X7R	10000pF	±20%	LLM215R71E103MA11#	
			22000pF	±20%	LLM215R71E223MA11#	
	16Vdc	X7R	47000pF	±20%	LLM215R71C473MA11#	
			0.10μF	±20%	LLM215R71C104MA11#	
	6.3Vdc	X7R	0.22μF	±20%	LLM215R70J224MA11#	
			0.47μF	±20%	LLM215R70J474MA11#	
	4Vdc	X7S	1.0μF	±20%	LLM215C70G105MA11#	

■ 3.2×1.6mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.55mm	16Vdc	X7R	0.10μF	±20%	LLM315R71C104MA11#	
			0.22μF	±20%	LLM315R71C224MA11#	
	10Vdc	X7R	0.47μF	±20%	LLM315R71A474MA11#	
	6.3Vdc	X7R	2.2μF	±20%	LLM315R70J225MA11#	

ESR Controlled Low ESL Type

LLR Series



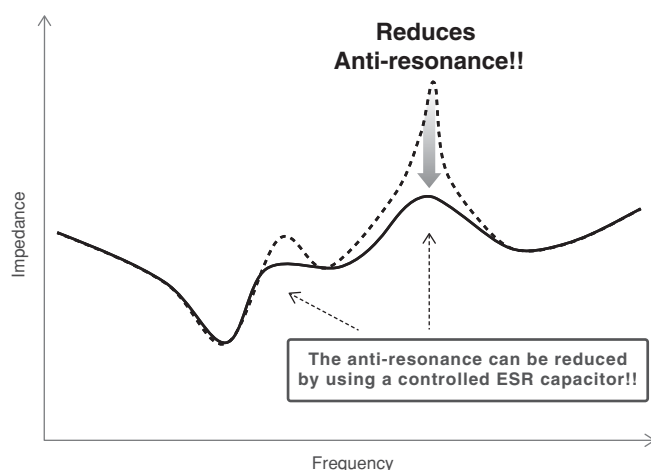
Low
ESL

ESR Controlled Type Low ESL Capacitors Equipped with Anti-resonance Control Function

Features

① Reduces Anti-resonance

This capacitor is controlled so that the equivalent series resistance (ESR) becomes slightly higher, and is effective in reducing the anti-resonance that occurs when capacitor arrays are used.



② Lineup of capacitors with ESR values from 100 to 1,000mΩ.

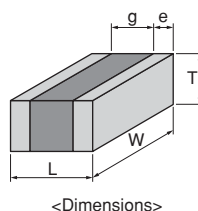
According to the conditions of the anti-resonance, the most suitable ESR value can be selected from 4 types.

③ Low ESL

This ESR controlled type capacitor has excellent high frequency characteristics, with low equivalent series inductance (ESL). This is also ideal as a decoupling component.

Specifications

Size	0.8×1.6mm
Rated Voltage	DC4V
Capacitance	1.0μF
Main Applications	Network processor/ASIC/PMIC



This catalog contains only a portion of the product lineup.
Please refer to the capacitor search tool on the Murata Web site for details.

GRM Series

GJM Series

GMA Series

GMD Series

GQM Series

GRJ Series

GR3 Series

KRM Series

KR3 Series

LLA Series

LLL Series

LLM Series

LLR Series

⚠Caution/
Notice

LLR Series High Dielectric Constant Type **Low ESL** Part Number List

■ 0.8×1.6mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	ESR	Part Number	
0.55mm	4Vdc	X7S	1.0μF	±20%	100mΩ	LLR185C70G105ME01#	
				±20%	220mΩ	LLR185C70G105ME03#	
				±20%	470mΩ	LLR185C70G105ME05#	
				±20%	1000mΩ	LLR185C70G105ME07#	

Part number # indicates the package specification code.



⚠Caution/Notice

⚠Caution

■ Storage and Operation Conditions	138
■ Rating	138
1. Temperature Dependent Characteristics	138
2. Measurement of Capacitance	138
3. Applied Voltage	139
4. Type of Applied Voltage and Self-heating Temperature	139
5. DC Voltage and AC Voltage Characteristics	142
6. Capacitance Aging	142
7. Vibration and Shock	143
■ Soldering and Mounting	143
1. Mounting Position	143
2. Information before Mounting	144
3. Maintenance of the Mounting (pick and place) Machine	144
4-1. Reflow Soldering	145
4-2. Flow Soldering	146
4-3. Correction of Soldered Portion	147
5. Washing	148
6. Electrical Test on Printed Circuit Board	148
7. Printed Circuit Board Cropping	148
8. Assembly	151
9. Die Bonding/Wire Bonding	152
■ Other	152
1. Under Operation of Equipment	152
2. Other	152

Notice

■ Rating	153
1. Operating Temperature	153
2. Atmosphere Surroundings	153
3. Piezo-electric Phenomenon	153
■ Soldering and Mounting	153
1. PCB Design	153
1. Notice for Pattern Forms	153
2. Land Dimensions	154
3. Board Design	155
2. Adhesive Application	156
3. Adhesive Curing	156
4. Flux Application	156
5. Flow Soldering	156
6. Washing	157
7. Coating	157
■ Other	157
1. Transportation	157
2. Characteristics Evaluation in the Actual System	157

GRM Series

GJM Series

GMA Series

GMD Series

GQM Series

GRJ Series

GR3 Series

KRM Series

KR3 Series

LLA Series

LLL Series

LLM Series

LLR Series

⚠Caution/
Notice

⚠Caution

■ Storage and Operation Conditions

1. The performance of chip monolithic ceramic capacitors may be affected by the storage conditions.

1-1. Store the capacitors in the following conditions:

Room Temperature of +5°C to +40°C and
a Relative Humidity of 20% to 70%.

(1) Sunlight, dust, rapid temperature changes,
corrosive gas atmosphere, or high temperature
and humidity conditions during storage may affect
solderability and packaging performance.

Therefore, please maintain the storage
temperature and humidity. Use the product within
six months, as prolonged storage may cause
oxidation of the electrodes.

(2) Please confirm solderability before using after six
months. Store the capacitors without opening the
original bag. Even if the storage period is short, do
not exceed the specified atmospheric conditions.

1-2. Corrosive gas can react with the termination
(external) electrodes or lead wires of capacitors, and
result in poor solderability. Do not store the
capacitors in an atmosphere consisting of corrosive
gas (e.g., hydrogen sulfide, sulfur dioxide, chlorine,
ammonia gas, etc.).

1-3. Due to moisture condensation caused by rapid
humidity changes, or the photochemical change
caused by direct sunlight on the terminal electrodes
and/or the resin/epoxy coatings, the solderability and
electrical performance may deteriorate. Do not store
capacitors under direct sunlight or in high humidity
conditions.

■ Rating

1. Temperature Dependent Characteristics

1. The electrical characteristics of a capacitor can change
with temperature.

1-1. For capacitors having larger temperature
dependency, the capacitance may change with
temperature changes.

The following actions are recommended in order to
ensure suitable capacitance values.

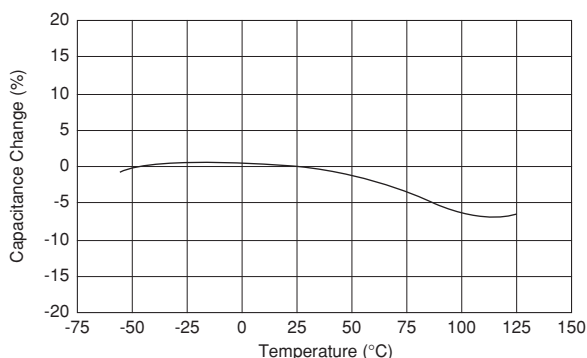
(1) Select a suitable capacitance for the operating
temperature range.

(2) The capacitance may change within the rated
temperature.

When you use a high dielectric constant type
capacitor in a circuit that needs a tight (narrow)
capacitance tolerance (e.g., a time-constant
circuit), please carefully consider the temperature
characteristics, and carefully confirm the various
characteristics in actual use conditions and the
actual system.

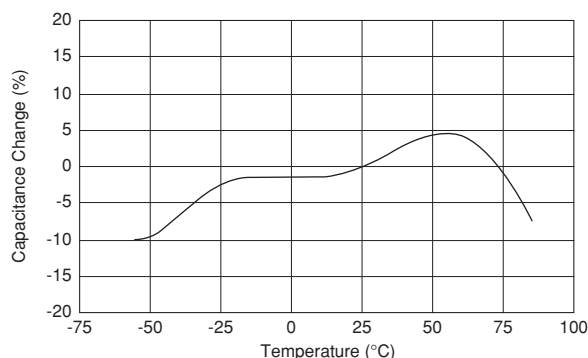
[Typical Temperature Characteristics X7R]

Sample: 0.1μF, Rated Voltage 50VDC



[Typical Temperature Characteristics X5R]

Sample: 22μF, Rated Voltage 4VDC



2. Measurement of Capacitance

1. Measure capacitance with the voltage and frequency
specified in the product specifications.

1-1. The output voltage of the measuring equipment may
decrease occasionally when capacitance is high.
Please confirm whether a prescribed measured
voltage is impressed to the capacitor.

1-2. The capacitance values of high dielectric constant
type capacitors change depending on the AC voltage
applied. Please consider the AC voltage
characteristics when selecting a capacitor to be used
in an AC circuit.

⚠Caution

Continued from the preceding page.

3. Applied Voltage

1. Do not apply a voltage to the capacitor that exceeds the rated voltage as called out in the specifications.
 - 1-1. Applied voltage between the terminals of a capacitor shall be less than or equal to the rated voltage.
 - (1) When AC voltage is superimposed on DC voltage, the zero-to-peak voltage shall not exceed the rated DC voltage.
When AC voltage or pulse voltage is applied, the peak-to-peak voltage shall not exceed the rated DC voltage.
 - (2) Abnormal voltages (surge voltage, static electricity, pulse voltage, etc.) shall not exceed the rated DC voltage.

Typical Voltage Applied to the DC Capacitor

DC Voltage	DC Voltage+AC	AC Voltage	Pulse Voltage
			

(E: Maximum possible applied voltage.)

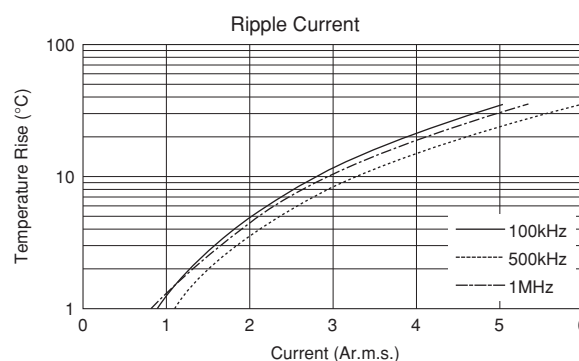
- 1-2. Influence of over voltage
Over voltage that is applied to the capacitor may result in an electrical short circuit caused by the breakdown of the internal dielectric layers.
The time duration until breakdown depends on the applied voltage and the ambient temperature.
2. Use a safety standard certified capacitor in a power supply input circuit (AC filter), as it is also necessary to consider the withstand voltage and impulse withstand voltage defined for each device.

4. Type of Applied Voltage and Self-heating Temperature

1. Confirm the operating conditions to make sure that no large current is flowing into the capacitor due to the continuous application of an AC voltage or pulse voltage.
When a DC rated voltage product is used in an AC voltage circuit or a pulse voltage circuit, the AC current or pulse current will flow into the capacitor; therefore check the self-heating condition.
Please confirm the surface temperature of the capacitor so that the temperature remains within the upper limits of the operating temperature, including the rise in temperature due to self-heating. When the capacitor is used with a high-frequency voltage or pulse voltage, heat may be generated by dielectric loss.
<Applicable to Rated Voltage of less than 100VDC>
 - 1-1. The load should be contained to the level such that when measuring at atmospheric temperature of 25°C, the product's self-heating remains below 20°C and the surface temperature of the capacitor in the actual circuit remains within the maximum operating temperature.

[Example of Temperature Rise (Heat Generation) in Chip Monolithic Ceramic Capacitors in Contrast to Ripple Current]

Sample: R characteristics 10μF, Rated voltage: DC10V



Continued on the following page. ↗

⚠Caution

Continued from the preceding page.

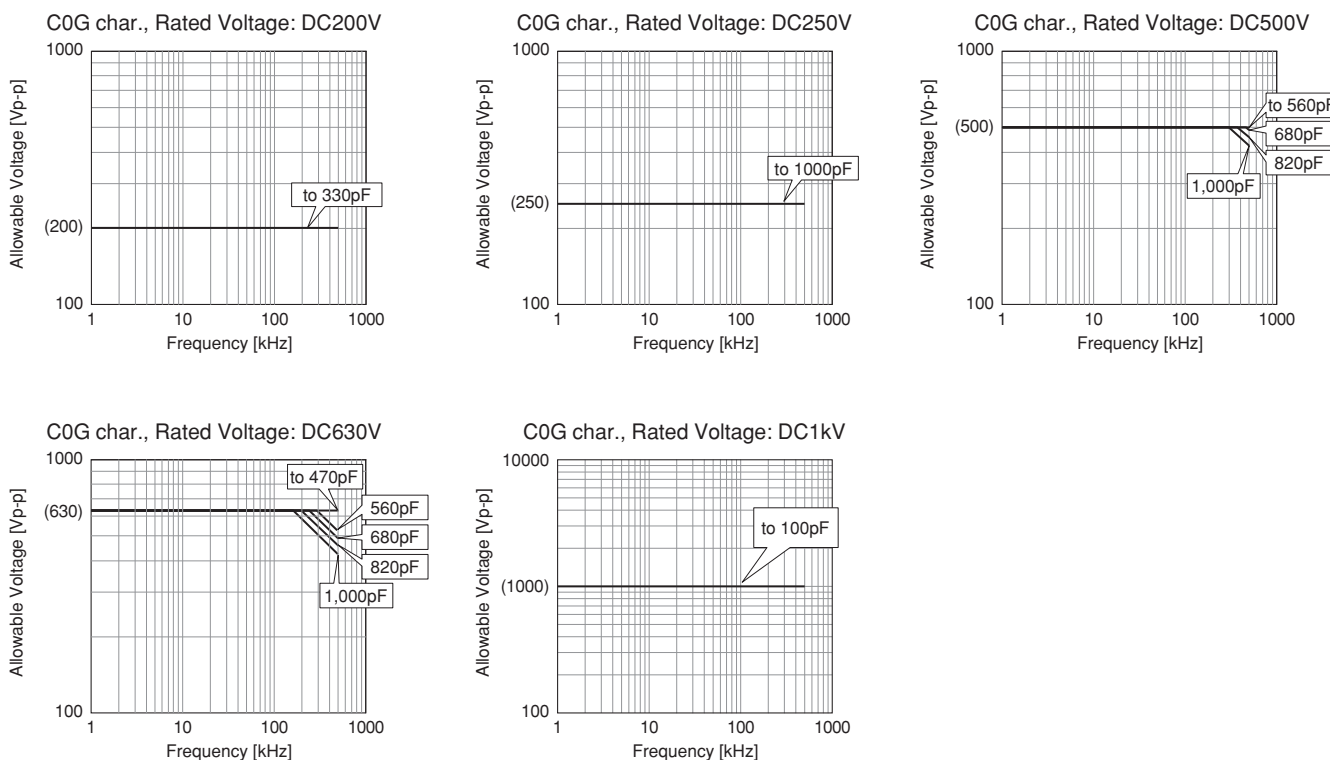
<Applicable to Temperature Characteristic X7R, X7T beyond Rated Voltage of 200VDC>

1-2. The load should be contained so that the self-heating of the capacitor body remains below 20°C, when measuring at an ambient temperature of 25°C. In addition, use a K thermocouple of $\phi 0.1\text{mm}$ with less heat capacity when measuring, and measure in a condition where there is no effect from the radiant heat of other components or air flow caused by convection. Excessive generation of heat may cause deterioration of the characteristics and reliability of the capacitor. (Absolutely do not perform measurements while the cooling fan is operating, as an accurate measurement may not be performed.)

<Applicable to Temperature Characteristic U2J, C0G beyond Rated Voltage of 200VDC>

1-3. Since the self-heating is low in the low loss series, the allowable power becomes extremely high compared to the common X7R characteristics. However, when a load with self-heating of 20°C is applied at the rated voltage, the allowable power may be exceeded. When the capacitor is used in a high-frequency voltage circuit of 1kHz or more, the frequency of the applied voltage should be less than 500kHz sine wave (less than 100kHz for a product with rated voltage of DC3.15kV), to limit the voltage load so that the load remains within the derating shown in the following figure. In the case of non-sine wave, high-frequency components exceeding the fundamental frequency may be included. In such a case, please contact Murata. The excessive generation of heat may cause deterioration of the characteristics and reliability of the capacitor. (Absolutely do not perform measurements while the cooling fan is operating, as an accurate measurement may not be performed.)

The temperature of the surface of capacitor: 125°C or less (including self-heating)



The sine-wave frequency VS allowable voltage

Continued on the following page. ➤



Continued from the preceding page.

The temperature of the surface
of capacitor: 125°C or less (including self-heating)



The sine-wave frequency VS allowable voltage

<Design Tool>

• Simsurfing

Simsurfing is a web application to display the characteristics charts and download the characteristics data of our products. The frequency characteristics, temperature characteristics, bias characteristics etc. can be checked.

(Address: <http://www.murata.com/simsurfing/>)

• Medium Voltage Ceramic Capacitor Selection Tool

The selection tool "Murata Medium Voltage Capacitors Selection Tool by Voltage Form" is installed in the above SimSurfing, where the usability of the preferred medium voltage ceramic capacitors can be determined according to the application including automobiles.

By using this tool, the preferred products* can be checked by specifications, such as the power, voltage, and fundamental frequency of the voltage waveform to be input into the capacitor.

*Supported Series

Temperature characteristic U2J, C0G of GRM/DC200V or more

Continued on the following page. ↗

⚠Caution

Continued from the preceding page.

5. DC Voltage and AC Voltage Characteristics

1. The capacitance value of a high dielectric constant type capacitor changes depending on the DC voltage applied. Please consider the DC voltage characteristics when a capacitor is selected for use in a DC circuit.

1-1. The capacitance of ceramic capacitors may change sharply depending on the applied voltage (see figure).

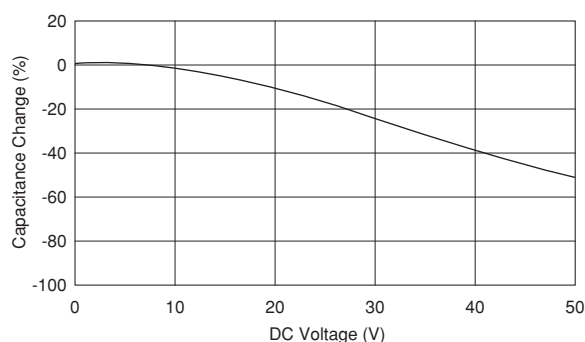
Please confirm the following in order to secure the capacitance.

- (1) Determine whether the capacitance change caused by the applied voltage is within the allowed range.
- (2) In the DC voltage characteristics, the rate of capacitance change becomes larger as voltage increases, even if the applied voltage is below the rated voltage. When a high dielectric constant type capacitor is used in a circuit that requires a tight (narrow) capacitance tolerance (e.g., a time constant circuit), please carefully consider the voltage characteristics, and confirm the various characteristics in actual operating conditions in an actual system.

2. The capacitance values of high dielectric constant type capacitors changes depending on the AC voltage applied. Please consider the AC voltage characteristics when selecting a capacitor to be used in an AC circuit.

[DC Voltage Characteristics]

Sample: X7R Characteristics 0.1μF, Rated Voltage 50VDC



[AC Voltage Characteristics]

Sample: X7R Characteristics 10μF, Rated Voltage 6.3VDC

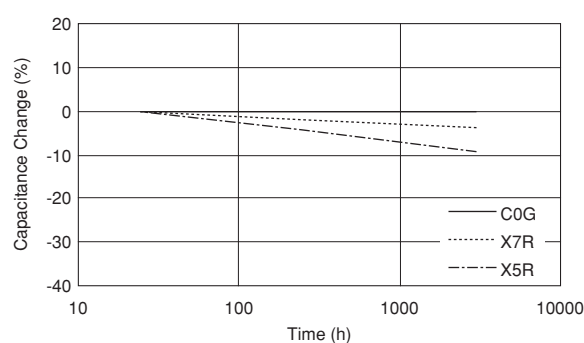


6. Capacitance Aging

1. The high dielectric constant type capacitors have the characteristic in which the capacitance value decreases with the passage of time.

When you use high dielectric constant type capacitors in a circuit that needs a tight (narrow) capacitance tolerance (e.g., a time-constant circuit), please carefully consider the characteristics of these capacitors, such as their aging, voltage, and temperature characteristics. In addition, check capacitors using your actual appliances at the intended environment and operating conditions.

[Example of Change Over Time (Aging Characteristics)]



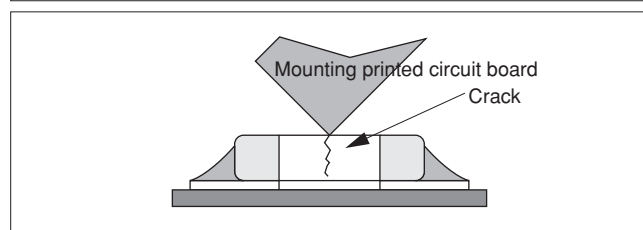
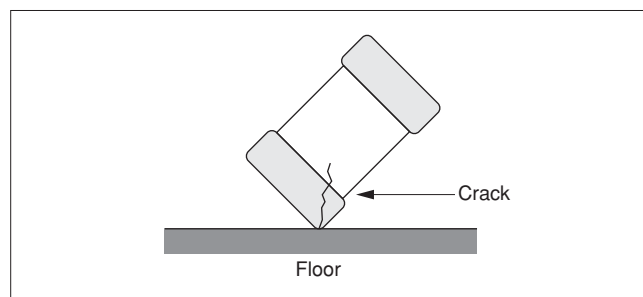
Continued on the following page. ➤

⚠Caution

Continued from the preceding page.

7. Vibration and Shock

- Please confirm the kind of vibration and/or shock, its condition, and any generation of resonance.
Please mount the capacitor so as not to generate resonance, and do not allow any impact on the terminals.
- Mechanical shock due to being dropped may cause damage or a crack in the dielectric material of the capacitor.
Do not use a dropped capacitor because the quality and reliability may be deteriorated.
- When printed circuit boards are piled up or handled, the corner of another printed circuit board should not be allowed to hit the capacitor, in order to avoid a crack or other damage to the capacitor.

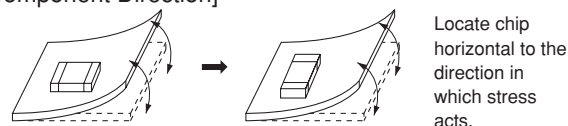


■ Soldering and Mounting

1. Mounting Position

- Confirm the best mounting position and direction that minimizes the stress imposed on the capacitor during flexing or bending the printed circuit board.
 - 1-1. Choose a mounting position that minimizes the stress imposed on the chip during flexing or bending of the board.

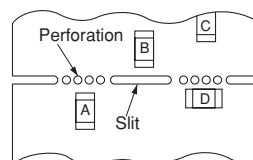
[Component Direction]



[Chip Mounting Close to Board Separation Point]

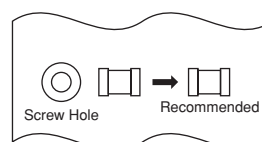
It is effective to implement the following measures, to reduce stress in separating the board.
It is best to implement all of the following three measures; however, implement as many measures as possible to reduce stress.

Contents of Measures	Stress Level
(1) Turn the mounting direction of the component parallel to the board separation surface.	$A > D$
(2) Add slits in the board separation part.	$A > B$
(3) Keep the mounting position of the component away from the board separation surface.	$A > C$



[Mounting Capacitors Near Screw Holes]

When a capacitor is mounted near a screw hole, it may be affected by the board deflection that occurs during the tightening of the screw. Mount the capacitor in a position as far away from the screw holes as possible.



Continued on the following page.

⚠Caution

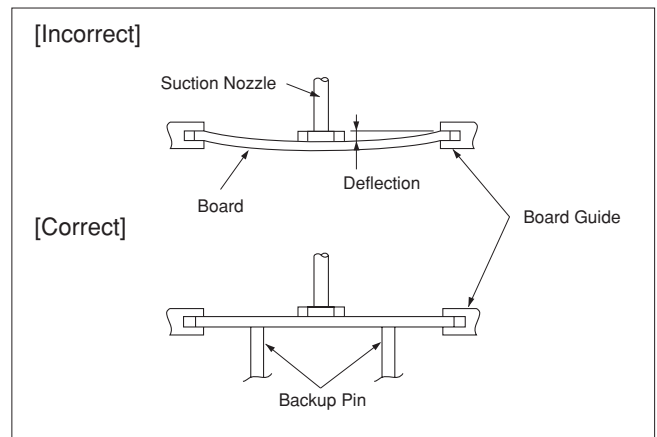
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2. Information before Mounting

1. Do not re-use capacitors that were removed from the equipment.
2. Confirm capacitance characteristics under actual applied voltage.
3. Confirm the mechanical stress under actual process and equipment use.
4. Confirm the rated capacitance, rated voltage and other electrical characteristics before assembly.
5. Prior to use, confirm the solderability of capacitors that were in long-term storage.
6. Prior to measuring capacitance, carry out a heat treatment for capacitors that were in long-term storage.
7. The use of Sn-Zn based solder will deteriorate the reliability of the MLCC.
Please contact our sales representative or product engineers on the use of Sn-Zn based solder in advance.
8. We have also produced a DVD which shows a summary of our opinions, regarding the precautions for mounting.
Please contact our sales representative to request the DVD.

3. Maintenance of the Mounting (pick and place) Machine

1. Make sure that the following excessive forces are not applied to the capacitors.
 - 1-1. In mounting the capacitors on the printed circuit board, any bending force against them shall be kept to a minimum to prevent them from any bending damage or cracking. Please take into account the following precautions and recommendations for use in your process.
 - (1) Adjust the lowest position of the pickup nozzle so as not to bend the printed circuit board.
 - (2) Adjust the nozzle pressure within a static load of 1N to 3N during mounting.
2. Dirt particles and dust accumulated between the suction nozzle and the cylinder inner wall prevent the nozzle from moving smoothly. This imposes greater force upon the chip during mounting, causing cracked chips. Also, the locating claw, when worn out, imposes uneven forces on the chip when positioning, causing cracked chips. The suction nozzle and the locating claw must be maintained, checked, and replaced periodically.



Continued on the following page. ☐

⚠Caution

Continued from the preceding page.

4-1. Reflow Soldering

- When sudden heat is applied to the components, the mechanical strength of the components will decrease because a sudden temperature change causes deformation inside the components. In order to prevent mechanical damage to the components, preheating is required for both the components and the PCB. Preheating conditions are shown in table 1. It is required to keep the temperature differential between the solder and the components surface (ΔT) as small as possible.
- Solderability of tin plating termination chips might be deteriorated when a low temperature soldering profile where the peak solder temperature is below the melting point of tin is used. Please confirm the solderability of tin plated termination chips before use.
- When components are immersed in solvent after mounting, be sure to maintain the temperature difference (ΔT) between the component and the solvent within the range shown in table 1.

Table 1

Part Number	Temperature Differential
GJM/GMA/GMD/GQM/GR3/GRJ/GRM/ KRM/LLL/LLR Series 02/03/15/18/21/31 sizes	$\Delta T \leq 190^\circ\text{C}$
LLL Series 1U size	
GR3/GRJ/GRM/KR3/KRM Series 32/43/55 sizes	$\Delta T \leq 130^\circ\text{C}$
LLA/LLM Series 18/21/31 sizes	
GQM Series 22 size	

Recommended Conditions

	Pb-Sn Solder		Lead Free Solder
	Reflow	Vapor Reflow	
Peak Temperature	230 to 250°C	230 to 240°C	240 to 260°C
Atmosphere	Air	Saturated vapor of inactive solvent	Air or N ₂

Pb-Sn Solder: Sn-37Pb

Lead Free Solder: Sn-3.0Ag-0.5Cu

4. Optimum Solder Amount for Reflow Soldering

- Overly thick application of solder paste results in a excessive solder fillet height. This makes the chip more susceptible to mechanical and thermal stress on the board and may cause the chips to crack.
- Too little solder paste results in a lack of adhesive strength on the outer electrode, which may result in chips breaking loose from the PCB.
- Make sure the solder has been applied smoothly to the end surface to a height of 0.2mm* min.

Inverting the PCB

Make sure not to impose any abnormal mechanical shocks to the PCB.

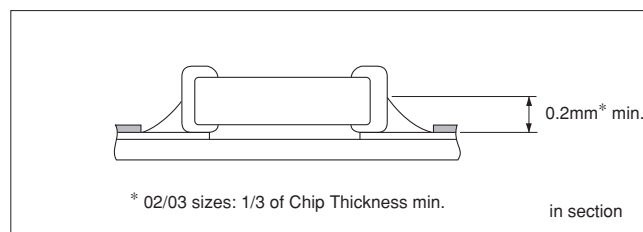
[Standard Conditions for Reflow Soldering]



[Allowable Reflow Soldering Temperature and Time]



In the case of repeated soldering, the accumulated soldering time must be within the range shown above.



Continued on the following page. ➡

⚠Caution

Continued from the preceding page.

4-2. Flow Soldering

- Do not apply flow soldering to chips not listed in table 2.

Table 2

Part Number	Temperature Differential
GR3/GRM Series 18/21/31 sizes GQM Series 18/21 sizes LLL Series 21/31 sizes GRJ Series Rated Voltage 250VDC or more 18/21/31 sizes	$\Delta T \leq 150^\circ\text{C}$

- When sudden heat is applied to the components, the mechanical strength of the components will decrease because a sudden temperature change causes deformation inside the components. In order to prevent mechanical damage to the components, preheating is required for both of the components and the PCB. Preheating conditions are shown in table 2. It is required to keep the temperature differential between the solder and the components surface (ΔT) as low as possible.
- Excessively long soldering time or high soldering temperature can result in leaching of the outer electrodes, causing poor adhesion or a reduction in capacitance value due to loss of contact between the electrodes and end termination.
- When components are immersed in solvent after mounting, be sure to maintain the temperature differential (ΔT) between the component and solvent within the range shown in the table 2.

Recommended Conditions

	Pb-Sn Solder	Lead Free Solder
Preheating Peak Temperature	90 to 110°C	100 to 120°C
Soldering Peak Temperature	240 to 250°C	250 to 260°C
Atmosphere	Air	N ₂

Pb-Sn Solder: Sn-37Pb

Lead Free Solder: Sn-3.0Ag-0.5Cu

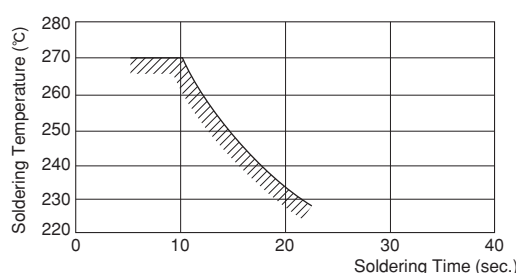
5. Optimum Solder Amount for Flow Soldering

- The top of the solder fillet should be lower than the thickness of the components. If the solder amount is excessive, the risk of cracking is higher during board bending or any other stressful condition.

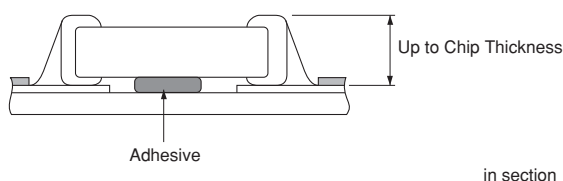
[Standard Conditions for Flow Soldering]



[Allowable Flow Soldering Temperature and Time]



In the case of repeated soldering, the accumulated soldering time must be within the range shown above.



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⚠Caution

Continued from the preceding page.

4-3. Correction of Soldered Portion

When sudden heat is applied to the capacitor, distortion caused by the large temperature difference occurs internally, and can be the cause of cracks. Capacitors also tend to be affected by mechanical and thermal stress depending on the board preheating temperature or the soldering fillet shape, and can be the cause of cracks. Please refer to "1. PCB Design" or "3. Optimum solder amount" for the solder amount and the fillet shapes.

1. Correction with a Soldering Iron

- 1-1. In order to reduce damage to the capacitor, be sure to preheat the capacitor and the mounting board. Preheat to the temperature range shown in Table 3. A hot plate, hot air type preheater, etc. can be used for preheating.
- 1-2. After soldering, do not allow the component/PCB to cool down rapidly.
- 1-3. Perform the corrections with a soldering iron as quickly as possible. If the soldering iron is applied too long, there is a possibility of causing solder leaching on the terminal electrodes, which will cause deterioration of the adhesive strength and other problems.

2. Correction with Spot Heater

Compared to local heating with a soldering iron, hot air heating by a spot heater heats the overall component and board, therefore, it tends to lessen the thermal shock. In the case of a high density mounted board, a spot heater can also prevent concerns of the soldering iron making direct contact with the component.

- 2-1. If the distance from the hot air outlet of the spot heater to the component is too close, cracks may occur due to thermal shock. To prevent this problem, follow the conditions shown in Table 4.

- 2-2. In order to create an appropriate solder fillet shape, it is recommended that hot air be applied at the angle shown in Figure 1.

3. Optimum solder amount when re-working with a soldering iron

- 3-1. In the case of sizes smaller than 0603, (GJM/GQM/GR3/GRJ/GRM Series, 03/15/18 sizes), the top of the solder fillet should be lower than $\frac{2}{3}$ of the thickness of the component or 0.5mm, whichever is smaller. In the case of 0805 and larger sizes, (GJM/GQM/GR3/GRJ/GRM Series, 21/22/31/32/43/55 sizes), the top of the solder fillet should be lower than $\frac{2}{3}$ of the thickness of the component. If the solder amount is excessive, the risk of cracking is higher during board bending or under any other stressful condition.

Table 3

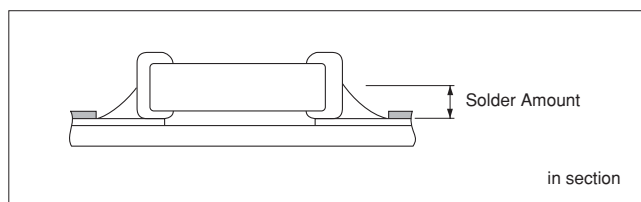
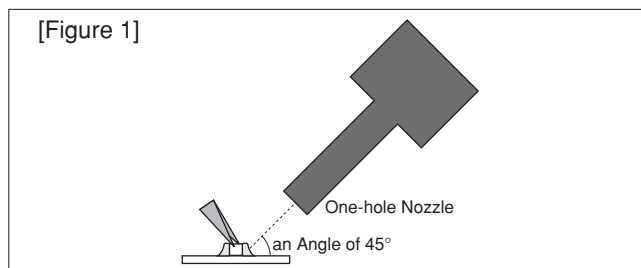
Part Number	Temperature of Soldering Iron Tip	Preheating Temperature	Temperature Differential (ΔT)	Atmosphere
GJM/GQM/GR3/GRJ/GRM Series 03/15/18/21/31 sizes	350°C max.	150°C min.	$\Delta T \leq 190^\circ\text{C}$	Air
GRJ/GRM Series 32/43/55 sizes GQM Series 22 size	280°C max.	150°C min.	$\Delta T \leq 130^\circ\text{C}$	Air

*Applicable for both Pb-Sn and Lead Free Solder.
Pb-Sn Solder: Sn-37Pb
Lead Free Solder: Sn-3.0Ag-0.5Cu

Table 4

Distance	5mm or more
Hot Air Application angle	45° *Figure 1
Hot Air Temperature Nozzle Outlet	400°C max.
Application Time	Less than 10 seconds (1206 (3216 in mm) size or smaller)
	Less than 30 seconds (1210 (3225 in mm) size or larger)

[Figure 1]



Continued on the following page.

⚠Caution

Continued from the preceding page.

3-2. A soldering iron with a tip of $\phi 3\text{mm}$ or smaller should be used. It is also necessary to keep the soldering iron from touching the components during the re-work.

3-3. Solder wire with $\phi 0.5\text{mm}$ or smaller is required for soldering.

<Applicable to KR3/KRM Series>

4. For the shape of the soldering iron tip, refer to the figure on the right.

Regarding the type of solder, use a wire diameter of $\phi 0.5\text{mm}$ or less (rosin core wire solder).

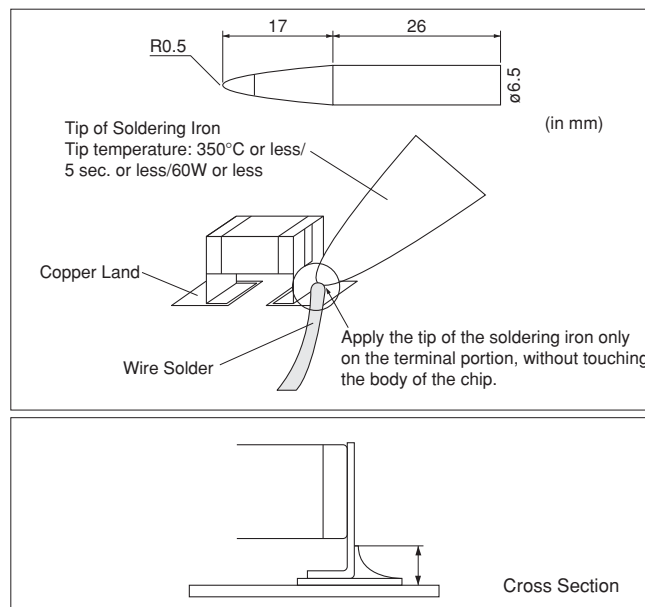
How to Apply the Soldering Iron

Apply the tip of the soldering iron against the lower end of the metal terminal.

- 1) In order to prevent cracking caused by sudden heating of the ceramic device, do not touch the ceramic base directly.
- 2) In order to prevent deviations and dislocating of the chip, do not touch the junction of the chip and the metal terminal, and the metal portion on the outside directly.

Appropriate Amount of Solder

The amount of solder for corrections by soldering iron, should be lower than the height of the lower side of the chip.



5. Washing

Excessive ultrasonic oscillation during cleaning can cause the PCBs to resonate, resulting in cracked chips or broken solder joints. Take note not to vibrate PCBs.

6. Electrical Test on Printed Circuit Board

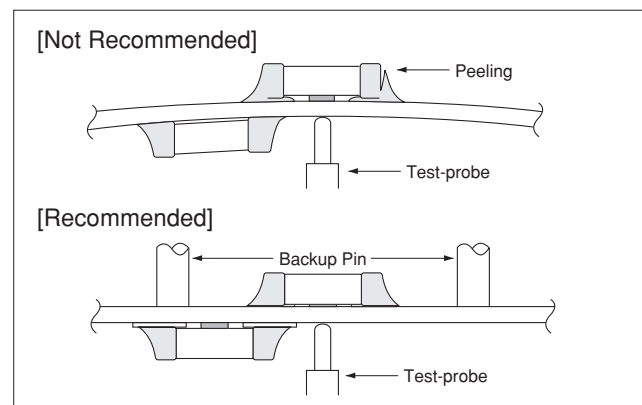
1. Confirm position of the backup pin or specific jig, when inspecting the electrical performance of a capacitor after mounting on the printed circuit board.

1-1. Avoid bending the printed circuit board by the pressure of a test-probe, etc.

The thrusting force of the test probe can flex the PCB, resulting in cracked chips or open solder joints.

Provide backup pins on the back side of the PCB to prevent warping or flexing. Install backup pins as close to the capacitor as possible.

1-2. Avoid vibration of the board by shock when a test-probe contacts a printed circuit board.



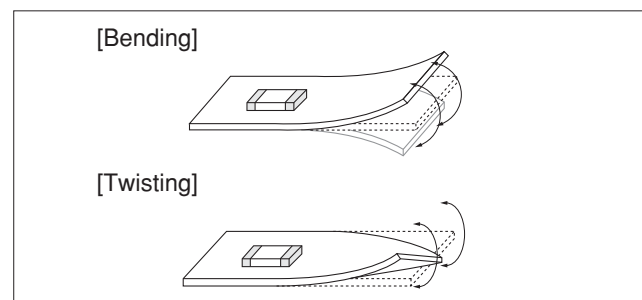
7. Printed Circuit Board Cropping

1. After mounting a capacitor on a printed circuit board, do not apply any stress to the capacitor that causes bending or twisting the board.

1-1. In cropping the board, the stress as shown at right may cause the capacitor to crack.

Cracked capacitors may cause deterioration of the insulation resistance, and result in a short.

Avoid this type of stress to a capacitor.



Continued on the following page. ➤

⚠Caution

Continued from the preceding page.

2. Check the cropping method for the printed circuit board in advance.

2-1. Printed circuit board cropping shall be carried out by using a jig or an apparatus (Disk separator, router type separator, etc.) to prevent the mechanical stress that can occur to the board.

Board Separation Method	Hand Separation Nipper Separation	(1) Board Separation Jig	Board Separation Apparatus	
			(2) Disk Separator	(3) Router Type Separator
Level of stress on board	High	Medium	Medium	Low
Recommended	×	△*	△*	○
Notes	Hand and nipper separation apply a high level of stress. Use another method.	- Board handling - Board bending direction - Layout of capacitors	- Board handling - Layout of slits - Design of V groove - Arrangement of blades - Controlling blade life	Board handling

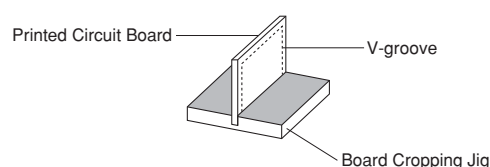
* When a board separation jig or disk separator is used, if the following precautions are not observed, a large board deflection stress will occur and the capacitors may crack. Use router type separator if at all possible.

(1) Example of a suitable jig

[In the case of Single-side Mounting]

An outline of the board separation jig is shown as follows. Recommended example: Stress on the component mounting position can be minimized by holding the portion close to the jig, and bend in the direction towards the side where the capacitors are mounted. Not recommended example: The risk of cracks occurring in the capacitors increases due to large stress being applied to the component mounting position, if the portion away from the jig is held and bent in the direction opposite the side where the capacitors are mounted.

[Outline of Jig]



Recommended	Not recommended

[In the case of Double-sided Mounting]

Since components are mounted on both sides of the board, the risk of cracks occurring can not be avoided with the above method.

Therefore, implement the following measures to prevent stress from being applied to the components.
(Measures)

- (1) Consider introducing a router type separator.
If it is difficult to introduce a router type separator, implement the following measures. (Refer to item 1. Mounting Position)
- (2) Mount the components at a right angle to the board separation surface.
- (3) When mounting components near the board separation point, add slits in the separation position near the component.
- (4) Keep the mounting position of the components away from the board separation point.

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⚠Caution

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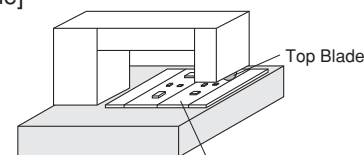
(2) Example of a Disk Separator

An outline of a disk separator is shown as follows. As shown in the Principle of Operation, the top blade and bottom blade are aligned with the V-grooves on the printed circuit board to separate the board.

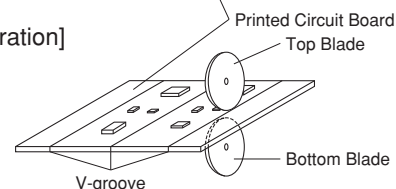
In the following case, board deflection stress will be applied and cause cracks in the capacitors.

- (1) When the adjustment of the top and bottom blades are misaligned, such as deviating in the top-bottom, left-right or front-rear directions
 - (2) The angle of the V groove is too low, depth of the V groove is too shallow, or the V groove is misaligned top-bottom
- IF V groove is too deep, it is possible to brake when you handle and carry it. Carefully design depth of the V groove with consideration about strength of material of the printed circuit board.

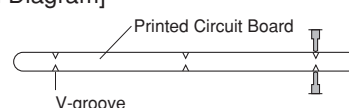
[Outline of Machine]



[Principle of Operation]



[Cross-section Diagram]



Recommended	Not Recommended		
	Top-bottom Misalignment	Left-right Misalignment	Front-rear Misalignment
Top Blade Bottom Blade	Top Blade Bottom Blade	Top Blade Bottom Blade	Top Blade Bottom Blade

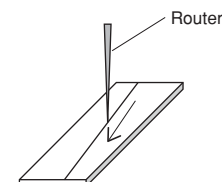
Example of Recommended V-groove Design	Not Recommended			
	Left-right Misalignment	Low-Angle	Depth too Shallow	Depth too Deep

(3) Example of Router Type Separator

The router type separator performs cutting by a router rotating at a high speed. Since the board does not bend in the cutting process, stress on the board can be suppressed during board separation.

When attaching or removing boards to/from the router type separator, carefully handle the boards to prevent bending.

[Outline Drawing]



Continued on the following page. ➤

⚠Caution

Continued from the preceding page.

8. Assembly

1. Handling

If a board mounted with capacitors is held with one hand, the board may bend. Firmly hold the edges of the board with both hands when handling.

If a board mounted with capacitors is dropped, cracks may occur in the capacitors.

Do not use dropped boards, as there is a possibility that the quality of the capacitors may be impaired.

2. Attachment of Other Components

2-1. Mounting of Other Components

Pay attention to the following items, when mounting other components on the back side of the board after capacitors have been mounted on the opposite side. When the bottom dead point of the suction nozzle is set too low, board deflection stress may be applied to the capacitors on the back side (bottom side), and cracks may occur in the capacitors.

- After the board is straightened, set the bottom dead point of the nozzle on the upper surface of the board.
- Periodically check and adjust the bottom dead point.



2-2. Inserting Components with Leads into Boards

When inserting components (transformers, IC, etc.) into boards, bending the board may cause cracks in the capacitors or cracks in the solder.

Pay attention to the following.

- Increase the size of the holes to insert the leads, to reduce the stress on the board during insertion.
- Fix the board with backup pins or a dedicated jig before insertion.
- Support below the board so that the board does not bend. When using multiple backup pins on the board, periodically confirm that there is no difference in the height of each backup pin.



2-3. Attaching/Removing Sockets

When the board itself is a connector, the board may bend when a socket is attached or removed. Plan the work so that the board does not bend when a socket is attached or removed.



2-4. Tightening Screws

The board may be bent, when tightening screws, etc. during the attachment of the board to a shield or chassis.

Pay attention to the following items before performing the work.

- Plan the work to prevent the board from bending.
- Use a torque screwdriver, to prevent over-tightening of the screws.
- The board may bend after mounting by reflow soldering, etc. Please note, as stress may be applied to the chips by forcibly flattening the board when tightening the screws.



Continued on the following page. ➤

GRM Series

GJM Series

GMA Series

GMD Series

GQM Series

GRJ Series

GR3 Series

KRM Series

KR3 Series

LLA Series

LLL Series

LLM Series

LLR Series

⚠Caution

⚠Caution

☐ Continued from the preceding page.

<Applicable to GMA or GMD Series>

9. Die Bonding/Wire Bonding

1. Die Bonding of Capacitors

- 1-1. Use the following materials for the Brazing alloys:
Au-Sn (80/20) 300 to 320 °C in N₂ atmosphere
- 1-2. Mounting
 - (1) Control the temperature of the substrate so it matches the temperature of the brazing alloy.
 - (2) Place the brazing alloy on the substrate and place the capacitor on the alloy. Hold the capacitor and gently apply the load. Be sure to complete the operation within 1 minute.

2. Wire Bonding

- 2-1. Wire
Gold wire: 25 micro m (0.001 inch) diameter
- 2-2. Bonding
 - (1) Thermo compression, ultrasonic ball bonding.
 - (2) Required stage temperature: 150 to 200 °C
 - (3) Required wedge or capillary weight: 0.2N to 0.5N
 - (4) Bond the capacitor and base substrate or other devices with gold wire.

■ Other

1. Under Operation of Equipment

- 1-1. Do not touch a capacitor directly with bare hands during operation in order to avoid the danger of an electric shock.
- 1-2. Do not allow the terminals of a capacitor to come in contact with any conductive objects (short-circuit). Do not expose a capacitor to a conductive liquid, including any acid or alkali solutions.
- 1-3. Confirm the environment in which the equipment will operate is under the specified conditions. Do not use the equipment under the following environments.
 - (1) Being spattered with water or oil.
 - (2) Being exposed to direct sunlight.
 - (3) Being exposed to ozone, ultraviolet rays, or radiation.
 - (4) Being exposed to toxic gas (e.g., hydrogen sulfide, sulfur dioxide, chlorine, ammonia gas, etc.)
 - (5) Any vibrations or mechanical shocks exceeding the specified limits.
 - (6) Moisture condensing environments.
- 1-4. Use damp proof countermeasures if using under any conditions that can cause condensation.

2. Other

- 2-1. In an Emergency
 - (1) If the equipment should generate smoke, fire, or smell, immediately turn off or unplug the equipment. If the equipment is not turned off or unplugged, the hazards may be worsened by supplying continuous power.
 - (2) In this type of situation, do not allow face and hands to come in contact with the capacitor or burns may be caused by the capacitor's high temperature.

2-2. Disposal of Waste

When capacitors are disposed of, they must be burned or buried by an industrial waste vendor with the appropriate licenses.

2-3. Circuit Design

- (1) Addition of Fail Safe Function
Capacitors that are cracked by dropping or bending of the board may cause deterioration of the insulation resistance, and result in a short. If the circuit being used may cause an electrical shock, smoke or fire when a capacitor is shorted, be sure to install fail-safe functions, such as a fuse, to prevent secondary accidents.
- (2) Capacitors used to prevent electromagnetic interference in the primary AC side circuit, or as a connection/insulation, must be a safety standard certified product, or satisfy the contents stipulated in the Electrical Appliance and Material Safety Law. Install a fuse for each line in case of a short.
- (3) The GJM, GMA, GMD, GQM, GR3, GRJ, GRM, KR3, KRM, LLA, LLL, LLM and LLR series are not safety standard certified products.

2-4. Remarks

Failure to follow the cautions may result, worst case, in a short circuit and smoking when the product is used.

The above notices are for standard applications and conditions. Contact us when the products are used in special mounting conditions.

Select optimum conditions for operation as they determine the reliability of the product after assembly. The data herein are given in typical values, not guaranteed ratings.

Notice

■ Rating

1. Operating Temperature

1. The operating temperature limit depends on the capacitor.

- 1-1. Do not apply temperatures exceeding the upper operating temperature.

It is necessary to select a capacitor with a suitable rated temperature that will cover the operating temperature range.

It is also necessary to consider the temperature distribution in equipment and the seasonal temperature variable factor.

- 1-2. Consider the self-heating factor of the capacitor.

The surface temperature of the capacitor shall be the upper operating temperature or less when including the self-heating factors.

2. Atmosphere Surroundings (gaseous and liquid)

1. Restriction on the operating environment of capacitors.

- 1-1. Capacitors, when used in the above, unsuitable,

operating environments may deteriorate due to the corrosion of the terminations and the penetration of moisture into the capacitor.

- 1-2. The same phenomenon as the above may occur when the electrodes or terminals of the capacitor are subject to moisture condensation.

- 1-3. The deterioration of characteristics and insulation resistance due to the oxidization or corrosion of terminal electrodes may result in breakdown when the capacitor is exposed to corrosive or volatile gases or solvents for long periods of time.

3. Piezo-electric Phenomenon

1. When using high dielectric constant type capacitors in AC or pulse circuits, the capacitor itself vibrates at specific frequencies and noise may be generated. Moreover, when the mechanical vibration or shock is added to the capacitor, noise may occur.

■ Soldering and Mounting

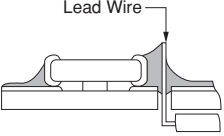
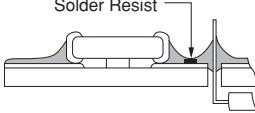
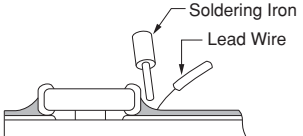
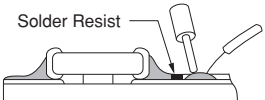
1. PCB Design

1. Notice for Pattern Forms

- 1-1. Unlike leaded components, chip components are susceptible to flexing stresses since they are mounted directly on the substrate. They are also more sensitive to mechanical and thermal stresses than leaded components. Excess solder fillet height can multiply these stresses and cause chip cracking. When designing substrates, take land patterns and dimensions into consideration to eliminate the possibility of excess solder fillet height.

- 1-2. There is a possibility of chip cracking caused by PCB expansion/contraction with heat, because stress on a chip is different depending on PCB material and structure. When the thermal expansion coefficient greatly differs between the board used for mounting and the chip, it will cause cracking of the chip due to the thermal expansion and contraction. When small size capacitors of 1005 size or less are mounted on a single-layered glass epoxy board, it will also cause cracking of the chip for the same reason.

Pattern Forms

	Prohibited	Correct
Placing Close to Chassis		
Placing of Chip Components and Leaded Components		
Placing of Leaded Components after Chip Component		
Lateral Mounting		

Continued on the following page. ➤

Notice

Continued from the preceding page.

2. Land Dimensions

- 2-1. Chip capacitors can be cracked due to the stress of PCB bending, etc. if the land area is larger than needed and has an excess amount of solder. Please refer to the land dimensions in table 1 for flow soldering, table 2 for reflow soldering, table 3 for reflow soldering for LLA Series, table 4 for reflow soldering for LLM Series. Please confirm the suitable land dimension by evaluating of the actual SET / PCB.



Table 1 Flow Soldering Method

Part Number	Dimensions	Chip (L×W)	a	b	c
GQM/GR3/GRJ/GRM Series 18 size		1.6×0.8	0.6 to 1.0	0.8 to 0.9	0.6 to 0.8
GQM/GR3/GRJ/GRM Series 21 size		2.0×1.25	1.0 to 1.2	0.9 to 1.0	0.8 to 1.1
GR3/GRJ/GRM Series 31 size		3.2×1.6	2.2 to 2.6	1.0 to 1.1	1.0 to 1.4
LLL Series 21 size		1.25×2.0	0.4 to 0.7	0.5 to 0.7	1.4 to 1.8
LLL Series 31 size		1.6×3.2	0.6 to 1.0	0.8 to 0.9	2.6 to 2.8

Flow soldering can only be used for products with a chip size of 3.2x1.6mm or less.

(in mm)

Table 2 Reflow Soldering Method

Part Number	Dimensions	Chip (L×W)	a	b	c
GJM/GRM Series 02 size		0.4×0.2	0.16 to 0.2	0.12 to 0.18	0.2 to 0.23
GJM/GRM Series 03 size		0.6×0.3	0.2 to 0.3	0.2 to 0.35	0.2 to 0.4
GJM/GRM Series 15 size		1.0×0.5 (within ±0.10)	0.3 to 0.5	0.35 to 0.45	0.4 to 0.6
		1.0×0.5 (±0.15/±0.20)	0.4 to 0.6	0.4 to 0.5	0.5 to 0.7
GQM/GR3/GRJ/GRM Series 18 size		1.6×0.8 (within ±0.10)	0.6 to 0.8	0.6 to 0.7	0.6 to 0.8
		1.6×0.8 (±0.15/±0.20)	0.7 to 0.9	0.7 to 0.8	0.8 to 1.0
GQM Series 21 size		2.0×1.25	1.0 to 1.2	0.6 to 0.7	0.8 to 1.1
GR3/GRJ/GRM Series 21 size		2.0×1.25 (within ±0.10)	1.2	0.6	1.25
		2.0×1.25 (±0.15)	1.2	0.6 to 0.8	1.2 to 1.4
		2.0×1.25 (±0.20)	1.0 to 1.4	0.6 to 0.8	1.2 to 1.4
GR3/GRJ/GRM Series 31 size		3.2×1.6 (within ±0.20)	1.8 to 2.0	0.9 to 1.2	1.5 to 1.7
		3.2×1.6 (±0.30)	1.9 to 2.1	1.0 to 1.3	1.7 to 1.9
GR3/GRJ/GRM Series 32 size		3.2×2.5	2.0 to 2.4	1.0 to 1.2	1.8 to 2.3
GR3/GRJ/GRM Series 43 size		4.5×3.2	3.0 to 3.5	1.2 to 1.4	2.3 to 3.0
GR3/GRJ/GRM Series 55 size		5.7×5.0	4.0 to 4.6	1.4 to 1.6	3.5 to 4.8
LLL Series 15 size		0.5×1.0	0.15 to 0.2	0.2 to 0.25	0.7 to 1.0
LLL Series 1U size		0.6×1.0	0.20 to 0.25	0.25 to 0.35	0.7 to 1.0
LLL/LLR Series 18 size		0.8×1.6	0.2 to 0.3	0.3 to 0.4	1.4 to 1.6
LLL Series 21 size		1.25×2.0	0.4 to 0.6	0.4 to 0.5	1.4 to 1.8
LLL Series 31 size		1.6×3.2	0.6 to 0.8	0.6 to 0.7	2.6 to 2.8
GQM Series 22 size		2.8×2.8	2.2 to 2.5	0.8 to 1.0	1.9 to 2.3

(in mm)

<Applicable to Part Number KR3/KRM>

Part Number	Dimensions	Chip (L×W)	a	b	c
KRM Series 21 size		2.0×1.25	1.0 to 1.2	0.6 to 0.7	0.8 to 1.1
KRM Series 31 size		3.2×1.6	2.2 to 2.4	0.8 to 0.9	1.0 to 1.4
KR3/KRM Series 55 size		5.7×5.0	2.6	2.7	5.6

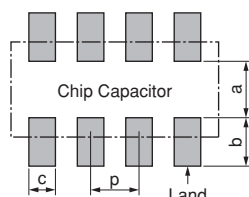
(in mm)

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Notice

Continued from the preceding page.

[Land for LLA Series]



[Land for LLM Series]

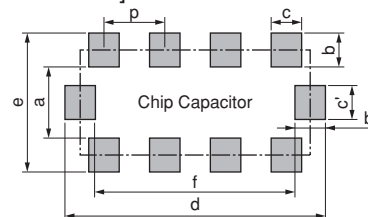


Table 3 LLA Series Reflow Soldering Method

Part Number	Dimensions	Chip (L×W)	a	b	c	p
LLA Series 18 size		1.6×0.8	0.3 to 0.4	0.25 to 0.35	0.2 to 0.23	0.4
LLA Series 21 size		2.0×1.25	0.5 to 0.7	0.35 to 0.6	0.2 to 0.3	0.5
LLA Series 31 size		3.2×1.6	0.7 to 0.9	0.4 to 0.7	0.3 to 0.4	0.8

(in mm)

Table 4 LLM Series Reflow Soldering Method

Part Number	Dimensions	Chip (L×W)	a	b, b'	c, c'	d	e	f	p
LLM Series 21 size		2.0×1.25	0.6 to 0.8	(0.3 to 0.5)	0.3	2.0 to 2.6	1.3 to 1.8	1.4 to 1.6	0.5
LLM Series 31 size		3.2×1.6	1.0	(0.3 to 0.5)	0.4	3.2 to 3.6	1.6 to 2.0	2.6	0.8

$$b=(c-e)/2, b'=(d-f)/2$$

(in mm)

3. Board Design

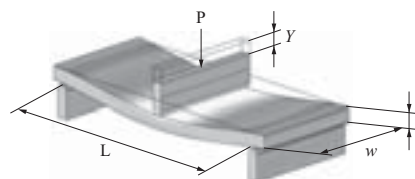
When designing the board, keep in mind that the amount of strain which occurs will increase depending on the size and material of the board.

[Relationship with amount of strain to the board thickness, length, width, etc.]

$$\epsilon = \frac{3PL}{2Ewh^2}$$

Relationship between load and strain

ϵ : Strain on center of board (μst)
 L : Distance between supporting points (mm)
 w : Board width (mm)
 h : Board thickness (mm)
 E : Elastic modulus of board ($\text{N/m}^2=\text{Pa}$)
 Y : Deflection (mm)
 P : Load (N)



When the load is constant, the following relationship can be established.

- As the distance between the supporting points (L) increases, the amount of strain also increases.
→Reduce the distance between the supporting points.
- As the elastic modulus (E) decreases, the amount of strain increases.
→Increase the elastic modulus.
- As the board width (w) decreases, the amount of strain increases.
→Increase the width of the board.
- As the board thickness (h) decreases, the amount of strain increases.
→Increase the thickness of the board.

Since the board thickness is squared, the effect on the amount of strain becomes even greater.

Continued on the following page. ➤

Notice

Continued from the preceding page.

2. Adhesive Application

- Thin or insufficient adhesive can cause the chips to loosen or become disconnected during flow soldering. The amount of adhesive must be more than dimension c, shown in the drawing at right, to obtain the correct bonding strength.

The chip's electrode thickness and land thickness must also be taken into consideration.

- Low viscosity adhesive can cause chips to slip after mounting. The adhesive must have a viscosity of 5000Pa · s (500ps) min. (at 25°C).

3. Adhesive Coverage

Size (L×W) (in mm)	Adhesive Coverage*
1.6×0.8	0.05mg min.
2.0×1.25	0.1mg min.
3.2×1.6	0.15mg min.

*Nominal Value

3. Adhesive Curing

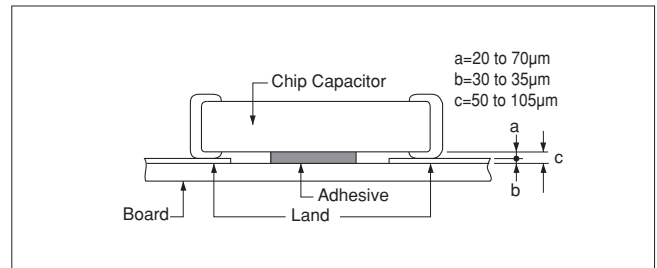
- Insufficient curing of the adhesive can cause chips to disconnect during flow soldering and causes deterioration in the insulation resistance between the outer electrodes due to moisture absorption. Control curing temperature and time in order to prevent insufficient hardening.

4. Flux Application

- An excessive amount of flux generates a large quantity of flux gas, which can cause a deterioration of solder ability, so apply flux thinly and evenly throughout. (A foaming system is generally used for flow soldering.)
- Flux containing too high a percentage of halide may cause corrosion of the outer electrodes unless there is sufficient cleaning. Use flux with a halide content of 0.1% max.

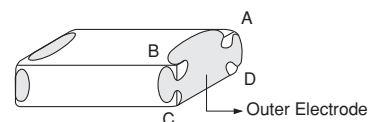
5. Flow Soldering

- Set temperature and time to ensure that leaching of the outer electrode does not exceed 25% of the chip end area as a single chip (full length of the edge A-B-C-D shown at right) and 25% of the length A-B shown as mounted on substrate.

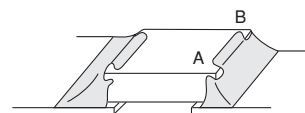


- Do not use strong acidic flux.
- Do not use water-soluble flux.*
(*Water-soluble flux can be defined as non-rosin type flux including wash-type flux and non-wash-type flux.)

[As a Single Chip]



[As Mounted on Substrate]



Continued on the following page. ➤

Notice

 Continued from the preceding page.

6. Washing

1. Please evaluate the capacitor using actual cleaning equipment and conditions to confirm the quality, and select the solvent for cleaning.
2. Unsuitable cleaning solvent may leave residual flux or other foreign substances, causing deterioration of electrical characteristics and the reliability of the capacitors.

7. Coating

1. A crack may be caused in the capacitor due to the stress of the thermal contraction of the resin during curing process.
The stress is affected by the amount of resin and curing contraction.
Select a resin with low curing contraction.
The difference in the thermal expansion coefficient between a coating resin or a molding resin and the capacitor may cause the destruction and deterioration of the capacitor such as a crack or peeling, and lead to the deterioration of insulation resistance or dielectric breakdown.

■ Other

1. Transportation

1. The performance of a capacitor may be affected by the conditions during transportation.
 - 1-1. The capacitors shall be protected against excessive temperature, humidity, and mechanical force during transportation.
 - (1) Climatic condition
 - low air temperature: -40°C
 - change of temperature air/air: -25°C/+25°C
 - low air pressure: 30 kPa
 - change of air pressure: 6 kPa/min.
 - (2) Mechanical condition
Transportation shall be done in such a way that the boxes are not deformed and forces are not directly passed on to the inner packaging.
 - 1-2. Do not apply excessive vibration, shock, or pressure to the capacitor.
 - (1) When excessive mechanical shock or pressure is applied to a capacitor, chipping or cracking may occur in the ceramic body of the capacitor.
 - (2) When the sharp edge of an air driver, a soldering iron, tweezers, a chassis, etc. impacts strongly on the surface of the capacitor, the capacitor may crack and short-circuit.
 - 1-3. Do not use a capacitor to which excessive shock was applied by dropping, etc.
A capacitor dropped accidentally during processing may be damaged.

3. Select the proper cleaning conditions.

- 3-1. Improper cleaning conditions (excessive or insufficient) may result in deterioration of the performance of the capacitors.

Select a resin for which the thermal expansion coefficient is as close to that of the capacitor as possible.

A silicone resin can be used as an under-coating to buffer against the stress.

2. Select a resin that is less hygroscopic.

Using hygroscopic resins under high humidity conditions may cause the deterioration of the insulation resistance of a capacitor.

An epoxy resin can be used as a less hygroscopic resin.

2. Characteristics Evaluation in the Actual System

1. Evaluate the capacitor in the actual system, to confirm that there is no problem with the performance and specification values in a finished product before using.
2. Since a voltage dependency and temperature dependency exists in the capacitance of high dielectric type ceramic capacitors, the capacitance may change depending on the operating conditions in the actual system. Therefore, be sure to evaluate the various characteristics, such as the leakage current and noise absorptivity, which will affect the capacitance value of the capacitor.
3. In addition, voltages exceeding the predetermined surge may be applied to the capacitor by the inductance in the actual system. Evaluate the surge resistance in the actual system as required.

GRM Series

GJM Series

GMA Series

GMD Series

QGM Series

GRJ Series

GR3 Series

KRM Series

KR3 Series

LLA Series

LLL Series

LLM Series

LLR Series

Notice

Qualified Standards

The products listed here have been produced by ISO 9001 certified factory.

Plant
Fukui Murata Mfg. Co., Ltd.
Izumo Murata Mfg. Co., Ltd.
Okayama Murata Mfg. Co., Ltd.
Murata Electronics Singapore (Pte.) Ltd.
Beijing Murata Electronics Co., Ltd.
Wuxi Murata Electronics Co., Ltd.

[illegible]

Design assistant tool: SimSurfing



for MLCC and various devices.

- Polymer capacitors
- RF inductors/Power inductors
- NTC thermistors/PTC thermistors

Available function for MLCCs:

- ① Products search
- ② View frequency characteristics (S parameters, Z, R, X, Q, DF, L, C)
DC bias can be applied to available part number.
- ③ DC voltage bias characteristics (absolute capacitance/change rate)
- ④ Temperature characteristics (absolute capacitance/change rate)
- ⑤ AC voltage bias characteristics (absolute capacitance/change rate)
- ⑥ Download SPICE netlist/ S parameter

1 Select the Products

- (1) By part number
- (2) By specification

2 View characteristics

By clicking buttons in this area with part number selected, you can view any electrical characteristics chart.

3 Data download

You can download SPICE netlist and S parameter files (S2P)



Added the capacitor finder tool for middle and high voltage capacitor which are capable for specified voltage waveform.

These images are captured at August/2013. Be sure that this software will be updated frequently.

<http://ds.murata.com/software/simsurfing/en-us/mlcc/>



Please check Murata's newsletter!
You can learn about electric parts with fun.
http://www.murata.com/products/emicon_fun/

EMICON-FUN! disseminated widely from basics (principles, characteristics, mounting, etc.) of capacitors, EMI suppression filters and inductors to information can practically be used.
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email Magazine: Have fun while learning about electronic components

EMICON-FUN! Wide range of information about capacitors, noise suppression filters, and inductors.

Enter keywords to be searched [Search]

Capacitor Room

- EEC series lead-type monolithic ceramic capacitors compatible to 150°C for automotive applications
- What kind of layout helps prevent chip monolithic ceramic capacitors from cracking?
- Why does the electrostatic capacitance increase as the thickness decreases?
- Next generation characteristics of capacitors and measurement methods
- What are important ESR frequency characteristics in capacitors?

Noise suppression filter Room

- Birth of the BLM-E series chip ferrite beads: Entering unexplored BLM territory
- How can the mounting area be reduced? - Methods of using low-ESL capacitors -
- Ascendancy of monolithic ferrite bead development: Horizontally wound-type ferrite beads that support GHz frequencies
- The secret story behind the birth of chip ferrite beads (part 2/2)
- The secret story behind the birth of chip ferrite beads (part 1/2)

Inductor Room

- Ascendancy of inductor development [No.1] Trends in LQW solder mounting technology
- Ascendancy of inductor development [No.4] Japan's first air-core horizontal wire-wound coil
- Ascendancy of inductor development [No.3] The LQS series realized super tight tolerance by trimming
- Why second-generation film-type inductors are incredible
- Ascendancy of inductor development [No.2] Birth of the first film-type inductor: the "LQP1A series"

For the EARTH

- Introducing Murata's school classes: What we can do for the children who will shape the world's future
- Special Feature on the Environment, Part 2 "Toward a Low-carbon Society - Initiatives for Global Warming Prevention."
- Special Feature on the Environment, Part 1 "Murata's Waste Management System"

Sample Newsletter Content:

email Magazine: Have fun while learning about electronic components
The index of June 28 issue
- Capacitor Room
- Product News
- Proposal for Cost Reductions
- Examples of Problem Solving
Expertly written articles explain the basics of capacitors, inductors, and EMI suppression filters.

- Capacitor Room -
What kind of layout helps to prevent chip monolithic ceramic capacitors from cracking?
Capacitors may become cracked when boards bend during handling in processes after the capacitors are soldered onto the boards. Therefore in this article, we would like to introduce parts layouts that help prevent chip monolithic ceramic capacitors from cracking.
<http://newsletter.murata.co.jp/c/p/02ceLoL4yC>

- Product News -
General Purpose Monolithic Ceramic Capacitors <GRM Series>
These are Murata's primary products, renowned for both small size and large capacitance value with the latest advanced technology.
1. Achieves large capacity and small size in a multilayer structure.

Capacitor Website Introduction

The website and search engine of ceramic capacitors has been drastically renewed.

capacitor murata Search

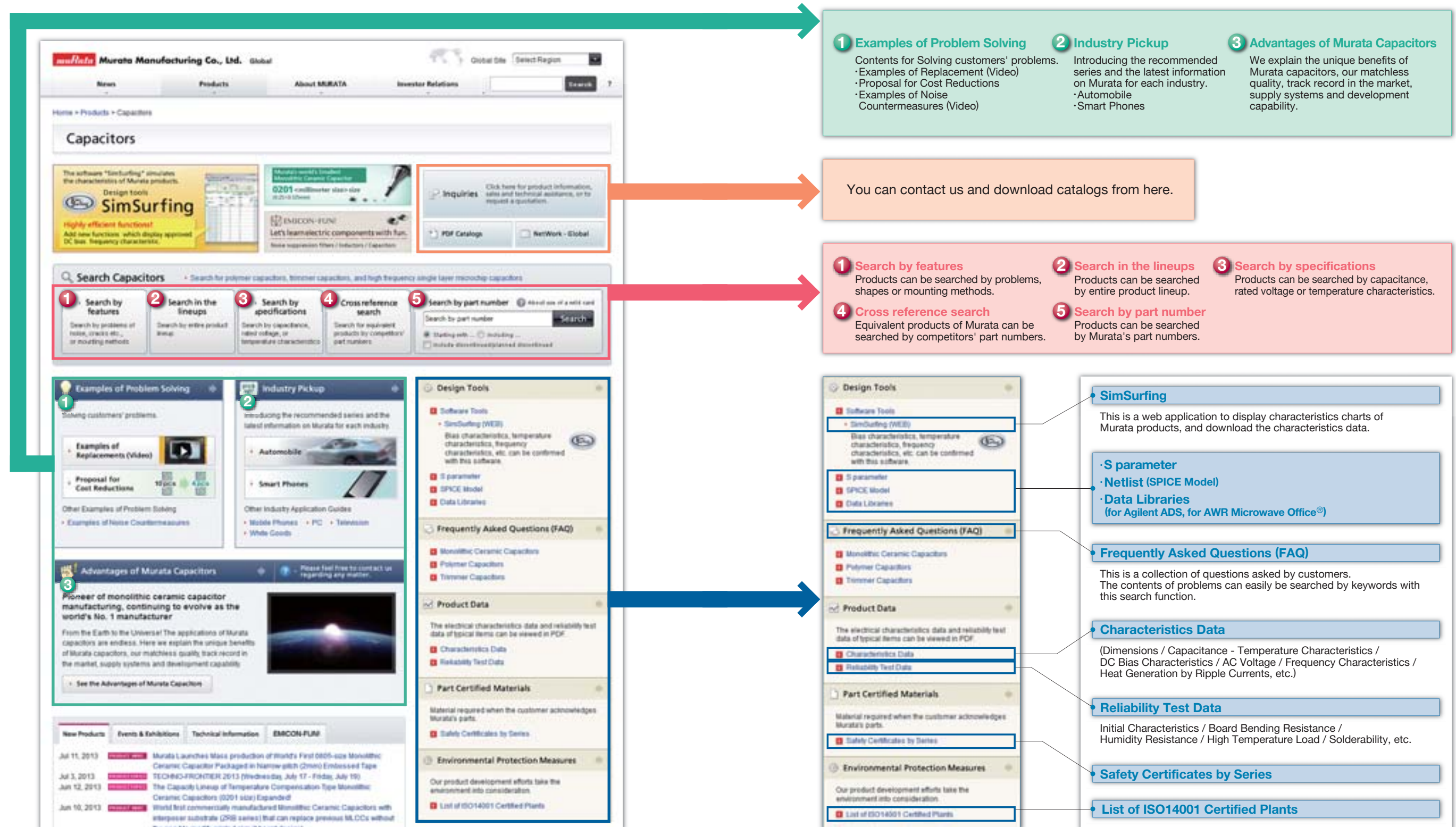
<http://www.murata.com/products/capacitor/>

► Convenient Search

The type of searches has been increased to respond to various ways of searching.
The products you are searching for can easily be found from about 40,000 part numbers!
The frequency of revisions and discontinuance has been increased to provide the latest information at all times!

► Substantial Technical Information

- Reference drawings (Specifications and Test Methods) can be downloaded in PDF format.
- Graphs of the electrical characteristic data (Capacitance - Temperature characteristics / DC bias characteristics / AC voltage characteristics / Frequency characteristics) can be displayed.
- Reliability test data can be downloaded.



⚠Note:

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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 August 2013. They are subject to change or our products in it may be discontinued without advance notice.

Please check with our sales representatives or product engineers before ordering. If there are any questions, please contact our sales representatives or product engineers.

4. Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.

5. This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

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