

● Part Numbering

Chip Multilayer 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
GA	2	Based on the Electrical Appliance and Material Safety Law of Japan Chip Multilayer Ceramic Capacitors for General Purpose
	3	Safety Standard Certified Chip Multilayer Ceramic Capacitors for General Purpose
GJ	M	High Q Chip Multilayer Ceramic Capacitors for General Purpose
GM	A	Wire Bonding Mount Multilayer Microchip Capacitors for General Purpose
	D	Wire Bonding/AuSn Soldering Mount Chip Multilayer Ceramic Capacitors for General Purpose
GQ	M	High Q and High Power Chip Multilayer Ceramic Capacitors for General Purpose
GR	3	High Effective Capacitance & High Ripple Current Chip Multilayer Ceramic Capacitors for General Purpose
	4	Chip Multilayer Ceramic Capacitors for Camera Flash Circuit only
	7	Chip Multilayer Ceramic Capacitors for Ethernet LAN and Primary-secondary Coupling of DC-DC Converters
	J	Soft Termination Chip Multilayer Ceramic Capacitors for General Purpose
KR	M	Chip Multilayer Ceramic Capacitors for General Purpose
	3	High Effective Capacitance & High Allowable Ripple Current Metal Terminal Type Multilayer Ceramic Capacitors for General Purpose
LL	M	Metal Terminal Type Multilayer Ceramic Capacitors for General Purpose
	A	8 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose
	L	LW Reversed Low ESL Chip Multilayer Ceramic Capacitors for General Purpose
	M	10 Terminals Low ESL Chip Multilayer Ceramic Capacitors for General Purpose
	R	LW Reversed Controlled ESR Low ESL Chip Multilayer Ceramic Capacitors for General Purpose

③ Chip Dimensions (LxW)

Code	Dimensions (LxW)	EIA
02	0.4x0.2mm	01005
0D	0.38x0.38mm	015015
03	0.6x0.3mm	0201
05	0.5x0.5mm	0202
08	0.8x0.8mm	0303
1U	0.6x1.0mm	02404
15	1.0x0.5mm	0402
18	1.6x0.8mm	0603
21	2.0x1.25mm	0805
22	2.8x2.8mm	1111
31	3.2x1.6mm	1206
32	3.2x2.5mm	1210
42	4.5x2.0mm	1808
43	4.5x3.2mm	1812
52	5.7x2.8mm	2211
55	5.7x5.0mm	2220

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(Part Number)

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

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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
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

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			*6		-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	
5G	X8G	*2	25°C	25 to 150°C	0±30ppm/°C	-55 to 150°C	0.58	-0.24	0.4	-0.17	0.25	-0.11	
7U	U2J	EIA	25°C	25 to 125°C *3	-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	-	-	-	-	-	-	
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	-	-	-	-	-	-	
W0	X7T	EIA	25°C	-55 to 125°C	±10% *4	-55 to 125°C	-	-	-	-	-	-	
					+22%, -33% *5		-	-	-	-	-	-	

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

*2 Murata Temperature Characteristic Code.

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

*4 Apply DC350V bias.

*5 No DC bias.

*6 -25°C (Reference Temperature 20°C) / -30°C (Reference Temperature 25°C)

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(Part Number)

GR	M	18	8	B1	1H	102	K	A01	D
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⑥ Rated Voltage

Code	Rated Voltage
OE	DC2.5V
OG	DC4V
OJ	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
BB	DC350V
E2	AC250V
GB	X2; AC250V (Safety Standard Certified Type GB)
GD	Y3; AC250V (Safety Standard Certified Type GD)
GF	Y2, X1/Y2; AC250V (Safety Standard Certified Type GF)
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 (Less than 10pF) ±0.5% (10pF and over)
F	±1%
G	±2%
J	±5%
K	±10%
M	±20%
W	±0.05pF

⑨ Individual Specification Code (Except LLR)

Expressed by three figures.

⑩ 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
T	Bulk Tray

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

3 Terminal Low ESL Multilayer Ceramic Capacitors

WEB 

(Part Number)

NF	M	3D	CC	102	R	1H	3	L
1	2	3	4	5	6	7	8	9

1 Product ID 2 Series

Product ID	Series
NFM	3 Terminals Low ESL Chip Multilayer Ceramic Capacitors

3 Dimensions (LxW)

Code	Dimensions (LxW)	EIA
15	1.0x0.5mm	0402
18	1.6x0.8mm	0603
21	2.0x1.25mm	0805
3D	3.2x1.25mm	1205
31	3.2x1.6mm	1206
41	4.5x1.6mm	1806

4 Features

Code	Features	
CC	For General	For Signal Lines
PC		For Large Current
PS		High Insertion Loss Type for Large Current
KC		For Very Large Current

5 Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two figures.

6 Characteristics

Code	Capacitance Temperature Characteristics
B	±10%, ±12.5%, +10/-13%
C	±22%
D	+22/-33%
F	+30/-80%, +30/-84%
R	±15%, +15/-18%

7 Rated Voltage

Code	Rated Voltage
0E	2.5V
0G	4V
0J	6.3V
1A	10V
1C	16V
1E	25V
1H	50V
2A	100V

8 Electrode

Code	Electrode
3	Sn Plating

9 Packaging

Code	Packaging
B	Bulk
L	Embossed Taping (ø180mm Reel)
D	Paper Taping (ø180mm Reel)

Capacitance Table

How to read the Capacitance Table

L×W (mm)	0.4×0.2		0.6		
T max. (mm)	0.22		0.		
Rated Voltage (Vdc)	25		50		
Cap. / TC Code	COG	CΔ	COG	CK	CJ
0.10pF					
0.20pF	p140	p143	p146	p146	
1.0pF	p140	p143		p146	
2.0pF	p140	p143		p146	
3.0pF	p140	p143			p146

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:	COG	U2J	X7R	X7S	X7T	X7U	X6S	X6T	X5R
JIS:	CK	CJ	CH	SL	UJ	R	B		
Murata Temperature Characteristic:	X8G								

Temperature Characteristic Codes		Temperature Characteristics			Operating Temperature Range	Capacitance Change Each Temperature (%)					
		Reference Temperature	Temperature Range	Capacitance Change or Temperature Coefficient		-55°C		*3		-10°C	
Public STD Code						Max.	Min.	Max.	Min.	Max.	Min.
COG	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 *2	-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
X8G	*1	25°C	25 to 150°C	0±30ppm/°C	-55 to 150°C	0.58	-0.24	0.4	-0.17	0.25	-0.11
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	-	-	-	-	-	-
B	JIS	20°C	-25 to 85°C	±10%	-25 to 85°C	-	-	-	-	-	-

*1 Murata Temperature Characteristic Code.

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

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