

## ● Part Numbering

### Chip Monolithic Ceramic Capacitors

(Part Number)

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

#### ① Product ID

#### ② Series

Product ID	Code	Series
<b>GR</b>	<b>M</b>	Tin Plated Layer
	<b>4</b>	Only for Information Devices / Tip & Ring
	<b>7</b>	Only for Camera Flash Circuit
<b>ER</b>	<b>B</b>	High Frequency Type
<b>GQ</b>	<b>M</b>	High Frequency for Flow/Reflow Soldering
<b>GM</b>	<b>A</b>	Monolithic Microchip
	<b>D</b>	for Bonding
<b>GN</b>	<b>M</b>	Capacitor Array
<b>LL</b>	<b>L</b>	Low ESL Wide Width Type
	<b>A</b>	Eight-termination Low ESL Type
	<b>M</b>	Ten-termination Low ESL Type
<b>GJ</b>	<b>M</b>	High Frequency Low Loss Type
<b>GA</b>	<b>2</b>	for AC250V (r.m.s.)
	<b>3</b>	Safety Standard Recognized Type


#### ③ Dimension (L×W)

Code	Dimension (L×W)	EIA
<b>02</b>	0.4×0.2mm	01005
<b>03</b>	0.6×0.3mm	0201
<b>05</b>	0.5×0.5mm	0202
<b>08</b>	0.8×0.8mm	0303
<b>0D</b>	0.38×0.38mm	015015
<b>0M</b>	0.9×0.6mm	0302
<b>11</b>	1.25×1.0mm	0504
<b>15</b>	1.0×0.5mm	0402
<b>18</b>	1.6×0.8mm	0603
<b>1M</b>	1.37×1.0mm	0504
<b>21</b>	2.0×1.25mm	0805
<b>22</b>	2.8×2.8mm	1111
<b>31</b>	3.2×1.6mm	1206
<b>32</b>	3.2×2.5mm	1210
<b>42</b>	4.5×2.0mm	1808
<b>43</b>	4.5×3.2mm	1812
<b>52</b>	5.7×2.8mm	2211
<b>55</b>	5.7×5.0mm	2220

#### ④ Dimension (T)

Code	Dimension (T)
<b>2</b>	0.2mm
<b>2</b>	2-elements (Array Type)
<b>3</b>	0.3mm
<b>4</b>	4-elements (Array Type)
<b>5</b>	0.5mm
<b>6</b>	0.6mm
<b>7</b>	0.7mm
<b>8</b>	0.8mm
<b>9</b>	0.85mm
<b>A</b>	1.0mm
<b>B</b>	1.25mm
<b>C</b>	1.6mm
<b>D</b>	2.0mm
<b>E</b>	2.5mm
<b>F</b>	3.2mm
<b>M</b>	1.15mm
<b>N</b>	1.35mm
<b>Q</b>	1.5mm
<b>R</b>	1.8mm
<b>S</b>	2.8mm
<b>X</b>	Depends on individual standards.

With the array type GNM series, "Dimension(T)" indicates the number of elements.

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5 Temperature Characteristics

Temperature Characteristic Codes			Temperature Characteristics			Operating Temperature Range
Code	Public STD Code		Reference Temperature	Temperature Range	Capacitance Change or Temperature Coefficient	
1X	SL *1	JIS	20°C	20 to 85°C	+350 to -1000ppm/°C	-55 to 125°C
2C	CH *1	JIS	20°C	20 to 125°C	0±60ppm/°C	-55 to 125°C
2P	PH *1	JIS	20°C	20 to 85°C	-150±60ppm/°C	-25 to 85°C
2R	RH *1	JIS	20°C	20 to 85°C	-220±60ppm/°C	-25 to 85°C
2S	SH *1	JIS	20°C	20 to 85°C	-330±60ppm/°C	-25 to 85°C
2T	TH *1	JIS	20°C	20 to 85°C	-470±60ppm/°C	-25 to 85°C
3C	CJ *1	JIS	20°C	20 to 125°C	0±120ppm/°C	-55 to 125°C
3P	PJ *1	JIS	20°C	20 to 85°C	-150±120ppm/°C	-25 to 85°C
3R	RJ *1	JIS	20°C	20 to 85°C	-220±120ppm/°C	-25 to 85°C
3S	SJ *1	JIS	20°C	20 to 85°C	-330±120ppm/°C	-25 to 85°C
3T	TJ *1	JIS	20°C	20 to 85°C	-470±120ppm/°C	-25 to 85°C
3U	UJ *1	JIS	20°C	20 to 85°C	-750±120ppm/°C	-25 to 85°C
4C	CK *1	JIS	20°C	20 to 125°C	0±250ppm/°C	-55 to 125°C
5C	COG *1	EIA	25°C	25 to 125°C	0±30ppm/°C	-55 to 125°C
5G	X8G *1	EIA	25°C	25 to 150°C	0±30ppm/°C	-55 to 150°C
6C	COH *1	EIA	25°C	25 to 125°C	0±60ppm/°C	-55 to 125°C
6P	P2H *1	EIA	25°C	25 to 85°C	-150±60ppm/°C	-55 to 125°C
6R	R2H *1	EIA	25°C	25 to 85°C	-220±60ppm/°C	-55 to 125°C
6S	S2H *1	EIA	25°C	25 to 85°C	-330±60ppm/°C	-55 to 125°C
6T	T2H *1	EIA	25°C	25 to 85°C	-470±60ppm/°C	-55 to 125°C
7U	U2J *1	EIA	25°C	25 to 125°C	-750±120ppm/°C	-55 to 125°C
B1	B *2	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
F1	F *2	JIS	20°C	-25 to 85°C	+30, -80%	-25 to 85°C
F5	Y5V	EIA	25°C	-30 to 85°C	+22, -82%	-30 to 85°C
L8	X8L	*3	25°C	-55 to 150°C	+15, -40%	-55 to 150°C
R1	R *2	JIS	20°C	-55 to 125°C	±15%	-55 to 125°C
R3	R	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
R9	X8R	EIA	25°C	-55 to 150°C	±15%	-55 to 150°C
9E	ZLM	*3	20°C	-25 to 20°C	-4700+1000/-2500ppm/°C	-25 to 85°C
				20 to 85°C	-4700+500/-1000ppm/°C	
W0	-	-	25°C	-55 to 125°C	±10% *4	-55 to 125°C
					+22, -33% *5	


\*1 Please refer to table for Capacitance Change under reference temperature.

\*2 Capacitance change is specified with 50% rated voltage applied.

\*3 Murata Temperature Characteristic Code.

\*4 Apply DC350V bias.

\*5 No DC bias.

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● Capacitance Change from each temperature

JIS Code

Murata Code	Capacitance Change from 20°C (%)					
	-55°C		-25°C		-10°C	
	Max.	Min.	Max.	Min.	Max.	Min.
1X	-	-	-	-	-	-
2C	0.82	-0.45	0.49	-0.27	0.33	-0.18
2P	-	-	1.32	0.41	0.88	0.27
2R	-	-	1.70	0.72	1.13	0.48
2S	-	-	2.30	1.22	1.54	0.81
2T	-	-	3.07	1.85	2.05	1.23
3C	1.37	-0.90	0.82	-0.54	0.55	-0.36
3P	-	-	1.65	0.14	1.10	0.09
3R	-	-	2.03	0.45	1.35	0.30
3S	-	-	2.63	0.95	1.76	0.63
3T	-	-	3.40	1.58	2.27	1.05
3U	-	-	4.94	2.84	3.29	1.89
4C	2.56	-1.88	1.54	-1.13	1.02	-0.75

EIA Code

Murata Code	Capacitance Change from 25°C (%)					
	-55°C		-30°C		-10°C	
	Max.	Min.	Max.	Min.	Max.	Min.
5C/5G	0.58	-0.24	0.40	-0.17	0.25	-0.11
6C	0.87	-0.48	0.59	-0.33	0.38	-0.21
6P	2.33	0.72	1.61	0.50	1.02	0.32
6R	3.02	1.28	2.08	0.88	1.32	0.56
6S	4.09	2.16	2.81	1.49	1.79	0.95
6T	5.46	3.28	3.75	2.26	2.39	1.44
7U	8.78	5.04	6.04	3.47	3.84	2.21

⑥ Rated Voltage


Code	Rated Voltage
0E	DC2.5V
0G	DC4V
0J	DC6.3V
1A	DC10V
1C	DC16V
1E	DC25V
YA	DC35V
1H	DC50V
2A	DC100V
2D	DC200V
2E	DC250V
YD	DC300V
2H	DC500V
2J	DC630V
3A	DC1kV
3D	DC2kV
3F	DC3.15kV
BB	DC350V (for Camera Flash Circuit)
E2	AC250V
GB	X2; AC250V (Safety Standard Recognized Type GB)
GC	X1/Y2; AC250V (Safety Standard Recognized Type GC)
GD	Y3; AC250V (Safety Standard Recognized Type GD)
GF	Y2, X1/Y2; AC250V (Safety Standard Recognized Type GF)

⑦ Capacitance

Expressed by three-digit alphanumerics. The unit is pico-farad (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.

Ex.)

Code	Capacitance
R50	0.5pF
1R0	1.0pF
100	10pF
103	10000pF

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⑧ Capacitance Tolerance

Code	Capacitance Tolerance	TC	Series	Capacitance Step	
<b>W</b>	±0.05pF	CΔ	<b>GRM/GJM</b>	≤9.9pF	0.1pF
<b>B</b>	±0.1pF	CΔ	<b>GRM/GJM</b>	≤9.9pF	0.1pF
			<b>GQM</b>	≤1pF	0.1pF
				1.1 to 9.9pF	1pF Step and E24 Series
			<b>ERB</b>	≤9.9pF	1pF Step and E24 Series
<b>C</b>	±0.25pF	CΔ	<b>GRM/GJM</b>	≤9.9pF	0.1pF
		except CΔ	<b>GRM</b>	≤5pF	* 1pF
		CΔ	<b>ERB</b>	≤9.9pF	1pF Step and E24 Series
			<b>GQM</b>	≤1pF	0.1pF
				1.1 to 9.9pF	1pF Step and E24 Series
<b>D</b>	±0.5pF	CΔ	<b>GRM/GJM</b>	5.1 to 9.9pF	0.1pF
		except CΔ	<b>GRM</b>	5.1 to 9.9pF	* 1pF
		CΔ	<b>ERB/GQM</b>	5.1 to 9.9pF	1pF Step and E24 Series
<b>G</b>	±2%	CΔ	<b>GJM</b>	≥10pF	E12 Series
		CΔ	<b>GQM/ERB</b>	≥10pF	E24 Series
<b>J</b>	±5%	CΔ-SL	<b>GRM/GA3</b>	≥10pF	E12 Series
		CΔ	<b>ERB/GQM/GJM</b>	≥10pF	E24 Series
<b>K</b>	±10%	B, R, X7R, X5R, ZLM	<b>GRM/GR7/GA3</b>	E6 Series	
		C0G	<b>GNM</b>	E6 Series	
		B, R, X7R, X5R, ZLM	<b>GR4, GMD</b>	E12 Series	
<b>M</b>	±20%	B, R, X7R, X7S	<b>GRM/GMA</b>	E6 Series	
		X5R, X7R, X7S	<b>GNM</b>	E3 Series	
		X7R	<b>GA2</b>	E3 Series	
		X5R, X7R, X7S, X6S	<b>LLL/LLA/LLM</b>	E3 Series	
<b>Z</b>	+80%, -20%	F, Y5V	<b>GRM</b>	E3 Series	
<b>R</b>	Depends on individual standards.				

\* E24 series is also available.

⑨ Individual Specification Code

Expressed by three figures.

⑩ Packaging

Code	Packaging
<b>L</b>	ø180mm Embossed Taping
<b>D</b>	ø180mm Paper Taping
<b>E</b>	ø180mm Paper Taping (LLL15)
<b>K</b>	ø330mm Embossed Taping
<b>J</b>	ø330mm Paper Taping
<b>F</b>	ø330mm Paper Taping (LLL15)
<b>B</b>	Bulk
<b>C</b>	Bulk Case
<b>T</b>	Bulk Tray