

● Part Numbering

Chip Monolithic Ceramic Capacitors

(Part Number)

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

① Product ID

② Series

Product ID	Code	Series
GR	M	Tin Plated Layer
	4	Only for Information Devices / Tip & Ring
	7	Only for Camera Flash Circuit
ER	F	High Frequency and high Power Type
	H	High Frequency and High Power Type (Ribbon Terminal)
	B	High Frequency Type
	D	High Frequency Type (Ribbon Terminal)
GQ	M	High Frequency for Flow/Reflow Soldering
GM	A	Monolithic Microchip
GN	M	Capacitor Array
LL	L	Low ESL Wide Width Type
	C	Automotive Low ESL Wide Width Type
	A	Eight-termination Low ESL Type
	M	Ten-termination Low ESL Type
GJ	M	High Frequency Low Loss Type Tin Plated Type
	6	High Frequency Low Loss Type
GA	2	for AC250V (r.m.s.)
	3	Safety Standard Recognized Type
GC	P	Automotive Soldering Electrode
	M	Automotive Tin Plated Layer


③ Dimension (L×W)

Code	Dimension (L×W)	EIA
02	0.4×0.2mm	01005
03	0.6×0.3mm	0201
05	0.5×0.5mm	0202
08	0.8×0.8mm	0303
11	1.25×1.0mm	0504
15	1.0×0.5mm	0402
18	1.6×0.8mm	0603
1D	1.4×1.4mm	
1X	Depends on individual standards.	
21	2.0×1.25mm	0805
22	2.8×2.8mm	1111
31	3.2×1.6mm	1206
32	3.2×2.5mm	1210
3X	Depends on individual standards.	
42	4.5×2.0mm	1808
43	4.5×3.2mm	1812
52	5.7×2.8mm	2211
55	5.7×5.0mm	2220

④ Dimension (T)

Code	Dimension (T)
2	0.2mm
2	2-elements (Array Type)
3	0.3mm
4	4-elements (Array Type)
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
F	3.2mm
M	1.15mm
N	1.35mm
R	1.8mm
S	2.8mm
Q	1.5mm
X	Depends on individual standards.

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

Continued on the following page. 

Continued from the preceding page.

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	C0G *1	EIA	25°C	25 to 125°C	0±30ppm/°C	-55 to 125°C
6C	C0H *1	EIA	25°C	25 to 125°C	0±60ppm/°C	-55 to 125°C
6C	CH *1,*3	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
7C	CJ *1*3	EIA	25°C	25 to 125°C	0±120ppm/°C	-55 to 125°C
7U	U2J *1	EIA	25°C	25 to 85°C	-750±120ppm/°C	-55 to 125°C
8C	CK *1,*3	EIA	25°C	25 to 125°C	0±250ppm/°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
E4	Z5U	EIA	25°C	10 to 85°C	+22, -56%	10 to 85°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
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
C8	X6S	EIA	25°C	-55 to 105°C	±22%	-55 to 105°C
9E	ZLM	*4	20°C	-25 to 20°C	-4700+100/-2500ppm/°C	-25 to 85°C
				20 to 85°C	-4700+500/-1000ppm/°C	
W0	-	-	25°C	-55 to 125°C	±10% *5	-55 to 125°C
					+22, -33% *6	

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


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

*3 ER series only.

*3,*4 Murata Temperature Characteristic Code.

*5 Apply DC350V bias.

*6 No DC bias.

Continued on the following page. 

Continued from the preceding page.

● 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	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

ER□ Series

Murata Code	Capacitance Change from 25°C (%)					
	-55°C		-30°C		-10°C	
	Max.	Min.	Max.	Min.	Max.	Min.
5C	0.43	-0.22	0.28	-0.16	0.17	-0.11
6C	0.73	-0.44	0.48	-0.32	0.29	-0.20
7C	1.33	-0.93	0.88	-0.64	0.54	-0.42
8C	2.61	-0.97	1.73	-1.36	1.07	-0.86

Continued on the following page. 

Continued from the preceding page.

⑥ Rated Voltage

Code	Rated Voltage
0G	DC4V
0J	DC6.3V
1A	DC10V
1C	DC16V
1E	DC25V
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)

⑧ Capacitance Tolerance

Code	Capacitance Tolerance	TC	Series	Capacitance Step	
B	±0.1pF	CΔ	GJM	≤5pF	E24 Series, 1pF
C	±0.25pF	CΔ-SL	GRM/ERF/ERH/ERA/ERD/GQM	≤5pF	* 1pF
		CΔ	GJM	<10pF	E24 Series, 1pF
D	±0.5pF	CΔ-SL	GRM	6.0 to 9.0pF	* 1pF
		CΔ	ERF/ERH/ERA/ERD/GQM/GJM	5.1 to 9.1pF	E24 Series
F	±1%	CΔ	GRM03/15/GJM03/15	5.0 to 9.9pF	0.1pF
G	±2%	CΔ	GJM	≥10pF	E12 Series
		CΔ	GQM	≥10pF	E24 Series
		CΔ	GRM03/15/GJM03/15	2.0 to 9.9pF	0.1pF
J	±5%	CΔ-SL	GRM/GA3	≥10pF	E12 Series
		CΔ	ERF/ERH/ERA/ERD/GQM/GJM	≥10pF	E24 Series
		CΔ	GRM03/15/GJM03/15	1.0 to 4.9pF	0.1pF
K	±10%	B, R, X7R, X5R, ZLM	GRM/GR7/GA3	E6 Series	
			GR4	E12 Series	
M	±20%	Z5U	GRM	E3 Series	
		B, R, X7R, X7S	GRM/GMA/LLL/LLC/LLA/LLM	E6 Series	
		X7R	GA2	E3 Series	
		CΔ	GRM03/15/GJM03/15	0.1 to 0.9pF	0.1pF
Z	+80%, -20%	F, Y5V	GRM	E3 Series	
R			Depends on individual standards.		

* E24 series is also available.

⑨ Individual Specification Code


Expressed by three figures.

⑦ Capacitance

Expressed by three figures. 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

Continued on the following page. 

Continued from the preceding page.

Packaging

Code	Packaging
L	ø178mm Plastic Taping
D	ø178mm Paper Taping
K	ø330mm Plastic Taping
J	ø330mm Paper Taping
E	ø178mm Special Packaging
F	ø330mm Special Packaging
B	Bulk
C	Bulk Case
T	Bulk Tray