



**THE DATASHEET OF  
GCM188C71A225KE02D**



# Chip Multilayer Ceramic Capacitors for Automotive



2017

# Explanation of Symbols in This Catalog



Links are provided to the latest information from the PDF version of the catalog, which is available on the web.

<b>General</b>	For applications that do not require the particular reliability such as the general equipment
<b>Info-tainment</b>	Infotainment for Automotive The product for entertainment equipment like car navigations, car audios, and body control equipment like wipers, power windows.
<b>Power-train</b>	Powertrain/Safety for Automotive Product used for applications (running, turning, stopping and safety devices) which particularly concern human life, such as in devices for automobiles.
<b>Medical Device</b>	Medical-grade products for Implanted Medical Devices These products are intended for use in implanted medical devices such as cardiac pacemakers, cochlear implants, insulin pumps and gastric electrostimulators. They are suitable for use in non-critical circuits. *1 *1 Non-critical circuits This term refers to circuits in implanted medical devices that are not directly linked to life support, i.e. circuits that will not directly endanger the life of the patient should the functionality of the device be reduced or halted by failure of the circuit.
<b>AEC-Q200</b>	AEC-Q200 compliant product
<b>Safety standard</b>	Safety Standard Certified Product Products that acquired safety standard certification IEC60384-14 and products based on the Electrical Appliance and Material Safety Law of Japan.
<b>High Q</b>	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.
<b>Low ESL</b>	Low inductance This capacitor is designed so that the parasitic inductance component (ESL) that the capacitor has on the high frequency side becomes lower.
<b>Fail safe</b>	Fail safe product This capacitor is designed to prevent failures as much as possible by short mode.
<b>Deflecting crack</b>	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.
<b>Soldering crack</b>	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.
<b>Anti-noise</b>	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.
<b>Effective Cap</b>	No DC bias characteristics Polymer capacitor is no capacitance change with DC bias due to aluminum oxidized film for dielectric.
<b>EMI FIL®</b>	Low-inductance product suitable for noise suppression. This product has extremely low ESL and is suitable for suppression of noise, including high frequencies. This product can also be used as a low-ESL, high-performance bypass capacitor.
<b>Limited to conductive glue mounting</b>	Limited to Conductive Glue Mounting Since silver palladium is used for the external electrodes, the capacitor can be mounted by conductive adhesive.

**D1 Derating 1**

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

**D2 Derating 2**

When the product temperature exceeds 105°C, please use this product within the voltage and temperature derated conditions in the figure below.

**D3 Derating 3**

Please apply the derating curve according to the operating temperature. Please refer to detailed specifications sheet for details.

**D4 Derating 4**

When the product temperature exceeds 125°C, please use this product within the voltage and temperature derated conditions in the figure below.

**D5 Derating 5**

Derating 5  
Please apply the rated voltage derating over 150°C. Please refer to detailed specifications sheet for details.

# Selection Guide for Capacitors

**Infotainment for automotive**

SMD

Solder mounting

Chip type

	<b>GRT</b>		P23
--	------------	--	-----

**Powertrain/Safety for automotive**

SMD

Solder mounting

Chip type

	<b>GCM</b>		P29
	<b>GC3</b>	Anti-noise	High effective capacitance & high ripple current P37
	<b>GCJ</b>	Fail safe	Soft termination P39
	<b>GGM</b>	Water Resistant	WEB
	<b>GCQ</b>	High Q	WEB
	<b>GCD</b>	Fail safe	MLSC design P45
	<b>GCE</b>	Fail safe	Soft termination MLSC design P47
	<b>GGD</b>	Fail safe	MLSC design WEB
	<b>NFM</b>	Low ESL	3 terminals P49

Metal terminal type

	<b>KCM</b>	Anti-noise	Deflecting crack	Soldering crack	P51	
	<b>KC3</b>	Anti-noise	Deflecting crack	Soldering crack	High effective capacitance & high ripple current P54	
	<b>KCA</b>	Safety standard	Anti-noise	Deflecting crack	Soldering crack	P57

Limited to Conductive Glue Mounting

Chip type

	<b>GCB</b>	Deflecting crack	Soldering crack	Ni plating + Pd plating termination conductive glue mounting	WEB
	<b>GCG</b>	Deflecting crack	Soldering crack	AgPd termination conductive glue mounting	P60

Lead type

Solder mounting

	<b>RCE</b>	Anti-noise	Deflecting crack	Soldering crack	WEB
	<b>RHE</b>	Anti-noise	Deflecting crack	Soldering crack	150°C operation leaded WEB
	<b>RHS</b>	Anti-noise	Deflecting crack	Soldering crack	200°C operation leaded WEB
	<b>DE6</b>	Safety standard			WEB

**Medical-grade products for implanted medical devices**

SMD

Solder mounting

Chip type

	<b>GCH</b>		WEB
--	------------	--	-----

**For general**

General SMD

Solder mounting

Chip type

	<b>GRM</b>		WEB
	<b>GRM</b>		For LCD backlight inverter circuit only WEB
	<b>GR3</b>	Anti-noise	High effective capacitance & high ripple current WEB
	<b>GRJ</b>	Deflecting crack	Soft termination WEB
	<b>GXM</b>	Water Resistant	WEB
	<b>GR4</b>		For information devices only WEB
	<b>GR7</b>		For camera flash circuit only WEB
	<b>GJM</b>	High Q	WEB
	<b>GQM</b>	High Q	High power WEB
	<b>GA2</b>		Based on the Electrical Appliance and Material Safety Law of Japan WEB
	<b>GA3</b>	Safety standard	WEB
	<b>LLL</b>	Low ESL	LW reversed WEB
	<b>LLA</b>	Low ESL	8 terminals WEB
	<b>LLM</b>	Low ESL	10 terminals WEB
	<b>LLR</b>	Low ESL	LW reversed controlled ESR WEB
	<b>NFM</b>	Low ESL	3 terminals WEB
	<b>GJ4</b>	Anti-noise	Low distortion WEB
	<b>GJ8</b>	Anti-noise	Low acoustic noise WEB

On interposer board

	<b>ZRA</b>	Anti-noise	WEB
	<b>ZRB</b>	Anti-noise	WEB

Metal terminal type

	<b>KRM</b>	Anti-noise	Deflecting crack	Soldering crack	WEB
	<b>KR3</b>	Anti-noise	Deflecting crack	Soldering crack	High effective capacitance & high ripple current WEB

Resin molding SMD type

	<b>DK1</b>	Safety standard	WEB
--	------------	-----------------	-----

Wire bonding mounting

Bonding

Chip type

	<b>GMA</b>		Microchip	WEB
	<b>GMD</b>			WEB

Lead type

Solder mounting

	<b>RDE</b>	Anti-noise	Deflecting crack	Soldering crack	WEB
	<b>DEH</b>				High temperature low loss WEB
	<b>DEA</b>				High temperature Class 1 WEB
	<b>DEB</b>				Class 2 WEB
	<b>DEC</b>				WEB
	<b>DEF</b>				For LCD backlight inverter circuit only WEB
	<b>DHR</b>	Ultra-high-voltage	Deflecting crack	Soldering crack	WEB
	<b>DEJ</b>				Based on the Electrical Appliance and Material Safety Law of Japan WEB
	<b>DE1</b>	Safety standard			X1/Y1 Class certified product WEB
	<b>DE2</b>	Safety standard			X1/Y2 Class certified product WEB

Screw termination mounting

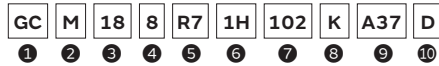
	<b>DHS</b>	Ultra-high-voltage			WEB
	<b>DHK</b>	Ultra-high-voltage			High voltage AC rated WEB

● Part Numbering

Chip Multilayer Ceramic Capacitors for Automotive



(Part Number)



① Product ID

② Series

Product ID	Code	Series
GC	3	High effective capacitance & High allowable ripple current
	D	Specially designed product to reduce shorts
	E	Specially designed product to reduce shorts & resin electrode product
	G	Limited to conductive glue mounting
	J	Soft termination type
	M	For automotive
GR	T	Meet AEC-Q200 for infotainment
KC	3	Metal terminal type/High effective capacitance & High allowable ripple current
	A	Metal terminal type/ Safety standard certified product
	M	Metal terminal type

③ Chip Dimension (L x W)

Code	Dimension (L x W)	EIA
03	0.6 x 0.3mm	0201
15	1.0 x 0.5mm	0402
18	1.6 x 0.8mm	0603
21	2.0 x 1.25mm	0805
31	3.2 x 1.6mm	1206
32	3.2 x 2.5mm	1210
43	4.5 x 3.2mm	1812
55	5.7 x 5.0mm	2220

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		*4		-10°C			
					Max.		Min.	Max.	Min.	Max.	Min.	
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
9E	ZLM	*2	20°C	-55 to -40°C	-4700+1000/-2500ppm/°C	-55 to 125°C	-	-	-	-	-	-
				-40 to 20°C	-5350±750ppm/°C		-	-	-	-	-	
				20 to 85°C	-4700±500ppm/°C		-	-	-	-	-	
				85 to 125°C	-4700+2000/-1000ppm/°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	-	-	-	-	-	-
L8	X8L	*2	25°C	-55 to 150°C	+15%, -40%	-55 to 150°C	-	-	-	-	-	-
M8	X8M	*2	25°C	-55 to 150°C	+15%, -50%	-55 to 150°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	-	-	-	-	-	-

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

④ Height Dimension (T) (Except KC□)

Code	Dimension (T)
3	0.3mm
5	0.5mm
6	0.6mm
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) (KC□ Only)

Code	Dimension (T)
L	2.8mm
Q	3.7mm
T	4.8mm
W	6.4mm

Continued on the following page. ↗

(Part Number)

GC	M	18	8	R7	1H	102	K	A37	D
1	2	3	4	5	6	7	8	9	10

Continued from the preceding page. ↘

⑥ Rated Voltage

Code		Rated Voltage
Standard Product	Voltage Derated Product	
0E	-	DC2.5V
0G	-	DC4V
0J	EC	DC6.3V
1A	ED	DC10V
1C	EE	DC16V
1E	EF	DC25V
YA	EG	DC35V
1H	EH	DC50V
1J	-	DC63V
1K	-	DC80V
2A	EL	DC100V
2E	-	DC250V
2W	LP	DC450V
2J	LQ	DC630V
3A	-	DC1kV
MF	-	X1/Y2: AC250V (Safety Standard Certified Type MF)

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 that 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 letter, 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
C	±0.25pF
D	±0.5pF (Less than 10pF)
	±0.5% (10pF and over)
J	±5%
K	±10%
M	±20%

⑨ Individual Specification Code

Expressed by three figures.

⑩ Package

Code	Package
L	ø180mm Embossed Taping
D/W	ø180mm Paper Taping
K	ø330mm Embossed Taping
J	ø330mm Paper Taping

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

### 3 Terminal Low ESL Multilayer Ceramic Capacitors



(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 Terminal Low ESL Type

#### 3 Dimensions (LxW)

Code	Dimensions (LxW)	EIA
21	2.0x1.25mm	0805
31	3.2x1.6mm	1206

#### 4 Features

Code	Features	
HC	Powertrain/Safety for Automotive	For Signal Lines / For Large Current
HK		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
R	±15%, +15/-18%

#### 7 Rated Voltage

Code	Rated Voltage
1A	10V
1C	16V
1H	50V
2A	100V

#### 8 Electrode

Code	Electrode
3	Sn Plating

#### 9 Packaging

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

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

Chip Multilayer Ceramic Capacitors for Automotive

**GCM Series**



Capacitor for automotive applications such as power train and safety equipment.

Features

① Ideal for powertrains and safety devices in automotive.

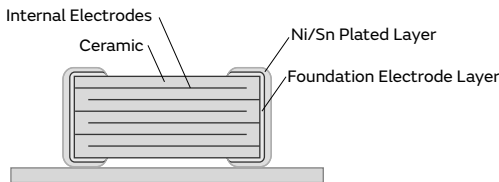
This product can be used for safety devices, such as the drive system control for engine ECU, air bags, and ABS. This product has cleared test conditions more severe than that of general products (GRM Series) even in temperature cycle and humidity load tests.

	General Purpose GRM Series Maximum operating temperature: <b>125°C</b>	GCM Series for Automotive Maximum operating temperature: <b>150°C</b>
Items	Test Method	Test Method
Temperature Cycle	Temperature Cycle: <b>5 cycles</b>	Temperature Cycle: <b>100 cycles</b> <b>(1,000 cycles for AEC-Q200 conforming products)</b>
Humidity Loading	Test temperature: <b>40±2°C</b> Test humidity: <b>90 to 95%RH</b> Test time: 500 hours	Test temperature: <b>85±2°C</b> Test humidity: <b>80 to 85%RH</b> Test time: 500 hours <b>(1,000 hours for AEC-Q200 conforming products)</b>

② Can be used at 125°C and 150°C temperatures.

We also offer a lineup for 150°C that can be used in the engine room.

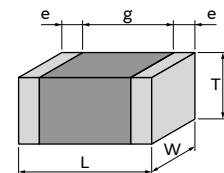
③ Sn plating is applied to the external electrodes; excellent solderability.



<Example of Structure>

Specifications

Size	0.6×0.3mm to 5.7×5.0mm
Rated Voltage	4Vdc to 1000Vdc
Capacitance	0.10pF to 47μF
Main Applications	Safety equipment, such as drive system control, air bags, and ABS of engine ECU



<Dimensions>

GRT Series

GCM Series

GC3 Series

GCM Series

GCD Series

GCE Series

NMF Series

KCM Series

KC3 Series

KCA Series

GCG Series

△Caution / Notice

29

# GCM Series Temperature Compensating Type Part Number List

## 1.0×0.5mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number			
0.55mm	50Vdc	COG	1.0pF	±0.25pF	GCM1555C1H1R0CA16#			
			2.0pF	±0.25pF	GCM1555C1H2R0CA16#			
			3.0pF	±0.25pF	GCM1555C1H3R0CA16#			
			4.0pF	±0.25pF	GCM1555C1H4R0CA16#			
			5.0pF	±0.25pF	GCM1555C1H5R0CA16#			
			6.0pF	±0.5pF	GCM1555C1H6R0DA16#			
			7.0pF	±0.5pF	GCM1555C1H7R0DA16#			
			8.0pF	±0.5pF	GCM1555C1H8R0DA16#			
			9.0pF	±0.5pF	GCM1555C1H9R0DA16#			
			10pF	±5%	GCM1555C1H100JA16#			
			12pF	±5%	GCM1555C1H120JA16#			
			15pF	±5%	GCM1555C1H150JA16#			
			18pF	±5%	GCM1555C1H180JA16#			
			22pF	±5%	GCM1555C1H220JA16#			
			27pF	±5%	GCM1555C1H270JA16#			
			33pF	±5%	GCM1555C1H330JA16#			
			39pF	±5%	GCM1555C1H390JA16#			
			47pF	±5%	GCM1555C1H470JA16#			
			56pF	±5%	GCM1555C1H560JA16#			
			68pF	±5%	GCM1555C1H680JA16#			
			82pF	±5%	GCM1555C1H820JA16#			
			100pF	±5%	GCM1555C1H101JA16#			
			120pF	±5%	GCM1555C1H121JA16#			
			150pF	±5%	GCM1555C1H151JA16#			
			180pF	±5%	GCM1555C1H181JA16#			
			220pF	±5%	GCM1555C1H221JA16#			
			270pF	±5%	GCM1555C1H271JA16#			
			330pF	±5%	GCM1555C1H331JA16#			
			390pF	±5%	GCM1555C1H391JA16#			
			470pF	±5%	GCM1555C1H471JA16#			
			560pF	±5%	GCM1555C1H561JA16#			
			680pF	±5%	GCM1555C1H681JA16#			
			820pF	±5%	GCM1555C1H821JA16#			
			1000pF	±5%	GCM1555C1H102JA16#			
			X8G			1.0pF	±0.25pF	GCM1555G1H1R0CA16#
						2.0pF	±0.25pF	GCM1555G1H2R0CA16#
3.0pF	±0.25pF	GCM1555G1H3R0CA16#						
4.0pF	±0.25pF	GCM1555G1H4R0CA16#						
5.0pF	±0.25pF	GCM1555G1H5R0CA16#						
12pF	±5%	GCM1555G1H120JA16#						
15pF	±5%	GCM1555G1H150JA16#						
18pF	±5%	GCM1555G1H180JA16#						
22pF	±5%	GCM1555G1H220JA16#						
27pF	±5%	GCM1555G1H270JA16#						
33pF	±5%	GCM1555G1H330JA16#						
39pF	±5%	GCM1555G1H390JA16#						
47pF	±5%	GCM1555G1H470JA16#						
56pF	±5%	GCM1555G1H560JA16#						
68pF	±5%	GCM1555G1H680JA16#						
82pF	±5%	GCM1555G1H820JA16#						
100pF	±5%	GCM1555G1H101JA16#						
120pF	±5%	GCM1555G1H121JA16#						

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.55mm	50Vdc	X8G	150pF	±5%	GCM1555G1H151JA16#
			180pF	±5%	GCM1555G1H181JA16#
			220pF	±5%	GCM1555G1H221JA16#
			270pF	±5%	GCM1555G1H271JA16#
			330pF	±5%	GCM1555G1H331JA16#
			390pF	±5%	GCM1555G1H391JA16#
			470pF	±5%	GCM1555G1H471JA16#
			560pF	±5%	GCM1555G1H561JA16#
			680pF	±5%	GCM1555G1H681JA16#
			820pF	±5%	GCM1555G1H821JA16#
			1000pF	±5%	GCM1555G1H102JA16#

## 1.6×0.8mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number		
0.9mm	100Vdc	COG	1.0pF	±0.25pF	GCM1885C2A1R0CA16#		
			2.0pF	±0.25pF	GCM1885C2A2R0CA16#		
			3.0pF	±0.25pF	GCM1885C2A3R0CA16#		
			4.0pF	±0.25pF	GCM1885C2A4R0CA16#		
			5.0pF	±0.25pF	GCM1885C2A5R0CA16#		
			6.0pF	±0.5pF	GCM1885C2A6R0DA16#		
			7.0pF	±0.5pF	GCM1885C2A7R0DA16#		
			8.0pF	±0.5pF	GCM1885C2A8R0DA16#		
			9.0pF	±0.5pF	GCM1885C2A9R0DA16#		
			10pF	±5%	GCM1885C2A100JA16#		
			12pF	±5%	GCM1885C2A120JA16#		
			15pF	±5%	GCM1885C2A150JA16#		
			18pF	±5%	GCM1885C2A180JA16#		
			22pF	±5%	GCM1885C2A220JA16#		
			27pF	±5%	GCM1885C2A270JA16#		
			33pF	±5%	GCM1885C2A330JA16#		
			39pF	±5%	GCM1885C2A390JA16#		
			47pF	±5%	GCM1885C2A470JA16#		
			56pF	±5%	GCM1885C2A560JA16#		
			68pF	±5%	GCM1885C2A680JA16#		
			82pF	±5%	GCM1885C2A820JA16#		
			100pF	±5%	GCM1885C2A101JA16#		
			120pF	±5%	GCM1885C2A121JA16#		
			150pF	±5%	GCM1885C2A151JA16#		
			180pF	±5%	GCM1885C2A181JA16#		
			220pF	±5%	GCM1885C2A221JA16#		
			270pF	±5%	GCM1885C2A271JA16#		
			330pF	±5%	GCM1885C2A331JA16#		
			390pF	±5%	GCM1885C2A391JA16#		
			470pF	±5%	GCM1885C2A471JA16#		
			560pF	±5%	GCM1885C2A561JA16#		
			680pF	±5%	GCM1885C2A681JA16#		
			820pF	±5%	GCM1885C2A821JA16#		
			1000pF	±5%	GCM1885C2A102JA16#		
			1200pF	±5%	GCM1885C2A122JA16#		
			1500pF	±5%	GCM1885C2A152JA16#		
		U2J			1000pF	±5%	GCM1887U2A102JA16#
					1200pF	±5%	GCM1887U2A122JA16#

Part number # indicates the package specification code.

GRT Series  
 GCM Series  
 GC3 Series  
 GCJ Series  
 GCD Series  
 GCE Series  
 NMF Series  
 KCM Series  
 KC3 Series  
 KCA Series  
 GCG Series  
 ⚠Caution/ Notice

# GCM Series Temperature Compensating Type Part Number List

(→ 1.6×0.8mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number		
0.9mm	100Vdc	U2J	1500pF	±5%	GCM1887U2A152JA16#		
			1800pF	±5%	GCM1887U2A182JA16#		
			2200pF	±5%	GCM1887U2A222JA16#		
			2700pF	±5%	GCM1887U2A272JA16#		
			3300pF	±5%	GCM1887U2A332JA16#		
			3900pF	±5%	GCM1887U2A392JA16#		
			4700pF	±5%	GCM1887U2A472JA16#		
			5600pF	±5%	GCM1887U2A562JA16#		
			6800pF	±5%	GCM1887U2A682JA16#		
			8200pF	±5%	GCM1887U2A822JA16#		
			10000pF	±5%	GCM1887U2A103JA16#		
			50Vdc	COG	1.0pF	±0.25pF	GCM1885C1H1R0CA16#
					2.0pF	±0.25pF	GCM1885C1H2R0CA16#
3.0pF	±0.25pF	GCM1885C1H3R0CA16#					
4.0pF	±0.25pF	GCM1885C1H4R0CA16#					
5.0pF	±0.25pF	GCM1885C1H5R0CA16#					
6.0pF	±0.5pF	GCM1885C1H6R0DA16#					
7.0pF	±0.5pF	GCM1885C1H7R0DA16#					
8.0pF	±0.5pF	GCM1885C1H8R0DA16#					
9.0pF	±0.5pF	GCM1885C1H9R0DA16#					
10pF	±5%	GCM1885C1H100JA16#					
12pF	±5%	GCM1885C1H120JA16#					
15pF	±5%	GCM1885C1H150JA16#					
18pF	±5%	GCM1885C1H180JA16#					
22pF	±5%	GCM1885C1H220JA16#					
27pF	±5%	GCM1885C1H270JA16#					
33pF	±5%	GCM1885C1H330JA16#					
39pF	±5%	GCM1885C1H390JA16#					
47pF	±5%	GCM1885C1H470JA16#					
56pF	±5%	GCM1885C1H560JA16#					
68pF	±5%	GCM1885C1H680JA16#					
82pF	±5%	GCM1885C1H820JA16#					
100pF	±5%	GCM1885C1H101JA16#					
120pF	±5%	GCM1885C1H121JA16#					
150pF	±5%	GCM1885C1H151JA16#					
180pF	±5%	GCM1885C1H181JA16#					
220pF	±5%	GCM1885C1H221JA16#					
270pF	±5%	GCM1885C1H271JA16#					
330pF	±5%	GCM1885C1H331JA16#					
390pF	±5%	GCM1885C1H391JA16#					
470pF	±5%	GCM1885C1H471JA16#					
560pF	±5%	GCM1885C1H561JA16#					
680pF	±5%	GCM1885C1H681JA16#					
820pF	±5%	GCM1885C1H821JA16#					
1000pF	±5%	GCM1885C1H102JA16#					
1200pF	±5%	GCM1885C1H122JA16#					
1500pF	±5%	GCM1885C1H152JA16#					
1800pF	±5%	GCM1885C1H182JA16#					
2200pF	±5%	GCM1885C1H222JA16#					
2700pF	±5%	GCM1885C1H272JA16#					
3300pF	±5%	GCM1885C1H332JA16#					
3900pF	±5%	GCM1885C1H392JA16#					
U2J	100Vdc	1000pF			±5%	GCM1887U1H102JA16#	
		1200pF			±5%	GCM1887U1H122JA16#	

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.9mm	50Vdc	U2J	1500pF	±5%	GCM1887U1H152JA16#
			1800pF	±5%	GCM1887U1H182JA16#
			2200pF	±5%	GCM1887U1H222JA16#
			2700pF	±5%	GCM1887U1H272JA16#
			3300pF	±5%	GCM1887U1H332JA16#
			3900pF	±5%	GCM1887U1H392JA16#
			4700pF	±5%	GCM1887U1H472JA16#
			5600pF	±5%	GCM1887U1H562JA16#
			6800pF	±5%	GCM1887U1H682JA16#
			8200pF	±5%	GCM1887U1H822JA16#
			10000pF	±5%	GCM1887U1H103JA16#

## 2.0×1.25mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number		
0.7mm	100Vdc	COG	100pF	±5%	GCM2165C2A101JA16#		
			120pF	±5%	GCM2165C2A121JA16#		
			150pF	±5%	GCM2165C2A151JA16#		
			180pF	±5%	GCM2165C2A181JA16#		
			220pF	±5%	GCM2165C2A221JA16#		
			270pF	±5%	GCM2165C2A271JA16#		
			330pF	±5%	GCM2165C2A331JA16#		
			390pF	±5%	GCM2165C2A391JA16#		
			470pF	±5%	GCM2165C2A471JA16#		
			560pF	±5%	GCM2165C2A561JA16#		
			680pF	±5%	GCM2165C2A681JA16#		
			820pF	±5%	GCM2165C2A821JA16#		
			1000pF	±5%	GCM2165C2A102JA16#		
			1200pF	±5%	GCM2165C2A122JA16#		
			1500pF	±5%	GCM2165C2A152JA16#		
			1800pF	±5%	GCM2165C2A182JA16#		
			2200pF	±5%	GCM2165C2A222JA16#		
			2700pF	±5%	GCM2165C2A272JA16#		
			3300pF	±5%	GCM2165C2A332JA16#		
			50Vdc	COG	4700pF	±5%	GCM2165C1H472JA16#
			0.95mm	100Vdc	ZLM	1000pF	±10%
	±20%	GCM2199E2A102MA05#					
1100pF	±10%	GCM2199E2A112KA05#					
	±20%	GCM2199E2A112MA05#					
1200pF	±10%	GCM2199E2A122KA05#					
	±20%	GCM2199E2A122MA05#					
1300pF	±10%	GCM2199E2A132KA05#					
	±20%	GCM2199E2A132MA05#					
1500pF	±10%	GCM2199E2A152KA05#					
	±20%	GCM2199E2A152MA05#					
80Vdc	COG	15000pF				±5%	GCM2195C1K153JA16#
63Vdc	COG	15000pF				±5%	GCM2195C1J153JA16#
50Vdc	COG	5600pF				±5%	GCM2195C1H562JA16#
		6800pF				±5%	GCM2195C1H682JA16#
		8200pF				±5%	GCM2195C1H822JA16#
		10000pF	±5%	GCM2195C1H103JA16#			
		12000pF	±5%	GCM2195C1H123JA16#			
		15000pF	±5%	GCM2195C1H153JA16#			

Part number # indicates the package specification code.

# GCM Series Temperature Compensating Type Part Number List

(→ 2.0×1.25mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number		
1.0mm	630Vdc	COG	10pF	±5%	GCM21A5C2J100JX01#		
			12pF	±5%	GCM21A5C2J120JX01#		
			15pF	±5%	GCM21A5C2J150JX01#		
			18pF	±5%	GCM21A5C2J180JX01#		
			22pF	±5%	GCM21A5C2J220JX01#		
			27pF	±5%	GCM21A5C2J270JX01#		
			33pF	±5%	GCM21A5C2J330JX01#		
			39pF	±5%	GCM21A5C2J390JX01#		
			47pF	±5%	GCM21A5C2J470JX01#		
			56pF	±5%	GCM21A5C2J560JX01#		
			68pF	±5%	GCM21A5C2J680JX01#		
			82pF	±5%	GCM21A5C2J820JX01#		
			100pF	±5%	GCM21A5C2J101JX01#		
			120pF	±5%	GCM21A5C2J121JX01#		
			150pF	±5%	GCM21A5C2J151JX01#		
			180pF	±5%	GCM21A5C2J181JX01#		
			220pF	±5%	GCM21A5C2J221JX01#		
			270pF	±5%	GCM21A5C2J271JX01#		
			330pF	±5%	GCM21A5C2J331JX01#		
			390pF	±5%	GCM21A5C2J391JX01#		
			470pF	±5%	GCM21A5C2J471JX01#		
			560pF	±5%	GCM21A5C2J561JX01#		
			250Vdc	COG	10pF	±5%	GCM21A5C2E100JX01#
					12pF	±5%	GCM21A5C2E120JX01#
					15pF	±5%	GCM21A5C2E150JX01#
					18pF	±5%	GCM21A5C2E180JX01#
					22pF	±5%	GCM21A5C2E220JX01#
					27pF	±5%	GCM21A5C2E270JX01#
					33pF	±5%	GCM21A5C2E330JX01#
					39pF	±5%	GCM21A5C2E390JX01#
	47pF	±5%			GCM21A5C2E470JX01#		
	56pF	±5%			GCM21A5C2E560JX01#		
	68pF	±5%			GCM21A5C2E680JX01#		
	82pF	±5%			GCM21A5C2E820JX01#		
	100pF	±5%			GCM21A5C2E101JX01#		
	120pF	±5%			GCM21A5C2E121JX01#		
	150pF	±5%			GCM21A5C2E151JX01#		
	180pF	±5%			GCM21A5C2E181JX01#		
	220pF	±5%			GCM21A5C2E221JX01#		
	270pF	±5%			GCM21A5C2E271JX01#		
	330pF	±5%			GCM21A5C2E331JX01#		
	390pF	±5%			GCM21A5C2E391JX01#		
	470pF	±5%	GCM21A5C2E471JX01#				
	560pF	±5%	GCM21A5C2E561JX01#				
	680pF	±5%	GCM21A5C2E681JX01#				
	820pF	±5%	GCM21A5C2E821JX01#				
	1000pF	±5%	GCM21A5C2E102JX01#				
	1200pF	±5%	GCM21A5C2E122JX01#				
	1500pF	±5%	GCM21A5C2E152JX01#				
	1800pF	±5%	GCM21A5C2E182JX01#				
2200pF	±5%	GCM21A5C2E222JX01#					
2700pF	±5%	GCM21A5C2E272JX01#					
U2J	COG	100pF	±5%	GCM21A7U2E101JX01#			
		120pF	±5%	GCM21A7U2E121JX01#			

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number			
1.0mm	250Vdc	U2J	150pF	±5%	GCM21A7U2E151JX01#			
			180pF	±5%	GCM21A7U2E181JX01#			
			220pF	±5%	GCM21A7U2E221JX01#			
			270pF	±5%	GCM21A7U2E271JX01#			
			330pF	±5%	GCM21A7U2E331JX01#			
			390pF	±5%	GCM21A7U2E391JX01#			
			470pF	±5%	GCM21A7U2E471JX01#			
			560pF	±5%	GCM21A7U2E561JX01#			
			680pF	±5%	GCM21A7U2E681JX01#			
			820pF	±5%	GCM21A7U2E821JX01#			
			1000pF	±5%	GCM21A7U2E102JX01#			
			1200pF	±5%	GCM21A7U2E122JX01#			
			1500pF	±5%	GCM21A7U2E152JX01#			
			1800pF	±5%	GCM21A7U2E182JX01#			
			2200pF	±5%	GCM21A7U2E222JX01#			
			1.4mm	80Vdc	COG	1800pF	±5%	GCM21B5C1K183JA16#
						2000pF	±5%	GCM21B5C1K203JA16#
						2200pF	±5%	GCM21B5C1K223JA16#
				63Vdc	COG	1800pF	±5%	GCM21B5C1J183JA16#
						2000pF	±5%	GCM21B5C1J203JA16#
2200pF	±5%	GCM21B5C1J223JA16#						
50Vdc	COG	1800pF	±5%	GCM21B5C1H183JA16#				
		2200pF	±5%	GCM21B5C1H223JA16#				
		1.45mm	630Vdc	COG	680pF	±5%	GCM21B5C2J681JX03#	
820pF	±5%				GCM21B5C2J821JX03#			
1000pF	±5%				GCM21B5C2J102JX03#			
1200pF	±5%				GCM21B5C2J122JX03#			
250Vdc	COG				3300pF	±5%	GCM21B5C2E332JX01#	
					3900pF	±5%	GCM21B5C2E392JX01#	
			4700pF	±5%	GCM21B5C2E472JX01#			
			U2J	COG	2700pF	±5%	GCM21B7U2E272JX03#	
					3300pF	±5%	GCM21B7U2E332JX03#	
					3900pF	±5%	GCM21B7U2E392JX03#	
4700pF	±5%				GCM21B7U2E472JX03#			
5600pF	±5%				GCM21B7U2E562JX03#			

## 3.2×1.6mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number					
0.95mm	100Vdc	COG	3900pF	±5%	GCM3195C2A392JA16#					
			4700pF	±5%	GCM3195C2A472JA16#					
			5600pF	±5%	GCM3195C2A562JA16#					
			6800pF	±5%	GCM3195C2A682JA16#					
			8200pF	±5%	GCM3195C2A822JA16#					
			10000pF	±5%	GCM3195C2A103JA16#					
			80Vdc	COG	3300pF	±5%	GCM3195C1K333JA16#			
					1.0mm	1000Vdc	COG	10pF	±5%	GCM31A5C3A100JX01#
								12pF	±5%	GCM31A5C3A120JX01#
								15pF	±5%	GCM31A5C3A150JX01#
18pF	±5%	GCM31A5C3A180JX01#								
22pF	±5%	GCM31A5C3A220JX01#								
27pF	±5%	GCM31A5C3A270JX01#								
33pF	±5%	GCM31A5C3A330JX01#								

Part number # indicates the package specification code.

GRT Series  
 GCM Series  
 GC3 Series  
 GCJ Series  
 GCD Series  
 GCE Series  
 NMF Series  
 KCM Series  
 KC3 Series  
 KCA Series  
 GCG Series  
 Caution/ Notice

# GCM Series Temperature Compensating Type Part Number List

(→ 3.2×1.6mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number		
1.0mm	1000Vdc	COG	39pF	±5%	GCM31A5C3A390JX01#	1.0mm	630Vdc	COG	560pF	±5%	GCM31A5C2J561JX01#		
			47pF	±5%	GCM31A5C3A470JX01#				680pF	±5%	GCM31A5C2J681JX01#		
			56pF	±5%	GCM31A5C3A560JX01#				820pF	±5%	GCM31A5C2J821JX01#		
			68pF	±5%	GCM31A5C3A680JX01#				1000pF	±5%	GCM31A5C2J102JX01#		
			82pF	±5%	GCM31A5C3A820JX01#				1200pF	±5%	GCM31A5C2J122JX01#		
			100pF	±5%	GCM31A5C3A101JX01#				1500pF	±5%	GCM31A5C2J152JX01#		
			120pF	±5%	GCM31A5C3A121JX01#				1800pF	±5%	GCM31A5C2J182JX01#		
			150pF	±5%	GCM31A5C3A151JX01#				U2J	10pF	±5%	GCM31A7U2J100JX01#	
			180pF	±5%	GCM31A5C3A181JX01#					12pF	±5%	GCM31A7U2J120JX01#	
			220pF	±5%	GCM31A5C3A221JX01#					15pF	±5%	GCM31A7U2J150JX01#	
			270pF	±5%	GCM31A5C3A271JX01#					18pF	±5%	GCM31A7U2J180JX01#	
			330pF	±5%	GCM31A5C3A331JX01#					22pF	±5%	GCM31A7U2J220JX01#	
			390pF	±5%	GCM31A5C3A391JX01#					27pF	±5%	GCM31A7U2J270JX01#	
			470pF	±5%	GCM31A5C3A471JX01#					33pF	±5%	GCM31A7U2J330JX01#	
			U2J	10pF	±5%					GCM31A7U3A100JX01#	39pF	±5%	GCM31A7U2J390JX01#
				12pF	±5%					GCM31A7U3A120JX01#	47pF	±5%	GCM31A7U2J470JX01#
				15pF	±5%					GCM31A7U3A150JX01#	56pF	±5%	GCM31A7U2J560JX01#
				18pF	±5%					GCM31A7U3A180JX01#	68pF	±5%	GCM31A7U2J680JX01#
				22pF	±5%					GCM31A7U3A220JX01#	82pF	±5%	GCM31A7U2J820JX01#
				27pF	±5%					GCM31A7U3A270JX01#	100pF	±5%	GCM31A7U2J101JX01#
				33pF	±5%					GCM31A7U3A330JX01#	120pF	±5%	GCM31A7U2J121JX01#
				39pF	±5%				GCM31A7U3A390JX01#	150pF	±5%	GCM31A7U2J151JX01#	
				47pF	±5%				GCM31A7U3A470JX01#	180pF	±5%	GCM31A7U2J181JX01#	
				56pF	±5%				GCM31A7U3A560JX01#	220pF	±5%	GCM31A7U2J221JX01#	
				68pF	±5%				GCM31A7U3A680JX01#	270pF	±5%	GCM31A7U2J271JX01#	
				82pF	±5%				GCM31A7U3A820JX01#	330pF	±5%	GCM31A7U2J331JX01#	
				100pF	±5%				GCM31A7U3A101JX01#	390pF	±5%	GCM31A7U2J391JX01#	
	120pF	±5%		GCM31A7U3A121JX01#	470pF		±5%	GCM31A7U2J471JX01#					
	150pF	±5%		GCM31A7U3A151JX01#	560pF		±5%	GCM31A7U2J561JX01#					
	180pF	±5%		GCM31A7U3A181JX01#	680pF		±5%	GCM31A7U2J681JX01#					
	220pF	±5%		GCM31A7U3A221JX01#	820pF		±5%	GCM31A7U2J821JX01#					
	270pF	±5%		GCM31A7U3A271JX01#	1000pF		±5%	GCM31A7U2J102JX01#					
	330pF	±5%		GCM31A7U3A331JX01#	1200pF		±5%	GCM31A7U2J122JX01#					
	630Vdc	COG		10pF	±5%		GCM31A5C2J100JX01#	250Vdc	COG	10pF	±5%	GCM31A5C2E100JX01#	
			12pF	±5%	GCM31A5C2J120JX01#		12pF			±5%	GCM31A5C2E120JX01#		
			15pF	±5%	GCM31A5C2J150JX01#		15pF			±5%	GCM31A5C2E150JX01#		
			18pF	±5%	GCM31A5C2J180JX01#		18pF			±5%	GCM31A5C2E180JX01#		
			22pF	±5%	GCM31A5C2J220JX01#		22pF			±5%	GCM31A5C2E220JX01#		
			27pF	±5%	GCM31A5C2J270JX01#		27pF			±5%	GCM31A5C2E270JX01#		
			33pF	±5%	GCM31A5C2J330JX01#		33pF			±5%	GCM31A5C2E330JX01#		
			39pF	±5%	GCM31A5C2J390JX01#		39pF			±5%	GCM31A5C2E390JX01#		
			47pF	±5%	GCM31A5C2J470JX01#		47pF			±5%	GCM31A5C2E470JX01#		
			56pF	±5%	GCM31A5C2J560JX01#		56pF			±5%	GCM31A5C2E560JX01#		
			68pF	±5%	GCM31A5C2J680JX01#		68pF			±5%	GCM31A5C2E680JX01#		
			82pF	±5%	GCM31A5C2J820JX01#		82pF			±5%	GCM31A5C2E820JX01#		
			100pF	±5%	GCM31A5C2J101JX01#		100pF			±5%	GCM31A5C2E101JX01#		
		120pF	±5%	GCM31A5C2J121JX01#	120pF		±5%	GCM31A5C2E121JX01#					
150pF		±5%	GCM31A5C2J151JX01#	150pF	±5%	GCM31A5C2E151JX01#							
180pF		±5%	GCM31A5C2J181JX01#	180pF	±5%	GCM31A5C2E181JX01#							
220pF		±5%	GCM31A5C2J221JX01#	220pF	±5%	GCM31A5C2E221JX01#							
270pF		±5%	GCM31A5C2J271JX01#	270pF	±5%	GCM31A5C2E271JX01#							
330pF		±5%	GCM31A5C2J331JX01#										
390pF		±5%	GCM31A5C2J391JX01#										
470pF	±5%	GCM31A5C2J471JX01#											

GRT Series  
 GCM Series  
 GC3 Series  
 GCJ Series  
 GCD Series  
 GCE Series  
 NMF Series  
 KCM Series  
 KC3 Series  
 KCA Series  
 GCG Series  
 ⚠Caution / Notice

Part number # indicates the package specification code.

# GCM Series Temperature Compensating Type Part Number List

(→ 3.2×1.6mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number				
1.0mm	250Vdc	COG	330pF	±5%	GCM31A5C2E331JX01#				
			390pF	±5%	GCM31A5C2E391JX01#				
			470pF	±5%	GCM31A5C2E471JX01#				
			560pF	±5%	GCM31A5C2E561JX01#				
			680pF	±5%	GCM31A5C2E681JX01#				
			820pF	±5%	GCM31A5C2E821JX01#				
			1000pF	±5%	GCM31A5C2E102JX01#				
			1200pF	±5%	GCM31A5C2E122JX01#				
			1500pF	±5%	GCM31A5C2E152JX01#				
			1800pF	±5%	GCM31A5C2E182JX01#				
			2200pF	±5%	GCM31A5C2E222JX01#				
			2700pF	±5%	GCM31A5C2E272JX01#				
			3300pF	±5%	GCM31A5C2E332JX01#				
			3900pF	±5%	GCM31A5C2E392JX01#				
			4700pF	±5%	GCM31A5C2E472JX01#				
			5600pF	±5%	GCM31A5C2E562JX01#				
			6800pF	±5%	GCM31A5C2E682JX01#				
			U2J	2700pF	±5%	GCM31A7U2E272JX01#			
		3300pF		±5%	GCM31A7U2E332JX01#				
		3900pF		±5%	GCM31A7U2E392JX01#				
		4700pF		±5%	GCM31A7U2E472JX01#				
		5600pF		±5%	GCM31A7U2E562JX01#				
		1.25mm		1000Vdc	COG	560pF	±5%	GCM31B5C3A561JX01#	
						680pF	±5%	GCM31B5C3A681JX01#	
						U2J	390pF	±5%	GCM31B7U3A391JX01#
							470pF	±5%	GCM31B7U3A471JX01#
							560pF	±5%	GCM31B7U3A561JX01#
			680pF				±5%	GCM31B7U3A681JX01#	
630Vdc	COG		2200pF		±5%	GCM31B5C2J222JX01#			
			2700pF		±5%	GCM31B5C2J272JX01#			
			U2J		2700pF	±5%	GCM31B7U2J272JX01#		
	3300pF				±5%	GCM31B7U2J332JX01#			
	250Vdc				COG	8200pF	±5%	GCM31B5C2E822JX01#	
			10000pF			±5%	GCM31B5C2E103JX01#		
12000pF		±5%	GCM31B5C2E123JX01#						
U2J		6800pF	±5%	GCM31B7U2E682JX01#					
		8200pF	±5%	GCM31B7U2E822JX01#					
		10000pF	±5%	GCM31B7U2E103JX01#					
1.8mm	1000Vdc	COG	820pF	±5%	GCM31C5C3A821JX03#				
			1000pF	±5%	GCM31C5C3A102JX03#				
			U2J	820pF	±5%	GCM31C7U3A821JX03#			
		1000pF		±5%	GCM31C7U3A102JX03#				
		630Vdc		COG	3300pF	±5%	GCM31C5C2J332JX03#		
			4700pF		±5%	GCM31C7U2J472JX03#			
	U2J		3900pF	±5%	GCM31C7U2J392JX03#				
			4700pF	±5%	GCM31C7U2J472JX03#				
	250Vdc	COG	15000pF	±5%	GCM31C5C2E153JX03#				

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
1.0mm	630Vdc	U2J	2200pF	±5%	GCM32A7U2J222JX01#
1.25mm	1000Vdc	U2J	1200pF	±5%	GCM32B7U3A122JX01#
	630Vdc	U2J	5600pF	±5%	GCM32B7U2J562JX01#
1.5mm	1000Vdc	U2J	1500pF	±5%	GCM32Q7U3A152JX01#
	630Vdc	U2J	6800pF	±5%	GCM32Q7U2J682JX01#
2.0mm	1000Vdc	U2J	1800pF	±5%	GCM32D7U3A182JX01#
			2200pF	±5%	GCM32D7U3A222JX01#
	630Vdc	U2J	8200pF	±5%	GCM32D7U2J822JX01#
			10000pF	±5%	GCM32D7U2J103JX01#

## 4.5×3.2mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
1.5mm	1000Vdc	U2J	2700pF	±5%	GCM43Q7U3A272JX01#
			3300pF	±5%	GCM43Q7U3A332JX01#
		630Vdc	U2J	12000pF	±5%
2.0mm	1000Vdc	U2J	3900pF	±5%	GCM43D7U3A392JX01#
			4700pF	±5%	GCM43D7U3A472JX01#
			630Vdc	U2J	15000pF
	18000pF	±5%	GCM43D7U2J183JX01#		
	22000pF	±5%	GCM43D7U2J223JX01#		

## 5.7×5.0mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
1.5mm	1000Vdc	U2J	5600pF	±5%	GCM55Q7U3A562JX01#
			6800pF	±5%	GCM55Q7U3A682JX01#
		630Vdc	U2J	27000pF	±5%
2.0mm	1000Vdc	U2J	8200pF	±5%	GCM55D7U3A822JX01#
			10000pF	±5%	GCM55D7U3A103JX01#
			630Vdc	U2J	33000pF
	39000pF	±5%	GCM55D7U2J393JX01#		
	47000pF	±5%	GCM55D7U2J473JX01#		

## 3.2×2.5mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
1.0mm	630Vdc	U2J	1200pF	±5%	GCM32A7U2J122JX01#
			1500pF	±5%	GCM32A7U2J152JX01#
			1800pF	±5%	GCM32A7U2J182JX01#

Part number # indicates the package specification code.

# GCM Series High Dielectric Constant Type Part Number List

## 0.6×0.3mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.33mm	25Vdc	X7R	100pF	±10%	GCM033R71E101KA03#
			150pF	±10%	GCM033R71E151KA03#
			220pF	±10%	GCM033R71E221KA03#
			330pF	±10%	GCM033R71E331KA03#
			470pF	±10%	GCM033R71E471KA03#
			680pF	±10%	GCM033R71E681KA03#
			1000pF	±10%	GCM033R71E102KA03#
			1500pF	±10%	GCM033R71E152KA03#
			2200pF	±10%	GCM033R71E222KE02#
			3300pF	±10%	GCM033R71E332KE02#
	16Vdc	X7R	330pF	±10%	GCM033R71C331KA03#
			680pF	±10%	GCM033R71C681KA03#
			2200pF	±10%	GCM033R71C222KA55#
3300pF			±10%	GCM033R71C332KA55#	
10Vdc	X7R	4700pF	±10%	GCM033R71A472KA03#	
		6800pF	±10%	GCM033R71A682KA03#	
		10000pF	±10%	GCM033R71A103KA03#	

## 1.0×0.5mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number		
0.55mm	100Vdc	X7R	220pF	±10%	GCM155R72A221KA37#		
			330pF	±10%	GCM155R72A331KA37#		
			470pF	±10%	GCM155R72A471KA37#		
			680pF	±10%	GCM155R72A681KA37#		
			1000pF	±10%	GCM155R72A102KA37#		
			1500pF	±10%	GCM155R72A152KA37#		
			2200pF	±10%	GCM155R72A222KA37#		
			3300pF	±10%	GCM155R72A332KA37#		
			4700pF	±10%	GCM155R72A472KA37#		
			50Vdc	X8L	33000pF	±10%	GCM155L8EH333KE07#
					47000pF	±10%	GCM155L8EH473KE07#
					68000pF	±10%	GCM155L8EH683KE07#
					0.10μF	±10%	GCM155L8EH104KE07#
	X7R	220pF		±10%	GCM155R71H221KA37#		
		330pF		±10%	GCM155R71H331KA37#		
		470pF		±10%	GCM155R71H471KA37#		
		680pF		±10%	GCM155R71H681KA37#		
		1000pF		±10%	GCM155R71H102KA37#		
		1500pF		±10%	GCM155R71H152KA37#		
	2200pF	±10%	GCM155R71H222KA37#				
	3300pF	±10%	GCM155R71H332KA37#				
	4700pF	±10%	GCM155R71H472KA37#				
	6800pF	±10%	GCM155R71H682KA55#				
10000pF	±10%	GCM155R71H103KA55#					
15000pF	±10%	GCM155R71H153KA55#					
22000pF	±10%	GCM155R71H223KA55#					
33000pF	±10%	GCM155R71H333KE02#					
47000pF	±10%	GCM155R71H473KE02#					
68000pF	±10%	GCM155R71H683KE02#					
0.10μF	±10%	GCM155R71H104KE02#					

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.55mm	25Vdc	X8L	0.10μF	±10%	GCM155L81E104KE02#
			X7R	10000pF	±10%
		X7R	15000pF	±10%	GCM155R71E153KA55#
			22000pF	±10%	GCM155R71E223KA55#
			33000pF	±10%	GCM155R71E333KA55#
	16Vdc	X7R	47000pF	±10%	GCM155R71E473KA55#
			33000pF	±10%	GCM155R71C333KA37#
			47000pF	±10%	GCM155R71C473KA37#
			68000pF	±10%	GCM155R71C683KA55#
			0.10μF	±10%	GCM155R71C104KA55#
0.6mm	10Vdc	X7S	0.47μF	±10%	GCM155C71A474KE36#
			0.15μF	±10%	GCM155R71C154KE02#
			0.22μF	±10%	GCM155R71C224KE02#
0.7mm	10Vdc	X7S	0.68μF	±10%	GCM155C71A684KE38#
			1.0μF	±10%	GCM155C71A105KE38#

## 1.6×0.8mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number		
0.9mm	100Vdc	X7R	1000pF	±10%	GCM188R72A102KA37#		
			1500pF	±10%	GCM188R72A152KA37#		
			2200pF	±10%	GCM188R72A222KA37#		
			3300pF	±10%	GCM188R72A332KA37#		
			4700pF	±10%	GCM188R72A472KA37#		
			6800pF	±10%	GCM188R72A682KA37#		
			10000pF	±10%	GCM188R72A103KA37#		
			15000pF	±10%	GCM188R72A153KA37#		
			22000pF	±10%	GCM188R72A223KA37#		
			50Vdc	X7R	0.22μF	±10%	GCM188R71H224KA64#
	25Vdc	X7R			0.22μF	±10%	GCM188R71E224KA55#
					0.47μF	±10%	GCM188R71E474KA64#
	16Vdc	X7R	1.0μF	±10%	GCM188R71E105KA64#		
			X7R	0.33μF	±10%	GCM188R71C334KA37#	
				0.47μF	±10%	GCM188R71C474KA55#	
				1.0μF	±10%	GCM188R71C105KA64#	
	6.3Vdc	X7R	2.2μF	±10%	GCM188R70J225KE22#		

## 2.0×1.25mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.7mm	100Vdc	X7R	6800pF	±10%	GCM216R72A682KA37#
			10000pF	±10%	GCM216R72A103KA37#
			15000pF	±10%	GCM216R72A153KA37#
			22000pF	±10%	GCM216R72A223KA37#
0.95mm	100Vdc	X7R	33000pF	±10%	GCM219R72A333KA37#
			50Vdc	X7R	0.33μF
	25Vdc	X7R	0.47μF	±10%	GCM219R71E474KA55#
			16Vdc	X7R	0.68μF
1.4mm	100Vdc	X7R	1.0μF	±10%	GCM219R71C105KA37#
			47000pF	±10%	GCM21BR72A473KA37#
			68000pF	±10%	GCM21BR72A683KA37#
			0.10μF	±10%	GCM21BR72A104KA37#

Part number # indicates the package specification code.

# GCM Series High Dielectric Constant Type Part Number List

(→ 2.0×1.25mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
1.4mm	50Vdc	X7R	0.22µF	±10%	GCM21BR71H224KA37#
			0.47µF	±10%	GCM21BR71H474KA55#
			1.0µF	±10%	GCM21BR71H105KA03#
	35Vdc	X8L	2.2µF	±10%	GCM21BL8EG225KE07#
			X7R	0.68µF	±10%
		X7S	1.0µF	±10%	GCM21BR7YA105KA55#
			1.5µF	±10%	GCM21BR7YA155KA54#
			2.2µF	±10%	GCM21BC7YA225KE02#
			25Vdc	X8L	1.5µF
	X7R	0.15µF	±10%	GCM21BR71E154KA37#	
		0.22µF	±10%	GCM21BR71E224KA37#	
		0.33µF	±10%	GCM21BR71E334KA37#	
		0.68µF	±10%	GCM21BR71E684KA55#	
		1.0µF	±10%	GCM21BR71E105KA56#	
		1.5µF	±10%	GCM21BR71E155KA54#	
		2.2µF	±10%	GCM21BR71E225KA73#	
		16Vdc	X7R	2.2µF	±10%
	4.7µF	±10%		GCM21BR71C475KA73#	
	10Vdc	X7R	2.2µF	±10%	GCM21BR71A225KA37#
			10µF	±10%	GCM21BR71A106KE22#
X7S		4.7µF	±10%	GCM21BC71A475KA73#	
6.3Vdc	X7R	10µF	±10%	GCM21BR70J106KE22#	
1.45mm	100Vdc	X7S	1.0µF	±10%	GCM21BC72A105KE36#
	35Vdc	X8L	4.7µF	±10%	GCM21BL8EG475KE08#
		X7S	4.7µF	±10%	GCM21BC7YA475KE36#
	25Vdc	X8L	4.7µF	±10%	GCM21BL8EF475KE08#
		X7S	4.7µF	±10%	GCM21BC71E475KE36#
16Vdc	X7S	10µF	±10%	GCM21BC71C106KE36#	

3.2×2.5mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
2.2mm	100Vdc	X8L	4.7µF	±10%	GCM32DL8EL475KE07#
		X7S	4.7µF	±10%	GCM32DC72A475KE02#
	16Vdc	X7R	10µF	±10%	GCM32DR71C106KA37#
2.7mm	50Vdc	X8L	10µF	±10%	GCM32EL8EH106KA07#
		X7R	4.7µF	±10%	GCM32ER71H475KA55#
		X7S	10µF	±10%	GCM32EC71H106KA03#
	35Vdc	X7S	10µF	±10%	GCM32EC7YA106KA03#
	25Vdc	X7R	10µF	±10%	GCM32ER71E106KA57#
	16Vdc	X7R	22µF	±20%	GCM32ER71C226ME19#
	10Vdc	X7R	22µF	±20%	GCM32ER71A226ME12#
2.85mm	25Vdc	X8L	22µF	±10%	GCM32EL8EF226KE08#
		X7S	22µF	±10%	GCM32EC71E226KE36#
	6.3Vdc	X7R	47µF	±20%	GCM32ER70J476ME19#

3.2×1.6mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
1.25mm	100Vdc	X7R	0.22µF	±10%	GCM31MR72A224KA37#
	50Vdc	X7R	0.33µF	±10%	GCM31MR71H334KA37#
			0.47µF	±10%	GCM31MR71H474KA37#
			0.68µF	±10%	GCM31MR71H684KA55#
1.8mm	100Vdc	X8L	2.2µF	±10%	GCM31CL8EL225KE07#
		X7R	1.0µF	±10%	GCM31CR72A105KA03#
		X7S	2.2µF	±10%	GCM31CC72A225KE02#
	50Vdc	X7R	2.2µF	±10%	GCM31CR71H225KA55#
		X7S	4.7µF	±10%	GCM31CC71H475KA03#
	25Vdc	X7R	4.7µF	±10%	GCM31CR71E475KA55#
	16Vdc	X7R	4.7µF	±10%	GCM31CR71C475KA37#
			10µF	±10%	GCM31CR71C106KA64#
	10Vdc	X7R	10µF	±10%	GCM31CR71A106KA64#
	22µF		±10%	GCM31CR71A226KE02#	
6.3Vdc	X7R	22µF	±20%	GCM31CR70J226ME23#	
1.9mm	25Vdc	X7S	10µF	±10%	GCM31CC71E106KA03#

Part number # indicates the package specification code.

GRT Series  
 GCM Series  
 GC3 Series  
 GCJ Series  
 GCD Series  
 GCE Series  
 NMF Series  
 KCM Series  
 KC3 Series  
 KCA Series  
 GCG Series  
 Caution/Notice

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## Murata:

[GCM2195C2A120JD27J](#) [GCM219R72A271KD46F](#) [GCM2165C1H471JA02D](#) [GCM1885C1H470JA16D](#)  
[GCM319R72A681KD79D](#) [GCM1885C1H101JA02D](#) [GCM21BR71C334KC01L](#) [GCM21BR71H104KA02K](#)  
[GCM188R71C104KA13D](#) [GCM1885C1H3R0CD43D](#) [GCM1885C1H3R0CD27D](#) [GCM1885C1H4R0CD27D](#)  
[GCM2165C1H180JD01D](#) [GCM2165C1H180JD14D](#) [GCM21BR71A105KC16L](#) [GCM21BR71A105KC02K](#)  
[GCM1885C1H120JD30E](#) [GCM188R71E273JA02D](#) [GCM188R71E223KA02D](#) [GCM2165C1H820JD43D](#)  
[GCM219R71H123KA01D](#) [GCM188R71C473KA02J](#) [GCM21BR71H473KD58E](#) [GCM2165C1H220JD43D](#)  
[GCM21BR72A103KA02L](#) [GCM21BR72A103KA01K](#) [GCM188R71H331KD01D](#) [GCM1885C1H180JA02D](#)  
[GCM1885C1H9R1CD43D](#) [GCM216R11H821KA01D](#) [GCM32ER71E225KA02L](#) [GCM31MR71A225KC25L](#)  
[GCM32ER71E225MA02L](#) [GCM216R71H472KA19D](#) [GCM216R71H472KA26D](#) [GCM216R71H472KA01K](#)  
[GCM1885C1H270JA01D](#) [GCM188R11H102KA01D](#) [GCM31MR71H154KA37L](#) [GCM1885C2A102JA16D](#)  
[GCM188R71C104KA37D](#) [GCM188R72A103KA37D](#) [GCM1885C1H1R0CZ13D](#) [GCM3195C1H223JA16D](#)  
[GCM21BR71C225KA64L](#) [GCM1555C1H100JZ13D](#) [GCM32ER71H475KA55L](#) [GCM155R71C104KA55D](#)  
[GCM31CR71H225KA55L](#) [GCM2195C2A152JA16D](#) [GCM1885C2A101JA16D](#) [GCM188R71C474KA55D](#)  
[GCM188R71H104KA57D](#) [GCM1885C2A100JA16D](#) [GCM1555C1H1R0CZ13D](#) [GCM31CR71A106KA64L](#)  
[GCM3195C2A562JA16D](#) [GCM1885C1H102JA16D](#) [GCM155R72A472KA37D](#) [GCM155R71E473KA55D](#)  
[GCM155R71H102KA37D](#) [GCM155R72A102KA37D](#) [GCM188R71H103KA37D](#) [GCM155R71H223KA55D](#)  
[GCM31CR71E475KA55L](#) [GCM1885C1H100JA16D](#) [GCM2195C1H103JA16D](#) [GCM21BR71E225KA73L](#)  
[GCM32ER71A226KE12L](#) [GCM21BR71E105KA56L](#) [GCM1885C2A1R0CZ13D](#) [GCM31CR71C106KA64L](#)  
[GCM188R72A102KA37D](#) [GCM188R71H102KA37D](#) [GCM188R71E474KA64D](#) [GCM188R72A223KA37D](#)  
[GCM1555C1H471JA16D](#) [GCM155R71H103KA55D](#) [GCM1555C1H101JZ13D](#) [GCM21BR72A104KA37L](#)  
[GCM32ER71E106KA57L](#) [GCM155R71H681KA37D](#) [GCM32ER71E225KA17L](#) [GCM31MR71C105KC23L](#)  
[GCM31MR71C105KC21L](#) [GCM31MR71C105KC02L](#) [GCM31MR71C105KC18K](#) [GCM31MR71C105KC16L](#)  
[GCM32ER71H105MA17L](#) [GCM216R71H222KA19D](#) [GCM32ER71H105MA02L](#) [GCM21BL81H104KA37L](#)  
[GCM31MR71H334KA37L](#) [GCM2165C1H120JZ13D](#) [GCM2165C1H121JA16D](#) [GCM2165C1H122JA16D](#)  
[GCM2165C1H150JZ13D](#) [GCM31MR71H474KA37L](#) [GCM2165C1H100JZ13D](#) [GCM21BR91H104KA37L](#)

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View GCM188C71A225KE02D on WIN SOURCE](#)
- ⊖ [Murata Electronics North America Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management