

● **Part Numbering** (The structure of the "Global Part Numbers" that have been adopted since June 2001 and the meaning of each code are described herein.)
(If you have any questions about details, inquire at your usual Murata sales office or distributor.)

Chip Monolithic Ceramic Capacitors

(Global Part Number)

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

①②③④⑤⑥⑦⑧⑨⑩

① Product ID

② Series

Product ID	Code	Series
GR	M	Tin Plated layer
	P	Soldering Electrode
ER	F	High-frequency and high-power Type
	H	High-frequency and high-power Type (Ribbon Terminal)
	A	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
GJ	6	Low Dissipation
	2	Smoothing Type
GA	2	for AC250V (r.m.s.)
	3	Safety Standard Recognized Type

③ Dimension (L×W)

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

④ Dimension (T)

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

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

⑤ Temperature Characteristics

Code	Temperature Characteristics	Temperature Range	Cap. Change or Temp. Coeff.
1X	SL	-55 to 125°C	+350 to -1000ppm/°C
5C	C0G	-55 to 125°C	0±30ppm/°C
6C	C0H	-55 to 125°C	0±60ppm/°C
6P	P2H	-55 to 85°C	-150±60ppm/°C
6R	R2H	-55 to 85°C	-220±60ppm/°C
6T	T2H	-55 to 85°C	-470±60ppm/°C
7U	U2J	-55 to 85°C	-750±120ppm/°C
B3	B	-25 to 85°C	±10%
E4	Z5U	10 to 85°C	+22, -82%
F5	Y5V	-30 to 85°C	+22, -82%
R3	R	-55 to 125°C	±15%
R6	X5R	-55 to 85°C	±15%
R7	X7R	-55 to 125°C	±15%

Continued on the following page.

Continued from the preceding page.

(Global Part Number)

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

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

⑦ Rated Voltage

Code	Rated Voltage
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
E2	AC250V
GB	X2; AC250V (Safety Standard Recognized Type GB)
GC	X1, Y2; AC250V (Safety Standard Recognized Type GC)

⑨ Individual Specification Code

Code	Individual Specification
A**/B**/C**/W**	Base Metal Inner Electrode
Other than above	Precious Metal Inner Electrode

* indicates an alphabet or figure.

⑩ Packaging

Code	Packaging
E	ø178mm 2mm Pitch Paper Taping
F	ø330mm 2mm Pitch Paper Taping
L	ø178mm 4mm Pitch Plastic Taping
D	ø178mm 4mm Pitch Paper Taping
K	ø330mm 4mm Pitch Plastic Taping
J	ø330mm 4mm Pitch Paper Taping
B	Bulk
C	Bulk Case
T	Bulk Tray

⑪ 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

⑫ Capacitance Tolerance

Code	Capacitance Tolerance	TC	Series	Capacitance Step	
B	±0.1pF	CΔ	GJ6,GQM	≤5pF	E24 Series,1pF
C	±0.25pF	CΔ-SL	GRP/GRM/ERF/ERH/ERA/ERD	≤5pF	* 1pF
		CΔ	GJ6,GQM	<10pF	E24 Series,1pF
D	±0.5pF	CΔ-SL	GRP/GRM	6.0 to 9.0pF	* 1pF
		CΔ	ERF/ERH/ERA/ERD	5.1 to 9.1pF	E24 Series
G	±2%	CΔ	GJ6	≥10pF	E12 Series
		CΔ	GQM	≥10pF	E24 Series
J	±5%	CΔ-SL	GRP/GRM	≥10pF	E12 Series
		CΔ	ERF/ERH/ERA/ERD	≥10pF	E24 Series
K	±10%	B,R,X7R,X5R,ZLM	GRP/GRM/GA3	E6 Series	
		B,R,X7R	LLL	E12 Series	
M	±20%	Z5U	GRM	E3 Series	
		B,R,X7R	GMA	E6 Series	
		B	GA2	E3 Series	
Z	+80%, -20%	F,Y5V	GRP/GRM/GJ2	E3 Series	
		F,Y5V,E	LLL	E6 Series	
R		Depends on individual standards.			

* E24 series is also available.

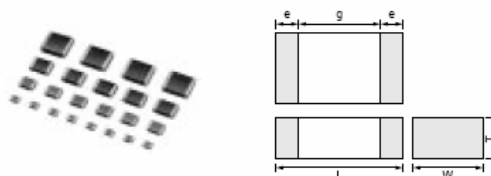
Chip Monolithic Ceramic Capacitors



for Flow/Reflow Soldering GRP15/GRM15/18/21/31 Series

■ Features

1. Terminations are made of metal highly resistant to migration.
2. The GRM series is a complete line of chip ceramic capacitors in 6.3V, 10V, 16V, 25V, 50V and 100V ratings. These capacitors have temperature characteristics ranging from C0G to Y5V.
3. A wide selection of sizes is available, from the miniature LxWxT:1.0x0.5x0.5mm to LxWxT:3.2x1.6x1.15 mm.
GRM18, 21 and GRM31 types are suited to flow and reflow soldering.
GRP15 types is applied to only reflow soldering.
4. Stringent dimensional tolerances allow highly reliable, high speed automatic chip placement on PCBs.
5. The GRP/GRM series is available in paper or plastic embossed tape and reel packaging for automatic placement. Bulk case packaging is also available for GRP15, GRM18, GRM21 electronic equipment.
6. Dielectric layer of GRP15 Y5V 0.22uF/0.47uF/1.0uF are relaxor



Part Number	Dimensions (mm)				
	L	W	T	e	g min.
GRP155	1.0 ±0.05	0.5 ±0.05	0.5 ±0.05	0.15 to 0.3	0.4
GRM155					
GRM188*	1.6 ±0.1	0.8 ±0.1	0.8 ±0.1	0.2 to 0.5	0.5
GRM216			0.6 ±0.1		
GRM219	2.0 ±0.1	1.25 ±0.1	0.85 ±0.1	0.2 to 0.7	0.7
GRM21B			1.25 ±0.1		
GRM319			0.85 ±0.1		
GRM31M	3.2 ±0.15	1.6 ±0.15	1.15 ±0.1	0.3 to 0.8	1.5
GRM31C	3.2 ±0.2	1.6 ±0.2	1.6 ±0.2		

* Bulk Case : 1.6 ±0.07(L) × 0.8 ±0.07(W) × 0.8 ±0.07(T)


■ Applications

General electronic equipment.

Temperature Compensating Type GRP15/GRM15 Series (1.0x0.5mm)

Part Number	GRP15/GRM15								
L x W [EIA]	1.00x0.50 [0402]								
TC	C0G (5C)	C0H (6C)	P2H (6P)	R2H (6R)	S2H (6S)	SL (1X)		T2H (6T)	U2J (7U)
Rated Volt.	50 (1H)	25 (1E)	50 (1H)	50 (1H)	50 (1H)	25 (1E)	50 (1H)	50 (1H)	50 (1H)
Capacitance and T Dimension									
0.5pF(R50)	0.50(5)								
0.75pF(R75)	0.50(5)								
1.0pF(1R0)	0.50(5)								
2.0pF(2R0)	0.50(5)								
3.0pF(3R0)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
4.0pF(4R0)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
5.0pF(5R0)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
6.0pF(6R0)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
7.0pF(7R0)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
8.0pF(8R0)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
9.0pF(9R0)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
10.0pF(100)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
12.0pF(120)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
15.0pF(150)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
18.0pF(180)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
22.0pF(220)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
27.0pF(270)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)

Continued on the following page.

 Continued from the preceding page.


Part Number	GRP15/GRM15								
L x W [EIA]	1.00x0.50 [0402]								
TC	CoG (5C)	CoH (6C)	P2H (6P)	R2H (6R)	S2H (6S)	SL (1X)		T2H (6T)	U2J (7U)
Rated Volt.	50 (1H)	25 (1E)	50 (1H)	50 (1H)	50 (1H)	25 (1E)	50 (1H)	50 (1H)	50 (1H)
Capacitance and T Dimension									
33.0pF(330)	0.50(5)			0.50(5)	0.50(5)			0.50(5)	0.50(5)
39.0pF(390)	0.50(5)				0.50(5)			0.50(5)	0.50(5)
47pF(470)	0.50(5)						0.50(5)	0.50(5)	0.50(5)
56pF(560)	0.50(5)						0.50(5)	0.50(5)	0.50(5)
68pF(680)	0.50(5)						0.50(5)	0.50(5)	0.50(5)
82pF(820)	0.50(5)						0.50(5)	0.50(5)	0.50(5)
100pF(101)	0.50(5)						0.50(5)	0.50(5)	0.50(5)
120pF(121)	0.50(5)						0.50(5)		0.50(5)
150pF(151)	0.50(5)						0.50(5)		0.50(5)
180pF(181)		0.50(5)					0.50(5)		0.50(5)
220pF(221)		0.50(5)				0.50(5)			
270pF(271)		0.50(5)				0.50(5)			
330pF(331)						0.50(5)			
390pF(391)						0.50(5)			

The part numbering code is shown in ().

Dimensions are shown in mm and Rated Voltage in Vdc.

Temperature Compensating Type GRM18 Series (1.60x0.80mm)

Part Number	GRM18												
L x W [EIA]	1.60x0.80 [0603]												
TC	CoG (5C)			CoH (6C)	P2H (6P)	R2H (6R)	S2H (6S)	SL (1X)				T2H (6T)	U2J (7U)
Rated Volt.	50 (1H)	100 (2A)	200 (2D)	25 (1E)	50 (1H)	50 (1H)	50 (1H)	25 (1E)	50 (1H)	100 (2A)	200 (2D)	50 (1H)	50 (1H)
Capacitance and T Dimension													
0.5pF(R50)	0.80(8)		0.80(8)										
0.75pF(R75)	0.80(8)		0.80(8)										
1.0pF(1R0)	0.80(8)		0.80(8)										
2.0pF(2R0)	0.80(8)		0.80(8)										
3.0pF(3R0)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)					0.80(8)	0.80(8)
4.0pF(4R0)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)					0.80(8)	0.80(8)
5.0pF(5R0)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)					0.80(8)	0.80(8)
6.0pF(6R0)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)					0.80(8)	0.80(8)
7.0pF(7R0)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)					0.80(8)	0.80(8)
8.0pF(8R0)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)					0.80(8)	0.80(8)
9.0pF(9R0)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)					0.80(8)	0.80(8)
10.0pF(100)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)					0.80(8)	0.80(8)
12pF(120)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
15pF(150)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
18pF(180)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
22pF(220)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
27pF(270)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
33pF(330)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
39pF(390)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
47pF(470)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
56pF(560)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
68pF(680)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)
82pF(820)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)
100pF(101)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)
120pF(121)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)	0.80(8)	0.80(8)	0.80(8)		0.80(8)	0.80(8)

Continued on the following page. 

Continued from the preceding page.


1

Part Number	GRM18												
L x W [EIA]	1.60x0.80 [0603]												
TC	C0G (5C)			C0H (6C)	P2H (6P)	R2H (6R)	S2H (6S)	SL (1X)				T2H (6T)	U2J (7U)
Rated Volt.	50 (1H)	100 (2A)	200 (2D)	25 (1E)	50 (1H)	50 (1H)	50 (1H)	25 (1E)	50 (1H)	100 (2A)	200 (2D)	50 (1H)	50 (1H)
Capacitance and T Dimension													
150pF(151)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)		0.80(8)	0.80(8)		0.80(8)	0.80(8)
180pF(181)	0.80(8)					0.80(8)	0.80(8)		0.80(8)	0.80(8)		0.80(8)	0.80(8)
220pF(221)	0.80(8)						0.80(8)		0.80(8)	0.80(8)		0.80(8)	0.80(8)
270pF(271)	0.80(8)								0.80(8)	0.80(8)		0.80(8)	0.80(8)
330pF(331)	0.80(8)								0.80(8)	0.80(8)		0.80(8)	0.80(8)
390pF(391)	0.80(8)								0.80(8)	0.80(8)		0.80(8)	0.80(8)
470pF(471)	0.80(8)								0.80(8)				0.80(8)
560pF(561)	0.80(8)			0.80(8)					0.80(8)				0.80(8)
680pF(681)	0.80(8)								0.80(8)				0.80(8)
820pF(821)	0.80(8)							0.80(8)					
1000pF(102)	0.80(8)							0.80(8)					
1200pF(122)								0.80(8)					
1500pF(152)								0.80(8)					

The part numbering code is shown in ().
Dimensions are shown in mm and Rated Voltage in Vdc.

Temperature Compensating Type GRM21 Series (2.00x1.25mm)

Part Number	GRM21												
L x W [EIA]	2.00x1.25 [0805]												
TC	C0G (5C)			C0H (6C)	P2H (6P)	R2H (6R)	S2H (6S)	SL (1X)				T2H (6T)	U2J (7U)
Rated Volt.	50 (1H)	100 (2A)	200 (2D)	25 (1E)	50 (1H)	50 (1H)	50 (1H)	25 (1E)	50 (1H)	100 (2A)	200 (2D)	50 (1H)	50 (1H)
Capacitance and T Dimension													
12pF(120)			0.85(9)										
15pF(150)			0.85(9)										
18pF(180)			0.85(9)										
22pF(220)			0.85(9)										
27pF(270)			0.85(9)										
33pF(330)			0.85(9)										
39pF(390)			0.85(9)										
47pF(470)			0.85(9)										
56pF(560)			0.85(9)										
68pF(680)		0.85(9)	1.25(B)										
82pF(820)		0.85(9)	1.25(B)										
100pF(101)		0.85(9)	1.25(B)										
120pF(121)		0.85(9)	1.25(B)								0.85(9)		
150pF(151)		0.85(9)	1.25(B)								1.25(B)		
180pF(181)		0.85(9)	1.25(B)		0.85(9)						1.25(B)		
220pF(221)		0.85(9)	1.25(B)		0.85(9)	0.85(9)					1.25(B)		
270pF(271)		0.85(9)			0.85(9)	0.85(9)	0.85(9)				1.25(B)		
330pF(331)		0.85(9)			0.85(9)	0.85(9)	0.85(9)				1.25(B)		
390pF(391)		1.25(B)			1.25(B)	0.85(9)	0.85(9)				1.25(B)		
470pF(471)		1.25(B)			1.25(B)	0.85(9)	0.85(9)			0.85(9)	1.25(B)		
560pF(561)	0.60(6)	1.25(B)			1.25(B)	1.25(B)	1.25(B)			0.85(9)		1.25(B)	
680pF(681)	0.85(9)	1.25(B)				1.25(B)	1.25(B)			0.85(9)		1.25(B)	
820pF(821)	0.85(9)	1.25(B)					1.25(B)		0.60(6)	1.25(B)		1.25(B)	0.60(6)
1000pF(102)	0.85(9)	1.25(B)							0.60(6)	1.25(B)		1.25(B)	0.60(6)
1200pF(122)	0.85(9)								0.60(6)	1.25(B)		1.25(B)	0.60(6)
1500pF(152)	0.85(9)								0.85(9)	1.25(B)		1.25(B)	0.85(9)

Continued on the following page. 

Continued from the preceding page.


Part Number	GRM21												
L x W [EIA]	2.00x1.25 [0805]												
TC	C0G (5C)			C0H (6C)	P2H (6P)	R2H (6R)	S2H (6S)	SL (1X)				T2H (6T)	U2J (7U)
Rated Volt.	50 (1H)	100 (2A)	200 (2D)	25 (1E)	50 (1H)	50 (1H)	50 (1H)	25 (1E)	50 (1H)	100 (2A)	200 (2D)	50 (1H)	50 (1H)
Capacitance and T Dimension													
1800pF(182)	1.25(B)								0.85(9)	1.25(B)		1.25(B)	0.85(9)
2200pF(222)	1.25(B)								0.85(9)				0.85(9)
2700pF(272)				1.25(B)					1.25(B)				1.25(B)
3300pF(332)				1.25(B)					1.25(B)				1.25(B)
3900pF(392)				1.25(B)				0.85(9)					
4700pF(472)								0.85(9)					
5600pF(562)								1.25(B)					
6800pF(682)								1.25(B)					

The part numbering code is shown in ().

Dimensions are shown in mm and Rated Voltage in Vdc.

Temperature Compensating Type GRM31 Series (3.20x1.60mm)

Part Number	GRM31														
L x W [EIA]	3.20x1.60 [1206]														
TC	C0G (5C)				C0H (6C)	P2H (6P)	R2H (6R)	S2H (6S)	SL (1X)				T2H (6T)	U2J (7U)	
Rated Volt.	25 (1E)	50 (1H)	200 (2D)	500 (2H)	25 (1E)	50 (1H)	50 (1H)	50 (1H)	25 (1E)	50 (1H)	100 (2A)	200 (2D)	500 (2H)	50 (1H)	50 (1H)
Capacitance and T Dimension															
1.0pF(1R0)				1.15(M)											
2.0pF(2R0)				1.15(M)											
3.0pF(3R0)				1.15(M)											
4.0pF(4R0)				1.15(M)											
5.0pF(5R0)				1.15(M)											
6.0pF(6R0)				1.15(M)											
7.0pF(7R0)				1.15(M)											
8.0pF(8R0)				1.15(M)											
9.0pF(9R0)				1.15(M)											
10.0pF(100)				1.15(M)											
12pF(120)				1.15(M)											
15pF(150)				1.15(M)											
18pF(180)				1.15(M)											
22pF(220)				1.15(M)											
27pF(270)				1.15(M)											
33pF(330)				1.15(M)											
39pF(390)				1.15(M)											
47pF(470)				1.15(M)											
56pF(560)				1.15(M)											
68pF(680)				1.15(M)											
82pF(820)				1.15(M)											
100pF(101)				1.15(M)											
120pF(121)				1.15(M)											
150pF(151)													1.15(M)		
180pF(181)													1.15(M)		
220pF(221)													1.15(M)		
270pF(271)			1.15(M)										1.15(M)		
330pF(331)			1.15(M)												
390pF(391)			1.15(M)												
470pF(471)			1.15(M)												
560pF(561)												1.15(M)			

Continued on the following page. 

Continued from the preceding page.

1

Part Number	GRM31														
L x W [EIA]	3.20x1.60 [1206]														
TC	C0G (5C)				C0H (6C)	P2H (6P)	R2H (6R)	S2H (6S)	SL (1X)					T2H (6T)	U2J (7U)
Rated Volt.	25 (1E)	50 (1H)	200 (2D)	500 (2H)	25 (1E)	50 (1H)	50 (1H)	50 (1H)	25 (1E)	50 (1H)	100 (2A)	200 (2D)	500 (2H)	50 (1H)	50 (1H)
Capacitance and T Dimension															
680pF(681)						0.85(9)						1.15(M)			
820pF(821)						0.85(9)	0.85(9)					1.15(M)			
1000pF(102)						1.15(M)	1.15(M)	0.85(9)				1.15(M)			
1200pF(122)						1.15(M)	1.15(M)	1.15(M)				1.15(M)			
1500pF(152)						1.15(M)	1.15(M)	1.15(M)							
1800pF(182)								1.15(M)							
2200pF(222)											1.15(M)			1.15(M)	
2700pF(272)		0.85(9)									1.15(M)			1.15(M)	
3300pF(332)		0.85(9)									1.15(M)			1.15(M)	
3900pF(392)		1.15(M)								0.85(9)	1.15(M)			1.15(M)	0.85(9)
4700pF(472)		0.85(9)								0.85(9)	1.15(M)				0.85(9)
5600pF(562)		1.15(M)								0.85(9)					0.85(9)
6800pF(682)					0.85(9)					1.15(M)					1.15(M)
8200pF(822)					1.15(M)					1.15(M)					1.15(M)
10000pF(103)	0.85(9)								1.15(M)						
12000pF(123)									1.15(M)						
15000pF(153)									1.15(M)						

The part numbering code is shown in ().

Dimensions are shown in mm and Rated Voltage in Vdc.

High Dielectric Constant Type X5R(R6) Characteristics

TC	X5R (R6)					
Part Number	GRP15	GRM18	GRM21		GRM31	
L x W [EIA]	1.00x0.50 [0402]	1.60x0.80 [0603]	2.00x1.25 [0805]		3.20x1.60 [1206]	
Rated Volt.	10 (1A)	6.3 (0J)	6.3 (0J)	10 (1A)	6.3 (0J)	10 (1A)
Capacitance and T Dimension						
68000pF(683)	0.50(5)					
0.1μF(104)	0.50(5)					
0.47μF(474)		0.80(8)				
1.0μF(105)		0.80(8)		0.85(9)		
1.5μF(155)			0.85(9)			
2.2μF(225)			1.25(B)			0.85(9)
3.3μF(335)			1.25(B)			1.30(X)
4.7μF(475)			1.25(B)		1.15(M)	1.60(C)
10μF(106)					1.60(C)	

The part numbering code is shown in each ().

3.3μF and 4.7μF for 6.3V is replaced with GRM21B series of L:2±0.15, W:1.25±0.15, T:1.25±0.15.

T:1.25±0.1mm is also available for GRM21 10V 1.0μF type.


3.3μF for 10V rated is replaced with GRM31X series of L:3.2±0.2, W:1.6±0.2, T:1.2±0.1mm.

T:1.15±0.1 is also available for GRM31, 16V, 1.0μF type.

Dimensions are shown in mm and Rated Voltage in Vdc.

High Dielectric Constant Type X7R(R7) Characteristics

TC	X7R (R7)															
Part Number	GRP15				GRM18					GRM21			GRM31			
L x W [EIA]	1.00x0.50 [0402]				1.60x0.80 [0603]					2.00x1.25 [0805]			3.20x1.60 [1206]			
Rated Volt.	10 (1A)	16 (1C)	25 (1E)	50 (1H)	10 (1A)	16 (1C)	25 (1E)	50 (1H)	100 (2A)	16 (1C)	25 (1E)	50 (1H)	10 (1A)	16 (1C)	25 (1E)	50 (1H)
Capacitance and T Dimension																
220pF (221)				0.50 (5)				0.80 (8)								
330pF (331)				0.50 (5)				0.80 (8)								
470pF (471)				0.50 (5)				0.80 (8)								
680pF (681)				0.50 (5)				0.80 (8)								
1000pF (102)				0.50 (5)				0.80 (8)								
1500pF (152)				0.50 (5)				0.80 (8)								
2200pF (222)				0.50 (5)				0.80 (8)	0.80 (8)							
3300pF (332)				0.50 (5)				0.80 (8)	0.80 (8)							
4700pF (472)				0.50 (5)				0.80 (8)								
6800pF (682)			0.50 (5)					0.80 (8)								
10000pF (103)			0.50 (5)					0.80 (8)								
15000pF (153)		0.50 (5)						0.80 (8)								
22000pF (223)		0.50 (5)						0.80 (8)								
33000pF (333)	0.50 (5)						0.80 (8)					0.85 (9)				
47000pF (473)	0.50 (5)						0.80 (8)					1.25 (B)				
68000pF (683)							0.80 (8)					1.25 (B)				
0.10μF (104)						0.80 (8)	0.80 (8)				1.25 (B)	1.25 (B)				
0.15μF (154)					0.80 (8)						1.25 (B)	1.25 (B)				
0.22μF (224)					0.80 (8)						0.85 (B)	1.25 (B)				
0.33μF (334)											1.25 (B)					0.85 (9)
0.47μF (474)										0.85 (9)	1.25 (B)					1.15 (M)
0.68μF (684)										0.85 (9)					0.85 (9)	
1.00μF (105)										1.25 (B)			0.85 (9)	0.85 (9)	1.15 (M)	
1.5μF (155)														1.15 (M)		

Continued on the following page. 

 Continued from the preceding page.

1

TC	X7R (R7)															
Part Number	GRP15				GRM18					GRM21			GRM31			
L x W [EIA]	1.00x0.50 [0402]				1.60x0.80 [0603]					2.00x1.25 [0805]			3.20x1.60 [1206]			
Rated Volt.	10 (1A)	16 (1C)	25 (1E)	50 (1H)	10 (1A)	16 (1C)	25 (1E)	50 (1H)	100 (2A)	16 (1C)	25 (1E)	50 (1H)	10 (1A)	16 (1C)	25 (1E)	50 (1H)
Capacitance and T Dimension																
2.2μF (225)													1.15 (M)	1.15 (M)		

The part numbering code is shown in each ().

0.10μF, 50V rated are GRM21 series of L:2±0.15, W:1.25±0.15, T:1.25±0.15.

T:1.25±0.1mm is also available for GRM31 1.0μF for 16V.

The tolerance will be changed to L:3.2±0.2, W:1.6±0.2 for GRM31 16V 1.0μF type. Also L:3.2±0.2, W:1.6±0.2, T:1.15±0.15 for GRM31 16V 1.5μF and 2.2μF type.

Dimensions are shown in mm and Rated Voltage in Vdc.

High Dielectric Constant Type Y5V(F5) Characteristics

TC	Y5V (F5)																		
Part Number	GRP15					GRM18					GRM21				GRM31				
L x W [EIA]	1.00x0.50 [0402]					1.60x0.80 [0603]					2.00x1.25 [0805]				3.20x1.60 [1206]				
Rated Volt.	6.3 (0J)	10 (1A)	16 (1C)	25 (1E)	50 (1H)	10 (1A)	16 (1C)	25 (1E)	50 (1H)	100 (2A)	10 (1A)	16 (1C)	25 (1E)	50 (1H)	6.3 (0J)	10 (1A)	16 (1C)	25 (1E)	50 (1H)
Capacitance and T Dimension																			
2200pF (222)					0.50 (5)														
4700pF (472)					0.50 (5)					0.80 (8)									
10000pF (103)					0.50 (5)					0.80 (8)									
22000pF (223)				0.50 (5)						0.80 (8)									
47000pF (473)			0.50 (5)							0.80 (8)									
0.10μF (104)			0.50 (5)						0.80 (8)						0.85 (9)				
0.22μF (224)		0.50 (5)					0.80 (8)							0.85 (9)	1.25 (B)				
0.47μF (474)		0.50 (5)				0.80 (8)	0.80 (8)							1.25 (B)					1.15 (M)
1.0μF (105)	0.50 (5)					0.80 (8)					0.85 (9)	0.85 (9)	0.85 (9)				0.85 (9)	1.15 (M)	
2.2μF (225)											1.25 (B)	1.25 (B)	1.25 (B)			0.85 (9)	1.15 (M)		
4.7μF (475)											1.25 (B)					1.15 (M)	1.15 (M)		
10.0μF (106)																1.15 (M)	1.15 (M)		

The part numbering code is shown in each ().

T:1.25±0.1mm is also available for GRM21 25V or 16V 1.0μF type.

Dimensions are shown in mm and Rated Voltage in Vdc.

High Dielectric Constant Type Z5U(E4) Characteristics

1

TC	Z5U (E4)		
Part Number	GRM18	GRM21	GRM31
L x W [EIA]	1.60x0.80 [0603]	2.00x1.25 [0805]	3.20x1.60 [1206]
Rated Volt.	50 (1H)	50 (1H)	50 (1H)
Capacitance and T Dimension			
10000pF(103)	0.80(8)		
22000pF(223)	0.80(8)		
47000pF(473)		0.60(6)	
0.10μF(104)		0.85(9)	
0.22μF(224)			0.85(9)

The part numbering code is shown in ().

Dimensions are shown in mm and Rated Voltage in Vdc.