

Chip Monolithic Ceramic Capacitors for Automotive

WWW.100Y.COM.TW WWW.100Y.COM.TW WWW.100Y.COM.TW WWW.100Y.COM.TW 勝 特 力 材 料 886-3-5753170 胜特力电子(上海) 86-21-34970699 胜特力电子(深圳) 86-755-83298787 WWW.100Y.COM.TW Http://www.100y.com.tw WWW.100Y.COM.TW WWW.100Y.COM. WWW.100Y.CO! WWW.100Y.COM.TW WWW.100Y.COM.TW WWW.100Y.COM.TW WWW.100Y.COM.TW WWW.100Y.COM.TW W.100Y.COM.TW WWW.100Y.COM.TW WWW.100Y.COM.TW WWW.100' WWW.100Y.COM.TW WWW.100X. WWW.100Y.CO WWW.100Y.COM. WWW.100Y.COM.TW

Explanation of Symbols in This Catalog



LxW dimension: products of 0.6x0.3 mm or less



AEC-Q200 compliant product



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.



Fail safe product

This capacitor is designed to prevent failures as much as possible by short mode.



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.



Product with solder cracking suppression

This capacitor is configured with metal terminals or lead wires connected to the chip.

The metal terminals or lead wires relieve the stress from expansion and contraction of the solder, to suppress solder cracking.

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Also, including capacitor which can be mounted with a conductive adhesive, instead of soldering.

EU RoHS Compliant

- \cdot All the products in this catalog comply with EU RoHS.
- EU RoHS is "the European Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment."
- · For more details, please refer to our website 'Murata's Approach for EU RoHS' (http://www.murata.com/info/rohs.html).



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	N.M.N.Jook.COM.		
	Specially Designed Product to Reduce Shorts GCD Series	p23	p10
	IN W.100 F. COW. I.		
	Specially Designed Product to Reduce Shorts & Resin Electrode Product GCE Series	p25	p10
) No. 100 X CO.	CVI	
	Conductivity Adhesive Compatible Type GCG Series	p27	p11
	COM AMM. TOOK.CO.	· 1	W
	Resin External Electrode Product GCJ Series	p32	p12
	OOX.CO. MILM MM 100X;		MIN
	High Effective Capacitance & High Allowable Ripple Current GC3 Series	p38	p14
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Part Numbering

Chip Monolithic Ceramic Capacitors for Automotive

GC M 18 8 R7 1H 102 K A37 D (Part Number)

Product ID

2Series

- /	7					
Product ID	Code	Series				
M.TW	3	High effective capacitance & High allowable ripple current				
	D	Specially designed product to reduce shorts				
GC	E	Specially designed product to reduce shorts & resin electrode product				
	G	Conductivity adhesive compatible type				
	N J	Resin external electrode product				
A'COME	M	For automotive				
KC	3	Metal terminal type/High effective capacitance & High allowable ripple current				
	M	Metal terminal type				

3Chip Dimension (L×W)

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

4 Height Dimension (T) (Except KC□)

Code	Dimension (T)
3	0.3mm
5 C	0.5mm
6	0.6mm
8 100	0.8mm
9	0.85mm
A	1.0mm
В	1.25mm
C	1.6mm
D	2.0mm
E.W.	2.5mm
M	1.15mm
Q	1.5mm
X	Depends on individual standards.

4 Height Dimension (T) (KC□ Only)

Dimension (T)
2.8mm
3.7mm
4.8mm
6.4mm
100 X. CM.TW

5Temperature Characteristics

- 4/	24		eristics		11 1007	1.11		- // .	-111	100 2.		1.7
	nperatur teristic C		Tei	mperature Cha	racteristics	Operating	Capac	citance C	Change	Each Te	mperat	ure (%)
Code	Public STD Code		Reference		Capacitance Change or Temperature	Temperature Range	-55°C		*3		-10°C	
Code			Temperature	Range	Coefficient		Max.	Min.	Max.	Min.	Max.	Min.
5C	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		
5G	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
7U	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
9E	71.14	*1	20°C	−25 to 20°C	-4700+1000/-2500ppm/°C	TE 1- 10500	17-1		- 1	11.	100	1
9E	ZLM		20 0	20 to 85°C	-4700+500/-1000ppm/°C	−55 to 125°C	- 41	W-	- ,		4	oy.C
C7	X7S	EIA	25°C	–55 to 125°C	±22%	–55 to 125°C	0 Nr	-31	-	TVN	11-70	~₹/ (
D7	X7T	EIA	25°C	-55 to 125°C	+22%, -33%	–55 to 125°C	Mo	T_{AA}	-	1.	ov#.1	00 -
L8	X8L	*1	25°C	−55 to 150°C	+15%, -40%	–55 to 150°C	-	W.T.	-	1		100)
R7	X7R	EIA	25°C	-55 to 125°C	±15%	–55 to 125°C	C_{O_L}	TV	-	- (1)	MA	. 50
R9	X8R	EIA	25°C	-55 to 150°C	±15%	–55 to 150°C	- CO	Mir	-s1 -	-		1.70

^{*1} Murata Temperature Characteristic Code.

Continued on the following page.





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

^{*3 –25°}C (Reference Temperature 20°C) / –30°C (Reference Temperature 25°C)

(Part Number)

20 3 3 No. 10	 	 	 	 A37		
			•	9	4	

Continued from the preceding page.

6 Rated Voltage

. 0111.
Rated Voltage
DC6.3V
DC10V
DC16V
DC25V
DC35V
DC50V
DC63V
DC80V
DC100V
DC250V
DC450V
DC630V
DC1kV

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.

	Code	Capacitance
NV	R50	0.50pF
N	1R0	1.0pF
	100	10pF
1	103	10000pF

8 Capacitance Tolerance

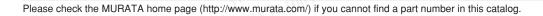
Code	Capacitance Tolerance
W.10°C	±0.25pF
D	±0.5pF
N. JOUX.C.	±5%
K	±10%
M	±20%

Individual Specification Code Expressed by three figures.

Package

Code	Package
FM.	ø180mm Embossed Taping
D/W	ø180mm Paper Taping
K	ø330mm Embossed Taping
J WW	ø330mm Paper Taping
В	Bulk
С	Bulk Case

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



WWW.100Y.CG

Selection Guide for Chip Monolithic Ceramic Capacitors

				/		W /	AMM.	W.100			kii ^c	n /	
		,		1.100Y.	i sanozon	ationHiQ	/W		ting crack	ing crack	low distor		adications adat
		Series		Jitra-sm	Low desi	Dation/HiQ Low/ESL	Failsate	Antidete	Anti-sold	Artirroise	Forbord	specific?	Rations stated in State of the
M	Fo	GCM	page p16		N.CO	MITW		MMA	N.100X	COM	TW		
) ! ()	For Automotive	GCD	p23	TWW.	00 X C	OM.T			W.100	V.CO	V.I.		
.C	omo	GCE	p25	WWW	100X	$COW_{i,j}$		WENT	NW.W	OOY.CC	M.T	V .	
Į.	tive	GCG	p27	MM	VI.1007	CO_N	LTW			100X.C	COM.T	N .	
		GCJ	p32	W.	VVV.100	ov.CO			WWY	1.1007	(COM	TW	
10		GC3	p38	N	WW.M	OOY.C	M.T	N	MM	1	V.COP	WT.IV	
1.1		КСМ	p40	_	NW	.100Y.	COM.			211	ON C	M.TV	N
N	.100	ксз	p43		WW	A.100.	(COM				100X.C	OM	W
	For	GRM	OM.T		MM	W.10	M.CO	M.TW		WWW	N.100Y	co_{N}	IW
	For General Purpose	GA2	COM.		W.	WW.1	OOX.C	OM.TV	N	MA	W.100	N.CO	
V	eral F	GA3		CTW		MMM.	100X.	COM	W	W		MY.CO	
1	urpo	GJM	M.CO.			WWW	N.100X	CO_{M}	TW	The state of the s	WW.	100X.	OM.TW
	se	GJ4	1001.C	OM^{T}	N N	WV	W.100	N.CO	M.I.		MMA	100X	COM.T
		GJ8	100X	COM	LM.	W	NN.	OOX.CL	OM.TY		MA	W.100	V.COM.
		GMA	N.1005		TW.		NAM	100 X	COM.T	W.		NW.10	MY.COM
		GMD	W.100		M. T.		WWV	1.1005	COM.	TW		MM.	100X'CO
		GQM		OOX.CI		N RN	MIN	171.100	V.CO	LTW			1.700X
		GRJ		1001	$co_{M',j}$. V	N		001.C	MI	N.	WW	W.100 Y.
		GR3	WWI	N.100	$(C_{O_{N_{\tau}}}$	TW	_	AMM.	100Y.C		evi -vvi		NN 10 OX
		GR4	W.	11.100	N.CO	MITH		WW	1.100 x	.com	CLM.		WW.100
		GR7		WW.I	00 X.C	OMIT	N	WW	W.700	V.COP	MTW		WWW.
		KRM		MIN	700X.	COM	W.				M.TV	N	MAM
		KR3		WW	V.100	COM	V.T.V.		N.	1001	OM;	M	
		LLL		WV	M.10		M.TW	T	WW.	N.100Y	COM	TW	A A
		LLM			WW.1		OM.TV	N	WW	W.100	N.CO	U.T.	
		LLR			WWW.		COM;	T.M.	W	MM·r.			
		ZRA			WW	N.JOW	4.COM	TW					
					44.	-X1 100	*						

Capacitance Table

How to read the Capacitance Table

L×W (mm)	0.6× 0.3	1.0× 0.5	1.6	×0.8	1	WWW.100Y.COM.TW
T max. (mm)	0.33	0.55	0	.9	N T	The values can be narrowed down in the order of size,
Rated Voltage (Vdc)	25	50	100	50	10	rated voltage, and temperature characteristics.
Cap. / TC Code	COG	COG	COG	COG	CO	WW.1001.COM.TW
1.0pF	p17	p17	p17	p17	17.	M. COM. IN
2.0pF	p17	p17	p17	p17	T.I	M. TODY COM. IN
3.0pF	p17	p17	p17	p17	M.	Refers to the page of the part number list. Check the part number list for the applicable product number
4.0pF	p17	p17	p17	p17	ON	Check the part hamber list for the applicable product hamber
5.0pF	p17	p17	p17	p17	10.0	TIM MANANTOON COMPT
		11	NW.	001.	CC	M.T.Y

MMM.100X:

WW.100Y.COM.TV

WW.100Y.COM.TW WWW.100Y.COM.TW

WWW.100Y.COM.

WW.100Y.COM.TW W.100Y.COM.TW **Temperature Characteristics Table**

Temperati racteristic		Те	mperature Chai	racteristics	Operating	Сар	acitance	Change	Each Ter	nperatur	e (%)
Public	W.100	Reference	Temperature	Capacitance Change or Temperature	Temperature Range		5°C		3 0		0°C
STD Cod	EIA	Temperature 25°C	Range 25 to 125°C	Coefficient	55 +- 10500	Max. 0.58	Min. -0.24	Max. 0.4	Min. -0.17	Max. 0.25	Min. -0.11
C0G X8G	*1	25°C	25 to 150°C	0±30ppm/°C 0±30ppm/°C	-55 to 125°C -55 to 150°C	0.58	-0.24	0.4	-0.17	0.25	-0.11
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
320		100X.C	-25 to 20°C	-4700+1000/-2500ppm/°C	00 to 120 0	-		-	1007	-01	
ZLM	*1	20°C	20 to 85°C	-4700+500/-1000ppm/°C	–55 to 125°C		_ 1	NAN		V.C.	WELL
X7S	EIA	25°C	-55 to 125°C	±22%	–55 to 125°C	-ctV	-	- N	N - 2	N.CC	- 77
X7T	EIA	25°C	-55 to 125°C	+22%, -33%	-55 to 125°C	-	-		11.10	-<1 C	ON
X8L	*1	25°C	-55 to 150°C	+15%, -40%	−55 to 150°C	VI.IV	-	- I	-TXV.1	00 j.	"OMA
X7R	EIA	25°C	-55 to 125°C	±15%	−55 to 125°C	TT	N -	-11	1	100X.	Mi
X8R	EIA	25°C	-55 to 150°C	±15%	−55 to 150°C	DM.	XN-	- <	M.M.	03	Con

^{*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) WWW.100Y.COM.

Capacitance Table Poo Each number in the Part Number List refers to the page number printed at the bottom of the page.

■ GCM Series Temperature Compensating Type

L×W (mm)		1.0× 0.5	1.6	×0.8	V.C)Or	2	.0×1.2	25		W	MA		aay		J*	3	3.2×1.	6						3.2	_
T max. (mm)	0.33	0.55	0	-		.7	0.	_	1.0	1.4	1.45	100	_	95	-7 C	OD	1.0	-31			25		_	.8		1
ed Voltage (Vdc)	25	50	100	50	100		100		250	50	250	_	80	63	50	1000	100	-	1000		250	50	_	630		-
Cap. / TC Code	C0G	C0G	COG	COG	COG	COG	ZLM	COG	U2J	C0G	U2J	COG	COG	COG	COG	U2J	U2J	U2J	U2J	U2J	U2J	COG	U2J	U2J	U2J	l
1.0pF	p17	p17	p17	p17	.00	-1 (107	7.					WV	1.2			Dis		N							į
2.0pF	p17	p17	p17	p17	100	7.		M	1.11			111		$\propto 1.1$	00			1.7								ŀ
3.0pF	p17	p17	p17	p17	· A (N	CV		77	N.	1			1	100	X'		A.T.								I
4.0pF	p17	p17	p17	p17	1.7.		7 C	\mathfrak{I}_{M}		Ø.	1			AM		1	CO	Mar	- 1	1						1
5.0pF	p17	p17	p17	p17		00.			13					- 41	1.19)() ×	- (Me								Ì
6.0pF	p17	p17	p17	p17	////	400	Y.	, V		W			W	AN.		θ			17	(N						-
7.0pF	p17	p17	p17	p17	VV	.70	~\$/	CC	D.		ķī.			N N	W-		V.	207		o W						-
8.0pF	p17	p17	p17	p17		v 1	30 7		N	1,7						.10	J =	CC.	M \cdot	1	k1					1
9.0pF	p17	p17	p17	p18	M.		000	Y.C		4	W			W		1140	101			T	N					-
10pF	p17	p17	p17	p18	ZO VI	W.	700	/</td <td>50</td> <td>Mr.</td> <td></td> <td></td> <td></td> <td>< X</td> <td>W</td> <td>p19</td> <td>p19</td> <td>7.C</td> <td>O M</td> <td></td> <td>W</td> <td></td> <td></td> <td></td> <td></td> <td>-</td>	50	Mr.				< X	W	p19	p19	7.C	O M		W					-
12pF	p17	p17	p17	p18	101	-130	10	0 >		Λ	17.V					p19	p19		-01	Λ						-
15pF	p17	p17	p17	p18		NA		100	,C\		T	N		<	N.	p19	p19	DY.			LA					-
18pF	p17	p17	p17	p18			$M^{-\gamma}$		k7 C	$O_{\overline{D}}$					× X 1	p19	p19		C	DEAT	-	N				-
22pF	p17	p17	p17	p18			rs (I	100	7.		M.				AA	p19	p19	00,		01	1.7					Ì
27pF	p17	p17	p17	p18	-	W		0	N.	U	- 4				V	p19	p19	200	1.		M.					į
33pF	p17	p17	p17	p18			NV	1.77		C	\mathfrak{D}_{NI}		X			p19	p19	70		CO.	N. P.					Ì
39pF	p17	p17	p17	p18		W	1	oxi	00.							p19	p19	110	0 >	. ((M		-7			1
47pF	p17	p17	p17	p18			W		400	Y.	۲۷۰		W			p19	p19	-11	005			T				į
56pF	p17	p17	p17	p18			- 1	M	MA	~<1	CO	Mr.		N.		p19	p19	W - 3		V	10)	1	W			1
68pF	p17	p17	p17	p18					110	10 x						p19	p19	TN	100			M		4		-
82pF	p17	p17	p17	p18			W			oo'	7.C	Os.	T	W		p19	p19		- 10	OX			41	N		-
100pF	p17	p17	p17	p18	p18			a (N	p18	100	<7 (170-	- V		p19	p19		N.Y		7 C	O_{Z_0}		Ń		-
120pF		p17	p17	p18	p18				p18	10			M	1,71		p19	p19		$\propto 1.1$	00		-01	7.7			-
150pF	~~	p17	p17	p18	p18				p18		N	Cr		T	V	p19	p19	AM		100	5 4.		0.5			i
180pF		p17	p17	p18	p18				p18	1.7.		J C	ODA		KA	p19	p19	est S	VN	. 20		CC	Mr.			-
220pF		p17	p17	p18	p18				p18	-col	100	7.0	-	ΛJ	41	p19	p19	A.		V.1	30 2		M	1.3		-
270pF		p17	p17	p18	p18	N			p18	11.	40	Z.				p19	p19				00	V.V		ĸΩ		
330pF		p17	p17	p18	p18	_<1			p18	W	1.70		C	MI		p19	p19		40	W.						-
390pF		p17	p17	p18	p18	11			p18		x1 1	005		A.O.			p19		p19	- 1 XX	10	0 >.		M		1
470pF		p17	p17	p18	p18				p18	W	N		Y.C	O ×		N	p19		p19		-	107				1
560pF		1.10	p17	p18	p18		-6.1		p18	-11	W	Too	~<7	c(O)	Mr.	-57	p19		p19	W	$N^{-\gamma}$		v.C			1
680pF		-<1 1	p17	p18	p18	T	W		p18	M.		- 10	0 1.		M	WW	p19		p19		W	100	10	30		-
820pF		111 - 3	p17	p18	p18	10	-10		p18	W	W.	. 4	002		,,,,		p19		_ <	MM		- 10	p19	\cup		-
1000pF		W	p17	p18	p18	p18	-	1	p18		KN	W.	V	<7 C	0)	70-	p19			<0.0		1.2	р19	C		-
1100pF			17	-10	10	p18	p18	N	10			1777	100		00	M	p19				-31	N.)	00		- 10	i
1200pF			p17	p18	рів	рів	p18	N	p18				- A ()	OY		~ 1	ртэ			V			100	7.4	p19	ļ
1300pF		X X	-17	7.10	10	-10	p18	- 1	-10	i	- 1	M A	1.77	, ×	70	$\mathcal{O}_{N_{1}}$	p19	αŃ			os S		2	N	n 10	i
1500pF 1800pF			p17	p18 p18	p18 p18	p18 p18	p18	UN	p18 p18			p19	$\infty 1$	00			p19	7					1.14		p19 p19	
2200pF			AM	p18	p18		121	T	p18				47.	400	X.		p19	AV.	İ		W				p19	-
2700pF			- S	p18	р18		ON		ριο		p18	p19	TI	To	~≪1	CC	ртэ	n10	Ń	n10		W	W.	~ 0	ріэ	ļ
3300pF				p18	p18			1.7			p18	p19 p19	-15	V.14	70 7		Vio	p19 p19		p19 p19			OVN	101		
3900pF		4	M	p18	<i>p10</i>	p18					p18	p19			p19	X.C		p19		ріэ				p19		-
4700pF				рισ	JU	p18	CC	\mathcal{M}	>	KÍ.	p18	p19	KT VÁ	W.	p19	V.	0	p19	TI			N.	W	p19		
5600pF				N V	x1 1	рю		p18			p18	p19	4		p19	37.	ام	p19	11.1	. 1				ρ19 		-
6800pF				W	14.05	.00	V.C	p18	10 T	W	ρισ	p19	W	M.A.	p19	102		P19	T	N	p19		VV			
8200pF				-10	W	100	×1	р18	M.		1	p19		W	p19		v.C	O_{N}		W	p19			MM		
10000pF				W.		110	∂X .	p18	M	T.	1	p19			p19	700	3	40	M-		p19		1	11 T		
12000pF				W			00	p18	72		N	919		W	p19	- 10	OY.		A A	TA	PIS		V	74		1
15000pF					TAN	W.	UV	p18	0	1. 2	-×XI			< \$1	p19	1.7.	~ ~ ~	C	DIAT	-						
18000pF				1	1		106	рто		p18	AA			VV	p19	W.1	90			1.1						-
22000pF					OV N			N	CV	p18	TV			V	p19	44.4	100	Y.								
27000pF					77		1.77		7 (1	910	. 2	cs1			р19 р19	TIN	Ta									
33000pF					W	N.	ox 1 1	00			1.1	MA	n10	p19	p19											-
39000pF					4	W	AA.	. 00	1.			W	ртэ	ртэ	p19											-
							cráń	<u>JU</u>		CC	M	F '	i		ртя	ļ			l		1	p19				
47000pF													!													

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Capacitance Table poo Each number in the Part Number List refers to the page number printed at the bottom of the page.

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(→ ■ GCM Series Temperature Compensating Type)

	3	3.2×2.	5		M	4.5	×3.2	< 1 (Ob	5.7	<5.0		L×W (mm)
25		.5	т —	.0	1	.5		.0	_1	.5		.0	T max. (mm)
30	_		1000		1000		1000		1000	300			Rated Voltage (Vdc)
J	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J	U2J		Cap. / TC Code
	M.	LA.			77	_<1	W.1	gv		101	7.7	-1	1.0pF
		TI	N		1	111		100	1.		LI		2.0pF
	O_{N}		κŃ						N	CO	Mar		3.0pF
	401	1.7				X \		1.77	00 -	- C	\mathcal{O}_{N_l}		4.0pF
			J.//				77	4	00			1.7	5.0pF
	C) MY		Ŋ.		<	VV		40(Y.			6.0pF
	×7 (ON	L 0 2	KX.				W	.10		CC		7.0pF 8.0pF
	7.0	~	4.3				77		N.1)() >	- C		9.0pF
	OY.		- 1	TV			V		-<1°	100	Y.V		10pF
		C)Mr		N			M	10.				12pF
	90.	- (OD	1.					NV	.10	U = 1		15pF
	100	1.		Λ^{1}				N		x1 1	00,		18pF
	. 0	οV	CU	A se	TV			V	M	111	400		22pF
	1.11		, c($\mathcal{D}M$		1			NIV	W	Las		27pF
	xxI 1	00			1.1	AA			AA.	~1	1.10		33pF
	77.	400	X.	V -	10	W			W	M.	. 1		39pF
	VI	To	~1	CC	Mr.		Į.		<1	JV	111.5		47pF
		11)() >		Mo						W		56pF
			00			1.3					\ <0		68pF
	W	W.	- 0	V.	2O)		σÑ			W			82pF
		1	,10	J -	CC	M					T N		100pF
	W		KT A	900									120pF
	V	W)			Y.C	OF	7	W					150pF 180pF
		(TV)	Ŵ.	100	\J	30	V.V.	-TX			4X		220pF
			-11	.10	9 7.	۵(M		- 7				270pF
		W		×1 1	007								330pF
		<1	W	N.	00	V.C	O >	- 11	W				390pF
			-151	W	100	-7	0	Mr.					470pF
					10	0x		M	J.A.				560pF
			W	MI		ک۵۵	į.C\	95		N			680pF
				πŃ	W.	VV	<7 C	0)	7.0 2	-3A			820pF
					- 1	101	7.	40	M.	7 1	-7		1000pF
					1 4.	1	01			TV	N		1100pF
				< 1	W	1.2		7.C) ja		N		1200pF
	- 10					W.	00	- (101	7.7	-41		1300pF
	p19		00				109	7.		M.			1500pF
			p20					M	.CU				1800pF
			p20		p20	-0V	4.7	30 1	7	ON	L. J.		2200pF 2700pF
					p20	N.	XXI	100	Y	-01	1.7		3300pF
			1		pzo	VV	p20	40	N.		_ (3900pF
						_ < 1	p20	770	~ < 1	CC			4700pF
9	i						<i>p</i> =0	$\propto \Lambda$	p20		ON		5600pF
		p19				V	W		p20	V.	O > 1		6800pF
				p20			NIV.	W.		W.	p20	Mr.	8200pF
				p20				~TV	1.10	97.	p20	M	10000pF
						p20	W		-11	00			12000pF
							4 1	p20	M-7		V.C		15000pF
								p20	W	Inc	_7		18000pF
			!					p20		110	07		22000pF
								√N		p20	003	į.C	27000pF
			1						-XXI	W.	TOO.	p20	33000pF
									1 4,	- X	100	p20	39000pF
									W	1111		p20	47000pF
	1		1							1	$\Lambda' T_{\lambda}$		56000pF

Capacitance Table Poo Each number in the Part Number List refers to the page number printed at the bottom of the page.

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■ GCM Series High Dielectric Constant Type

p00 ← Part Number List	EIA: X7S X7R
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L×W (mm)	(0.6×0.	.3		1.0	×0.5	1	VV	1	.6×0.	8	M A		200		95	T	2.0×	1.25						3.2	2×1.6
T max. (mm)		0.33	W	Ing		55	M.		Ţ.	0.9		TVV	0.7	00	0.	95	No.	- XI			1.4				0.95	1.2
Rated Voltage (Vdc)		16	10	100	50	25	16	100	50	25	16	6.3	100	100	50	~44 7	16	100	50	35	25	16	10	6.3	_	
Cap. / TC Code		X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7F	X7R	X7R	X7∆	X7R	X7R	1 X7
100pF	p21		-XX	W.	WV	-7 (:0]	7.				- 1		1.2		C	DE		Ń							
150pF	p21				100) > .		M	FAL			77	~1	∞ .	00		10	7:7								
220pF	p21		W	p21	p21	M			TV	N	ĺ		M		100	1.		. A T						İ		
330pF	p21			p21	p21	,	7 C	OD		ĸN.			(XIX	IN		N	CO	MAR	- T	N						
470pF	p21			p21	p21	100			1.7				44	-41	1.11) V >		M	· 7							
680pF	p21		1	p21	p21	40	NY.		- K 1	W			W		-11	00	V.		13	N						
1000pF	p21			p21	p21	.70	~ 1	p21	p21		N		4	JW	W-		V.	2O)			1					
1500pF	p21			p21	p21	$\sqrt{\lambda}$	00,3	p21	p21	1.7.					TV.	.10	0 -	cC	\mathcal{M}_{T}		45.1					
2200pF		p21		p21	p21		00	p21	p21	17	W			M		st 1	101			T						
3300pF	-1	p21		p21	p21	W	100	p21	p21	N.Y.	~XX			4 1	W	N.>	00	V.C	$O_{P_{\ell}}$	_ 1	W					
4700pF			p21	p21	p21	-11	.10	p21	p21	M		- 7			- 1	W.	100	-7 (40	M.						
6800pF		W	p21		p21		-7.1	p21	p21		T		p21				10	2.		M	I_{I_A}					
10000pF			p21		p21	p21	M.	p21	p21	O_{L}		W	p21		W	NN		NO.	C,			N				
15000pF					p21	p21	TW	p21	p21	0	M^{\cdot}		p21			-XXI	N_{J}	UV	×7 ($O_{\overline{D}}$	17.	- SI				
22000pF		T	W		p21	p21		p21	p21		A.A.	TN	p21				- 4 1 1	100			M.					
33000pF	Oz		N.		p21	p21	p21	102	p21	p21	Div	- 10	N	p22	p22	NV	A	4.0	α¥	C		TV				
47000pF		M.		7	p21	p21	p21	\mathbf{W}^{1}	p21	p21	OD	7. 7	_ 1			- 1	NV	p22	p22	C	O_{Z_1}		N.			
68000pF		- 1	T	N	p21		p21	- 1	p21	p21		M.	CAA			M	1	p22	p22			1.7				
0.10µF		$O_{Z_{k}}$		W	p21		p21	111	p21	p21	p21	7.		N.		V	IW	p22	p22	V.			W		p22	
0.15µF		-01	17:7				p21	CV.	p21	p21	7 (1	\mathcal{O}_{N_l}		- ST			~1	IN	p22		p22	Mr.		N		p2
0.22µF			AA.	UN			p21	7	p21	p21			T.A	44			AA	-15	p22	DO 2	p22	M				p2
0.33µF		Cr	DIA	TI	N			VV	As.	400	p21	DO.	. 15	MI	p22		W	W.		00	p22		T	N		
0.47µF		- 0	ON	1. 1				-13		p21	p21	C.C	Mr.		6.1	p22		TV	p22		S.	(O)		-TN		
0.68µF		X.		LA	M			M		st 1	90 z		N				p22	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	e TXX	p22	p22	dC	M		- 7	
1.0µF		N.	$\mathbb{C}^{\mathbf{U}}$		TV			11	M	p21	p21	V.C		17	W		p22	W	p22	p22	p22			T		
1.5µF	TA		c(DIVI		% 1			KT VĀ	W.	T.	~ 7 (CO	Mrs	-11			< X	41	p22	-0	v.C	Oh	- 15	W	
2.2µF		200								-131	10	p21		M	7					W	p22	p22	p22	W.		
4.7µF	MASS	. 00	V.C	Mr.	- 1	W			W			007	.0		T	N		1	1/1/		10	p22	p22	$\Lambda \sigma$	IN	
10µF		70	-7	0.0	7/7-					W	W = 7		J (O_{Z}		×Ν			411	NN		.05	p22	p22		W
22µF		10	07		$\Lambda \sigma_c$	11			N.		XV.	100	3.	0	M^{-}					× 1	W.)	100	-7 C	ON	Yo F	
47µF			00	1007 1007		- 1	N		1	MN		40	ON.		~ 1	TV			V		-41	100 N.10 W.1	100		1.7	

Capacitance Table | p00 | Each number in the Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GCM Series High Dielectric Constant Type)

p00	← Part Number List	EIA: X7S	X7R
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			3	3.2×1.	.6	M.,		V.C	Or	7	W	3.2>	<2.5	W	MA	40-	L×W (mm)	
1.25	1.3			1	.8	W	100	1.9	_ (2	.2		ī	2.	.7	w	41.7	T max. (mm)	
50	25	100	50	25	16	10	6.3	25	25	16	50	35	25	16	10	6.3	Rated Voltage (Vdc)	
X7R	X7R	X7R	Χ7Δ	X7R	X7R	X7R	X7R	X7S	X7R	X7R	Χ7Δ	X7S	X7R	X7R	X7R	X7R	Cap. / TC Code	
c0			1			TAN.	W.		-7 (107	3.0 =	-51					100pF	
		T	N				- 1	101	7.		M.	7.4.				1	150pF	
7.C		T	W				N. V.	40	M			TV					220pF	
<1.0		170.	1			- 41	W	1.2		7 C	O_{M_1}					× 11	330pF	
)) •		M						sal.	r_{0a}		-01	V_{2}					470pF	
07			T	N		1			10	27.							680pF	
~ ~		O_{N}		W			W.		. 1		C.	MAN		N_		1	1000pF	
100		-01	Λ				41	- T	N.1	30 -	7 (ON		- 5 1			1500pF	
40			A.				1	777		100	Y .~	(1)		777			2200pF	
		C	DIA		N		-	W	14.		V.			TV			3300pF	
$\sqrt{3}$		-7 (07	1.5	-31			_<1		"To		CS					4700pF	
		7.		M.						N.1	005						6800pF	
		oY.	UU	- 1	TV			V		-1	100	V. C		M.3			10000pF 15000pF	
W		_ <<	C	DIA		N			N	TN.		ΩŽ.					22000pF	
~1		00.			7.7	N N				XIV	1.34	V		M		-s.T	33000pF	
INN		100	X-7						11		5J 1	00					47000pF	
		,).~	V	C	N/A		Ń			M	VN •	400)O>		W	68000pF	
7		1.2	W -	7 C			<1			~1	T	101		c0			0.10μF	
N		× 31 1	00		1	1.1					-1	V.19		<u></u>			0.15µF	
<		110	400	1			TV			W		34.4		7.U			0.22µF	
p22		VV	• 70	~ \$ 7	CC	1		KI .		-		W-		V.(0.33µF	
p22			NA.	70-		M) >		$\mathcal{M}_{\mathbf{F}}$	0.47µF	
p22		W		100	X.C		17	W			W			307			0.68µF	
p22		p22	W.		V.	50		σV			p22	W		.00		Ω_N	1.0µF	
			NIV.	.10	9.	d	M	1	«1			×150		r_{n_0}		10	1.5µF	
	p22	M	p22	x11	000							14		10			2.2µF	
		11	p22	p22	p22	Y.C	U ²	- 1	p22		p22	W		4		.0	4.7µF	
			×150	W	p22	p22	cO	p22	-41	p22	p22	p22	p22	11.7		v C	10µF	
			M.		110	p22	p22	M	TA			V		p22	p22	2.	22µF	
			W		NW	00			T	N TN TV TT						p22	47µF	

Capacitance Table Poo Each number in the Part Number List refers to the page number printed at the bottom of the page.

■ GCD Series High Dielectric Constant Type

	1			
p00	← Part Number List	EIA:	X7R	

L×W (mm)		.6×0.	8	- 00		.0×1.2	- 1	W
T max. (mm)		0.9	W		.7	0.95	>	.4
Rated Voltage (Vdc)		50	25	100	50	100	100	50
Cap. / TC Code	_		X7R	X7R	X7R	X7R	X7R	X7R
1000pF	p24	p24	TVV	p24	p24	-1	707	7.
1200pF	p24	p24	N	p24	p24) 7.	40	M.
1500pF	p24	p24		p24	p24	101		
1800pF	p24	p24	- 1	p24	p24		7.C	OM
2200pF		p24	717	p24	p24	000		-01
2700pF	p24	p24		p24	p24	100	M.	
3300pF		p24		p24	p24	. 1	, o V	C
3900pF	p24	p24		p24	p24	N.1	20 -	- C
4700pF	-	p24		p24	p24		100	X.
5600pF	p24	p24		p24	p24	M.		V.
6800pF	p24	p24				p24	3,00	0 -
8200pF	p24	p24					p24	00)
10000pF	p24	p24			<	W	p24	-00
12000pF	10/1/2/2	p24	<1				p24	Ĭn,
15000pF	p24	p24	M			W.	p24	p24
18000pF	p24	p24	W			W	p24	p24
22000pF	p24	p24		ī			p24	p24
27000pF		$\Lambda\sigma_{r}$	p24				p24	p24
33000pF		$O_{P_{A}}$	p24	N			p24	p24
39000pF		10	p24	- 1			p24	p24
47000pF			p24	LAN			p24	p24
56000pF	N	Cr	724	TI	N		p24	p24
68000pF		7 C	O_{N}		cal_		p24	p24
82000pF		X	-01	Λ .			p24	p24
0.10µF		N.			W		p24	p24

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■ GCE Series High Dielectric Constant Type

p00	← Part Number List	EIA:	X7R

L×W (mm)	_	<0.8	N		0×1.2		
T max. (mm)	0.		18.00	.7	0.95		45
Rated Voltage (Vdc)	100	50	100	50	100	100	50
Cap. / TC Code	X7R	X7R	X7R	X7R	X7R	X7R	X7R
1000pF	p26	p26	p26	p26			
1200pF	p26	p26	p26	p26			
1500pF	p26	p26	p26	p26			
1800pF	p26	p26	p26	p26	Í		
2200pF	p26	p26	p26	p26	· - T		
2700pF	p26	p26	p26	p26	N		
3300pF	p26	p26	p26	p26	CV		
3900pF	p26	p26	p26	p26	1		
4700pF	p26	p26	p26	p26	T		
5600pF	p26	p26	p26	p26	_ 1		
6800pF	p26	p26		10	p26		
8200pF	p26	p26	2×.		M	p26	
10000pF	p26	p26	O	C	, , ,	p26	N
12000pF	p26	p26	00	s7 (OV	p26	< XI
15000pF	p26	p26	700		~O	p26	p26
18000pF	p26	p26	40	OY.		p26	p26
22000pF	p26	p26	1.70		C	p26	p26
27000pF		τ · 	$\sqrt{3}$	00)		p26	p26
33000pF		M	N 1	400	1.1	p26	p26
39000pF		αN	M	. 10		p26	p26
47000pF		44.	- TY	$\sqrt{3}$	M x	p26	p26
56000pF		W	AA.	-11	00	p26	p26
68000pF		<	W	W.		p26	p26
82000pF			1	W	70,	p26	p26
0.10µF					-11	p26	p26

Capacitance Table poo Each number in the Part Number List refers to the page number printed at the bottom of the page.

■ GCG Series

Temperature Compensating Type

p00 ← Part Number List

Murata Temperature Characteristic: X8G



-91				. J. V
L×W (mm)	1.0x 0.5	1.6x 0.8	-757	1.25
T max. (mm)	0.55	0.9	0.7	0.95
Rated Voltage (Vdc)	50	50	50	50
Cap. / TC Code	X8G	X8G	X8G	X8G
10pF		p28	W	N.V.
12pF		p28		W.
15pF		p28	111	
18pF	N	p28	<	M
22pF	- 1	p28		- 11
27pF	111	p28		11
33pF		p28		V
39pF) J.	p28		
47pF		p28		
56pF	- T	p28		
68pF	Mr.	p28	1	
82pF	M	p28		
100pF	955	p28	p28	
120pF	p28	p28	p28	
150pF	p28	p28	p28	
180pF	p28	p28	p28	V
220pF	p28	p28	p28	σÚ
270pF	p28	p28	p28	
330pF	p28	p28	p28	1
390pF	p28	p28	p28	
470pF	p28	p28	p28	
560pF	00	p28	p28	17
680pF		p28	p28	A N.
820pF	10	p28	p28	M
1000pF	-7 1	p28	p28	
1200pF	11.	p28	p28	9
1500pF		p28	p28	~ _
1800pF		p28	p28	
2200pF	NV	p28	p28	
2700pF	· «T	pzo	(1)///	
•	TW		p28 p28	1.1
3300pF	TIN)	W		
3900pF	44.	- T	p28	UL
4700pF	W	M.	p28	200
5600pF	~		W	p28
6800pF			ativ	p28
8200pF			1 4	p28
10000pF		< X	1	p28

High Dielectric Constant Type

EIA: X7R X8R Murata Temperature Characteristic: X8L

	×1.25	M. JOM	L×W (mm)		1	.0×0.	5	مم	M.			1.6					2.0×	_
0.7		OUA CO.	T max. (mm)	W	N	0.55	OX		- 1	TV	N	0					0.	_
50	1 4 1	LOD COL	Rated Voltage (Vdc)		74 .	5		6	100		50			:5		6	50	L
X80	3 X8G	1007.	Cap. / TC Code	X7R	X8L	X7R	X8L	X7R	X8R	X8L	X8R	X7R	X8R	X7R	X8L	X8R	X8R	X
	AN AL	100Y.CO	220pF	p29	111		100	7/->		p29	M							
		N. You	270pF	p29	OUN.	VV		N	C_{O}	p29	TV.	N.						
	V	M 100 1.	330pF	p29	4.	~1	1.17	W >		p29	. 1	-1						
	W	1007.	390pF	p29	W	AN.	-7 1	00		p29	TI	W						
	1	MM.TO	470pF	p29			W.		7	p29	1	M						
	W	100 x	560pF	p29				70	y E	p29	M	7	k T					
	V	100	680pF	p29		W		-14	101	p29		T	N					
		MW.IO	820pF	p29		< X	W	N.>	00	p29	Oh	- 10	W					
		W	1000pF	p29				W.	p29	p29	-01	17.	p30					
		WWW	1200pF	p29		4	NA.		p29	p29	p29	A.	p30					
		1.WW.	1500pF	p29			*	MA	p29	p29	p29		p30	N				
		N TON	1800pF	p29				-31	p29	p29	- 0	OD	p30	-=1				
p28	3	MM	~ 7 \ / / / /	p29			V		p29	p29	p29		p30	111				
p28	3	VWV	2700pF	p29	N			NV	p29	p29	p29	CO	p30	TV				
p28	-	111	3300pF	p29					p29	p29	p29		p30		T			
p28		WW	3900pF	p29	W			W	p29	p29	p29		p30	1.1	N			
p28		-XIV	4700pF	p29	-00			3	p29	p29	p29	V.C	p30		W			
p28		W.	5600pF		p29	p29			p29	p29	p29	7	p30	M.		1		
p28	- 1	W	6800pF	0-	p29	p29			p29	p29	p29	07	p30		TV			
p28	-	kī .	8200pF	10)	p29	p29			p29	p29	p29	003	p30	Olive	- 1	W		
p28	- '		10000pF		p29	p29			p29	p29	p30	00	p30	101	7.7		p30	p
p28	- 4	W	12000pF		pzə	μΣθ			p29	p29	ρου	100	μου		. N.		ρου	P
p28	Ay.		15000pF	J C	OM	1.0	-20	p29	p29	p29	p30		p30	CC	MA		p30	р
p28		In		7.	-01	1	p29 p29	p29	p29		ρου	V.1	μωυ	7 (ON		p30	1
-		WT	18000pF	M.		~ 1	4/4/2			p29	p30	- 1	n20	V.		1.7	19.3	p
p28		1. E	22000pF	. 05	C) [Ar	p29	p29	p29	p29	μου	p30	p30	W.			p30	1
p28	_	$M_{J,M}$	27000pF	00 2		01	p29	p29	p29		20	-	20	0 -	C(W	7	L
p28	_	WTI	33000pF	100	7.		p29	p29	p29		p30	p30	p30	907				
p28		DIAT.	39000pF	To	W	Ç0	p29	p29	p29		-00	p30	.00	. 00	$\sqrt{.}$ C	OF		K
p28	_	OMITY	47000pF	1.10	U >	. ((p29	p29	p29		p30	p30	p30	TOO	= 7	0	100	
p28		WITT	56000pF	· -<1 1	002			p29	p29		1	p30	- 00	10	0x.	.00	M	n
p28	- 7	COM	68000pF	W-3		V.C	() P	p29	p29			p30	p30	100	aas	p30	DEL	
p28		COMIT	82000pF	TN	101			p29		1		p30	-	$\sqrt{1}$	00	# T-A	OD	
p28		Y.Co	0.10µF	N V	-11	07		p29	TV	N	p30		133		100	p30		
	p28	A COMP.	0.12µF	W	N.F		7.C	OM		W	p30			p30	2.5	N	Co	
	p28	D. COM.	0.15µF	- XX	W.	00	-7 (-07	7. 1	_ <1	p30		-41	p30	p30		7 C	D
	p28	10 Y.C	0.18µF	111		10	1		M.	LAA	p30			p30	M	00	1.0	
41	p28	COM	0.22µF				ω√.	CL	17/1-	m\	p30			p30	p30	- O(1.	
		100 1. 001	0.27µF		1	477	30 -	7 (OM	L . 3					W	•),()		(
		100 Y.C	0.33µF				00			$\Lambda \Delta$			p30	M.	-13	11	10 x	
		V. CO	0.39µF	-	VV	MA.		V.			TV		p30	11			00	V
		M.100X.C	0.47µF			W	\mathcal{I}_{Λ}		CC	M_{T}		6.1	p30		a XX	W.	70-	
		AN. 100X.C	0.56µF		AN.		<1	20x		N							10	0
		MM.100X	0.68µF		1	W	17.	-00	V.C	OP	. 1	W						
			0.82µF				W.	TOO	-7	~0	Mr.						N.1	1
		1007	1.0µF			NA		140	01.		Λ	IN						
			1.2µF			W	W		007	.C\	J.		N					
		WWW.100	1.5µF	1		1	a N	N.	An.	-1 (O	7. 7						
		MM	2.2µF	N		1		* I	100	X.								
			3.3µF	N			W											
		VY TON 1	3.9µF	4			1											
		WWW.	4.7µF															
			10uE															
		WWW	- 100 ×															-

Capacitance Table poo Each number in the Part Number List refers to the page number printed at the bottom of the page.

MMM.100X.

WWW.100Y.COM.T

(→ ■ GCG Series High Dielectric Constant Type)

			JAN	10		<u>c0</u>	Mr.		1			W	M°	-	<1 C	Ob		-5
L×W (mm)		M.			<1.25		M	TI				3.2	×1.6	100) 7.	cO	3.2	_
T max. (mm)		W	W	1.	.45	I.C	U = 10	T	M.		.35	W		- 4 t	.9		2.3	2.
Rated Voltage (Vdc)		50	TN.	(N -	25	KL.		6	50		25	16		25		16	25	2
Cap. / TC Code	X8L	X8R	X7R	X8L	X8R	X7R	X8L	X7R	X8R	X8R	X7R	X8L	X8R	X7R	X8L	X8R	X7R	X7
220pF						101									100			
270pF			<5√	W	N.2		7.C	DM		W						W	CA	120
330pF					W.	700	-7	401	17.7						(1.)	0	7 C	D
390pF			1	(N		10	27.								σŢ.	100		
470pF	W			W				i.C\	177		N			V		40	7.1	
560pF					\J\J\	N.Y	0	7 (ON	L. *	<0X				11	. 70		(
680pF			i	V		KN.	700			M.					L-KT	N.1)U >	
820pF		N			N		1	N.			W			(A)		. < 1	100	N
1000pF		- 1			-31	NV	.70		C	D_{N_T}		N			NV	100		
1200pF	M.					241	N.1	00 s		01	7.7					4	1.10	V
1500pF		TV			N		N '	-00	1.0						W		×1 1	9
1800pF			ĪΝ						N.	CO		σV			1	N)	11.00	
2200pF 2700pF		7.7	4.			77	XIV	1.14	N P		M_0	. 1	* 1			×11	W	1
3300pF		KA (W			1	NN I		00			1.1	NN					l.
3900pF							M	VIVI 05	400	V.	JU2	. 6 1	W			W		
4700pF		\mathcal{O}_{M}		a(1				VA	, TO,		CC	11.		l.		<	M	
5600pF			I.I	W.				-15	1.19	907		DV						LT.
6800pF				W			V		-71	00	7.4		11	N				
8200pF		CC	174		KI				W.		V.	0		N.			W	N
10000pF			M							.30		~ (\mathcal{D}_{IP}		1			
12000pF		X.		13	W			W		k1 1	003							
15000pF		×ζ.	50		σV			$\langle \langle \langle \rangle \rangle$	W		00	V.C	*	T 7	W			K
18000pF	.10		CO	M		4 .1			KT VĀ	W.	700	■ 7 1	30	My	-37			
22000pF		00.								-130	10	0 -	~(M_{ℓ}	7			
27000pF	p30	. 00	V.C	U'		W			W		-11	007			T	N		
33000pF	p30	p30	~7	$\mathbb{C}^{\mathbb{Q}}$	p30					W	M.		V.C	O_{L}		W		
39000pF	p30	110	05.	~(p30	17 1		:			W	700		CO	M.			
47000pF	p30	p30	007		p30	T		:	4			110	01			TV		
56000pF	W	p30		V.(101		W			N	MI	100	001	C^{\prime}	DM		N	
68000pF		p30	701		40	M		1			-30	W.	W.	-7 (07	17.		
82000pF			110	101	p30	M	1					- 1	101	1	~0	M.		
0.10µF	p30	p30		p30	p30	Or.		W			W		1	You		1	TV	
0.12µF			Ø.	LUV		70)	120	~\N			<n< td=""><td>W</td><td>11.7</td><td>ΔA</td><td>7.C</td><td>Ω_{M_2}</td><td></td><td></td></n<>	W	11.7	ΔA	7.C	Ω_{M_2}		
0.15µF		7	p30	.10	p30		M	T_{AA}	p30	p30	N.	753	W.	(UU	-11	10	1.1	
0.18µF		W	p30 p30	of A	p30 p30	.00		T	,,,,,,	00		N. W.		10	17.		M.	
0.22µF		1	рзи	1105	рзо	p30	Ob	- 11	p30	p30		W		. 41	aosi	.0	1211	1
0.27μF 0.33μF				n20	100	p30	p30	Mrs.	p30	p30	i		W	M.Y.	0	J C	OM	
0.39µF			N	p30	10	p30	p30	M	μου	μου				N.	100		40	N
0.47µF			W	NN		p30	p30	72		N			NV		40	22.		
0.56µF			- 1	W	N-	p30	p30	0	1.0	XX			-XI	N		M	i.Cl	
0.68µF						p30	p30	40	1.				p31		N.	p31	.7 C	
0.82µF				W		p30	p30		$\Lambda \pi \lambda$	T					~XX	PUT		
1.0µF				₹Ñ	M	p30	001	,C	7		p30	p31		W		p31	NY.	
1.2µF					-XX	W.	90	×7 (OJ	3.0	p31			~ XI	NV	102		
1.5µF						-4XI	100			M.	p31	p31			_ < T	\sqrt{N}	00	
2.2µF						N N	- 40	OX	CU		p31	V		1			100	
3.3µF						W	1.7		7 C	DM		Ń		p31	p31	LAN	p31	
3.9µF						<1	W.	00		0	1.1			p31				1
4.7µF						AA		p30	N.		NA '			p31	p31			F
10µF					1	- < 1	W	0.35	1	CC	1747		}			7		p

Capacitance Table Poo Each number in the Part Number List refers to the page number printed at the bottom of the page.

■ GCJ Series High Dielectric Constant Type

L×W (mm)	41	IV	M.,	00	V.C	JU 4	.6×0.	.8			W	MA	4.02	ansi	Z.C.	95		N	2.	.0×1.	25				
T max. (mm)		1	JW	<u> 101</u>	1 - 1	cÓ	0.9). '	J			w	11.1	00	0.7	OD	10 -	100	95		1.0			1.45	
Rated Voltage (Vdc)		00	1	50	01	35	M	25	\	10		10	6.3	100		25	100	50	25	16	250	250		50	
Cap. / TC Code	X8R	X7R	X8L	X8R	X7R	X8L	X8L	X8R	X7R	X8L	X7R	X7R	X7R	X7R	X7R	X7R	-	X7R	X7R	X7R	X7R	X7R	X7R	X8L	X7
220pF			M	(N.)			(0)	3.0						102	005	r.C	p35		N						
270pF					101		d(M.		1				$\sqrt{1}$	yv	<1 (p35	7. 7	6 A						
330pF					ct 16				T	N				TX.	p34	17.0	p35	M							
390pF					N.		1.C	OM	- 1	N			W		p34	△ √	p35	-0.1	W	V.					
470pF 560pF					W.		47 (0	V . y	~1			<×1	W	p34 p34	p35 p35	p35 p35	DIA	. 15	O.					
680pF) 7.	~(M						ρ34 ρ34	p35	p35	10	7.7						
820pF				W			305		-31	T					p34	p35	p35	0	M.		1				
1000pF	p33	p33	p33		p33	N.2	00	v.C	p34	- 1	W			p34	p34	p35		C		T	p35	Ì			
1200pF			p33		p33		700	×1 (p34	15	- 4 3			p34	p34	p35		J C	ON		N.				
1500pF			p33		p33	-75	10	0)-	p34	$\Delta \Delta$	IA			p34	p34	p35	700		-01	1.	p35				
1800pF			p33		р33	N	4	005	р34		T			p34	p34	p35	10	DX.		$\Lambda_{\mathcal{F}_{\alpha}}$	IA				
2200pF	p33	р33	p33		р33		W-		p34	Oz				р34	p34	p35			.CV		p35	N			
2700pF	p33	р33	p33		р33	- 41	TV	700	p34	cO	M.		1	p34	р34	p35	N.)	No.	s7 C		A	× 16.1			
3300pF			p33		p33			110	p34		NA.			p34	p34	p35	con I	100	7.		p35	AA			
3900pF		-	p33		p33		W	100	p34	į.C	7517		N	p34	p34	p35		-10	OY.		_ 6	TV			
4700pF			_	р33	p33		1XX	M.	p34	J.C	OV		χŃ.	p34	p34	p35	W	1.1	~~	C.C.	p35		Ń		
5600pF			p33	N	p33		4	M	p34	13.0	co			p34	p34	p35	TAN	W.	On ,	<1 (01	7.7	, . 3 1 1		
6800pF			p33	W	p33		W		p34	01			TY	p34	p34	p35	N.A.	TAN	100	1.,	p35	W.	M		
8200pF		70.77	p33	p33	p33 p33				p34	00	7 ()			p34	p34	p35				OX	CV	05	T		
10000pF 12000pF				рзз					p34 p34	000	p34		17.03	p34	p34	p35 p35	- X	W	V. J.	00	(C	p35		N .	
15000pF			p33	T	p33 p33				ρ34 ρ34	10	17.0		M	p34	p34 p34	рзэ		-<1	p35	00	- (p35	7.7		
18000pF			p33	T	p33			W	p34	cT 4.0	101		-1	p34	p34				p35	10	34.	poo		ĹΝ	
22000pF			p33	VI.	p33			41	p34	4.7	00		Ω_{N}	p34	251			W	p35	- A	ωÝ	p35	1	7	
27000pF			۵(M	-				p34	W.	p34		20	Ay.			p35	p35	W	1.7		7 C	ON	p35	
33000pF		007			р33	p33	p33		p34		p34			M	1.4		p35	p35	-4	W.	700		-(O)	p35	
39000pF		.00	V.C	O ₇	p33	p33	p33		p34		p34		.0	امرا	T	N	p35	p35	MA	1	10	0λ		p35	
47000pF	_	Inc	~ 1	00	p33	-111			p34		p34		v .C	Oz		N			W	NV		M	p35	p35	рí
56000pF		1.10	07.	\d(p33	p33	p33		p34	p34	p34			dO	M					αN	1.1	UV	p35	p35	рЗ
68000pF	p33		00	Į.V	p33	p33	p33		p34	p34	p34		0λ .		M	TV			V	1,	XX	700	p35		рŝ
82000pF		M_{γ}		V (p33		p33		p34	-	p34		003		DE	. 1	N			NV		-10		p35	
0.10µF		p33	T_{II}	p33	p33		1	i.	p34		p34	M_{γ}	V	JC	O	1.	wi			X	WV	1.2	p35	p35	рЗ
0.12µF		7	1.19	p33			11.		p34		p34	p34	100	1 2	-0	M.	1			7	M	$\sqrt{3}$	OO :	<1 (p3
0.15μF 0.18μF		W.	_7.1	p33 p33	p33	- 10	p33	M	p34 p34		p34 p34	p34 p34	1110	07		1	T	N			N X	TAN.	100	7.0	р3 р3
0.18μF 0.22μF			W.		p33		p33 p33	N		p34 p34	p34	p34	No.	00	Ţ.C	Dr.	77	N			W	1 1	110	OY	pi pi
0.22μF 0.27μF			W	μοσ	pos		pos	7 V	ρ54 1		p34	1534	W.	TOO.	<1 (90	170 2	TXI			<xi< td=""><td>W</td><td>1.1</td><td>003</td><td>ρc</td></xi<>	W	1.1	003	ρc
0.27μF			_ 14	v.1	202		W	p33			p34		TÍN	10	1	~C	M.	p35	p35			- TXX	W.	On	
0.39µF		V			00	X.C		p33	W		p34			sī 1	307			17					TXX	10	
0.47µF				W.			30	p33	W		p34		W		00	Ţ.C	O I	11	p35			W		-14	рЗ
0.56µF			11	NV	.10		C	$)_{I\!\!I\!I}$		sí.				W.	TAN	V	CO	NT.	TXX			1 X	W	N.2	0
0.68µF			W		x1 1					N			N.Y		.10	ŊΣ.	<u>~</u> (M	T. A.	p35		4.		W.	
0.82μF			V	W			Y.C		67	W			W	14	-11	007			T	p35		1	N V		1
1.0µF				N.	W		ΔĮ	c0	p34	-03/1			1	W	14.5	۵۵۰	v.C	$O_{\mathbb{N}}$. 1	p35			W	N Y	p3
1.5µF					NV	1.10	U F	<u>((</u>	M	- N	s I				W	Too	V	co	Mr.,				11	W	
2.2µF				W	N.		00,			T.T	14		p34	MA A		1.10	0 7.		$M_{\rm C}$	T	- T		1		
3.3μF 4.7μF					TN		100	7.0	, U	. A 1	W			W	M	- 1 1	001			T					
4.7μF 6.8μF					XIV	W	TA	W	CO	D_{IP}				1	W	W-)	.00	V.C	$O_{\mathbb{Z}}$						
6.8μF 10μF					W		1.1	10 7		200	7.7					M	100								
10μF 22μF					W		×1 1	00			1. 1														
47μF							AA.	400	V.	YUX															
17μ1				:			N V	711	Ψ	Co	M		:			-					<u>: </u>	-			_

Capacitance Table Part Number List refers to the page number printed at the bottom of the page.

(→ ■ GCJ Series High Dielectric Constant Type)

L×W (mm)	4	2.	0×1.2	$-\Delta b$	¥.C	Or	- 17	W			W	M A		005	.03	3.2×1.	6	N								
T max. (mm)			1.45		7	0.			1.25			13	_		<7 C	1.8	70	-SVI				1.9				
ted Voltage (Vdc)	2			6	10	100			630		100	50	25			630		100	50	35		25		6	10	1
Cap. / TC Code	X8L	X7R	X8L	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	Χ7Δ	X8L	X8L	X7R	X8L	X7R	X7R	1 1
220pF				W.		<7	107	1.	- N				WW	1.2	~		Diz		N							1
270pF				- 1	101	7.	-0	M.	7.11			71	· -<1	$\propto 1.3$	00		0	7.7								1
330pF						Vo	CA		TV	N			IN		100	2.		a A T								-
390pF					1.77	. <	7 C	\mathcal{O}_{M_l}		K TA			XIV	VV	. 10	N	C_{O}	Mr.	~~~	N.						1
470pF					** * * * * * * * * *	100			1.1					- 1	V.1			M								1
560pF				VV	A4.	. 00	V.	, V		W			W	W		00	Z.V		TI	W						-
680pF					W	Ta.	- 1	cC	M_{T}		KÍ				W.		(</td <td>30)</td> <td></td> <td>a V</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td>	30)		a V						1
820pF				W		st 1(203								-111	70		00	M.							-
1000pF				1	W	14.00	آمم.	p36	p36	- 1	W			W	1		107			1	N					
1200pF		- 7				W.	FAA	-71	-0	Mr.					W	N.x		J C	Oh		×ΧΙ.					-
1500pF		N					-10	p36	p36	$\Delta \Lambda$	1					- T	100			1						1
1800pF		~X			T	N	. >) Ave		Ń		1	NN		40	N.			TV					
2200pF						-01	N.3	p36	p36	OD	1.					M	·		C.C	Mr		M.				1
		W			V		-1	ρου	ροσ		3	111					ST 1	907								1
2700pF						NV	W.	00	200	CO	17	OV.					N.V.		7.C	OF	- 1	W				-
3300pF		1.1				NA.	×11	<i>p</i> 36	p36		Λ_{CC}		- 1				W	Ina		0	M.	-				-
3900pF						W	MA		200				N					-10	0x		M	TV				-
4700pF		Mr.					W	p36	p36	7	$O_{\overline{D}}$	7.	κŃ			√ €		100	ده م	,C	کیر	T 103	N			-
5600pF		M						- N	101	1 2	~0	M.					- ST	$\ll 1$	MA.		07	7.7	_ <1			
6800pF		O _P		W					p36	M		-	TV	N	p36				100	1.		M.				
8200pF		101					· 1	W	1.7		7 C	\mathfrak{I}_{M_1}		cal.				IM		N	Ca	N. P.	TV.			
10000pF				J.M.			10		p36	00			7.7		p36			- XTX	1.11	W =		M		-1		
12000pF		Cr		T	N		1		7	400	V.	0.	- N	TW			W	W.	_ 1	00	4.0		TI	(N		-
15000pF		- 0						-13	VV	p36	- - 1		Mr.		s.T	p36			W.		V (207	135	ďΝ		
18000pF		X.~		13	W			AN.		st 1	20 x		M	"J.					e TXN	10	3 >	<u>۸</u> 0	M.	7		
22000pF		√√.			σV			N.	W	p36	00	v.C		× 1	W	p36		W		- 40	101		- 0.1	$ \mathcal{N} $		
27000pF		p35		MI	-	-1			-151	W.	700	-7 (10	170	- 1			_ <	W	N. 2		J C	ON			
33000pF		p35				N					10	12.		\mathcal{M}	In		p36			χŃ.	100		- O			1
39000pF		p35		ON		N.			N.	N		VO.	.C\		T	Ń		4	NN		40	M.		_ 6		1
47000pF		p35		40						-01	$\sqrt{.}$	00 -	- 1 C	ON	1.2		p36	i		NV	. 7.0		CC	MA		
56000pF		p35			~ 1	W			V			100	Y.				ροσ		W		×1 1	907				i
68000pF		p35		C) Mr	0	σŃ			p36		<i>y</i> ~	N.	ÇU	S.V.P	- TO V			V.	AN)	1	.00	$\sqrt{.}$ C	O×.		
		-				7.7				μσο	KT V	10	U >	. (($M_{\rm C}$	1	-1			-137	W	100	× 7			
82000pF		p35		Y.C	, O -		N.	i		W		-11	000				p36	i	1			-10	0x			
0.10µF	e (A)	p35		~<7	c0	p36	_	J.		< 0	W	(11.)	p36	7.0	007		p36			W		1	aas	C\		
0.12µF	p35			101		100	p36					-31	p36	3	~0	M.						$\sqrt{3}$	OO.	-10		-
0.15µF	p35	W		003	7.C	O.P.	T	N		-	p36	p36	p36	07			TV	N		V			100	7.5		į
0.18µF	p35	-<1		TOO	7 (401	17. 7	- 1			p36	p36	p36		7 C	$\mathcal{D}_{Z_{I}}$		KXI			XIX	IN		N		
0.22µF	p35	111		10			110	\mathcal{L}_{M}			p36	p36	p36	00		.01	7.7	1				~1\	1.11	V >		Ġ
0.27µF	p35	p35		p36	OV	CC	1742	T	N		<	p36	11.	400	Y.	ν,		W			W	AA A	_ 1	00		
0.33µF	p35	7		р36	30	7 0	ON		~ 1			p36	W	Ta	_ ≤ 1	CC	Mr.		N		4	JW	W.			į
0.39µF	p35	p35		p36	00	X.C	1	1.7	M			p36		xi 1(10 x		OM	'.T.	1					704		
0.47µF	p35	<		p36		V.						p36	W		00	7.C		. 1	W			W	V	. 40		
0.56µF		p35	p35	p36	.10	V	c(M_{I}		κī		p36	CINN	W.	TAA	-T (40	17.	-14 S	p36	p36	-<1	W	1.7		
0.68µF	p35	p35	p36		-T 1	001						p36	1		10	0.2		M	1.1	p36	p36			√√.		1
0.82µF	p35	p35		W	11.	_0	V.C	$O_{\mathbb{Z}}$		W		p36	W	NY		0	.Cl		T	p36	p36	1	VV			(
1.0µF		p35	p36	p36	W	100	2	40	M-			p36	p36	p36	1.3	000	. T C	p36		p36	_		-<1	VV		1
1.5µF	,	p35	,,,,,	N		110	ON.		-1	TV		,,,,,	p36	p36	-41	100	7.	700	p36	700	730		M			i
2.2µF		p35		n26	p36	1.70	~	C	DIAT		N			P30	W		N.	CO	p36	TV			1			-
		pss		p36	p36	ov 1	$\partial \Omega_{J}$			7.7	N 7		p36	A A	NIV	1.34	U P		pso	7	×1		m00	n.00		i
3.3µF				- 63	W	44.0	400	4.0	,U°		W		p36	W	AA		005		-		N		p36	p36		
4.7µF				p36	- 15	IW	$T_{\Omega_{\ell}}$	_ = 1	<u>c0</u>	Mr					W	W-7		70	p36			p36	p36			
6.8µF					W		110	01		10	\mathcal{I}_{X}					KN.	100	1							p36	-
10µF					p36	W	1.5		Z.C	$\Omega_{R_{s}}$		N			W	N AA								p36	p36	
22µF						-XXI	W.	LUV	-76	101	7. 7	<1				1										
47µF					1	MAA		10	1.		M.	ĹŊ														_
						****	MAN	N.1		Cr) Tr															_

Capacitance Table poo Each number in the Part Number List refers to the page number printed at the bottom of the page. WWW.100X.

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(→ ■ GCJ Series High Dielectric Constant Type)

_			umbe				00	-						14.		10	0 2.	. ()(VI. 1
<		_		0.0	3.2	×2.5	нов	V.	0 -1	A	W		.5×3.		M.	5	.7×5.	0	L×W (mm)
	1.		1000	2.0	050	2.3	500	2		0.0	-	.5	1000	2.0	050	1000	2.0	050	T max. (mm)
3			1000		250 V7D	100	50 V74	25	16 V7D	6.3		250 V7D						_	Rated Voltage (Vdc) Cap. / TC Code
	^/n	7/ N	A/N	A/N	7/ N	A/N	Λ/Δ	VOL	A/N	A/N	A/N	A/N	A/N	A/N	A/N	A/N	A/N	A/N	220pF
			Ń			W	M.	. 00	V.			W			W			00)	270pF
		. 7.					M	700	- < T							TW			330pF
		$\Lambda.\Lambda$				W.	-15	111	00			. T. V						70/	390pF
			W			W			00			T	(N)					31 A (470pF
		M		KÍ				W.				1				11			560pF
		Mo		N					30			\mathcal{M}		s T				W.	680pF
	1.		13	W			W		kī 1										820pF
		$C_{\mathbf{O}}$		σŃ			1	W				O PA	- 1	W					1000pF
		۵(M		×1			-TXN	W.			0.	47-	-41				W	1200pF
									<				M	1					1500pF
		V.C	$O_{\mathcal{P}}$	g 11	W			W	MA			.0		T	N			N.A.	1800pF
		= 1	cO	17					W			v C	O_{L}		N.			41	2200pF
		0x	-	M	TY								d	M_{ij}				1	2700pF
		οoź			1	N		~	W			01.		A.A.				V	3300pF
		- 0	V (0	3.0	-XV			~ N			003	C.C.)M.		N		-	3900pF
		101		aC	M.		1					no.	-7	O	7. 7	- 1			4700pF
		- 1	101		-1	T	N		V			100	1.		M.	CAA			5600pF
	p36	1.5	~~	7.C	$\Omega_{Z_{0}}$		W						N	Co					6800pF
	- 1	W.	UU	- 1	401	17.7	_ <1					4.77		7 C	O(N)	.0 2			8200pF
I	o36		10	\mathcal{Y}		$\Delta \Lambda^2$	L.M.					cal 1	00			1.7			10000pF
				No.	C		T	N				41	400	1.1		A T			12000pF
		1	p36	p36	7 C	O_{IA}		κXI				1		~1		Mrs		N.	15000pF
			- 41	100		-01	Λ .						$\sqrt{.1}$)() ×		OM			18000pF
		V	p36	p36	N.			TV				777		00			Δ	W	22000pF
		- T	NN	$\gamma_{r_{\alpha}}$		C)Mr		N			W	14.	_	V.			W	27000pF
		717		p36	00.	-7 (40	7.7	. < 1				p37	p37	· - ≤ 7	CC		1	33000pF
		V		-	100	1.0		1.7	M			W	1	11	00x				39000pF
			NV	p36	> 0	ωV.	CU		W			V	p37	p37		Y.C		1	47000pF
		00			1.77		d	DIM	• *		0=		5 V V	W.	To	00-		Mr.	56000pF
		p36		N.	CX 1	00)			Ω		p37			-1 V	1.10	p37		M	68000pF 68000pF 82000pF 0.10μF 0.12μF
				W	.00	400	Y.C	W >	. (1				W	. 07	-11	07	.07		82000pF
				-11	p36	m.		CQ	Mr.					p37	M.s.	p37	p37	102	0.10µF
		p36		44	- T	1.19	M r		M			n27			M	JUG	n27	0.0	0.12μF 0.15μF
		ρ36		N		- 1	00	V.U				p37		M_{A}		110	p37		0.15µF
					p36	W.		V.						W	p37	100	p37	7.C	0.18µF
					<i>p</i> 50	W	.10	J =	cc			K1		1	POT	W.	por	<1 (0.27µF
						7	11	907				N			p37			p37	0.27μF 0.33μF
					V	W	17.0	00	V.C			W			POT	1 44		por	0.39µF
							W.	100	<j (<="" td=""><td></td><td></td><td></td><td></td><td></td><td>p37</td><td>W</td><td></td><td>p37</td><td>0.47µF</td></j>						p37	W		p37	0.47µF
						M. A.	×150	10	η_{A} .			FA	-1		por	, 31		1001	0.56µF
						W	N	-11	705				N		-	1		p37	0.68µF
						-3	W	N.1	~0				W			W			0.82µF
								W.	100			M-						p37	1.0µF
							N		110			A.c.	TV			N.	4.4	ra M	1.5µF
						p36	W	W				JAN 2		N				N. A. A. A.	2.2µF
							1	TXX	W.			Ob	7.1	× × 1				NV	3.3µF
							p37	p37	-XXI				M.					V _≪T	4.7µF
								W	1 11			CU	- 5	TV				W	6.8µF
							p37	_<1	W			7 C	DV_{i}		σŃ			MY.	10µF
								W	p37				101	1.1	4.4				22µF
									744	p37		00X		- 6 1	W				47µF

Capacitance Table [p00] Each number in the Part Number List refers to the page number printed at the bottom of the page.

■ GC3 Series High Dielectric Constant Type

p00 ← Part	Number List	EIA:	X7T
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L×W (mm)	2.0×	1.25	M.,		<7 C	3.2	×1.6	N.Z.			XXI	3	.2×2.	5	1.00) ×	4.5	×3.2				5.7>	<5.0		
T max. (mm)	1.0	1.45	- 1	.0		1.25	M.		1.8		1	.5	I.V	2.0	-1 C	1.5	102	2.0			2.0			2.7	
Rated Voltage (Vdc)	250	250	450	250	630	450	250	630	450	250	630	250	630	450	250	250	630	450	250	630	450	250	630	450	25
Cap. / TC Code	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X
10000pF	p39	7	p39	W.	p39	- (01	7.5				-7	NV.	1.77			DIA		18.1						
15000pF	p39		p39		100	1.		p39	CAN			W			00,	. •		1.1							
22000pF		p39		AM		p39	CA			N	p39	1	TW		100	Y.		. 15	W						
33000pF				p39	1.77	p39	7 (1)	OM		× 1			p39		TA	~~1	CO	Mr.	~~	Í					
47000pF			111		-31 1	00	p39		p39	11			p39		11	10 -		M							
68000pF			4	VV	14.	400	V.			p39			W	p39	1	00	p39		TI	N					
0.10µF				-14	W	Ta	~ < 7	CC			KI.	p39		p39	M.		V	201		p39					
0.15µF				M		v.1	90 x	•		1.7				١.,	p39	70	3 -	p39	M.	p39	- T				
0.22µF				V	W		00	V.		17	W					p39	101		-31		p39		p39		
0.27µF) h	16.1			ST V	W.	70	~J (M.Y.	N. T.				W	No.	00	V.C	Oh	- 1	W		p39		
0.33µF						- 1	.10			M	7.					W.	100	-7.	p39	1.	p39				
0.47µF		W			W	M.	-11	007				N			NA		10	21.		N	p39	p39			
0.56µF		_ 1	Í		41	W	M-2		J.C	Oz		W			W	MA		NO.	.CV	72.	T	N		p39	
0.68µF		T.A.	1			- 1	TN.	700		cÓ	M.						N_{J}	OO.	<7 C	ON	102	p39			
1.0µF			N		1	M		- 40			- 1	TV					-<1	100			Λ .				p

L×W (mm)	2.		JA.	\mathcal{I}_{M}			10	7	6	6.1×5.	3	-07	$V_{i,I}$	44			44	-71	N.1
T max. (mm)	N	CC	3.0		N			3.9	44.	400	N.	5	.0	M			6.7	AA	-1
Rated Voltage (Vdc)	100	63	50	35	25	100	63	50	35	25	100	50	35	25	100	63	50	35	25
Cap. / TC Code	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7R	X7F
4.7μF	p42	p42	p42		W				M		00	Y.U			W			W	
6.8µF	'To	~ ·	-0(DIVI		p42			VV	W.	3.0	V.			777			TX	W
10µF	x1 1	$\theta 0_{D}$	p42	p42	1.7.	1	p42				p42	0 7.	<u>م</u> (7	- 1			
15µF		. 00	Y.C	p42	p42	W			W		-11	007			p42	N			N
17μF		Too	~ J	CO	N. P.	-31		p42	p42	W	M . ,		\sqrt{C}			N			W
22µF		110	$\Omega_{\mathcal{F}}$	<u>_</u>	M	T			p42	p42	W	p42	p42	40	M.	p42			
33µF		4	00			T	N			p42		1 10	p42	p42	$\Lambda \sigma_c$	\mathcal{I}_{N}	p42		
47μF		M°		V (07	32.0	V			√N	W	1 -	001		Jr.		N	p42	p42
68µF		- 11	101		40	M.					1	~ 1.3	no.		0	7. 7			p42

■ KC3 Series High Dielectric Constant Type

■ KC3 Series I	High	n Die	elec	tric	Cor	nsta	nt T	ype			
p000 ← Part Number	r List		EIA:	X7T							
L×W (mm)			-XXIX	N.Y	00	6.1×5.	3	F. F	1		
T max. (mm)		3.0	44	1	3.9	X.C	5	.0	MA	6.7	
Rated Voltage (Vdc)	630	450	250	630	450	250	450	250	630	450	250
Cap. / TC Code	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T	X7T
0.10µF	p45		M		sī 1	000			(.)		
0.15µF	p45		V	W.	NN o	.00	V.C	OF	- T	W	
0.22µF		p45		p45	W	In	- 4 T	cO	Mr.	- 41	
0.27µF				p45		110	01.	~ (Me	T.	
0.33µF		p45		W			001			T	N
0.47µF		p45	p45		TVV	1/1/2		<1 C	p45	7.0	N.
0.56µF					p45	TN	701		p45	M.	
0.68µF			p45			1	p45	OX		- 1	TI
1.0µF					43 1	p45	p45		$_{I}$ C	Disc	
1.2µF						-<1	W.	000		p45	1.7
1.5µF					1	11/1		p45	N.		M.
2.2µF					ŀ	-41	W	• *	~ < 7	C	p45

Search Capacitors

Specifications and Test Methods, Package, Chart of Characteristic Data, please refer to the search web page.

http://www.murata.com/products/capacitor/



Data Sheet

The product details page can be output in PDF.

Status and Features Icons

The status and features of products can be checked at once. When ③ is clicked, a description of each icon will be displayed.

Characteristics & Applications

This links to the introduction page of each series.

Detailed Specifications Sheet

- Rated value
- Specifications and Test Methods
- Package
- Caution, Notice
 (Storage, Soldering and Mounting,etc.)

Characteristics Data

The following characteristics data of the main products can be acquired.

- SPICE Netlist (mod type)
- S parameter (S2P type)
- Reliability Test Data *Typical data
- Shape (Dimensions)
- Rated Values
- Specification by Packaging Code/ Minimum Order Quantity
- Weight (1 pc/ø180mm reel)

Chart of Characteristic Data

The main products published characteristic data.

- Frequency characteristics (ESR, Impedance)
- S parameter (Smith chart S11)
- DC bias characteristics
- AC voltage characteristics
- Capacitance temperature characteristics
- Calorific property by ripple current

Design Tools SimSurfing

The SimSurfing design tools are useful for displaying the graph, downloading CSV data and overwriting the product number graph. General Purpose Product

GCM Series





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

Features

Ideal for power trains and safety devices in automobiles.

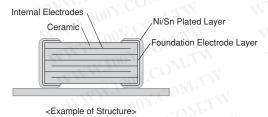
This product can be used for safety devices, such as the drive system control for engine ECU, air bags, and ABS. This product has cleared test conditions more severe than that of general products (GRM Series) even in temperature cycle and humidity load tests.

	General Purpose GRM Series Maximum operating temperature: 85°C/105°C/125°C	GCM Series for Automobiles Maximum operating temperature: 125°C
Items	Test Method	Test Method
Temperature Cycle	Temperature Cycle: 5 cycles	Temperature Cycle: 100 cycles (1,000 cycles for AEC-Q200 conforming products)
Humidity Loading	Test temperature: 40±2°C Test humidity: 90 to 95%RH Test time: 500 hours	Test temperature: 85±2°C Test humidity: 80 to 85%RH Test time: 500 hours (1,000 hours for AEC-Q200 conforming products)

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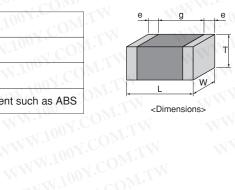
(2) Can be used at 125°C and 150°C temperatures.

Sn plating is applied to the external electrodes; excellent solder ability.



Specifications

	COMP.	TANN TOUR
Size	0.6×0.3mm to 5.7×5.0mm	
Rated Voltage	6.3Vdc to 1kVdc	M.M.N. TOO T. CO.
Capacitance	0.1pF to 47μF	MAM. 100 X CC
Main Applications	Drive system control of engine ECU, Airbag, Sa	fety equipment such as ABS
	WWW.100Y.COM.TW WWW.100Y.COM.TW	M.M.M.100X



WWW.100Y.COM.TW



GCM Series Temperature Compensating Type Report Part Number List

■ 0.6×0.3mm Ultra-



T nax.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
33mm	25Vdc	COG	1.0pF	±0.25pF	GCM0335C1E1R0CD03#
	TIN		2.0pF	±0.25pF	GCM0335C1E2R0CD03#
	T		3.0pF	±0.25pF	GCM0335C1E3R0CD03#
	LTW		4.0pF	±0.25pF	GCM0335C1E4R0CD03#
	WIT		5.0pF	±0.25pF	GCM0335C1E5R0CD03#
	Mr.	N	6.0pF	±0.5pF	GCM0335C1E6R0DD03#
	DM.		7.0pF	±0.5pF	GCM0335C1E7R0DD03#
	CMO		8.0pF	±0.5pF	GCM0335C1E8R0DD03#
	- 1	TW	9.0pF	±0.5pF	GCM0335C1E9R0DD03#
	CO_{Dr}	W	10pF	±5%	GCM0335C1E100JD03#
	CON	1.1	12pF	±5%	GCM0335C1E120JD03#
		$\Lambda_{I,I}$	15pF	±5%	GCM0335C1E150JD03#
	N.Co	LIZ	18pF	±5%	GCM0335C1E180JD03#
	V.C	Diag.	22pF	±5%	GCM0335C1E220JD03#
	JU -	OM.	27pF	±5%	GCM0335C1E270JD03#
	100x		33pF	±5%	GCM0335C1E330JD03#
	YOOL		39pF	±5%	GCM0335C1E390JD03#
	1.1	LCO	47pF	±5%	GCM0335C1E470JD03#
	N.100	<1 CQ	56pF	±5%	GCM0335C1E560JD03#
	XX.10	17.	68pF	±5%	GCM0335C1E680JD03#
	-11	101.C	82pF	±5%	GCM0335C1E820JD03#
	M. W.		100pF	±5%	GCM0335C1E101JD03#

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.55mm	50Vdc	COG	220pF	±5%	GCM1555C1H221JA16#
	-7 C	$O_{M^{*}}$	270pF	±5%	GCM1555C1H271JA16#
	001.		330pF	±5%	GCM1555C1H331JA16#
	OOY.		390pF	±5%	GCM1555C1H391JA16#
WWW	TO V	CO_D	470pF	±5%	GCM1555C1H471JA16#

■ 1.6×0.8mm

max.	Rated Voltage	TC Code	Сар.	Tol.	Part Number
0.9mm	100Vdc	COG	1.0pF	±0.25pF	GCM1885C2A1R0CA16#
	MAL	- 100	2.0pF	±0.25pF	GCM1885C2A2R0CA16#
	WWW	1.10	3.0pF	±0.25pF	GCM1885C2A3R0CA16#
	-737	N.10	4.0pF	±0.25pF	GCM1885C2A4R0CA16#
	1/1/1/	-xv 1	5.0pF	±0.25pF	GCM1885C2A5R0CA16#
	W	N	6.0pF	±0.5pF	GCM1885C2A6R0DA16#
	TV.		7.0pF	±0.5pF	GCM1885C2A7R0DA16#
		VV	8.0pF	±0.5pF	GCM1885C2A8R0DA16#
		N Y	9.0pF	±0.5pF	GCM1885C2A9R0DA16#
		MM	10pF	±5%	GCM1885C2A100JA16#
		WV	12pF	±5%	GCM1885C2A120JA16#
	sT		15pF	±5%	GCM1885C2A150JA16#
		10	18pF	±5%	GCM1885C2A180JA16#
	W	1	22pF	±5%	GCM1885C2A220JA16#
	rW.		27pF	±5%	GCM1885C2A270JA16#
	1		33pF	±5%	GCM1885C2A330JA16#
	TW		39pF	±5%	GCM1885C2A390JA16#
	WILL		47pF	±5%	GCM1885C2A470JA16#
	Mr.	Ī	56pF	±5%	GCM1885C2A560JA16#
	M. T.	os i	68pF	±5%	GCM1885C2A680JA16#
	T.MO	N	82pF	±5%	GCM1885C2A820JA16#
		CM	100pF	±5%	GCM1885C2A101JA16#
	COM	TW	120pF	±5%	GCM1885C2A121JA16#
	CON	. 1	150pF	±5%	GCM1885C2A151JA16#
		1.7.1	180pF	±5%	GCM1885C2A181JA16#
	Y.Co.	TI	220pF	±5%	GCM1885C2A221JA16#
	N.CC	Diar	270pF	±5%	GCM1885C2A271JA16#
	30 - 37 C	O_{M} .	330pF	±5%	GCM1885C2A331JA16#
	1001.	ON	390pF	±5%	GCM1885C2A391JA16#
	100Y.	~ T	470pF	±5%	GCM1885C2A471JA16#
		C_{O}	560pF	±5%	GCM1885C2A561JA16#
	N'Ing.	ST CC	680pF	±5%	GCM1885C2A681JA16#
	W.100	1.	820pF	±5%	GCM1885C2A821JA16#
	1110	OX.C	1000pF	±5%	GCM1885C2A102JA16#
	MM·	ooV.	1200pF	±5%	GCM1885C2A122JA16#
		no -	1500pF	±5%	GCM1885C2A152JA16#
	50Vdc	COG	1.0pF	±0.25pF	GCM1885C1H1R0CA16#
	MM	100	2.0pF	±0.25pF	GCM1885C1H2R0CA16#
	WW	N.L	3.0pF	±0.25pF	GCM1885C1H3R0CA16#
		$M.T_{\ell}$	4.0pF	±0.25pF	GCM1885C1H4R0CA16#
	111.		5.0pF	±0.25pF	GCM1885C1H5R0CA16#
			6.0pF	±0.5pF	GCM1885C1H6R0DA16#
			7.0pF	±0.5pF	GCM1885C1H7R0DA16#

■ 1.0×0.5mm

т	Rated	тс	as CC	The same	I WWW.
max.	Voltage	Code	Cap.	Tol.	Part Number
0.55mm	50Vdc	COG	1.0pF	±0.25pF	GCM1555C1H1R0CA16#
	W	W.	2.0pF	±0.25pF	GCM1555C1H2R0CA16#
	1		3.0pF	±0.25pF	GCM1555C1H3R0CA16#
			4.0pF	±0.25pF	GCM1555C1H4R0CA16#
		M	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#
		1	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#

Part number # indicates the package specification code.

±0.5pF

GCM1885C1H8R0DA16#

GCM Series Temperature Compensating Type (Part Number List

Rated

Voltage

max.

TC

Code

Cap.

Tol.

Part Number

(→ **■** 1.6×0.8mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
).9mm	50Vdc	COG	9.0pF	±0.5pF	GCM1885C1H9R0DA16#
			10pF	±5%	GCM1885C1H100JA16#
	W	1	12pF	±5%	GCM1885C1H120JA16#
	TV		15pF	±5%	GCM1885C1H150JA16#
	1		18pF	±5%	GCM1885C1H180JA16#
	LTW		22pF	±5%	GCM1885C1H220JA16#
	WILL		27pF	±5%	GCM1885C1H270JA16#
	Mr.		33pF	±5%	GCM1885C1H330JA16#
	DW.	- 1	39pF	±5%	GCM1885C1H390JA16#
	CMO	NN .	47pF	±5%	GCM1885C1H470JA16#
	- 11	TW	56pF	±5%	GCM1885C1H560JA16#
	CO_{Dx}	TW	68pF	±5%	GCM1885C1H680JA16#
	CON	J. F.	82pF	±5%	GCM1885C1H820JA16#
		Λ_{IJ}	100pF	±5%	GCM1885C1H101JA16#
	N.Co	MI	120pF	±5%	GCM1885C1H121JA16#
	N.C	Diam.	150pF	±5%	GCM1885C1H151JA16#
	57 C	OW.	180pF	±5%	GCM1885C1H181JA16#
	r_{00x}		220pF	±5%	GCM1885C1H221JA16#
	100X	00	270pF	±5%	GCM1885C1H271JA16#
	1.10	I.CO	330pF	±5%	GCM1885C1H331JA16#
	W.100	-7 C(390pF	±5%	GCM1885C1H391JA16#
	W 100		470pF	±5%	GCM1885C1H471JA16#
	-11	OY.C	560pF	±5%	GCM1885C1H561JA16#
	M.Y.	oov.	680pF	±5%	GCM1885C1H681JA16#
	WW.	Ino -	820pF	±5%	GCM1885C1H821JA16#
	N N N	100	1000pF	±5%	GCM1885C1H102JA16#
	MAN	-100	1200pF	±5%	GCM1885C1H122JA16#
	WW	N.r.	1500pF	±5%	GCM1885C1H152JA16#
	-737	W.1	1800pF	±5%	GCM1885C1H182JA16#
	11/1/	_TXN 1	2200pF	±5%	GCM1885C1H222JA16#
	W	M. J.	2700pF	±5%	GCM1885C1H272JA16#
	1	TWW	3300pF	±5%	GCM1885C1H332JA16#
			3900pF	±5%	GCM1885C1H392JA16#

■ 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#

0.7mm	100Vdc	COG	2200pF	±5%	GCM2165C2A222JA16#
	-7 C	OM.	2700pF	±5%	GCM2165C2A272JA16#
	001.	.ov	3300pF	±5%	GCM2165C2A332JA16#
	50Vdc	COG	1000pF	±5%	GCM2165C1H102JA16#
		CO_{I}	1200pF	±5%	GCM2165C1H122JA16#
	1.700.	T CC	1500pF	±5%	GCM2165C1H152JA16#
	N 100	1.	1800pF	±5%	GCM2165C1H182JA16#
	10	OY.C	2200pF	±5%	GCM2165C1H222JA16#
	1111.10		2700pF	±5%	GCM2165C1H272JA16#
	WW.1	UU -	3300pF	±5%	GCM2165C1H332JA16#
	-TXN	$700_{\rm J}$	3900pF	±5%	GCM2165C1H392JA16#
_	MN .	1100	4700pF	±5%	GCM2165C1H472JA16#
0.95mm	100Vdc	ZLM	1000pF	±10%	GCM2199E2A102KA05#
	-131	N.70	- 1 CQ	±20%	GCM2199E2A102MA05#
	M.	-XV.3	1100pF	±10%	GCM2199E2A112KA05#
	W	N N N	100X.C	±20%	GCM2199E2A112MA05#
	N/	WW	1200pF	±10%	GCM2199E2A122KA05#
		TVV	(700	±20%	GCM2199E2A122MA05#
		N N	1300pF	±10%	GCM2199E2A132KA05#
		MM	100	±20%	GCM2199E2A132MA05#
			1500pF	±10%	GCM2199E2A152KA05#
	¢Τ		M.77	±20%	GCM2199E2A152MA05#
	50Vdc	COG	5600pF	±5%	GCM2195C1H562JA16#
	W	1	6800pF	±5%	GCM2195C1H682JA16#
			8200pF	±5%	GCM2195C1H822JA16#
	7 1		10000pF	±5%	GCM2195C1H103JA16#
	TIM		12000pF	±5%	GCM2195C1H123JA16#
Y.Co.	WIT		15000pF	±5%	GCM2195C1H153JA16#
1.0mm	250Vdc	U2J	100pF	±5%	GCM21A7U2E101JX01#
	Mr	cXI	120pF	±5%	GCM21A7U2E121JX01#
	OM.T		150pF	±5%	GCM21A7U2E151JX01#
		LM	180pF	±5%	GCM21A7U2E181JX01#
	COM	TW	220pF	±5%	GCM21A7U2E221JX01#
	CON		270pF	±5%	GCM21A7U2E271JX01#
		V_{JJ}	330pF	±5%	GCM21A7U2E331JX01#
	N.C.	T.1x	390pF	±5%	GCM21A7U2E391JX01#
	N.C.))) ' '	470pF	±5%	GCM21A7U2E471JX01#
	~√ C	O_{Mr}	560pF	±5%	GCM21A7U2E561JX01#
	00,7.	CON	680pF	±5%	GCM21A7U2E681JX01#
	1007		820pF	±5%	GCM21A7U2E821JX01#
	. 003	Co	1000pF	±5%	GCM21A7U2E102JX01#
	N'Ing	V C	1200pF	±5%	GCM21A7U2E122JX01#
	W.100	7.	1500pF	±5%	GCM21A7U2E152JX01#
	-31 10	01.0	1800pF	±5%	GCM21A7U2E182JX01#
	N.M.	No.	2200pF	±5%	GCM21A7U2E222JX01#
1.4mm	50Vdc	COG	18000pF	±5%	GCM21B5C1H183JA16#
	TANK TANK	700	22000pF	±5%	GCM21B5C1H223JA16#
1.45mm	250Vdc	U2J	2700pF	±5%	GCM21B7U2E272JX03#
	WW	N. 2	3300pF	±5%	GCM21B7U2E332JX03#
		11.77	3900pF	±5%	GCM21B7U2E392JX03#
	111		4700pF	±5%	GCM21B7U2E472JX03#
N			5600pF	±5%	GCM21B7U2E562JX03#

Series

GCD Series

GCM Series Temperature Compensating Type Report Number List

■ 3.2×1.6mm

T max.	Rated Voltage	TC Code	Сар.	Tol.	Part Number
.95mm	100Vdc	COG	1800pF	±5%	GCM3195C2A182JA16#
	TW		2200pF	±5%	GCM3195C2A222JA16#
	1		2700pF	±5%	GCM3195C2A272JA16#
	TIN		3300pF	±5%	GCM3195C2A332JA16#
	WTI		3900pF	±5%	GCM3195C2A392JA16#
	Mr.		4700pF	±5%	GCM3195C2A472JA16#
	$DM_{T,T}$		5600pF	±5%	GCM3195C2A562JA16#
	OM.T		6800pF	±5%	GCM3195C2A682JA16#
	O.		8200pF	±5%	GCM3195C2A822JA16#
	CO_{Mr}		10000pF	±5%	GCM3195C2A103JA16#
	80Vdc	COG	33000pF	±5%	GCM3195C1K333JA16#
	63Vdc	COG	33000pF	±5%	GCM3195C1J333JA16#
	50Vdc	COG	3900pF	±5%	GCM3195C1H392JA16#
	~J C		4700pF	±5%	GCM3195C1H472JA16#
	M 7.		5600pF	±5%	GCM3195C1H562JA16#
	100 X.		6800pF	±5%	GCM3195C1H682JA16#
	· cov		8200pF	±5%	GCM3195C1H822JA16#
	Too		10000pF	±5%	GCM3195C1H103JA16#
	N.100		12000pF	±5%	GCM3195C1H123JA16#
	100		15000pF	±5%	GCM3195C1H153JA16#
	111		18000pF	±5%	GCM3195C1H183JA16#
	$MM^{*}T$		22000pF	±5%	GCM3195C1H223JA16#
	TIN.		27000pF	±5%	GCM3195C1H273JA16#
	1111		33000pF	±5%	GCM3195C1H333JA16#
	WWW		39000pF	±5%	GCM3195C1H393JA16#
1.0mm	1000Vdc	U2J	10pF	±5%	GCM31A7U3A100JX01#
		V.1	12pF	±5%	GCM31A7U3A120JX01#
	M		15pF	±5%	GCM31A7U3A150JX01#
	N.		18pF	±5%	GCM31A7U3A180JX01#
			22pF	±5%	GCM31A7U3A220JX01#
			27pF	±5%	GCM31A7U3A270JX01#
			33pF	±5%	GCM31A7U3A330JX01#
			39pF	±5%	GCM31A7U3A390JX01#
			47pF	±5%	GCM31A7U3A470JX01#
			56pF	±5%	GCM31A7U3A560JX01#
			68pF	±5%	GCM31A7U3A680JX01#
					GCM31A7U3A820JX01#
			82pF	±5%	CO
			100pF	±5%	GCM31A7U3A101JX01#
			120pF	±5%	GCM31A7U3A121JX01#
			150pF	±5%	GCM31A7U3A151JX01#
			180pF	±5%	GCM31A7U3A181JX01#
			220pF	±5%	GCM31A7U3A221JX01#
			270pF	±5%	GCM31A7U3A271JX01#
			330pF	±5%	GCM31A7U3A331JX01#
	630Vdc	U2J	10pF	±5%	GCM31A7U2J100JX01#
			12pF	±5%	GCM31A7U2J120JX01#
			15pF	±5%	GCM31A7U2J150JX01#
			18pF	±5%	GCM31A7U2J180JX01#
			22pF	±5%	GCM31A7U2J220JX01#
			27pF	±5%	GCM31A7U2J270JX01#
			33pF	±5%	GCM31A7U2J330JX01#
	1		39pF	±5%	GCM31A7U2J390JX01#

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
1.0mm	630Vdc	U2J	47pF	±5%	GCM31A7U2J470JX01#
	-7 C		56pF	±5%	GCM31A7U2J560JX01#
	001.		68pF	±5%	GCM31A7U2J680JX01#
	100Y.		82pF	±5%	GCM31A7U2J820JX01#
	· OOV		100pF	±5%	GCM31A7U2J101JX01#
	1.700		120pF	±5%	GCM31A7U2J121JX01#
	100		150pF	±5%	GCM31A7U2J151JX01#
	-110		180pF	±5%	GCM31A7U2J181JX01#
	M. 1		220pF	±5%	GCM31A7U2J221JX01#
	WW.1		270pF	±5%	GCM31A7U2J271JX01#
	TXN.		330pF	±5%	GCM31A7U2J331JX01#
	MAN .		390pF	±5%	GCM31A7U2J391JX01#
	WWW		470pF	±5%	GCM31A7U2J471JX01#
	TAT VI		560pF	±5%	GCM31A7U2J561JX01#
		680pF ±5% GCM31A7U2J681JX	GCM31A7U2J681JX01#		
			820pF	±5%	GCM31A7U2J821JX01#
	W		1000pF	±5%	GCM31A7U2J102JX01#
			1200pF	±5%	GCM31A7U2J122JX01#
			1500pF	±5%	GCM31A7U2J152JX01#
			1800pF	±5%	GCM31A7U2J182JX01#
			2200pF	±5%	GCM31A7U2J222JX01#
	250Vdc	U2J	2700pF	±5%	GCM31A7U2E272JX01#
			3300pF	±5%	GCM31A7U2E332JX01#
	N		3900pF	±5%	GCM31A7U2E392JX01#
	TV		4700pF	±5%	GCM31A7U2E472JX01#
CO_{M}	1		5600pF	±5%	GCM31A7U2E562JX01#
1.25mm	1000Vdc	U2J	390pF	±5%	GCM31B7U3A391JX01#
	TIN		470pF	±5%	GCM31B7U3A471JX01#
	TV		560pF	±5%	GCM31B7U3A561JX01#
	Mr.		680pF	±5%	GCM31B7U3A681JX01#
	630Vdc	U2J	2700pF	±5%	GCM31B7U2J272JX01#
			3300pF	±5%	GCM31B7U2J332JX01#
	250Vdc	U2J	6800pF	±5%	GCM31B7U2E682JX01#
	CO_{N}		8200pF	±5%	GCM31B7U2E822JX01#
	- 001	1.7.	10000pF	±5%	GCM31B7U2E103JX01#
	50Vdc	COG	47000pF	±5%	GCM31M5C1H473JA16#
Mor	ov.CL	727	56000pF	±5%	GCM31M5C1H563JA16#
1.8mm	1000Vdc	U2J	820pF	±5%	GCM31C7U3A821JX03#
	001.	Mon	1000pF	±5%	GCM31C7U3A102JX03#
	630Vdc	U2J	3900pF	±5%	GCM31C7U2J392JX03#
WWW	1005	Co	4700pF	±5%	GCM31C7U2J472JX03#

■ 3.2×2.5mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
1.0mm	630Vdc	U2J	1200pF	±5%	GCM32A7U2J122JX01#
	MAN		1500pF	±5%	GCM32A7U2J152JX01#
	WW	N.Y	1800pF	±5%	GCM32A7U2J182JX01#
	-733		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#

GCM Series Temperature Compensating Type **Part Number List**

(→ **3.2**×2.5mm)

T max.	Rated Voltage	TC Code	Сар.	Tol.	Part Number
2.0mm	1000Vdc	U2J	1800pF	±5%	GCM32D7U3A182JX01#
			2200pF	±5%	GCM32D7U3A222JX01#
	630Vdc	U2J	8200pF	±5%	GCM32D7U2J822JX01#
	-7		10000pF	±5%	GCM32D7U2J103JX01#

■ 4.5×3.2mm

T max.	Rated Voltage	TC Code	Сар.	Tol.	Part Number
.5mm	1000Vdc	U2J	2700pF	±5%	GCM43Q7U3A272JX01#
	- 7 /		3300pF	±5%	GCM43Q7U3A332JX01#
	630Vdc	U2J	12000pF	±5%	GCM43Q7U2J123JX01#
2.0mm	1000Vdc	U2J	3900pF	±5%	GCM43D7U3A392JX01#
			4700pF	±5%	GCM43D7U3A472JX01#
	630Vdc	U2J	15000pF	±5%	GCM43D7U2J153JX01#
	V.C	0_{Mr}	18000pF	±5%	GCM43D7U2J183JX01#
	00 -		22000pF	±5%	GCM43D7U2J223JX01#

■ 5.7×5.0mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
.5mm	1000Vdc	U2J	5600pF	±5%	GCM55Q7U3A562JX01#
	M.W.		6800pF	±5%	GCM55Q7U3A682JX01#
	630Vdc	U2J	27000pF	±5%	GCM55Q7U2J273JX01#
2.0mm 1000	1000Vdc	U2J	8200pF	±5%	GCM55D7U3A822JX01#
	MAN		10000pF	±5%	GCM55D7U3A103JX01#
	630Vdc	U2J	33000pF	±5%	GCM55D7U2J333JX01#
		W.1	39000pF	±5%	GCM55D7U2J393JX01#
	111.		47000pF	±5%	GCM55D7U2J473JX01#

GCD Series

GCG Series

GCM Series High Dielectric Constant Type 🔀 Part Number List

■ 0.6×0.3mm Ultra-



T max.	Rated Voltage	TC Code	Сар.	Tol.	Part Number
0.33mm	25Vdc	X7R	100pF	±10%	GCM033R71E101KA03#
	TW		150pF	±10%	GCM033R71E151KA03#
	-31		220pF	±10%	GCM033R71E221KA03#
	LIN		330pF	±10%	GCM033R71E331KA03#
	WILL		470pF	±10%	GCM033R71E471KA03#
	Mr.		680pF	±10%	GCM033R71E681KA03#
	DM.	× 1	1000pF	±10%	GCM033R71E102KA03#
	OMI	N.	1500pF	±10%	GCM033R71E152KA03#
	16Vdc	X7R	2200pF	±10%	GCM033R71C222KA55#
	CO_{Dx}	TW	3300pF	±10%	GCM033R71C332KA55#
	10Vdc	X7R	4700pF	±10%	GCM033R71A472KA03#
		$V_{I,I}$	6800pF	±10%	GCM033R71A682KA03#
	N.C.	-17	10000pF	±10%	GCM033R71A103KA03#

T Rated TC Cap. Tol. Part Number Code Voltage max. 0.55mm 16Vdc X7R 0.10µF GCM155R71C104KA55# ±10% 0.15µF ±10% GCM155R71C154KE02# 0.22µF GCM155R71C224KE02# ±10%

■ 1.6×0.8mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.9mm	100Vdc	X7R	1000pF	±10%	GCM188R72A102KA37#
	WW.1	UU -	1500pF	±10%	GCM188R72A152KA37#
	-TXN.	700_{X}	2200pF	±10%	GCM188R72A222KA37#
	M. M.	100	3300pF	±10%	GCM188R72A332KA37#
	WWW	1.7	4700pF	±10%	GCM188R72A472KA37#
	-131	$M.T_{\Omega}$	6800pF	±10%	GCM188R72A682KA37#
	M.	TXV.1	10000pF	±10%	GCM188R72A103KA37#
	W	N N N	15000pF	±10%	GCM188R72A153KA37#
	1 1	MIN	22000pF	±10%	GCM188R72A223KA37#
	50Vdc	X7R	1000pF	±10%	GCM188R71H102KA37#
		N 1	1500pF	±10%	GCM188R71H152KA37#
		WW	2200pF	±10%	GCM188R71H222KA37#
			3300pF	±10%	GCM188R71H332KA37#
	cT		4700pF	±10%	GCM188R71H472KA37#
			6800pF	±10%	GCM188R71H682KA37#
	W		10000pF	±10%	GCM188R71H103KA37#
	CVI		15000pF	±10%	GCM188R71H153KA37#
	7		22000pF	±10%	GCM188R71H223KA37#
	TIM		33000pF	±10%	GCM188R71H333KA55#
	WILL		47000pF	±10%	GCM188R71H473KA55#
	Nr.		68000pF	±10%	GCM188R71H683KA57#
	M	osi	0.10µF	±10%	GCM188R71H104KA57#
	TIMO	N.	0.15µF	±10%	GCM188R71H154KA64#
		CM	0.22µF	±10%	GCM188R71H224KA64#
	25Vdc	X7R	33000pF	±10%	GCM188R71E333KA37#
	CON	. 1	47000pF	±10%	GCM188R71E473KA37#
		T.T.	68000pF	±10%	GCM188R71E683KA57#
	V.CO	TI	0.10µF	±10%	GCM188R71E104KA57#
	V.CC) Mr.	0.15µF	±10%	GCM188R71E154KA37#
	-7 C	O_{M} .	0.22µF	±10%	GCM188R71E224KA55#
	001.	LOW	0.47µF	±10%	GCM188R71E474KA64#
	100Y.		1.0µF	±10%	GCM188R71E105KA64#
	16Vdc	X7R	0.10µF	±10%	GCM188R71C104KA37#
	N. 700	ST CC	0.33µF	±10%	GCM188R71C334KA37#
	×V.100	1.0	0.47µF	±10%	GCM188R71C474KA55#
	7110	OY.C	1.0µF	±10%	GCM188R71C105KA64#
XXI ^X	6.3Vdc	X7R	2.2µF	±10%	GCM188R70J225KE22#

■ 1.0×0.5mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.55mm	100Vdc	X7R	220pF	±10%	GCM155R72A221KA37#
	WI 100	N.	330pF	±10%	GCM155R72A331KA37#
	-11	10 X.C	470pF	±10%	GCM155R72A471KA37#
	M.W.	M	680pF	±10%	GCM155R72A681KA37#
	WW.	Ino -	1000pF	±10%	GCM155R72A102KA37#
	N Y	100	1500pF	±10%	GCM155R72A152KA37#
	MM	-1100	2200pF	±10%	GCM155R72A222KA37#
	WW	N.Y	3300pF	±10%	GCM155R72A332KA37#
		W.77	4700pF	±10%	GCM155R72A472KA37#
	50Vdc	X7R	220pF	±10%	GCM155R71H221KA37#
	W	M. A.	330pF	±10%	GCM155R71H331KA37#
	1		470pF	±10%	GCM155R71H471KA37#
			680pF	±10%	GCM155R71H681KA37#
		M	1000pF	±10%	GCM155R71H102KA37#
		W	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#
	25Vdc	X7R	10000pF	±10%	GCM155R71E103KA37#
			15000pF	±10%	GCM155R71E153KA55#
			22000pF	±10%	GCM155R71E223KA55#
			33000pF	±10%	GCM155R71E333KA55#
			47000pF	±10%	GCM155R71E473KA55#
	16Vdc	X7R	33000pF	±10%	GCM155R71C333KA37#
			47000pF	±10%	GCM155R71C473KA37#
			68000pF	±10%	GCM155R71C683KA55#

■ 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#

GCM Series High Dielectric Constant Type **Part Number List**

T max.	Rated Voltage	TC Code	Сар.	Tol.	Part Number	■ 3.2×	2.5mm	1.1
0.95mm	100Vdc	X7R	33000pF	±10%	GCM219R72A333KA37#	T	Rated	т
	50Vdc	X7R	33000pF	±10%	GCM219R71H333KA37#	max.	Voltage	Cod
	W	1	0.33µF	±10%	GCM219R71H334KA55#	2.2mm	25Vdc	X7
	25Vdc	X7R	0.47µF	±10%	GCM219R71E474KA55#		16Vdc	X7
	16Vdc	X7R	0.68µF	±10%	GCM219R71C684KA37#	2.7mm	50Vdc	X7
	LIN		1.0µF	±10%	GCM219R71C105KA37#		1.700.	7
1.4mm	100Vdc	X7R	47000pF	±10%	GCM21BR72A473KA37#		X 100	X7
Y.CO	Mr.	V	68000pF	±10%	GCM21BR72A683KA37#		35Vdc	X7.
	DM^{*}_{I}		0.10µF	±10%	GCM21BR72A104KA37#		25Vdc	X7
	50Vdc	X7R	47000pF	±10%	GCM21BR71H473KA37#		16Vdc	X7
	- N	TW	68000pF	±10%	GCM21BR71H683KA37#		10Vdc	X7
	CO_{Dr}	TW	0.10µF	±10%	GCM21BR71H104KA37#		6.3Vdc	X7
	CON		0.15µF	±10%	GCM21BR71H154KA37#	<u> </u>	TOWN	1.2
		ΛT	0.22µF	±10%	GCM21BR71H224KA37#			
	N.Co	717	0.47µF	±10%	GCM21BR71H474KA55#			
	V.C	Divr.	1.0µF	±10%	GCM21BR71H105KA03#			
	35Vdc	X7R	0.68µF	±10%	GCM21BR7YA684KA55#			
	100x		1.0µF	±10%	GCM21BR7YA105KA55#			
	100Y		1.5µF	±10%	GCM21BR7YA155KA54#			
	25Vdc	X7R	0.15µF	±10%	GCM21BR71E154KA37#			
	N.100	-7 CS	0.22µF	±10%	GCM21BR71E224KA37#			
	XV.100) X.	0.33µF	±10%	GCM21BR71E334KA37#			
	1	10 X.	0.68µF	±10%	GCM21BR71E684KA55#			
	MN.		1.0µF	±10%	GCM21BR71E105KA56#			
	WW.	Ino -	2.2µF	±10%	GCM21BR71E225KA73#			
	16Vdc	X7R	2.2µF	±10%	GCM21BR71C225KA64#			
	MM	-1100	4.7μF	±10%	GCM21BR71C475KA73#			
	10Vdc	X7R	2.2µF	±10%	GCM21BR71A225KA37#			
		W.7	10µF	±10%	GCM21BR71A106KE22#			
	1111	X7S	4.7µF	±10%	GCM21BC71A475KA73#			
	6.3Vdc	X7R	10µF	±10%	GCM21BR70J106KE22#			

■ 3.2×2.5mm

4 00	7.	- A '			
T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
2.2mm	25Vdc	X7R	4.7µF	±10%	GCM32DR71E475KA55#
	16Vdc	X7R	10µF	±10%	GCM32DR71C106KA37#
2.7mm	50Vdc	X7R	1.0µF	±10%	GCM32ER71H105KA37#
	N.100 .	J CO	4.7µF	±10%	GCM32ER71H475KA55#
	N 100	X7S	10µF	±10%	GCM32EC71H106KA03#
	35Vdc	X7S	10µF	±10%	GCM32EC7YA106KA03#
	25Vdc	X7R	10µF	±10%	GCM32ER71E106KA57#
	16Vdc	X7R	22µF	±20%	GCM32ER71C226ME19#
	10Vdc	X7R	22µF	±20%	GCM32ER71A226ME12#
	6.3Vdc	X7R	47µF	±20%	GCM32ER70J476ME19#

WWW.100X.

WWW.100Y.COM.TW

■ 3.2×1.6mm NWW.1007.

	6.3Vdc	X7R	10µF	±10%	GCM21BR70J106KE22#	
	V	VIV	N.100Y	Co	T.TW WW	
■ 3.2×	1.6mm	KV ^N				
T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number	
0.95mm	100Vdc	X7R	0.10µF	±10%	GCM319R72A104KA37#	
1.25mm	100Vdc	X7R	0.15µF	±10%	GCM31MR72A154KA37#	
			0.22µF	±10%	GCM31MR72A224KA37#	
	50Vdc	X7R	0.33µF	±10%	GCM31MR71H334KA37#	
			0.47µF	±10%	GCM31MR71H474KA37#	
			0.68µF	±10%	GCM31MR71H684KA55#	
			1.0µF	±10%	GCM31MR71H105KA55#	
1.3mm	25Vdc	X7R	2.2µF	±10%	GCM31MR71E225KA57#	
1.8mm	100Vdc	X7R	1.0µF	±10%	GCM31CR72A105KA03#	
	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#	

Specially Designed Product to Reduce Shorts

GCD Series





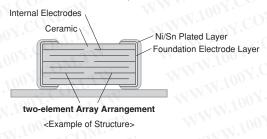


Prevents momentary dielectric breakdown by a two-element array structure!

Features

(1) Prevents momentary dielectric breakdown by a two-element array structure!

This product consists of two elements arranged in one capacitor. It is structured so that even when one element is shorted, the other capacitor element will not short.

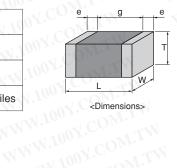


This AEC-Q200 conforming product is ideal for battery lines of automobiles.

Space can be reduced in battery lines where two capacitors are arranged in an array.

Specifications

Size	1.6×0.8mm to 2.0×1.25mm
Rated Voltage	25Vdc to 100Vdc
Capacitance	1,000pF to 0.1µF
Main Applications	Battery lines and power trains for automobiles
	MM.100x.COM.TM MM



WWW.100Y.COM.

GCD Series High Dielectric Constant Type (ASS) Fail Constant **Part Number List**

■ 1.6×0.8mm

T Rated Voltage	Rated	TC	1.17	-7 (OM
	Code	Cap.	Tol.	Part Number	
).9mm	100Vdc	X7R	1000pF	±10%	GCD188R72A102KA01#
	TV		1200pF	±10%	GCD188R72A122KA01#
	7		1500pF	±10%	GCD188R72A152KA01#
	LTW		1800pF	±10%	GCD188R72A182KA01#
	WILL		2200pF	±10%	GCD188R72A222KA01#
	Mr.		2700pF	±10%	GCD188R72A272KA01#
	DM^{*}	- 1	3300pF	±10%	GCD188R72A332KA01#
	T.Mo.	NN.	3900pF	±10%	GCD188R72A392KA01#
	- N	TW	4700pF	±10%	GCD188R72A472KA01#
	CO_{Mr}	TW	5600pF	±10%	GCD188R72A562KA01#
	CON	1.1	6800pF	±10%	GCD188R72A682KA01#
	1.0	ΛT	8200pF	±10%	GCD188R72A822KA01#
	N.Co	117	10000pF	±10%	GCD188R72A103KA01#
	V.C	Divr.	12000pF	±10%	GCD188R72A123KA01#
	JU -	OW	15000pF	±10%	GCD188R72A153KA01#
WW.	1001.		18000pF	±10%	GCD188R72A183KA01#
	100Y		22000pF	±10%	GCD188R72A223KA01#
	50Vdc	X7R	1000pF	±10%	GCD188R71H102KA01#
	W.100	₹7 C	1200pF	±10%	GCD188R71H122KA01#
	TN.100) X.	1500pF	±10%	GCD188R71H152KA01#
	-11	101.	1800pF	±10%	GCD188R71H182KA01#
	M.W.		2200pF	±10%	GCD188R71H222KA01#
	WW.	Ino -	2700pF	±10%	GCD188R71H272KA01#
	N Y	1.700	3300pF	±10%	GCD188R71H332KA01#
	MM	×110	3900pF	±10%	GCD188R71H392KA01#
	WW	N.L	4700pF	±10%	GCD188R71H472KA01#
		M.77	5600pF	±10%	GCD188R71H562KA01#
	111	TAN.	6800pF	±10%	GCD188R71H682KA01#
	W	M	8200pF	±10%	GCD188R71H822KA01#
	1	WW	10000pF	±10%	GCD188R71H103KA01#
			12000pF	±10%	GCD188R71H123KA01#
		M. A.	15000pF	±10%	GCD188R71H153KA01#
		WW	18000pF	±10%	GCD188R71H183KA01#
		W	22000pF	±10%	GCD188R71H223KA01#
	25Vdc	X7R	27000pF	±10%	GCD188R71E273KA01#
			33000pF	±10%	GCD188R71E333KA01#
			39000pF	±10%	GCD188R71E393KA01#
			47000pF	±10%	GCD188R71E473KA01#

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
).7mm	100Vdc	X7R	5600pF	±10%	GCD216R72A562KA01#
N.10	50Vdc	X7R	1000pF	±10%	GCD216R71H102KA01#
-XXI 1		Mo	1200pF	±10%	GCD216R71H122KA01#
111.		JON.	1500pF	±10%	GCD216R71H152KA01#
WW	In	$CO_{\tilde{I}}$	1800pF	±10%	GCD216R71H182KA01#
V		7 CO	2200pF	±10%	GCD216R71H222KA01#
N.A.		1.0	2700pF	±10%	GCD216R71H272KA01#
WW		NY.C	3300pF	±10%	GCD216R71H332KA01#
-XIV			3900pF	±10%	GCD216R71H392KA01#
N.		00 .	4700pF	±10%	GCD216R71H472KA01#
W		1001	5600pF	±10%	GCD216R71H562KA01#
95mm	100Vdc	X7R	6800pF	±10%	GCD219R72A682KA01#
4mm	100Vdc	X7R	8200pF	±10%	GCD21BR72A822KA01#
		W.70	10000pF	±10%	GCD21BR72A103KA01#
		-xxi 1	12000pF	±10%	GCD21BR72A123KA01#
		1 44.	15000pF	±10%	GCD21BR72A153KA01#
		WW	18000pF	±10%	GCD21BR72A183KA01#
_7			22000pF	±10%	GCD21BR72A223KA01#
		N. A.	27000pF	±10%	GCD21BR72A273KA01#
W		WW	33000pF	±10%	GCD21BR72A333KA01#
			39000pF	±10%	GCD21BR72A393KA01#
7.			47000pF	±10%	GCD21BR72A473KA01#
TT			56000pF	±10%	GCD21BR72A563KA01#
			68000pF	±10%	GCD21BR72A683KA01#
Mr.			82000pF	±10%	GCD21BR72A823KA01#
M			0.10µF	±10%	GCD21BR72A104KA01#
	50Vdc	X7R	15000pF	±10%	GCD21BR71H153KA01#
Oh			18000pF	±10%	GCD21BR71H183KA01#
CO		J	22000pF	±10%	GCD21BR71H223KA01#
			27000pF	±10%	GCD21BR71H273KA01#
Y.C.		W	33000pF	±10%	GCD21BR71H333KA01#
V.C		W	39000pF	±10%	GCD21BR71H393KA01#
		TXXI	47000pF	±10%	GCD21BR71H473KA01#
00x		17.11	56000pF	±10%	GCD21BR71H563KA01#
100		LTV	68000pF	±10%	GCD21BR71H683KA01#
. 00		T	82000pF	±10%	GCD21BR71H823KA01#
		Mr.	0.10µF	±10%	GCD21BR71H104KA01#

■ 2.0×1.25mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.7mm	100Vdc	X7R	1000pF	±10%	GCD216R72A102KA01#
			1200pF	±10%	GCD216R72A122KA01#
			1500pF	±10%	GCD216R72A152KA01#
			1800pF	±10%	GCD216R72A182KA01#
			2200pF	±10%	GCD216R72A222KA01#
			2700pF	±10%	GCD216R72A272KA01#
			3300pF	±10%	GCD216R72A332KA01#
			3900pF	±10%	GCD216R72A392KA01#
			4700pF	±10%	GCD216R72A472KA01#



GCE Series





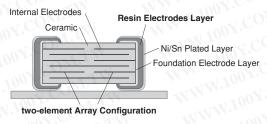


Further improved safety performance with a combination of a two-element array structure & resin external electrodes!

Features

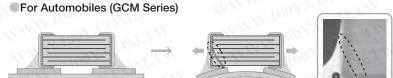
1) Avoid instantaneous dielectric breakdown with the two-element array structure.

This product is configured with two elements arranged in one capacitor. Even if one element short circuits, the other element in the capacitor does not short.



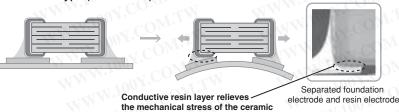
2 Provides additional safety performance in combination with resin electrodes.

Adopting resin electrodes as the external electrodes will suppress the occurrence of cracking in the capacitor by mechanical stress.



Occurrence of cracking on edge of terminal electrode

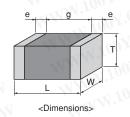
Fail Safe Type (GCE Series)



3 Ideal for battery lines of on-board applications.

Space can be reduced for battery lines, when two capacitors are configured in an array.

Specifications



GCE Series High Dielectric Constant Type (25) Part Number List

■ 1.6×0.8mm

GCD Series

T nax.	Rated Voltage	TC Code	Сар.	Tol.	Part Number
.9mm	100Vdc	X7R	1000pF	±10%	GCE188R72A102KA01#
	TV		1200pF	±10%	GCE188R72A122KA01#
	- 1		1500pF	±10%	GCE188R72A152KA01#
	LIN		1800pF	±10%	GCE188R72A182KA01#
	WILL		2200pF	±10%	GCE188R72A222KA01#
	NI.	N	2700pF	±10%	GCE188R72A272KA01#
	DM		3300pF	±10%	GCE188R72A332KA01#
	CMO	N.	3900pF	±10%	GCE188R72A392KA01#
		TW	4700pF	±10%	GCE188R72A472KA01#
	$C_{O_{Mr}}$	TW	5600pF	±10%	GCE188R72A562KA01#
	CON	1.1	6800pF	±10%	GCE188R72A682KA01#
		$V_{I,I}$	8200pF	±10%	GCE188R72A822KA01#
	N.Co	LNI	10000pF	±10%	GCE188R72A103KA01#
	N.C.C	Divis	12000pF	±10%	GCE188R72A123KA01#
	50 - -≤7 (OW	15000pF	±10%	GCE188R72A153KA01#
, 10	100x	CON	18000pF	±10%	GCE188R72A183KA01#
	1007		22000pF	±10%	GCE188R72A223KA01#
	50Vdc	X7R	1000pF	±10%	GCE188R71H102KA01#
	N.Ing	47 C	1200pF	±10%	GCE188R71H122KA01#
	IN 10	7.	1500pF	±10%	GCE188R71H152KA01#
	-11	OXY	1800pF	±10%	GCE188R71H182KA01#
	M.V.	N.	2200pF	±10%	GCE188R71H222KA01#
	WW.	100	2700pF	±10%	GCE188R71H272KA01#
	N Y	700.	3300pF	±10%	GCE188R71H332KA01#
	MM	100	3900pF	±10%	GCE188R71H392KA01#
	WW	W	4700pF	±10%	GCE188R71H472KA01#
		11.77	5600pF	±10%	GCE188R71H562KA01#
			6800pF	±10%	GCE188R71H682KA01#
	W	M. J.	8200pF	±10%	GCE188R71H822KA01#
	1		10000pF	±10%	GCE188R71H103KA01#
		TW.	12000pF	±10%	GCE188R71H123KA01#
		MA	15000pF	±10%	GCE188R71H153KA01#
		MA	18000pF	±10%	GCE188R71H183KA01#
			22000pF	±10%	GCE188R71H223KA01#

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.7mm	50Vdc	X7R	1800pF	±10%	GCE216R71H182KA01#
	-7 C	OM.	2200pF	±10%	GCE216R71H222KA01#
	001.	Mo	2700pF	±10%	GCE216R71H272KA01#
	100Y.		3300pF	±10%	GCE216R71H332KA01#
	TO	$CO_{\bar{I}}$	3900pF	±10%	GCE216R71H392KA01#
	1.700.	7 CO	4700pF	±10%	GCE216R71H472KA01#
	M 100	1.	5600pF	±10%	GCE216R71H562KA01#
0.95mm	100Vdc	X7R	6800pF	±10%	GCE219R72A682KA01#
1.45mm	100Vdc	X7R	8200pF	±10%	GCE21BR72A822KA01
	WW.1	UU =	10000pF	±10%	GCE21BR72A103KA01
	TAN	700 x	12000pF	±10%	GCE21BR72A123KA01
	MAL	100	15000pF	±10%	GCE21BR72A153KA01
	WWW	1.10	18000pF	±10%	GCE21BR72A183KA01
	-TXN	W_{10}	22000pF	±10%	GCE21BR72A223KA01
	1/1/1/	-xxi 1	27000pF	±10%	GCE21BR72A273KA01
	W	N N I	33000pF	±10%	GCE21BR72A333KA01
	N.	WW	39000pF	±10%	GCE21BR72A393KA01
		- V	47000pF	±10%	GCE21BR72A473KA01
		NY	56000pF	±10%	GCE21BR72A563KA01
		MM	68000pF	±10%	GCE21BR72A683KA01
			82000pF	±10%	GCE21BR72A823KA01
	cT		0.10µF	±10%	GCE21BR72A104KA01
	50Vdc	X7R	15000pF	±10%	GCE21BR71H153KA01
	W		18000pF	±10%	GCE21BR71H183KA01
			22000pF	±10%	GCE21BR71H223KA01
	7		27000pF	±10%	GCE21BR71H273KA01
	TW		33000pF	±10%	GCE21BR71H333KA01
	WILL		39000pF	±10%	GCE21BR71H393KA01
	NI.	N.	47000pF	±10%	GCE21BR71H473KA01
	M.r.	· 1	56000pF	±10%	GCE21BR71H563KA01
	T.MO	M	68000pF	±10%	GCE21BR71H683KA01
	OT.	CM	82000pF	±10%	GCE21BR71H823KA01
	CO_{Mr}	TW	0.10µF	±10%	GCE21BR71H104KA01
N.100, 100, 100, 100, 100, 100, 100, 100,	OM. ¹ COM. L.COM	TW M.TV M.T	82000pF	±10%	GCE21BR71H823KA0

■ 2.0×1.25mm

KCM Series

Т	Rated	TC	Cap.	Tol.	Part Number
max.	Voltage	Code	oup.	100	N COMPTAINS
).7mm	100Vdc	X7R	1000pF	±10%	GCE216R72A102KA01#
			1200pF	±10%	GCE216R72A122KA01#
			1500pF	±10%	GCE216R72A152KA01#
			1800pF	±10%	GCE216R72A182KA01#
			2200pF	±10%	GCE216R72A222KA01#
			2700pF	±10%	GCE216R72A272KA01#
			3300pF	±10%	GCE216R72A332KA01#
			3900pF	±10%	GCE216R72A392KA01#
			4700pF	±10%	GCE216R72A472KA01#
			5600pF	±10%	GCE216R72A562KA01#
	50Vdc	X7R	1000pF	±10%	GCE216R71H102KA01#
			1200pF	±10%	GCE216R71H122KA01#
			1500pF	±10%	GCE216R71H152KA01#

GCG Series





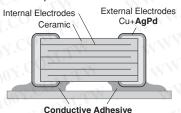


Improved mechanical and thermal strength by adopting AgPd external electrodes, which can be mounted with a conductive adhesive!

Features

1) Conductive adhesives can be used.

This capacitor can be mounted with a conductive adhesive* in power trains and safety devices of automobiles.



2 Adopted AgPd external electrodes.

Adopted AgPd, which is excellent in bonding strength with a conductive adhesive.

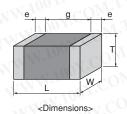
3 Compatible up to 150 °C.

This capacitor lineup with X8L and X8R characteristics can be used in high-temperature environments, such as in ABS and transmission control.

* The conductive adhesive buffers the expansion and contraction difference between the substrate and parts caused by temperature changes, and has a high temperature cycle life span.

Specifications

Size	1.0×0.5mm to 3.2×2.5mm
Rated Voltage	16Vdc to 100Vdc
Capacitance	10pF to 10μF
Main Applications	For automotive, power trains, sensors
	WWW.100X.COM.TW



GCG Series Temperature Compensating Type (25) Part Number List

■ 1.0×0.5mm

GCM Series

GCD Series

GCE Series

GCG Series

GCJ Series

GC3 Series

KCM Series

KC3 Series

T max.	Rated Voltage	TC Code	Сар.	Tol.	Part Number
0.55mm	50Vdc	X8G	120pF	±5%	GCG1555G1H121JA01#
	TV		150pF	±5%	GCG1555G1H151JA01#
	7		180pF	±5%	GCG1555G1H181JA01#
	LTW		220pF	±5%	GCG1555G1H221JA01#
	WILL		270pF	±5%	GCG1555G1H271JA01#
	Mr.	V	330pF	±5%	GCG1555G1H331JA01#
	DM^{*}	_ 1	390pF	±5%	GCG1555G1H391JA01#
	OM.T	///	470pF	±5%	GCG1555G1H471JA01#

■ 1.6×0.8mm

1.0		100	KĪ.	-11	M. COL	N			2
T max.	Rated Voltage	TC Code	Сар.	Tol.	Part Number			11.70	3
M 10	0 2 -		16.5	. 50/	100° COM	- XI		WW.	3
0.9mm	50Vdc	X8G	10pF	±5%	GCG1885G1H100JA01#	TI		-111	4
	OV.C	Oh	12pF	±5%	GCG1885G1H120JA01#	0.95mm	50Vdc	X8G	5
	100	CON	15pF	±5%	GCG1885G1H150JA01#	I. T		WW	6
	1007	- a 01	18pF	±5%	GCG1885G1H180JA01#	W.T.		- 700	8
	100	I.Co	22pF	±5%	GCG1885G1H220JA01#	TW		WAL	10
	W. 70	V.C	27pF	±5%	GCG1885G1H270JA01#				
	-10.10) 1.	33pF	±5%	GCG1885G1H330JA01#				
	- 11	101.	39pF	±5%	GCG1885G1H390JA01#				
	MM.	100X	47pF	±5%	GCG1885G1H470JA01#				
	INW.	Ino	56pF	±5%	GCG1885G1H560JA01#				
	- XTXN	100	68pF	±5%	GCG1885G1H680JA01#				
	MM.	×1 100	82pF	±5%	GCG1885G1H820JA01#				
	WW	N	100pF	±5%	GCG1885G1H101JA01#				
		M_{T_i}	120pF	±5%	GCG1885G1H121JA01#				
	1111		150pF	±5%	GCG1885G1H151JA01#				
	W	M	180pF	±5%	GCG1885G1H181JA01#				
	V		220pF	±5%	GCG1885G1H221JA01#				
			270pF	±5%	GCG1885G1H271JA01#				
		M.	330pF	±5%	GCG1885G1H331JA01#				
		WW	390pF	±5%	GCG1885G1H391JA01#				
			470pF	±5%	GCG1885G1H471JA01#				
			560pF	±5%	GCG1885G1H561JA01#				
			680pF	±5%	GCG1885G1H681JA01#				
	·	4	820pF	±5%	GCG1885G1H821JA01#				
			1000pF	±5%	GCG1885G1H102JA01#				
			1200pF	±5%	GCG1885G1H122JA01#				
			1500pF	±5%	GCG1885G1H152JA01#				
			1800pF	±5%	GCG1885G1H182JA01#				
			2200pF	±5%	GCG1885G1H222JA01#				

■ 2.0×1.25mm

T max.	Rated Voltage	TC Code	Сар.	Tol.	Part Number
0.7mm	50Vdc	X8G	100pF	±5%	GCG2165G1H101JA01#
			120pF	±5%	GCG2165G1H121JA01#
			150pF	±5%	GCG2165G1H151JA01#
			180pF	±5%	GCG2165G1H181JA01#
			220pF	±5%	GCG2165G1H221JA01#

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.7mm	50Vdc	X8G	270pF	±5%	GCG2165G1H271JA01#
	-7 C!	$O_{M^{*}}$	330pF	±5%	GCG2165G1H331JA01#
	001.	Mo	390pF	±5%	GCG2165G1H391JA01#
	100Y.		470pF	±5%	GCG2165G1H471JA01#
	100	CO_D	560pF	±5%	GCG2165G1H561JA01#
	1.700 .	1 CO	680pF	±5%	GCG2165G1H681JA01#
		100X 0X.C.	820pF	±5%	GCG2165G1H821JA01#
			1000pF	±5%	GCG2165G1H102JA01#
			1200pF	±5%	GCG2165G1H122JA01#
			1500pF	±5%	GCG2165G1H152JA01#
			1800pF	±5%	GCG2165G1H182JA01#
		100	2200pF	±5%	GCG2165G1H222JA01#
	WWW	1.100	2700pF	±5%	GCG2165G1H272JA01#
	-TXN	N.10	3300pF	±5%	GCG2165G1H332JA01#
	1/1/1/	TN.1	3900pF	±5%	GCG2165G1H392JA01#
	W	N N N	4700pF	±5%	GCG2165G1H472JA01#
0.95mm	50Vdc	X8G	5600pF	±5%	GCG2195G1H562JA01#
			6800pF	±5%	GCG2195G1H682JA01#

8200pF

10000pF

+5%

±5%

GCG2195G1H822JA01#

GCG2195G1H103JA01#



Part Number List

■ 1.0×0.5mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.55mm	50Vdc	X7R	220pF	±10%	GCG155R71H221KA01#
	TV		270pF	±10%	GCG155R71H271KA01#
COM	-31		330pF	±10%	GCG155R71H331KA01#
	LIN		390pF	±10%	GCG155R71H391KA01#
	WILL		470pF	±10%	GCG155R71H471KA01#
	Mr.		560pF	±10%	GCG155R71H561KA01#
	DM.	* * * * * * * * * *	680pF	±10%	GCG155R71H681KA01#
	OMA	N	820pF	±10%	GCG155R71H821KA01#
		TW	1000pF	±10%	GCG155R71H102KA01#
	CO_{Mr}	TW	1200pF	±10%	GCG155R71H122KA01#
	CON	1.1	1500pF	±10%	GCG155R71H152KA01#
		$V_{I,I}$	1800pF	±10%	GCG155R71H182KA01#
	N.Co	117	2200pF	±10%	GCG155R71H222KA01#
	V.C	Divr.	2700pF	±10%	GCG155R71H272KA01#
	JU - 47 (OW	3300pF	±10%	GCG155R71H332KA01#
	I_{00x}		3900pF	±10%	GCG155R71H392KA01#
	100Y		4700pF	±10%	GCG155R71H472KA01#
	25Vdc	X8L	5600pF	±10%	GCG155L81E562KA01#
	N.100	₹7 C	6800pF	±10%	GCG155L81E682KA01#
	WI 100) Y.	8200pF	±10%	GCG155L81E822KA01#
		OV	10000pF	±10%	GCG155L81E103KA01#
	M.M.T.	X7R	5600pF	±10%	GCG155R71E562KA01#
	WW.	100 -	6800pF	±10%	GCG155R71E682KA01#
	N Y	100	8200pF	±10%	GCG155R71E822KA01#
	MM	-1100	10000pF	±10%	GCG155R71E103KA01#
	16Vdc	X8L	15000pF	±10%	GCG155L81C153KA01#
		W.7	18000pF	±10%	GCG155L81C183KA01#
	1111		22000pF	±10%	GCG155L81C223KA01#
	W	M. A.	27000pF	±10%	GCG155L81C273KA01#
			33000pF	±10%	GCG155L81C333KA01#
			39000pF	±10%	GCG155L81C393KA01#
		M.	47000pF	±10%	GCG155L81C473KA01#
		X7R	15000pF	±10%	GCG155R71C153KA01#
			18000pF	±10%	GCG155R71C183KA01#
			22000pF	±10%	GCG155R71C223KA01#
			27000pF	±10%	GCG155R71C273KA01#
			33000pF	±10%	GCG155R71C333KA01#
			39000pF	±10%	GCG155R71C393KA01#
			47000pF	±10%	GCG155R71C473KA01#
			56000pF	±10%	GCG155R71C563KA01#
			68000pF	±10%	GCG155R71C683KA01#
			82000pF	±10%	GCG155R71C823KA01#
			0.10µF	±10%	GCG155R71C104KA01#

■ 1.6×0.8mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.9mm	100Vdc	X8R	1000pF	±10%	GCG188R92A102KA01#
			1200pF	±10%	GCG188R92A122KA01#
			1500pF	±10%	GCG188R92A152KA01#
			1800pF	±10%	GCG188R92A182KA01#

A A	JE <u>0200</u>	crack	crack	ган	Nullibel	LISt
001	Mo	IM				
. 00	CUN	- 11				
T	Rated	TC	0	Tal	Down Normal	la a u

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.9mm	100Vdc	X8R	2200pF	±10%	GCG188R92A222KA01#
	-7 C	OW.	2700pF	±10%	GCG188R92A272KA01#
	001.	Mo	3300pF	±10%	GCG188R92A332KA01#
	1007.		3900pF	±10%	GCG188R92A392KA01#
	, and	$ C_{O_{\mathbb{Z}}} $	4700pF	±10%	GCG188R92A472KA01#
	1.700	of CC	5600pF	±10%	GCG188R92A562KA01#
	W.100	1.	6800pF	±10%	GCG188R92A682KA01#
	-110	DA'r	8200pF	±10%	GCG188R92A822KA01#
	M	oot.	10000pF	±10%	GCG188R92A103KA01#
	WW^{1}	UU - 1	12000pF	±10%	GCG188R92A123KA01#
		100.3	15000pF	±10%	GCG188R92A153KA01#
	MM	100	18000pF	±10%	GCG188R92A183KA01#
	WWN	1.5	22000pF	±10%	GCG188R92A223KA01#
	- NIW	M.To	27000pF	±10%	GCG188R92A273KA01#
	111	TW.	33000pF	±10%	GCG188R92A333KA01#
	W	~ ~ ~ ~ ~	39000pF	±10%	GCG188R92A393KA01#
	W	M.	47000pF	±10%	GCG188R92A473KA01#
		UWV	56000pF	±10%	GCG188R92A563KA01#
		N .	68000pF	±10%	GCG188R92A683KA01#
	50Vdc	X8L	220pF	±10%	GCG188L81H221KA01#
			270pF	±10%	GCG188L81H271KA01#
	N.	1	330pF	±10%	GCG188L81H331KA01#
	T		390pF	±10%	GCG188L81H391KA01#
	W		470pF	±10%	GCG188L81H471KA01#
	W		560pF	±10%	GCG188L81H561KA01#
	TVV		680pF	±10%	GCG188L81H681KA01#
	. 1		820pF	±10%	GCG188L81H821KA01#
	VIII		1000pF	±10%	GCG188L81H102KA01#
	TITI		1200pF	±10%	GCG188L81H122KA01#
	DIAT.	N	1500pF	±10%	GCG188L81H152KA01#
	O_{M}		1800pF	±10%	GCG188L81H182KA01#
	OM.	LAL	2200pF	±10%	GCG188L81H222KA01#
		TW	2700pF	±10%	GCG188L81H272KA01#
	Γ_{COh}		3300pF	±10%	GCG188L81H332KA01#
	*1 CO	11. 1	3900pF	±10%	GCG188L81H392KA01# GCG188L81H472KA01#
) 7.	$M_{i,j}$	4700pF	±10%	GCG188L81H562KA01#
	10 X.C.		5600pF	±10%	GCG188L81H682KA01#
	OUX.C	Om	6800pF	±10%	GCG188L81H822KA01#
		$CO_{D_{i}}$	8200pF 10000pF	±10%	GCG188L81H103KA01#
	700	c0 ¹	12000pF	±10% ±10%	GCG188L81H123KA01#
	x 100		15000pF	±10%	GCG188L81H153KA01#
	100	Y.C.	18000pF	±10%	GCG188L81H183KA01#
	11.10	N.C	22000pF	±10%	GCG188L81H223KA01#
	NN.II	X8R	1200pF	±10%	GCG188R91H122KA03#
	-TXN .1	O O	1500pF	±10%	GCG188R91H152KA03#
	N V	100	2200pF	±10%	GCG188R91H222KA03#
	NWW	.100	2700pF	±10%	GCG188R91H272KA03#
		1.70	3300pF	±10%	GCG188R91H332KA03#
	M.	W.19	3900pF	±10%	GCG188R91H392KA03#
	WW	44.	4700pF	±10%	GCG188R91H472KA03#
			5600pF	±10%	GCG188R91H562KA03#
			6800pF	±10%	GCG188R91H682KA03#
			8200pF	±10%	GCG188R91H822KA03#
			1.0		1

GCM Series

GCD Series

GCE Series

GCG Series

GCJ Series

GC3 Series

KCM Series

GCG Series High Dielectric Constant Type (Part Number List

(→ **1.**6×0.8mm)

T max.	Rated Voltage	TC Code	Сар.	Tol.	Part Number
).9mm	50Vdc	X8R	10000pF	±10%	GCG188R91H103KA03#
			15000pF	±10%	GCG188R91H153KA03#
	W	1	22000pF	±10%	GCG188R91H223KA03#
	CIN		33000pF	±10%	GCG188R91H333KA03#
	1		47000pF	±10%	GCG188R91H473KA03#
	TW		0.10µF	±10%	GCG188R91H104KA01#
	WT		0.12µF	±10%	GCG188R91H124KA01#
	Mr.		0.15µF	±10%	GCG188R91H154KA01#
	M_{II}		0.18µF	±10%	GCG188R91H184KA01#
	W.T		0.22µF	±10%	GCG188R91H224KA01#
	OF	X7R	27000pF	±10%	GCG188R71H273KA12#
	CO_{Mr}	TV	33000pF	±10%	GCG188R71H333KA12#
	CON		39000pF	±10%	GCG188R71H393KA12#
		(T)	47000pF	±10%	GCG188R71H473KA12#
	N.CO	- 1 1	56000pF	±10%	GCG188R71H563KA12#
	N.C	\mathcal{D}_{MT} .	68000pF	±10%	GCG188R71H683KA12#
	M 7.	MO	82000pF	±10%	GCG188R71H823KA12#
	25Vdc	X8R	1000pF	±10%	GCG188R91E102KA01#
	Your	$C_{\Omega_{R}}$	1200pF	±10%	GCG188R91E122KA01#
	100	7 CO	1500pF	±10%	GCG188R91E152KA01#
	N.100	- ((1800pF	±10%	GCG188R91E182KA01#
	100	N.C.	2200pF	±10%	GCG188R91E222KA01#
	111	MY.C	2700pF	±10%	GCG188R91E272KA01#
	NN^{-1}		3300pF	±10%	GCG188R91E332KA01#
	WIN.	100 r	3900pF	±10%	GCG188R91E392KA01#
	111.	100	4700pF	±10%	GCG188R91E472KA01#
	MMM	- 100	5600pF	±10%	GCG188R91E562KA01#
	TAT W	N.To.	6800pF	±10%	GCG188R91E682KA01#
		W.1	8200pF	±10%	GCG188R91E822KA01#
	MA		10000pF	±10%	GCG188R91E103KA01#
	W	MAI.	15000pF	±10%	GCG188R91E153KA01#
		WW	22000pF	±10%	GCG188R91E223KA01#
			33000pF	±10%	GCG188R91E333KA01#
	-	MAN	47000pF	±10%	GCG188R91E473KA01#
		WW	68000pF	±10%	GCG188R91E683KA03#
			0.33µF	±10%	GCG188R91E334KA01#
			0.39µF	±10%	GCG188R91E394KA01#
			0.47µF	±10%	GCG188R91E474KA01#
		X7R	0.12µF	±10%	GCG188R71E124KA12#
		7,711	0.15μF	±10%	GCG188R71E154KA12#
			0.18μF	±10%	GCG188R71E184KA12#
			0.10μl 0.22μF	±10%	GCG188R71E224KA12#
	16Vdc	X8L	0.22μi 0.15μF	±10%	GCG188L81C154KA01#
	10 000	AOL	0.15µF	±10%	GCG188L81C224KA01#
		X8R	68000pF	±10%	GCG188R91C683KA01#
		YOU	0.10µF	±10%	GCG188R91C104KA01#

■ 2.0×1.25mm

T max.	Rated Voltage	TC Code	Сар.	Tol.	Part Number
0.95mm	50Vdc	X8R	10000pF	±10%	GCG219R91H103KA03#
			15000pF	±10%	GCG219R91H153KA03#
			18000pF	±10%	GCG219R91H183KA03#

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.95mm	50Vdc	X8R	22000pF	±10%	GCG219R91H223KA03#
W.10	25Vdc	X8R	10000pF	±10%	GCG219R91E103KA01#
- x x 1 1	001.	Mo	15000pF	±10%	GCG219R91E153KA01#
M.M.	OOY.	COM	22000pF	±10%	GCG219R91E223KA01#
1.45mm	50Vdc	X8L	27000pF	±10%	GCG21BL81H273KA01#
-317	1.700 ,	- c0	33000pF	±10%	GCG21BL81H333KA01#
M.A.	× 100	1.0	39000pF	±10%	GCG21BL81H393KA01#
WW	. 10	oy.C	47000pF	±10%	GCG21BL81H473KA01#
TATE	M.10		0.10µF	±10%	GCG21BL81H104KA03#
1	WW.1	X8R	33000pF	±10%	GCG21BR91H333KA03#
1	TXX	1007	47000pF	±10%	GCG21BR91H473KA03#
	MAN	. 100	56000pF	±10%	GCG21BR91H563KA03#
	WWW	1.10	68000pF	±10%	GCG21BR91H683KA03#
	1	N.10	0.10µF	±10%	GCG21BR91H104KA03#
	MAG	X7R	0.15µF	±10%	GCG21BR71H154KA01#
	W	111.	0.18µF	±10%	GCG21BR71H184KA01#
N TW	× 1	WW	0.22µF	±10%	GCG21BR71H224KA01#
	25Vdc	X8L	0.10µF	±10%	GCG21BL81E104KA01#
		MAL	0.33µF	±10%	GCG21BL81E334KA01#
		X8R	33000pF	±10%	GCG21BR91E333KA01#
			39000pF	±10%	GCG21BR91E393KA01#
VII	-1	1	47000pF	±10%	GCG21BR91E473KA01#
M.T.V	N	1//	82000pF	±10%	GCG21BR91E823KA01#
T	V	1	0.10µF	±10%	GCG21BR91E104KA01#
0_{Mr} ,	CVV		0.15µF	±10%	GCG21BR91E154KA03#
·MO	1		0.18µF	±10%	GCG21BR91E184KA03#
	TW		0.22µF	±10%	GCG21BR91E224KA03#
CON	WT	X7R	0.27µF	±10%	GCG21BR71E274KA01#
a CO	Mr.	V	0.33µF	±10%	GCG21BR71E334KA01#
c(Mir	. • 1	0.39µF	±10%	GCG21BR71E394KA01#
01.0	TIMO	111	0.47µF	±10%	GCG21BR71E474KA01#
00 Y.C	Or.	CW	0.56µF [↑]	±10%	GCG21BR71E564KA01#
.v-	CO_{Mr}	TV	0.68µF	±10%	GCG21BR71E684KA01#
700 r.	CON		0.82µF	±10%	GCG21BR71E824KA01#
1 100		VI.T.V	1.0µF	±10%	GCG21BR71E105KA12#
1.5	16Vdc	X8L	0.33µF	±10%	GCG21BL81C334KA01#
M.To.	N.C)Mr.	0.39µF	±10%	GCG21BL81C394KA01#
UW.10	W 2.	OM:	0.47µF	±10%	GCG21BL81C474KA01#
1	00X.	Mon	0.56µF	±10%	GCG21BL81C564KA01#
M.M.	my.	COR	0.68µF	±10%	GCG21BL81C684KA01#
WW	The	CO	0.82µF	±10%	GCG21BL81C824KA01#
11	1.100	X7R	4.7µF	±10%	GCG21BR71C475KA12#

■ 3.2×1.6mm

41 N					
T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
1.35mm	50Vdc	X8R	0.15µF	±10%	GCG31MR91H154KA03#
	WW	N. 7	0.22µF	±10%	GCG31MR91H224KA03#
		$M_{T_{\ell}}$	0.33µF	±10%	GCG31MR91H334KA03#
	25Vdc	X8R	0.15µF	±10%	GCG31MR91E154KA01#
			0.22µF	±10%	GCG31MR91E224KA01#
			0.33µF	±10%	GCG31MR91E334KA01#
		X7R	1.0µF	±10%	GCG31MR71E105KA01#

(→ **3.2×1.6mm**)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
1.35mm	25Vdc	X7R	1.2µF	±10%	GCG31MR71E125KA01
			1.5µF	±10%	GCG31MR71E155KA01
	V		2.2µF	±10%	GCG31MR71E225KA12
	16Vdc	X8L	1.0µF	±10%	GCG31ML81C105KA01
	7		1.5µF	±10%	GCG31ML81C155KA01
1.9mm	25Vdc	X8R	0.68µF	±10%	GCG31CR91E684KA03
	WTI	X7R	3.3µF	±10%	GCG31CR71E335KA01#
	Mr.	N	3.9µF	±10%	GCG31CR71E395KA01#
	DM_{TT}	- 1	4.7µF	±10%	GCG31CR71E475KA01#
	16Vdc	X8L	3.3µF	±10%	GCG31CL81C335KA01#
	- 1	TW	4.7µF	±10%	GCG31CL81C475KA01#
	CO_{Dr}	X8R	0.68µF	±10%	GCG31CR91C684KA01
	CON	1. 1.	1.0µF	±10%	GCG31CR91C105KA01

■ 3.2×2.5mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
2.3mm	25Vdc	X7R	3.3µF	±10%	GCG32DR71E335KA01#
2.8mm	25Vdc	X7R	4.7µF	±10%	GCG32ER71E475KA01#
	N.100	-, -	10µF	±10%	GCG32ER71E106KA12#

GCM Series

Resin External Electrode Product

GCJ Series





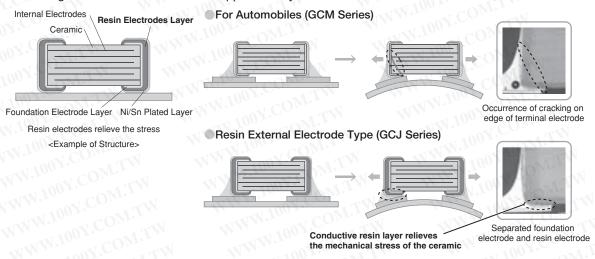


The resin external electrodes prevent the occurrence of cracking caused by deflection stress after board mounting!

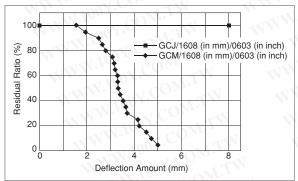
Features

The resin external electrodes suppress cracks by board deflection.

Cracking of the ceramic element is suppressed by the resin of the external electrodes, which releases the stress.



Suppresses the occurrence of cracking caused by deflection stress at the time of board mounting, etc.



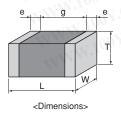
Due to the specification of the measuring instrument, measurements can be performed up to 8mm.

Ideal for automobiles.

This AEC-Q200 conforming product is ideal for the ECU, control circuits of headlights, etc. of automobiles.

Specifications

	1 100 - Wr.
Size	1.6×0.8mm to 5.7×5.0mm
Rated Voltage	6.3Vdc to 1kVdc
Capacitance	220pF to 47μF
Main Applications	Battery lines and power trains for automobiles
	MMN.1003





GCJ Series High Dielectric Constant Type 🐯 🚮 Part Number List

■ 1.6×0.8mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
9mm	100Vdc	X8R	1000pF	±10%	GCJ188R92A102KA01#
	TW		1200pF	±10%	GCJ188R92A122KA01#
	-XX		1500pF	±10%	GCJ188R92A152KA01#
	LIV		1800pF	±10%	GCJ188R92A182KA01#
	WILL		2200pF	±10%	GCJ188R92A222KA01#
	Mr.	N	2700pF	±10%	GCJ188R92A272KA01#
	DIVI	× 1	3300pF	±10%	GCJ188R92A332KA01#
	OMI	N	3900pF	±10%	GCJ188R92A392KA01#
	- N	TW	4700pF	±10%	GCJ188R92A472KA01#
	CO_{Mr}	TW	5600pF	±10%	GCJ188R92A562KA01#
	CON	1.1	6800pF	±10%	GCJ188R92A682KA01#
	1.0	$\Lambda^{(T)}$	8200pF	±10%	GCJ188R92A822KA01#
	N.Co	11	10000pF	±10%	GCJ188R92A103KA01#
	V.C	Dir	12000pF	±10%	GCJ188R92A123KA01#
	00 1.	OM	15000pF	±10%	GCJ188R92A153KA01#
	1001.	-01	18000pF	±10%	GCJ188R92A183KA01#
	Your	$C_{\Omega_{r}}$	22000pF	±10%	GCJ188R92A223KA01#
	1.100		27000pF	±10%	GCJ188R92A273KA01#
	N.100	. ((33000pF	±10%	GCJ188R92A333KA01#
	100	N.C.	39000pF	±10%	GCJ188R92A393KA01#
	111.	NY.C	47000pF	±10%	GCJ188R92A473KA01#
	NN^{1}	00 ·	56000pF	±10%	GCJ188R92A563KA01#
	TIN.	100x	68000pF	±10%	GCJ188R92A683KA01#
	1. J.	X7R	1000pF	±10%	GCJ188R72A102KA01#
	WWW	.300	1200pF	±10%	GCJ188R72A122KA01#
		W.Ja.	1500pF	±10%	GCJ188R72A152KA01#
	M.	W.19	1800pF	±10%	GCJ188R72A182KA01#
		1	2200pF	±10%	GCJ188R72A222KA01#
	W	M_{M} .	2700pF	±10%	GCJ188R72A272KA01#
		TVV	3300pF	±10%	GCJ188R72A332KA01#
	N		3900pF	±10%	GCJ188R72A392KA01#
		MM	4700pF	±10%	GCJ188R72A472KA01#
		WW	5600pF	±10%	GCJ188R72A562KA01#
			6800pF	±10%	GCJ188R72A682KA01#
		111	8200pF	±10%	GCJ188R72A822KA01#
		V	10000pF	±10%	GCJ188R72A103KA01#
			ATT NY		GCJ188R72A123KA01#
			12000pF	±10%	GCJ188R72A153KA01#
			15000pF	±10%	
			18000pF	±10%	GCJ188R72A183KA01#
			22000pF	±10%	GCJ188R72A223KA01#
			0.10µF	±10%	GCJ188R72A104KA01#
	50Vdc	X8L	1000pF	±10%	GCJ188L81H102KA01#
			1200pF	±10%	GCJ188L81H122KA01#
			1500pF	±10%	GCJ188L81H152KA01#
			1800pF	±10%	GCJ188L81H182KA01#
			2200pF	±10%	GCJ188L81H222KA01#
			2700pF	±10%	GCJ188L81H272KA01#
			3300pF	±10%	GCJ188L81H332KA01#
			3900pF	±10%	GCJ188L81H392KA01#
			4700pF	±10%	GCJ188L81H472KA01#
			5600pF	±10%	GCJ188L81H562KA01#
			6800pF	±10%	GCJ188L81H682KA01#

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.9mm	50Vdc	X8L	8200pF	±10%	GCJ188L81H822KA01#
M.10	0 1.	OM.	10000pF	±10%	GCJ188L81H103KA01#
W - x1 1	001.0	.aM	12000pF	±10%	GCJ188L81H123KA01#
MM.	. NOY!	CON	15000pF	±10%	GCJ188L81H153KA01#
WW	700	CO_J	18000pF	±10%	GCJ188L81H183KA01#
VI - 11 V	1.700 3	- 00	22000pF	±10%	GCJ188L81H223KA01#
MM.	100	X8R	4700pF	±10%	GCJ188R91H472KA01#
WW	W	NY.C	10000pF	±10%	GCJ188R91H103KA01#
-XIX	M.70		0.10µF	±10%	GCJ188R91H104KA01#
NA.	AVV.1	00 r.	0.12µF	±10%	GCJ188R91H124KA01#
V	- XI	1007	0.15µF	±10%	GCJ188R91H154KA01#
	MAN		0.18µF	±10%	GCJ188R91H184KA01#
	TATIVI V	1.100	0.22µF	±10%	GCJ188R91H224KA01#
7		X7R	1000pF	±10%	GCJ188R71H102KA01#
	1/1/1/	· 1	1200pF	±10%	GCJ188R71H122KA01#
N	W	MAI.	1500pF	±10%	GCJ188R71H152KA01#
-XXI	XX	WW	1800pF	±10%	GCJ188R71H182KA01#
F 4.		TAXIV	2200pF	±10%	GCJ188R71H222KA01#
TW		MAL	2700pF	±10%	GCJ188R71H272KA01#
WT		WW	3300pF	±10%	GCJ188R71H332KA01#
/1			3900pF	±10%	GCJ188R71H392KA01#
M_{II}	. 7		4700pF	±10%	GCJ188R71H472KA01#
M.TV		11	5600pF	±10%	GCJ188R71H562KA01#
UM-	W	1	6800pF	±10%	GCJ188R71H682KA01#
CO_{Mr}	CVN		8200pF	±10%	GCJ188R71H822KA01#
COM	1		10000pF	±10%	GCJ188R71H103KA01#
. OV	TW		12000pF	±10%	GCJ188R71H123KA01#
Y.CO	WT		15000pF	±10%	GCJ188R71H153KA01#
CO	Mr.	V	18000pF	±10%	GCJ188R71H183KA01#
0 r.	Mir	. • 1	22000pF	±10%	GCJ188R71H223KA01#
001.	T.Mo	11	33000pF	±10%	GCJ188R71H333KA12#
LOOY.C	Or '	CW	39000pF	±10%	GCJ188R71H393KA12#
To	CO_{Mr}	-TXV	47000pF	±10%	GCJ188R71H473KA12#
1.100 .	CON		56000pF	±10%	GCJ188R71H563KA12#
x 1003		T.T.	68000pF	±10%	GCJ188R71H683KA12#
14	Y.CO	11	82000pF	±10%	GCJ188R71H823KA12#
M.To.	N.C) INT.	0.10µF	±10%	GCJ188R71H104KA12#
WW.10)0 r	OM.	0.15µF	±10%	GCJ188R71H154KA01#
- TAN 1	001.	LON	0.22µF	±10%	GCJ188R71H224KA01#
MAN	35Vdc	X8L	33000pF	±10%	GCJ188L8YA333KA01#
WWW	.10	CO	39000pF	±10%	GCJ188L8YA393KA01#
- TXX	N.100	-7 CS	56000pF	±10%	GCJ188L8YA563KA01#
M.	-N 100	17.	68000pF	±10%	GCJ188L8YA683KA01#
WW	25Vdc	X8L	33000pF	±10%	GCJ188L81E333KA01#
11/	MM.T	ooV.	39000pF	±10%	GCJ188L81E393KA01#
	WW.	100 -	56000pF	±10%	GCJ188L81E563KA01#
	-TXX	100	68000pF	±10%	GCJ188L81E683KA01#
4	MM	- 100	82000pF	±10%	GCJ188L81E823KA01#
	WW	N.Y	0.15µF	±10%	GCJ188L81E154KA01#
cT	71	W.11	0.18µF	±10%	GCJ188L81E184KA01#
7	MA		0.22µF	±10%	GCJ188L81E224KA01#
N		X8R	0.33µF	±10%	GCJ188R91E334KA01#
			0.39µF	±10%	GCJ188R91E394KA01#
			0.47µF	±10%	GCJ188R91E474KA01#
			Part number	# indicates	the package specification code.

Part number # indicates the package specification code.

GCJ Series High Dielectric Constant Type 🚟 🖼 Part Number List

T nax.	Rated Voltage	TC Code	Сар.	Tol.	Part Number
9mm	25Vdc	X7R	1000pF	±10%	GCJ188R71E102KA01#
			1200pF	±10%	GCJ188R71E122KA01#
	W	1	1500pF	±10%	GCJ188R71E152KA01#
			1800pF	±10%	GCJ188R71E182KA01#
	1		2200pF	±10%	GCJ188R71E222KA01#
	TW		2700pF	±10%	GCJ188R71E272KA01#
	WT		3300pF	±10%	GCJ188R71E332KA01#
	Mr.	V	3900pF	±10%	GCJ188R71E392KA01#
	M.T.	-1	4700pF	±10%	GCJ188R71E472KA01#
	T.Mo		5600pF	±10%	GCJ188R71E562KA01#
	OF	TW	6800pF	±10%	GCJ188R71E682KA01#
	CO_{M_T}	- TV	8200pF	±10%	GCJ188R71E822KA01#
	CON	[.,r_,.]	10000pF	±10%	GCJ188R71E103KA01#
		LT)	12000pF	±10%	GCJ188R71E123KA01#
	N.CO		15000pF	±10%	GCJ188R71E153KA01#
	N C	DIAT.	18000pF	±10%	GCJ188R71E183KA01#
	90 r.	MO	22000pF	±10%	GCJ188R71E223KA01#
	100 X .		27000pF	±10%	GCJ188R71E273KA01#
	You.	$C_{O_{R}}$	33000pF	±10%	GCJ188R71E333KA01#
	1700		39000pF	±10%	GCJ188R71E393KA01#
	N.100		47000pF	±10%	GCJ188R71E473KA01#
	100	M.C.	56000pF	±10%	GCJ188R71E563KA12#
	111.	N.Y.C	68000pF	±10%	GCJ188R71E683KA12#
	NN^{-1}	JU	82000pF	±10%	GCJ188R71E823KA12#
	TIN	$I_{OO,r}$	0.10µF	±10%	GCJ188R71E104KA12#
		100	0.12µF	±10%	GCJ188R71E124KA01#
	WWW		0.15µF	±10%	GCJ188R71E154KA01#
		W.In.	0.18µF	±10%	GCJ188R71E184KA12#
		W.1	0.22µF	±10%	GCJ188R71E224KA12#
	W		1.0µF	±10%	GCJ188R71E105KA01#
	16Vdc	X8L	33000pF	±10%	GCJ188L81C333KA01#
		TWV	39000pF	±10%	GCJ188L81C393KA01#
		N N	47000pF	±10%	GCJ188L81C473KA01#
		WW	56000pF	±10%	GCJ188L81C563KA01#
		WW	68000pF	±10%	GCJ188L81C683KA01#
			82000pF	±10%	GCJ188L81C823KA01#
			0.10µF	±10%	GCJ188L81C104KA01#
		V	0.12µF	±10%	GCJ188L81C124KA01#
			0.15μF	±10%	GCJ188L81C154KA01#
			0.18µF	±10%	GCJ188L81C184KA01#
			0.22μF	±10%	GCJ188L81C224KA01#
		X7R	10000pF	±10%	GCJ188R71C103KA01#
		****	27000pF	±10%	GCJ188R71C273KA01#
			33000pF	±10%	GCJ188R71C333KA01#
			39000pF	±10%	GCJ188R71C393KA01#
			47000pF	±10%	GCJ188R71C473KA01#
			56000pF	±10%	GCJ188R71C563KA01#
			68000pF	±10%	GCJ188R71C683KA01#
			-		-XI 100 - ON
			82000pF	±10%	GCJ188R71C823KA01#
			0.10µF	±10%	GCJ188R71C104KA01#
			0.12µF	±10%	GCJ188R71C124KA01#
			0.15µF	±10%	GCJ188R71C154KA01#
		1	0.18µF	±10%	GCJ188R71C184KA01#

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.9mm	16Vdc	X7R	0.27µF	±10%	GCJ188R71C274KA01#
	-7 C	$O_{M^{*}}$	0.33µF	±10%	GCJ188R71C334KA01#
	001.	Mo	0.39µF	±10%	GCJ188R71C394KA12#
	100Y.		0.47µF	±10%	GCJ188R71C474KA12#
	10Vdc	X7R	0.12µF	±10%	GCJ188R71A124KA01#
	1.700 .	1 CO	0.15µF	±10%	GCJ188R71A154KA01#
	N 100	1.0	0.18µF	±10%	GCJ188R71A184KA01#
	10	J.C.	0.22µF	±10%	GCJ188R71A224KA01#
	6.3Vdc	X7R	2.2µF	±10%	GCJ188R70J225KE01#

■ 2.0×1.25mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.7mm	100Vdc	X7R	1000pF	±10%	GCJ216R72A102KA01#
	W	N 1	1200pF	±10%	GCJ216R72A122KA01#
	W	MM	1500pF	±10%	GCJ216R72A152KA01#
		a WW	1800pF	±10%	GCJ216R72A182KA01#
		N V	2200pF	±10%	GCJ216R72A222KA01#
		MAIN	2700pF	±10%	GCJ216R72A272KA01#
			3300pF	±10%	GCJ216R72A332KA01#
	iJ		3900pF	±10%	GCJ216R72A392KA01#
	1		4700pF	±10%	GCJ216R72A472KA01#
	V		5600pF	±10%	GCJ216R72A562KA01#
	TV		6800pF	±10%	GCJ216R72A682KA01#
	-XXI		8200pF	±10%	GCJ216R72A822KA01#
	7.7.		10000pF	±10%	GCJ216R72A103KA01#
	NTN		12000pF	±10%	GCJ216R72A123KA01#
	TV	V	15000pF	±10%	GCJ216R72A153KA01#
	Mr	cal .	18000pF	±10%	GCJ216R72A183KA01#
	oM^{Λ}		22000pF	±10%	GCJ216R72A223KA01#
	50Vdc	X7R	330pF	±10%	GCJ216R71H331KA01#
	$CO_{M_{\pi}}$	TW	390pF	±10%	GCJ216R71H391KA01#
	COM		470pF	±10%	GCJ216R71H471KA01#
		V_{IJ}	560pF	±10%	GCJ216R71H561KA01#
	N.C.	Tim	680pF	±10%	GCJ216R71H681KA01#
	NY.C) IV =	820pF	±10%	GCJ216R71H821KA01#
	~ ×7 C	O_{Mr}	1000pF	±10%	GCJ216R71H102KA01#
	001.	COM	1200pF	±10%	GCJ216R71H122KA01#
	1007		1500pF	±10%	GCJ216R71H152KA01#
	. 003	Co	1800pF	±10%	GCJ216R71H182KA01#
	N'Ing	J CC	2200pF	±10%	GCJ216R71H222KA01#
	W.100	7.	2700pF	±10%	GCJ216R71H272KA01#
	-3110	01.	3300pF	±10%	GCJ216R71H332KA01#
	M.V	on V.	3900pF	±10%	GCJ216R71H392KA01#
	WW.	100	4700pF	±10%	GCJ216R71H472KA01#
		700,	5600pF	±10%	GCJ216R71H562KA01#
	MM	100	6800pF	±10%	GCJ216R71H682KA01#
	WW	N	8200pF	±10%	GCJ216R71H822KA01#
	WW	11.77	10000pF	±10%	GCJ216R71H103KA01#
	111.		12000pF	±10%	GCJ216R71H123KA01#
			15000pF	±10%	GCJ216R71H153KA01#
			18000pF	±10%	GCJ216R71H183KA01#
			22000pF	±10%	GCJ216R71H223KA01#
		F	Part number	# indicates	the package specification code.

GCJ Series High Dielectric Constant Type (250) Fall Part Number List

(→ **■** 2.0×1.25mm)

T max.	Rated Voltage	TC Code	Сар.	Tol.	Part Number
0.7mm	25Vdc	X7R	470pF	±10%	GCJ216R71E471KA01#
			560pF	±10%	GCJ216R71E561KA01#
	W	1	680pF	±10%	GCJ216R71E681KA01#
	TIN		820pF	±10%	GCJ216R71E821KA01#
	1		1000pF	±10%	GCJ216R71E102KA01#
	TW		1200pF	±10%	GCJ216R71E122KA01#
	WT		1500pF	±10%	GCJ216R71E152KA01#
	M. I	KI	1800pF	±10%	GCJ216R71E182KA01#
	M_{JJ}	-7	2200pF	±10%	GCJ216R71E222KA01#
	-N/J	V	2700pF	±10%	GCJ216R71E272KA01#
	OM	TV	3300pF	±10%	GCJ216R71E332KA01#
	COM	- XI	3900pF	±10%	GCJ216R71E392KA01#
	CON	TIV	4700pF	±10%	GCJ216R71E472KA01#
	7.00	TT	5600pF	±10%	GCJ216R71E562KA01#
	Y.CO	Mr.	6800pF	±10%	GCJ216R71E682KA01#
	, r C(M_{ij}			
	001	Mo	8200pF	±10%	GCJ216R71E822KA01#
	ONY.C	On	10000pF	±10%	GCJ216R71E103KA01#
05	1001/1	V75	12000pF	±10%	GCJ216R71E123KA01#
.95mm	100Vdc	X7R	220pF	±10%	GCJ219R72A221KA01#
	-100		270pF	±10%	GCJ219R72A271KA01#
	N. 7	V.C	330pF	±10%	GCJ219R72A331KA01#
	M.10	- - 7 (390pF	±10%	GCJ219R72A391KA01#
	- W. 1	00x.	470pF	±10%	GCJ219R72A471KA01#
	M. A.	COOL	560pF	±10%	GCJ219R72A561KA01#
	WW.	10	680pF	±10%	GCJ219R72A681KA01#
	VIX	.100	820pF	±10%	GCJ219R72A821KA01#
	MM.	x1 10	27000pF	±10%	GCJ219R72A273KA01#
	WW	W	33000pF	±10%	GCJ219R72A333KA01#
		11.77	39000pF	±10%	GCJ219R72A393KA01#
	50Vdc	X7R	27000pF	±10%	GCJ219R71H273KA01#
	W	M	33000pF	±10%	GCJ219R71H333KA01#
	1		39000pF	±10%	GCJ219R71H393KA01#
			0.33µF	±10%	GCJ219R71H334KA12#
	25Vdc	X7R	15000pF	±10%	GCJ219R71E153KA01#
		W	18000pF	±10%	GCJ219R71E183KA01#
		****	22000pF	±10%	GCJ219R71E223KA01#
		1	0.33µF	±10%	GCJ219R71E334KA01#
		V	0.47µF	±10%	GCJ219R71E474KA12#
	16Vdc	X7R	0.68µF	±10%	GCJ219R71C684KA01#
			0.82µF	±10%	GCJ219R71C824KA01#
			1.0μF	±10%	GCJ219R71C105KA01#
1.0mm	250Vdc	X7R	1000pF	±10%	GCJ21AR72E102KXJ1#
i.oniili	250 VUC	Λ/Π	1500pF	444	AV CON
				±10%	GCJ21AR72E152KXJ1#
			2200pF	±10%	GCJ21AR72E222KXJ1#
			3300pF	±10%	GCJ21AR72E332KXJ1#
			4700pF	±10%	GCJ21AR72E472KXJ1#
			6800pF	±10%	GCJ21AR72E682KXJ1#
.45mm	250Vdc	X7R	10000pF	±10%	GCJ21BR72E103KXJ3#
			15000pF	±10%	GCJ21BR72E153KXJ3#
			22000pF	±10%	GCJ21BR72E223KXJ3#
	100Vdc	X7R	47000pF	±10%	GCJ21BR72A473KA01#
			56000pF	±10%	GCJ21BR72A563KA01#
			68000pF	±10%	GCJ21BR72A683KA01#
			82000pF	±10%	GCJ21BR72A823KA01#

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
45mm	100Vdc	X7R	0.10µF	±10%	GCJ21BR72A104KA01#
N.70	50Vdc	X8L	27000pF	±10%	GCJ21BL81H273KA01#
- 1		Mo.	33000pF	±10%	GCJ21BL81H333KA01#
1111.		COM	39000pF	±10%	GCJ21BL81H393KA01#
WW	In	CO_J	47000pF	±10%	GCJ21BL81H473KA01#
		-00	56000pF	±10%	GCJ21BL81H563KA01#
M.		X.C	68000pF	±10%	GCJ21BL81H683KA01#
WW		V.C	82000pF	±10%	GCJ21BL81H823KA01#
-1		-7 (0.10µF	±10%	GCJ21BL81H104KA01#
1111		X7R	47000pF	±10%	GCJ21BR71H473KA01#
W		1001	56000pF	±10%	GCJ21BR71H563KA01#
<		10	68000pF	±10%	GCJ21BR71H683KA01#
		1.100		17-2	GCJ21BR71H823KA01#
		x1 10	82000pF	±10%	
		111.5	0.10µF	±10%	GCJ21BR71H104KA01#
		M.)	0.12µF	±10%	GCJ21BR71H124KA01#
		- 1	0.15µF	±10%	GCJ21BR71H154KA01#
		MAG	0.18µF	±10%	GCJ21BR71H184KA01#
		UWV	0.22µF	±10%	GCJ21BR71H224KA01#
-7			0.47µF	±10%	GCJ21BR71H474KA12#
		Min	1.0µF	±10%	GCJ21BR71H105KA01#
TW	35Vdc	X8L	0.12µF	±10%	GCJ21BL8YA124KA01#
			0.15µF	±10%	GCJ21BL8YA154KA01#
T.T.			0.18µF	±10%	GCJ21BL8YA184KA01#
11			0.22µF	±10%	GCJ21BL8YA224KA01#
Mr.			0.33µF	±10%	GCJ21BL8YA334KA01#
OM			0.47µF	±10%	GCJ21BL8YA474KA01#
	25Vdc	X8L	0.12µF	±10%	GCJ21BL81E124KA01#
$CO_{P_{\ell}}$			0.15µF	±10%	GCJ21BL81E154KA01#
c0		J	0.18µF	±10%	GCJ21BL81E184KA01#
			0.22µF	±10%	GCJ21BL81E224KA01#
Y.C.		N	0.27µF	±10%	GCJ21BL81E274KA01#
N.C		CVV	0.33µF	±10%	GCJ21BL81E334KA01#
U x		1	0.39µF	±10%	GCJ21BL81E394KA01#
001.		TW	0.33μ1 0.47μF	±10%	GCJ21BL81E474KA01#
.003		TV	· ·	- N W	1001
Too		11.	0.68µF	±10%	GCJ21BL81E684KA01#
1.101		M_J	0.82µF	±10%	GCJ21BL81E824KA01#
10		~34	1.0µF	±10%	GCJ21BL81E105KA01#
M_{r_r}		X7R	27000pF	±10%	GCJ21BR71E273KA01#
W.1		CON	33000pF	±10%	GCJ21BR71E333KA01#
() 		001	39000pF	±10%	GCJ21BR71E393KA01#
MAA		CO	47000pF	±10%	GCJ21BR71E473KA01#
WY		V CC	56000pF	±10%	GCJ21BR71E563KA01#
MA A.		1.	68000pF	±10%	GCJ21BR71E683KA01#
MA		01.	82000pF	±10%	GCJ21BR71E823KA01#
W		onV.	0.10µF	±10%	GCJ21BR71E104KA01#
1		TOO -	0.27µF	±10%	GCJ21BR71E274KA01#
V	TAN	700)	0.39µF	±10%	GCJ21BR71E394KA01#
1			0.56µF	±10%	GCJ21BR71E564KA12#
		V.To.	0.68µF	±10%	GCJ21BR71E684KA12#
		W.10	0.82µF	±10%	GCJ21BR71E824KA12#
		1	1.0µF	±10%	GCJ21BR71E105KA12#
			1.5µF	±10%	GCJ21BR71E155KA01#
			2.2µF	±10%	GCJ21BR71E195KA01#
	16Vdc	X8L	2.2μF 0.56μF	±10%	GCJ21BL81C564KA01#
	10 400	\ \OL	υ.συμΓ	±1070	G30210L010304RAU1#

GCJ Series High Dielectric Constant Type 🚟 🖼 Part Number List

(→ **■** 2.0×1.25mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
1.45mm	16Vdc	X8L	0.68µF	±10%	GCJ21BL81C684KA01#
			0.82µF	±10%	GCJ21BL81C824KA01#
	W		1.0µF	±10%	GCJ21BL81C105KA01#
	TV.	X7R	0.27µF	±10%	GCJ21BR71C274KA01#
	7		0.33µF	±10%	GCJ21BR71C334KA01#
	LIN		0.39µF	±10%	GCJ21BR71C394KA01#
	WILL		0.47µF	±10%	GCJ21BR71C474KA01#
	Mr.	V	0.56µF	±10%	GCJ21BR71C564KA01#
	DIVI		1.0µF	±10%	GCJ21BR71C105KA01#
	CMO	NN .	2.2µF	±10%	GCJ21BR71C225KA13#
		TW	4.7µF	±10%	GCJ21BR71C475KA01#
	10Vdc	X7R	2.2µF	±10%	GCJ21BR71A225KA01#
	CON	1. 1	10µF	±10%	GCJ21BR71A106KE01#

■ 3.2×1.6mm

GCE Series

max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
0.95mm	100Vdc	X7R	0.10µF	±10%	GCJ319R72A104KA01#
	50Vdc	X7R	0.10µF	±10%	GCJ319R71H104KA01#
	W.100		0.12µF	±10%	GCJ319R71H124KA01#
1.25mm	1000Vdc	X7R	1000pF	±10%	GCJ31BR73A102KXJ1#
	-11		1500pF	±10%	GCJ31BR73A152KXJ1#
	M.W.		2200pF	±10%	GCJ31BR73A222KXJ1#
	TWW.		3300pF	±10%	GCJ31BR73A332KXJ1#
	N Y		4700pF	±10%	GCJ31BR73A472KXJ1#
	630Vdc	X7R	1000pF	±10%	GCJ31BR72J102KXJ1#
	WW		1500pF	±10%	GCJ31BR72J152KXJ1#
			2200pF	±10%	GCJ31BR72J222KXJ1#
	N.		3300pF	±10%	GCJ31BR72J332KXJ1#
	W		4700pF	±10%	GCJ31BR72J472KXJ1#
	V		6800pF	±10%	GCJ31BR72J682KXJ1#
			10000pF	±10%	GCJ31BR72J103KXJ1#
	250Vdc	X7R	15000pF	±10%	GCJ31BR72E153KXJ1#
			22000pF	±10%	GCJ31BR72E223KXJ1#
			68000pF	±10%	GCJ31BR72E683KXJ1#
1.35mm	100Vdc	X7R	0.15µF	±10%	GCJ31MR72A154KA01#
			0.18µF	±10%	GCJ31MR72A184KA01#
			0.22µF	±10%	GCJ31MR72A224KA01#
	50Vdc	X7R	0.15µF	±10%	GCJ31MR71H154KA01#
			0.18µF	±10%	GCJ31MR71H184KA01#
			0.22µF	±10%	GCJ31MR71H224KA01#
			0.27µF	±10%	GCJ31MR71H274KA01#
			0.33µF	±10%	GCJ31MR71H334KA01#
			0.39µF	±10%	GCJ31MR71H394KA01#
			0.47μF	±10%	GCJ31MR71H474KA01#
			0.56µF	±10%	GCJ31MR71H564KA12#
			0.68µF	±10%	GCJ31MR71H684KA12#
			0.82µF	±10%	GCJ31MR71H824KA12#
			1.0µF	±10%	GCJ31MR71H105KA12#
	25Vdc	X7R	0.10µF	±10%	GCJ31MR71E104KA01#
			0.12μF	±10%	GCJ31MR71E124KA01#
			0.15µF	±10%	GCJ31MR71E154KA01#
			0.18µF	±10%	GCJ31MR71E184KA01#

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
1.35mm	25Vdc	X7R	0.22µF	±10%	GCJ31MR71E224KA01#
	() I		1.0µF	±10%	GCJ31MR71E105KA01#
	001.		1.5µF	±10%	GCJ31MR71E155KA12#
	ON.		2.2µF	±10%	GCJ31MR71E225KA12#
	To		3.3µF	±10%	GCJ31MR71E335KA12#
	16Vdc	X7R	1.0µF	±10%	GCJ31MR71C105KA01#
	N 100		1.5µF	±10%	GCJ31MR71C155KA01#
1.8mm	1000Vdc	X7R	6800pF	±10%	GCJ31CR73A682KXJ3#
	1111.7	N.V.	10000pF	±10%	GCJ31CR73A103KXJ3#
	630Vdc	X7R	15000pF	±10%	GCJ31CR72J153KXJ3#
	TXN	1001	22000pF	±10%	GCJ31CR72J223KXJ3#
	250Vdc	X7R	33000pF	±10%	GCJ31CR72E333KXJ3#
	WWW		47000pF	±10%	GCJ31CR72E473KXJ3#
		W.10	0.10µF	±10%	GCJ31CR72E104KXJ3#
1.9mm	100Vdc	X7R	1.0µF	±10%	GCJ31CR72A105KA01#
	50Vdc	X7R	1.5µF	±10%	GCJ31CR71H155KA12#
	N/		2.2µF	±10%	GCJ31CR71H225KA12#
		X7S	4.7µF	±10%	GCJ31CC71H475KA01#
	35Vdc	X8L	0.56µF	±10%	GCJ31CL8YA564KA01#
			0.68µF	±10%	GCJ31CL8YA684KA01#
			0.82µF	±10%	GCJ31CL8YA824KA01#
	6.1	× 1	1.0µF	±10%	GCJ31CL8YA105KA01#
	25Vdc	X8L	0.56µF	±10%	GCJ31CL81E564KA01#
	N		0.68µF	±10%	GCJ31CL81E684KA01#
	TW		0.82µF	±10%	GCJ31CL81E824KA01#
	- XI		1.0µF	±10%	GCJ31CL81E105KA01#
	TW	X7R	4.7µF	±10%	GCJ31CR71E475KA12#
	16Vdc	X8L	3.3µF	±10%	GCJ31CL81C335KA01#
	TV		4.7μF	±10%	GCJ31CL81C475KA01#
	DIVI.	X7R	3.3µF	±10%	GCJ31CR71C335KA01#
	T.MO		4.7µF	±10%	GCJ31CR71C475KA01#
	- N 1	W	10µF	±10%	GCJ31CR71C106KA15#
	10Vdc	X7R	6.8µF	±10%	GCJ31CR71A685KA13#
	COM	. 1	10μF	±10%	GCJ31CR71A106KA13#
1700	6.3Vdc	X7R	22µF	±10%	GCJ31CR70J226KE01#
2.0mm	25Vdc	X7S	10µF	±10%	GCJ31CC71E106KA15#

■ 3.2×2.5mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
1.5mm	630Vdc	X7R	6800pF	±10%	GCJ32QR72J682KXJ1#
	XX 100		10000pF	±10%	GCJ32QR72J103KXJ1#
	250Vdc	X7R	68000pF	±10%	GCJ32QR72E683KXJ1#
	M.Y.		0.15μF	±10%	GCJ32QR72E154KXJ1#
2.0mm	1000Vdc	X7R	15000pF	±10%	GCJ32DR73A153KXJ1#
	N N		22000pF	±10%	GCJ32DR73A223KXJ1#
	630Vdc	X7R	15000pF	±10%	GCJ32DR72J153KXJ1#
	WWY		22000pF	±10%	GCJ32DR72J223KXJ1#
			33000pF	±10%	GCJ32DR72J333KXJ1#
	1111		47000pF	±10%	GCJ32DR72J473KXJ1#
	250Vdc	X7R	0.10µF	±10%	GCJ32DR72E104KXJ1#
			0.22µF	±10%	GCJ32DR72E224KXJ1#
2.3mm	100Vdc	X7R	2.2µF	±10%	GCJ32DR72A225KA01#

Part number # indicates the package specification code.

GCJ Series High Dielectric Constant Type (200) Fail Orderling Constant

Part Number List

(→ **3.2**×2.5mm)

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
2.8mm	50Vdc	X7R	4.7µF	±10%	GCJ32ER71H475KA12#
		X7S	10µF	±10%	GCJ32EC71H106KA01#
	25Vdc	X8L	4.7µF	±10%	GCJ32EL81E475KA01#
	16Vdc	X7R	22µF	±10%	GCJ32ER71C226KE01#
	6.3Vdc	X7R	47µF	±10%	GCJ32ER70J476KE01#

■ 4.5×3.2mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
5mm	630Vdc	X7R	68000pF	±10%	GCJ43QR72J683KXJ1#
	250Vdc	X7R	0.15µF	±10%	GCJ43QR72E154KXJ1#
.0mm	1000Vdc	X7R	33000pF	±10%	GCJ43DR73A333KXJ1#
			47000pF	±10%	GCJ43DR73A473KXJ1#
	630Vdc	X7R	33000pF	±10%	GCJ43DR72J333KXJ1#
	N.C		47000pF	±10%	GCJ43DR72J473KXJ1#
	00 - - - T (OM.	0.10µF	±10%	GCJ43DR72J104KXJ1#
	250Vdc	X7R	0.22µF	±10%	GCJ43DR72E224KXJ1#
	1007		0.33µF	±10%	GCJ43DR72E334KXJ1#
	1.1		0.47µF	±10%	GCJ43DR72E474KXJ1#

■ 5.7×5.0mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
2.0mm	1000Vdc	X7R	68000pF	±10%	GCJ55DR73A683KXJ1#
	MM.		0.10µF	±10%	GCJ55DR73A104KXJ1#
	630Vdc	X7R	0.10µF	±10%	GCJ55DR72J104KXJ1#
A	WV		0.15µF	±10%	GCJ55DR72J154KXJ1#
			0.22µF	±10%	GCJ55DR72J224KXJ1#
	250Vdc	X7R	0.33µF	±10%	GCJ55DR72E334KXJ1#
			0.47µF	±10%	GCJ55DR72E474KXJ1#
			0.68µF	±10%	GCJ55DR72E684KXJ1#
	1		1.0µF	±10%	GCJ55DR72E105KXJ1#

High Effective Capacitance & High Allowable Ripple Current

GC3 Series

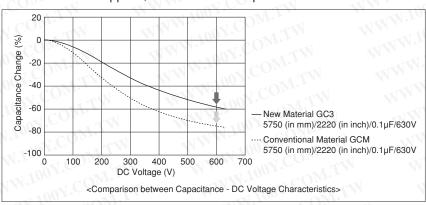


This is a high ripple resistance product for automobiles, excellent in DC voltage characteristics.

Features

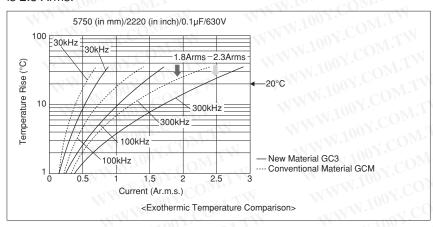
When a DC voltage is applied, a capacitance higher than conventional products (X7R characteristics) can be acquired.

When DC600V is applied, about twice the capacitance can be secured.



Improved ripple resistance performance compared to conventional products (X7R characteristics).

In the case of a product with a capacitance of 0.1 µF, when the exothermic temperature reaches 20°C at frequency f=300kHz, the amount of resistance of a product with conventional material is 1.8Arms; however, the new material is 2.3 Arms.

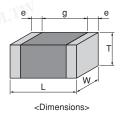


This product has a noise reduction effect.

Since dielectric materials that enable a reduction of noise are used, this product is more effective for reducing noise compared to the GCM series for automobiles.

Specifications

Size	2.0×1.25mm to 5.7×5.0mm
Rated Voltage	250Vdc to 630Vdc
Capacitance	10000pF to 1.0μF
Main Applications	For PFC (Power Factor Correction) circuits of power supplies, EMI suppression, and smoothing circuits of automobiles



GC3 Series High Dielectric Constant Type 655 Atts **Part Number List**

■ 2.0×1.25mm

■ 2.0×	1.25mr	m			
T max.	Rated Voltage	TC Code	Сар.	Tol.	Part Number
1.0mm	250Vdc	X7T	10000pF	±10%	GC321AD72E103KX01#
	TW		15000pF	±10%	GC321AD72E153KX01#
1.45mm	250Vdc	X7T	22000pF	±10%	GC321BD72E223KX03#

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
2.7mm	630Vdc	X7T	0.27µF	±10%	GC355XD72J274KX05#
	450Vdc	X7T	0.56µF	±10%	GC355XD72W564KX05#
	250Vdc	X7T	1.0µF	±10%	GC355XD72E105KX05#

■ 3.2×1.6mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
1.0mm	450Vdc	X7T	10000pF	±10%	GC331AD72W103KX01#
	CO_{Mr}	TW	15000pF	±10%	GC331AD72W153KX01#
	250Vdc	X7T	33000pF	±10%	GC331AD72E333KX01#
.25mm	630Vdc	X7T	10000pF	±10%	GC331BD72J103KX01#
	450Vdc	X7T	22000pF	±10%	GC331BD72W223KX01#
	NV.C	Diarre	33000pF	±10%	GC331BD72W333KX01#
	250Vdc	X7T	47000pF	±10%	GC331BD72E473KX01#
1.8mm	630Vdc	X7T	15000pF	±10%	GC331CD72J153KX03#
	450Vdc	X7T	47000pF	±10%	GC331CD72W473KX03#
	250Vdc	X7T	68000pF	±10%	GC331CD72E683KX03#

■ 3.2×2.5mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
1.5mm	630Vdc	X7T	22000pF	±10%	GC332QD72J223KX01#
	250Vdc	X7T	0.10µF	±10%	GC332QD72E104KX01#
2.0mm	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	X7T	33000pF	±10%	GC332DD72J333KX01#
		47000pF	±10%	GC332DD72J473KX01#	
	450Vdc	X7T	68000pF	±10%	GC332DD72W683KX01#
	W	M. J.	0.10µF	±10%	GC332DD72W104KX01#
	250Vdc	X7T	0.15µF	±10%	GC332DD72E154KX01#

■ 4.5×3.2mm

		747.1	отторт	401	44004==1=101101011
■ 4.5×	3.2mm	WW	10	O.Y.C.	WI.Mc
T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
1.5mm	250Vdc	X7T	0.22µF	±10%	GC343QD72E224KX01#
2.0mm	630Vdc	X7T	68000pF	±10%	GC343DD72J683KX01#
	450Vdc	X7T	0.15µF	±10%	GC343DD72W154KX01#
	250Vdc	X7T	0.33µF	±10%	GC343DD72E334KX01#
			11	W.10	COMIT
■ 5.7×	5.0mm	ı			
			W	1111	TY YOU

■ 5.7×5.0mm

T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
2.0mm	630Vdc	X7T	0.10µF	±10%	GC355DD72J104KX01#
			0.15µF	±10%	GC355DD72J154KX01#
	450Vdc	X7T	0.22µF	±10%	GC355DD72W224KX01#
			0.33µF	±10%	GC355DD72W334KX01#
			0.47µF	±10%	GC355DD72W474KX01#
	250Vdc	X7T	0.47µF	±10%	GC355DD72E474KX01#
			0.68µF	±10%	GC355DD72E684KX01#
2.7mm	630Vdc	X7T	0.22µF	±10%	GC355XD72J224KX05#

GCD Series

Metal Terminal Type

KCM Series









By bonding metal terminals to the external electrodes of the chip, the problem of how to design a capacitor to enable it to be mounted on a large MLCC has been solved!

Features

1) Bond the metal terminals to the external electrodes of the chip.

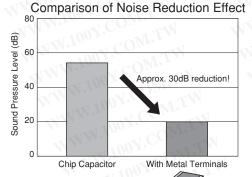
The stress on the chip is reduced due to the elastic behavior of the metal terminals.



Stress is reduced due to the elastic behavior of the metal terminals!

2 Noise, board deflection cracks, and solder cracks are greatly reduced.

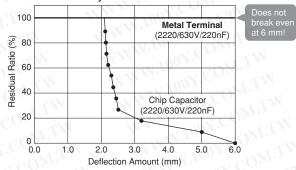
No breakage occurs even when the board deflection is 6mm. Solder cracks were not found even after 2000 heat stress cycles.



Evaluation Items: 2220 size/DC630V/220nF Test Conditions: 50V, AC10Vp-p/3kHz Sample Board: Glass-epoxy Board (T: 1.6mm) Number of samples: 3 Distance between microphone and board: 3mm

Note: Results obtained using Murata's evaluation board

Stress caused by board deflection is reduced.



Solder cracks due to heat stress are reduced.

Chip Size	Individual Chip (2220 size)	Metal Terminal (2220 size)
1000 cycles	∯Solder cracks	
2000 cycles	∬Solder cracks	

Test Conditions: -55 to +125°C, 5 minutes (liquid phase) Board used: Glass-epoxy Board (FR-4) Compared to an individual chip, the addition of metal terminals results in excellent solde cracking resistance.



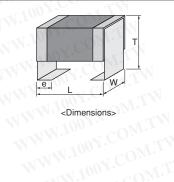
KCM Series

(3) **Chip Stacking**

A large capacitance can be realized by stacking two capacitors on top of each other.

Specifications

Rated Voltage	25Vdc to 100Vdc
Capacitance	4.7μF to 68μF
Main Applications	For drive control of engine ECU, etc. For other drive system control and safety



WWW.10

KCM Series High Dielectric Constant Type (ATC) Anti- Porfecting Soldering Crack **Part Number List**

■ 6.1×5.3mm

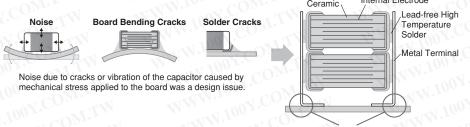
T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
3.0mm	100Vdc	X7R	4.7µF	±10%	KCM55LR72A475KH01#
	63Vdc	X7R	4.7µF	±10%	KCM55LR71J475KH01#
	50Vdc	X7R	4.7µF	±10%	KCM55LR71H475KH01#
	LTW		10µF	±10%	KCM55LR71H106KH01#
	35Vdc	X7R	10µF	±10%	KCM55LR7YA106KH01#
	Mr.	N	15µF	±10%	KCM55LR7YA156KH01#
	25Vdc	X7R	15µF	±10%	KCM55LR71E156KH01#
.9mm	100Vdc	X7R	6.8µF	±10%	KCM55QR72A685KH01#
	63Vdc	X7R	10µF	±10%	KCM55QR71J106KH01#
	50Vdc	X7R	17µF	±10%	KCM55QR71H176KH01#
	35Vdc	X7R	√ 17μF	±10%	KCM55QR7YA176KH01#
	1.0	$V_{I,I,I}$	22µF	±10%	KCM55QR7YA226KH01#
	25Vdc	X7R	22µF	±10%	KCM55QR71E226KH01#
	NY.COM	33µF	±10%	KCM55QR71E336KH01#	
.0mm	100Vdc	X7R	10µF	±20%	KCM55TR72A106MH01#
	50Vdc	X7R	22µF	±20%	KCM55TR71H226MH01#
	35Vdc	X7R	22µF	±20%	KCM55TR7YA226MH01#
	1.10	LCO	33µF	±20%	KCM55TR7YA336MH01#
	25Vdc	X7R	33µF	±20%	KCM55TR71E336MH01#
.7mm	100Vdc	X7R	15µF	±20%	KCM55WR72A156MH01#
	63Vdc	X7R	22µF	±20%	KCM55WR71J226MH01#
	50Vdc	X7R	33µF	±20%	KCM55WR71H336MH01#
	35Vdc	X7R	47µF	±20%	KCM55WR7YA476MH01#
	25Vdc	X7R	47µF	±20%	KCM55WR71E476MH01#
	M.M.	- 100	68µF	±20%	KCM55WR71E686MH01#

Metal Terminal Type/High Effective Capacitance & High Allowable Ripple Current

Features

1) Bond the metal terminals to the external electrodes of the chip.

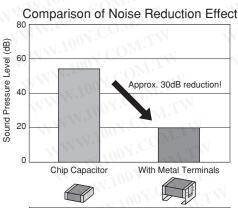
The stress on the chip is reduced due to the elastic behavior of the metal terminals.



Stress is reduced due to the elastic behavior of the metal terminals!

2 Noise, board deflection cracks, and solder cracks are greatly reduced.

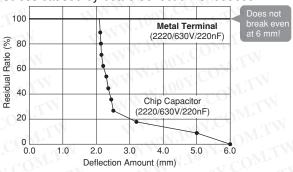
No breakage occurs even when the board deflection is 6mm. Solder cracks were not found even after 2000 heat stress cycles.



Evaluation Items: 2220 size/DC630V/220nF Test Conditions: 50V, AC10Vp-p/3kHz Sample Board: Glass-epoxy Board (T: 1.6mm) Number of samples: 3 Distance between microphone and board: 3mm

Note: Results obtained using Murata's evaluation board

Stress caused by board deflection is reduced.



Solder cracks due to heat stress are reduced.

Chip Size	Individual Chip (2220 size)	Metal Terminal (2220 size)
1000 cycles	∯Solder cracks	
2000 cycles	ÛSolder cracks	

Test Conditions: -55 to +125°C, 5 minutes (liquid phase) Board used: Glass-epoxy Board (FR-4)

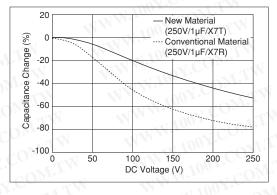
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(3)

GCJ Series

Uses material of low dielectric constant.

Compared to a conventional capacitor (X7R characteristics), this series has higher effective capacitance and better anti-ripple performance.

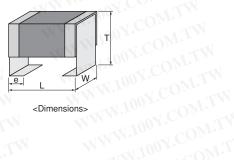


4 Chip Stacking

A large capacitance can be realized by stacking two capacitors on top of each other.

Specifications

Size	6.1×5.3mm
Rated Voltage	250Vdc to 630Vdc
Capacitance	0.1μF to 2.2μF
Main Applications	For drive control of engine ECU, etc. For other drive system control and safety equipment



WWW.100Y.C

WWW.100Y.COM.TW

KC3 Series High Dielectric Constant Type (ATC) Anti-noise Portecting Soldering Soldering (Series High Dielectric Constant Type (ATC) **Part Number List**

■ 6.1×5.3mm

WWW.100Y.C

WWW.100Y.COM.TW

■ 0.1×	:5.3mm		4.6	ov.C	ONI.
T max.	Rated Voltage	TC Code	Cap.	Tol.	Part Number
3.0mm	630Vdc	X7T	0.10µF	±10%	KC355LD72J104KH01#
	W		0.15µF	±10%	KC355LD72J154KH01#
	450Vdc	X7T	0.22µF	±10%	KC355LD72W224KH01#
	LTW		0.33µF	±10%	KC355LD72W334KH01#
	WILL		0.47µF	±10%	KC355LD72W474KH01#
	250Vdc	X7T	0.47µF	±10%	KC355LD72E474KH01#
*1 C	DIV		0.68µF	±10%	KC355LD72E684KH01#
3.9mm	630Vdc	X7T	0.22µF	±10%	KC355QD72J224KH01#
		IN	0.27µF	±10%	KC355QD72J274KH01#
	450Vdc	X7T	0.56µF	±10%	KC355QD72W564KH01#
100	250Vdc	X7T	1.0µF	±10%	KC355QD72E105KH01#
5.0mm	450Vdc	X7T	0.68µF	±20%	KC355TD72W684MH01#
	N.Co	TIM	1.0µF	±20%	KC355TD72W105MH01#
	250Vdc	X7T	1.5µF	±20%	KC355TD72E155MH01#
6.7mm	630Vdc	X7T	0.47µF	±20%	KC355WD72J474MH01#
	700 x	CON	0.56µF	±20%	KC355WD72J564MH01#
	450Vdc	X7T	1.2µF	±20%	KC355WD72W125MH01#
	250Vdc	X7T	2.2µF	±20%	KC355WD72E225MH01#

For Automotive

⚠ Caution/Notice

Caution

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GCM Series

GCD Series

GCE Series

■ Storage and Operation Conditions

- 1. The performance of chip monolithic ceramic capacitors may be affected by the storage conditions.
 - 1-1. Store the capacitors in the following conditions: Room Temperature of +5°C to +40°C and a Relative Humidity of 20% to 70%.
 - (1) Sunlight, dust, rapid temperature changes, corrosive gas atmosphere, or high temperature and humidity conditions during storage may affect solderability and packaging performance. Therefore, please maintain the storage temperature and humidity. Use the product within six months, as prolonged storage may cause oxidation of the electrodes.
 - (2) Please confirm solderability before using after six months. Store the capacitors without opening the original bag. Even if the storage period is short, do not exceed the specified atmospheric conditions.

- 1-2. Corrosive gas can react with the termination (external) electrodes or lead wires of capacitors, and result in poor solderability. Do not store the capacitors in an atmosphere consisting of corrosive gas (e.g., hydrogen sulfide, sulfur dioxide, chlorine, ammonia gas, etc.).
- 1-3. Due to moisture condensation caused by rapid humidity changes, or the photochemical change caused by direct sunlight on the terminal electrodes and/or the resin/epoxy coatings, the solderability and electrical performance may deteriorate. Do not store capacitors under direct sunlight or in high humidity conditions.
- <Applicable to GCG Series>
- 1-4. After unpacking, immediately reseal, or store in a desiccator containing a desiccant.

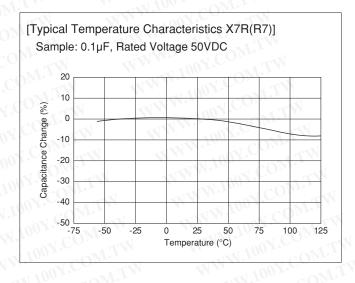
Rating

1. Temperature Dependent Characteristics

- 1. The electrical characteristics of a capacitor can change with temperature.
 - 1-1. For capacitors having larger temperature dependency, the capacitance may change with temperature changes.
 - The following actions are recommended in order to ensure suitable capacitance values.
 - (1) Select a suitable capacitance for the operating temperature range.
 - (2) The capacitance may change within the rated temperature.
 - When you use a high dielectric constant type capacitor in a circuit that needs a tight (narrow) capacitance tolerance (e.g., a time-constant circuit), please carefully consider the temperature characteristics, and carefully confirm the various characteristics in actual use conditions and the actual system.

2. Measurement of Capacitance

- 1. Measure capacitance with the voltage and frequency specified in the product specifications.
 - 1-1. The output voltage of the measuring equipment may decrease occasionally when capacitance is high. Please confirm whether a prescribed measured voltage is impressed to the capacitor.
 - 1-2. The capacitance values of high dielectric constant type capacitors change depending on the AC voltage applied. Please consider the AC voltage characteristics when selecting a capacitor to be used WWW.100Y.COM.TV in an AC circuit.







Continued from the preceding page.

3. Applied Voltage

- 1. Do not apply a voltage to the capacitor that exceeds the rated voltage as called out in the specifications.
 - 1-1. Applied voltage between the terminals of a capacitor shall be less than or equal to the rated voltage.
 - (1) When AC voltage is superimposed on DC voltage, the zero-to-peak voltage shall not exceed the rated DC voltage.

When AC voltage or pulse voltage is applied, the peak-to-peak voltage shall not exceed the rated DC voltage.

(2) Abnormal voltages (surge voltage, static electricity, pulse voltage, etc.) shall not exceed the rated DC voltage.

DC Voltage	DC Voltage+AC	AC Voltage	Pulse Voltage
E ON TW	E	E 0	CONF
0	MA 0 100 COM	WWW.100	

WW.100Y.COM.TV

1-2. Influence of over voltage

Over voltage that is applied to the capacitor may result in an electrical short circuit caused by the breakdown of the internal dielectric layers.

The time duration until breakdown depends on the applied voltage and the ambient temperature.

2. Use a safety standard certified capacitor in a power supply input circuit (AC filter), as it is also necessary to consider the withstand voltage and impulse withstand voltage defined for each device.

4. Type of Applied Voltage and Self-heating Temperature

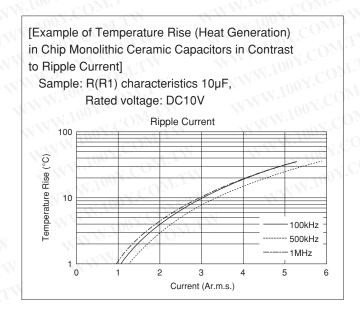
1. Confirm the operating conditions to make sure that no large current is flowing into the capacitor due to the continuous application of an AC voltage or pulse voltage.

When a DC rated voltage product is used in an AC voltage circuit or a pulse voltage circuit, the AC current or pulse current will flow into the capacitor; therefore check the self-heating condition.

Please confirm the surface temperature of the capacitor so that the temperature remains within the upper limits of the operating temperature, including the rise in temperature due to self-heating. When the capacitor is used with a high-frequency voltage or pulse voltage, heat may be generated by dielectric loss.

<Applicable to Rated Voltage of less than 100VDC>

1-1. The load should be contained to the level such that when measuring at atmospheric temperature of 25°C, the product's self-heating remains below 20°C and the surface temperature of the capacitor in the actual circuit remains within the maximum operating temperature.



GCE Series

Continued from the preceding page.

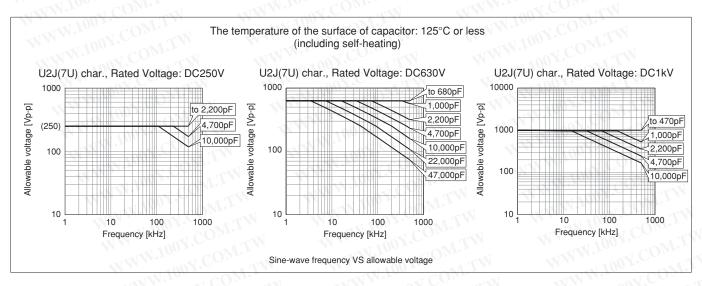
<Applicable to Temperature Characteristics X7R(R7),</p> X7T(D7) beyond Rated Voltage of 250VDC>

1-2. The load should be contained so that the self-heating of the capacitor body remains below 20°C, when measuring at an ambient temperature of 25°C. In addition, use a K thermocouple of Ø0.1mm with less heat capacity when measuring, and measure in a condition where there is no effect from the radiant heat of other components or air flow caused by convection. Excessive generation of heat may cause deterioration of the characteristics and reliability of the capacitor. (Absolutely do not perform measurements while the cooling fan is operating, as an accurate measurement may not be performed.)

<Applicable to Temperature Characteristics U2J(7U)</p> beyond Rated Voltage of 250VDC>

1-3. Since the self-heating is low in the low loss series, the allowable power becomes extremely high compared to the common X7R(R7) characteristics. However, when a load with self-heating of 20°C is applied at the rated voltage, the allowable power may be exceeded. When the capacitor is used in a high-frequency voltage circuit of 1kHz or more, the frequency of the applied voltage should be less than 500kHz sine wave (less than 100kHz for a product with rated voltage of DC3.15kV), to limit the voltage load so that the load remains within the derating shown in the following figure. In the case of non-sine wave, high-frequency components exceeding the fundamental frequency may be included. In such a case, please contact Murata. The excessive generation of heat may cause deterioration of the characteristics and reliability of the capacitor.

(Absolutely do not perform measurements while the cooling fan is operating, as an accurate measurement may not be performed.)



<Design Tool>

- Simsurfina Simsurfing is a web application to display the characteristics charts and download the characteristics data of our products. The frequency characteristics, temperature characteristics, bias characteristics etc. can be checked.
- (Address: http://www.murata.com/simsurfing/)
- Medium Voltage Ceramic Capacitor Selection Tool The selection tool "Murata Medium Voltage Capacitors Selection Tool by Voltage Form" is installed in the above SimSurfing, where the usability of the preferred medium voltage ceramic capacitors can be determined according to the application including automobiles. WWW.100Y.COM.TW

By using this tool, the preferred products* can be checked by specifications, such as the power, voltage, and fundamental frequency of the voltage waveform to be input into the capacitor.

*Supported Series

Temperature characteristics U2J(7U) of GCM/DC250V or WWW.100Y.COM.T





GCD Series

GCE Series

GCG Series

GCJ Series

GC3 Series

KCM Series

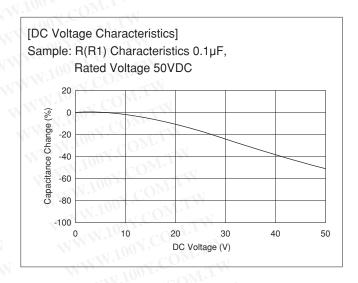
KC3 Series

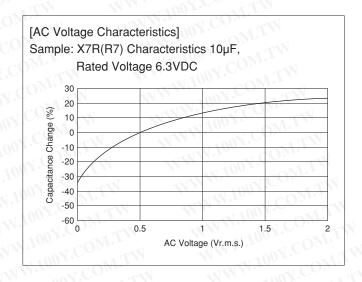
5. DC Voltage and AC Voltage Characteristics

- 1. The capacitance value of a high dielectric constant type capacitor changes depending on the DC voltage applied. Please consider the DC voltage characteristics when a capacitor is selected for use in a DC circuit.
 - 1-1. The capacitance of ceramic capacitors may change sharply depending on the applied voltage (see

Please confirm the following in order to secure the capacitance.

- (1) Determine whether the capacitance change caused by the applied voltage is within the allowed range.
- (2) In the DC voltage characteristics, the rate of capacitance change becomes larger as voltage increases, even if the applied voltage is below the rated voltage. When a high dielectric constant type capacitor is used in a circuit that requires a tight (narrow) capacitance tolerance (e.g., a time constant circuit), please carefully consider the voltage characteristics, and confirm the various characteristics in actual operating conditions in an actual system.
- 2. The capacitance values of high dielectric constant type capacitors changes depending on the AC voltage applied. Please consider the AC voltage characteristics when selecting a capacitor to be used in an AC circuit.

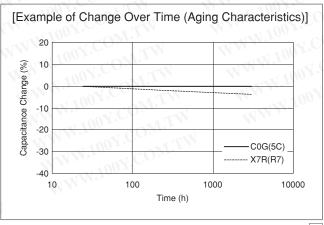




6. Capacitance Aging

1. The high dielectric constant type capacitors have the Characteristics in which the capacitance value decreases with the passage of time.

When you use high dielectric constant type capacitors in a circuit that needs a tight (narrow) capacitance tolerance (e.g., a time-constant circuit), please carefully consider the characteristics of these capacitors, such as their aging, voltage, and temperature characteristics. In addition, check capacitors using your actual appliances at the intended environment and operating conditions.



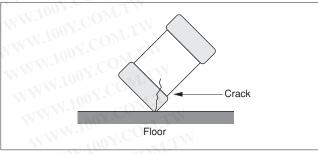


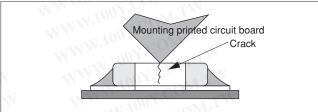
7. Vibration and Shock

- 1. Please confirm the kind of vibration and/or shock, its condition, and any generation of resonance. Please mount the capacitor so as not to generate resonance, and do not allow any impact on the terminals.
- 2. Mechanical shock due to being dropped may cause damage or a crack in the dielectric material of the capacitor.

Do not use a dropped capacitor because the quality and reliability may be deteriorated.

3. When printed circuit boards are piled up or handled, the corner of another printed circuit board should not be allowed to hit the capacitor, in order to avoid a crack or other damage to the capacitor.



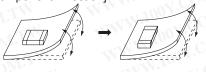


■ Soldering and Mounting

1. Mounting Position

- 1. Confirm the best mounting position and direction that minimizes the stress imposed on the capacitor during flexing or bending the printed circuit board.
 - 1-1. Choose a mounting position that minimizes the stress imposed on the chip during flexing or bending of the board.





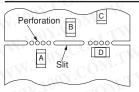
Locate chip horizontal to the direction in which stress

[Chip Mounting Close to Board Separation Point]

It is effective to implement the following measures, to reduce stress in separating the board.

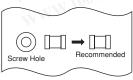
It is best to implement all of the following three measures; however, implement as many measures as possible to reduce stress.

Contents of Measures	Stress Level
(1) Turn the mounting direction of the component parallel to the board separation surface.	A > D
(2) Add slits in the board separation part.	A > B
(3) Keep the mounting position of the component away from the board separation surface.	A > C



[Mounting Capacitors Near Screw Holes]

When a capacitor is mounted near a screw hole, it may be affected by the board deflection that occurs during the tightening of the screw. Mount the capacitor in a position as far away from the screw holes as possible.



GCM Series

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Continued from the preceding page.

2. Information before Mounting

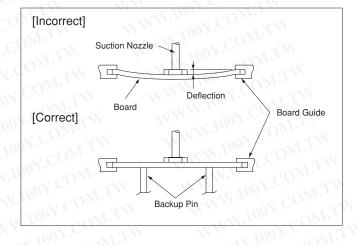
- 1. Do not re-use capacitors that were removed from the equipment.
- 2. Confirm capacitance characteristics under actual applied voltage.
- 3. Confirm the mechanical stress under actual process and equipment use.
- 4. Confirm the rated capacitance, rated voltage and other electrical characteristics before assembly.
- 5. Prior to use, confirm the solderability of capacitors that were in long-term storage.
- 6. Prior to measuring capacitance, carry out a heat treatment for capacitors that were in long-term storage.
- 7. The use of Sn-Zn based solder will deteriorate the reliability of the MLCC.

Please contact our sales representative or product engineers on the use of Sn-Zn based solder in advance.

8. We have also produced a DVD which shows a summary of our opinions, regarding the precautions for mounting. Please contact our sales representative to request the DVD.

3. Maintenance of the Mounting (pick and place) Machine

- 1. Make sure that the following excessive forces are not applied to the capacitors.
 - 1-1. In mounting the capacitors on the printed circuit board, any bending force against them shall be kept to a minimum to prevent them from any bending damage or cracking. Please take into account the following precautions and recommendations for use in your process.
 - (1) Adjust the lowest position of the pickup nozzle so as not to bend the printed circuit board.
 - (2) Adjust the nozzle pressure within a static load of 1N to 3N during mounting.
- 2. Dirt particles and dust accumulated between the suction nozzle and the cylinder inner wall prevent the nozzle from moving smoothly. This imposes greater force upon the chip during mounting, causing cracked chips. Also, the locating claw, when worn out, imposes uneven forces on the chip when positioning, causing cracked chips. The suction nozzle and the locating claw must be maintained, checked, and replaced periodically. WWW.100Y.COM.TW







4-1. Reflow Soldering

- 1. When sudden heat is applied to the components, the mechanical strength of the components will decrease because a sudden temperature change causes deformation inside the components. In order to prevent mechanical damage to the components, preheating is required for both the components and the PCB. Preheating conditions are shown in table 1. It is required to keep the temperature differential between the solder and the components surface (ΔT) as small as possible.
- Solderability of tin plating termination chips might be deteriorated when a low temperature soldering profile where the peak solder temperature is below the melting point of tin is used. Please confirm the solderability of tin plated termination chips before use.
- 3. When components are immersed in solvent after mounting, be sure to maintain the temperature difference (ΔT) between the component and the solvent within the range shown in table 1.

Table 1

Part Number	Temperature Differential	
GC3/GCD/GCE/GCJ/GCM Series 03/15/18/21/31 sizes	ΔΤ≦190°C	
GCJ/GCM Series 32/43/55 sizes KC3/KCM Series 55 size	ΔΤ≦130°C	

Recommended Conditions

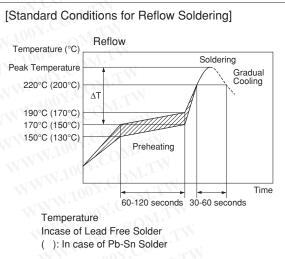
MM.	Pb-S	Lead Free		
WW	Reflow	Vapor Reflow	Solder	
Peak Temperature	230 to 250°C	230 to 240°C	240 to 260°C	
Atmosphere	Air	Saturated vapor of inactive solvent	Air or N2	

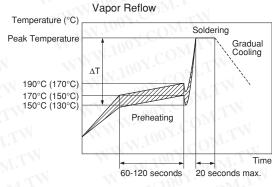
Pb-Sn Solder: Sn-37Pb Lead Free Solder: Sn-3.0Ag-0.5Cu

- 4. Optimum Solder Amount for Reflow Soldering
 - 4-1. Overly thick application of solder paste results in a excessive solder fillet height.
 - This makes the chip more susceptible to mechanical and thermal stress on the board and may cause the chips to crack.
 - 4-2. Too little solder paste results in a lack of adhesive strength on the outer electrode, which may result in chips breaking loose from the PCB.
 - 4-3. Make sure the solder has been applied smoothly to the end surface to a height of 0.2mm* min.

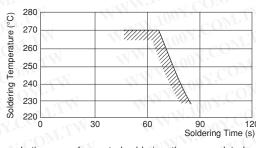
Inverting the PCB

Make sure not to impose any abnormal mechanical shocks to the PCB.

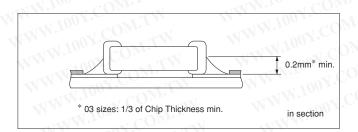




[Allowable Reflow Soldering Temperature and Time]



In the case of repeated soldering, the accumulated soldering time must be within the range shown above.





KCM Series

Continued from the preceding page.

4-2. Flow Soldering

1. Do not apply flow soldering to chips not listed in table 2.

Table 2

Part Number	Temperature Differential		
GC3/GCD/GCM Series 18/21/31 sizes (Except for characteristics of X8L(L8), X8G(5G))	ΔΤ≦150°C		
GCJ Series Rated Voltage 250VDC or more 18/21/31 sizes	100Y.COM.TW		

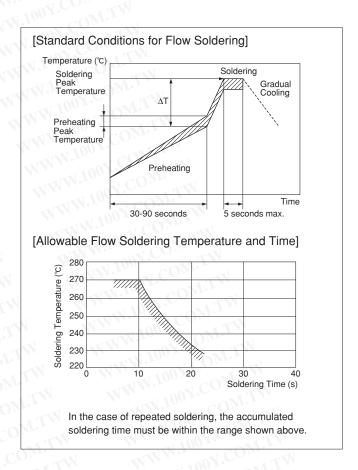
- 2. When sudden heat is applied to the components, the mechanical strength of the components will decrease because a sudden temperature change causes deformation inside the components. In order to prevent mechanical damage to the components, preheating is required for both of the components and the PCB. Preheating conditions are shown in table 2. It is required to keep the temperature differential between the solder and the components surface (ΔT) as low as possible.
- 3. Excessively long soldering time or high soldering temperature can result in leaching of the outer electrodes, causing poor adhesion or a reduction in capacitance value due to loss of contact between the electrodes and end termination.
- 4. When components are immersed in solvent after mounting, be sure to maintain the temperature differential (ΔT) between the component and solvent within the range shown in the table 2.

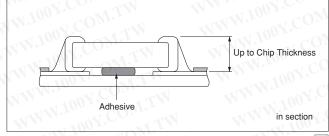
Recommended Conditions

W 100	Pb-Sn Solder	Lead Free Solder
Preheating Peak Temperature	90 to 110°C	100 to 120°C
Soldering Peak Temperature	240 to 250°C	250 to 260°C
Atmosphere	Air	Air

Pb-Sn Solder: Sn-37Pb Lead Free Solder: Sn-3.0Ag-0.5Cu

- 5. Optimum Solder Amount for Flow Soldering
 - 5-1. The top of the solder fillet should be lower than the thickness of the components. If the solder amount is excessive, the risk of cracking is higher during board bending or any other stressful condition.









4-3. Correction of Soldered Portion

When sudden heat is applied to the capacitor, distortion caused by the large temperature difference occurs internally, and can be the cause of cracks. Capacitors also tend to be affected by mechanical and thermal stress depending on the board preheating temperature or the soldering fillet shape, and can be the cause of cracks. Please refer to "1. PCB Design" or "3. Optimum solder amount" for the solder amount and the fillet shapes.

- 1. Correction with a Soldering Iron
 - 1-1. In order to reduce damage to the capacitor, be sure to preheat the capacitor and the mounting board. Preheat to the temperature range shown in Table 3. A hot plate, hot air type preheater, etc. can be used for preheating.
 - 1-2. After soldering, do not allow the component/PCB to cool down rapidly.
 - 1-3. Perform the corrections with a soldering iron as quickly as possible. If the soldering iron is applied too long, there is a possibility of causing solder leaching on the terminal electrodes, which will cause deterioration of the adhesive strength and other problems.
- 2. Correction with Spot Heater

Compared to local heating with a soldering iron, hot air heating by a spot heater heats the overall component and board, therefore, it tends to lessen the thermal shock. In the case of a high density mounted board, a spot heater can also prevent concerns of the soldering iron making direct contact with the component.

2-1. If the distance from the hot air outlet of the spot heater to the component is too close, cracks may occur due to thermal shock. To prevent this problem, follow the conditions shown in Table 4.

2-2. In order to create an appropriate solder fillet shape, it is recommended that hot air be applied at the angle shown in Figure 1.

3. Optimum solder amount when re-working with a soldering iron

3-1. In the case of sizes smaller than 0603, (GC3/GCD/GCE/ GCJ/GCM Series, 03/15/18 sizes), the top of the solder fillet should be lower than 2/3 of the thickness of the component or 0.5mm, whichever is smaller. In the case of 0805 and larger sizes, (GC3/GCD/GCE/GCJ/GCM Series, 21/31/32/43/55 sizes), the top of the solder fillet should be lower than 2/3 of the thickness of the component. If the solder amount is excessive, the risk of cracking is higher during board bending or under any other stressful condition.

. 21711				
Part Number	Temperature of Soldering Iron Tip	Preheating Temperature	Temperature Differential (∆T)	Atmosphere
GC3/GCD/GCE/ GCJ/GCM Series 03/15/18/21/31 sizes	350°C max.	150°C min.	ΔΤ≦190°C	Air
GCJ/GCM Series 32/43/55 sizes	280°C max.	150°C min.	ΔΤ≦130°C	Air

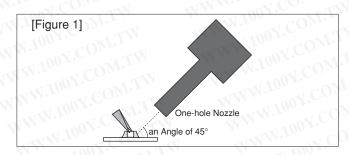
*Applicable for both Pb-Sn and Lead Free Solder.

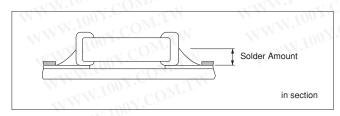
Pb-Sn Solder: Sn-37Pb

Lead Free Solder: Sn-3.0Ag-0.5Cu

Table 4

Distance	5mm or more
Hot Air Application Angle	45° *Figure 1
Hot Air Temperature Nozzle Outlet	400°C max.
N.COM.TW	Less than 10 seconds (1206 (3216 in mm) size or smaller)
Application Time	Less than 30 seconds (1210 (3225 in mm) size or larger)





⚠Caution

Continued from the preceding page.

- 3-2. A soldering iron with a tip of ø3mm or smaller should be used. It is also necessary to keep the soldering iron from touching the components during the re-work.
- 3-3. Solder wire with ø0.5mm or smaller is required for soldering.
- <Applicable to KC3/KCM Series>
- 4. For the shape of the soldering iron tip, refer to the figure on the right.

Regarding the type of solder, use a wire diameter of ø0.5mm or less (rosin core wire solder).

- 4-1. How to Apply the Soldering Iron
 Apply the tip of the soldering iron against the lower
 end of the metal terminal.
 - In order to prevent cracking caused by sudden heating of the ceramic device, do not touch the ceramic base directly.
 - In order to prevent deviations and dislocating of the chip, do not touch the junction of the chip and the metal terminal, and the metal portion on the outside directly.
- 4-2. Appropriate Amount of Solder

 The amount of solder for corrections by soldering iron, should be lower than the height of the lower side of the chip.

Tip of Soldering Iron Tip temperature: 350°C or less/ 5 sec. or less/60W or less Copper Land Apply the tip of the soldering iron only on the terminal portion, without touching the body of the chip. Cross Section

5. Washing

Excessive ultrasonic oscillation during cleaning can cause the PCBs to resonate, resulting in cracked chips or broken solder joints. Take note not to vibrate PCBs.

6. Electrical Test on Printed Circuit Board

- Confirm position of the backup pin or specific jig, when inspecting the electrical performance of a capacitor after mounting on the printed circuit board.
 - 1-1. Avoid bending the printed circuit board by the pressure of a test-probe, etc. The thrusting force of the test probe can flex the PCB, resulting in cracked chips or open solder joints.

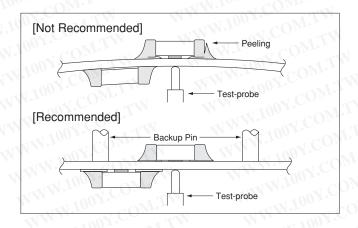
resulting in cracked chips or open solder joints.

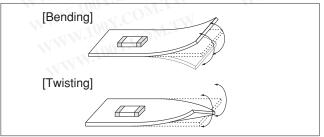
Provide backup pins on the back side of the PCB to prevent warping or flexing. Install backup pins as close to the test-probe as possible.

1-2. Avoid vibration of the board by shock when a test-probe contacts a printed circuit board.

7. Printed Circuit Board Cropping

- After mounting a capacitor on a printed circuit board, do not apply any stress to the capacitor that causes bending or twisting the board.
 - 1-1. In cropping the board, the stress as shown at right may cause the capacitor to crack.Avoid this type of stress to a capacitor.





- Continued from the preceding page.
- 2. Check the cropping method for the printed circuit board in advance.
 - 2-1. Printed circuit board cropping shall be carried out by using a jig or an apparatus (Disk separator, router type separator, etc.) to prevent the mechanical stress that can occur to the board.

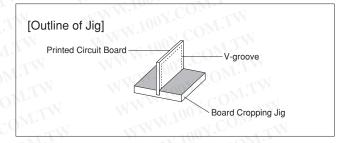
Day on the Mathed	Hand Separation (4) Based Communication		Board Separation Apparatus		
Board Separation Method Nipper Separation	Nipper Separation	(1) Board Separation Jig	(2) Disk Separator	(3) Router Type Separator	
Level of stress on board	High	Medium	Medium	Low	
Recommended	100 × 0M.)	Δ*	Δ*	0	
Notes	Hand and nipper separation apply a high level of stress. Use another method.	Board handling Board bending direction Layout of capacitors	Board handling Layout of slits Design of V groove Arrangement of blades Controlling blade life	Board handling	

When a board separation jig or disk separator is used, if the following precautions are not observed, a large board deflection stress will occur and the capacitors may crack. Use router type separator if at all possible

(1) Example of a suitable jig

[In the case of Single-side Mounting]

An outline of the board separation jig is shown as follows. Recommended example: Stress on the component mounting position can be minimized by holding the portion close to the jig, and bend in the direction towards the side where the capacitors are mounted. Not recommended example: The risk of cracks occurring in the capacitors increases due to large stress being applied to the component mounting position, if the portion away from the jig is held and bent in the direction opposite the side where the capacitors are mounted.



Recommended	Not Recommended
Printed Circuit Board — Components Load Point	Load Point Direction of Load Printed Circuit Board

[In the case of Double-sided Mounting]

Since components are mounted on both sides of the board, the risk of cracks occurring can not be avoided with the above method.

Therefore, implement the following measures to prevent stress from being applied to the components. (Measures)

- (1) Consider introducing a router type separator. If it is difficult to introduce a router type separator, implement the following measures. (Refer to item 1. Mounting Position)
- (2) Mount the components parallel to the board separation surface.
- (3) When mounting components near the board separation point, add slits in the separation position near the component.
- (4) Keep the mounting position of the components away from the board separation point.

Continued from the preceding page.

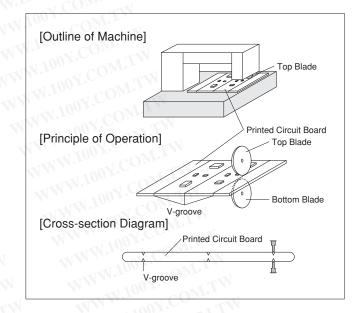
(2) Example of a Disk Separator

An outline of a disk separator is shown as follows. As shown in the Principle of Operation, the top blade and bottom blade are aligned with the V-grooves on the printed circuit board to separate the board.

In the following case, board deflection stress will be applied and cause cracks in the capacitors.

- (1) When the adjustment of the top and bottom blades are misaligned, such as deviating in the top-bottom, left-right or front-rear directions
- (2) The angle of the V groove is too low, depth of the V groove is too shallow, or the V groove is misaligned top-bottom

IF V groove is too deep, it is possible to brake when you handle and carry it. Carefully design depth of the V groove with consideration about strength of material of the printed circuit board.



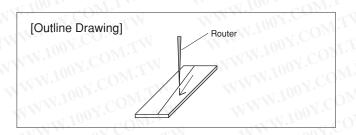
Decempeded		Not Recommended	
Recommended	Top-bottom Misalignment	Left-right Misalignment	Front-rear Misalignment
Top Blade	Top Blade	Top Blade	Top Blade
Bottom Blade	Bottom Blade	Bottom Blade	Bottom Blade

Example of Recommended	TW WWW	Not Reco	mmended	OY. OM.TW
V-groove Design	Left-right Misalignment	Low-Angle	Depth too Shallow	Depth too Deep

(3) Example of Router Type Separator

The router type separator performs cutting by a router rotating at a high speed. Since the board does not bend in the cutting process, stress on the board can be suppressed during board separation.

When attaching or removing boards to/from the router type separator, carefully handle the boards to prevent bending.









Continued from the preceding page.

8. Assembly

Handling

If a board mounted with capacitors is held with one hand, the board may bend. Firmly hold the edges of the board with both hands when handling.

If a board mounted with capacitors is dropped, cracks may occur in the capacitors.

Do not use dropped boards, as there is a possibility that the quality of the capacitors may be impaired.

2. Attachment of Other Components

2-1. Mounting of Other Components

Pay attention to the following items, when mounting other components on the back side of the board after capacitors have been mounted on the opposite side. When the bottom dead point of the suction nozzle is set too low, board deflection stress may be applied to the capacitors on the back side (bottom side), and cracks may occur in the capacitors.

- · After the board is straightened, set the bottom dead point of the nozzle on the upper surface of the board.
- · Periodically check and adjust the bottom dead point.
- 2-2. Inserting Components with Leads into Boards When inserting components (transformers, IC, etc.) into boards, bending the board may cause cracks in the capacitors or cracks in the solder.

Pay attention to the following.

- · Increase the size of the holes to insert the leads, to reduce the stress on the board during insertion.
- · Fix the board with backup pins or a dedicated jig before insertion.
- · Support below the board so that the board does not bend. When using multiple backup pins on the board, periodically confirm that there is no difference in the height of each backup pin.

2-3. Attaching/Removing Sockets

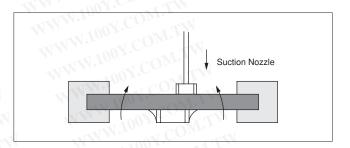
When the board itself is a connector, the board may bend when a socket is attached or removed. Plan the work so that the board does not bend when a socket is attached or removed.

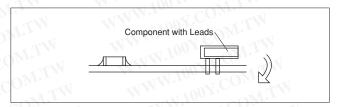
2-4. Tightening Screws

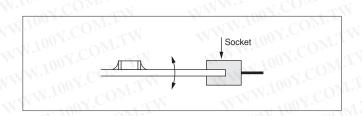
The board may be bent, when tightening screws, etc. during the attachment of the board to a shield or chassis.

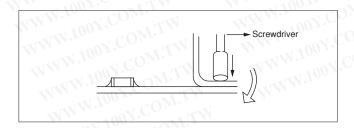
Pay attention to the following items before performing

- · Plan the work to prevent the board from bending.
- · Use a torque screwdriver, to prevent over-tightening of the screws.
- · The board may bend after mounting by reflow soldering, etc. Please note, as stress may be applied to the chips by forcibly flattening the board when tightening the screws.











⚠Caution

Continued from the preceding page.

<Applicable to GCG Series>

Selection of Conductive Adhesive, Mounting Process, and Bonding Strength

The acquired bonding strength may change greatly depending on the conductive adhesive to be used. Be sure to confirm if the desired performance can be acquired in the assumed mounting process with the conductive adhesive to be used.

10. Moisture Proof Process

In order to prevent the occurrence of migration, perform a moisture proof process, such as applying a resin coating or enclosing with a dry inert gas.

11. Application

This product is for conductive adhesive mounting. When performing solder mounting, contact Murata in advance.

Other

1. Under Operation of Equipment

- 1-1. Do not touch a capacitor directly with bare hands during operation in order to avoid the danger of an electric shock.
- 1-2. Do not allow the terminals of a capacitor to come in contact with any conductive objects (short-circuit). Do not expose a capacitor to a conductive liquid, including any acid or alkali solutions.
- 1-3. Confirm the environment in which the equipment will operate is under the specified conditions. Do not use the equipment under the following environments.
 - (1) Being spattered with water or oil.
 - (2) Being exposed to direct sunlight.
 - (3) Being exposed to ozone, ultraviolet rays, or radiation.
 - (4) Being exposed to toxic gas (e.g., hydrogen sulfide, sulfur dioxide, chlorine, ammonia gas, etc.)
 - (5) Any vibrations or mechanical shocks exceeding the specified limits.
 - (6) Moisture condensing environments.
- 1-4. Use damp proof countermeasures if using under any conditions that can cause condensation.

2. Other

2-1. In an Emergency

- (1) If the equipment should generate smoke, fire, or smell, immediately turn off or unplug the equipment. If the equipment is not turned off or unplugged, the hazards may be worsened by supplying continuous power.
- (2) In this type of situation, do not allow face and hands to come in contact with the capacitor or burns may be caused by the capacitor's high temperature.

2-2. Disposal of Waste

When capacitors are disposed of, they must be burned or buried by an industrial waste vendor with the appropriate licenses.

2-3. Circuit Design

- (1) Addition of Fail Safe Function Capacitors that are cracked by dropping or bending of the board may cause deterioration of the insulation resistance, and result in a short. If the circuit being used may cause an electrical shock, smoke or fire when a capacitor is shorted, be sure to install fail-safe functions, such as a fuse, to prevent secondary accidents.
- (2) Capacitors used to prevent electromagnetic interference in the primary AC side circuit, or as a connection/insulation, must be a safety standard certified product, or satisfy the contents stipulated in the Electrical Appliance and Material Safety Law. Install a fuse for each line in case of a short.
- (3) The GC3, GCD, GCE, GCG, GCJ, GCM, KC3, and KCM series are not safety standard certified products.

2-4. Remarks

Failure to follow the cautions may result, worst case in a short circuit and smoking when the product is used.

The above notices are for standard applications and conditions. Contact us when the products are used in special mounting conditions.

Select optimum conditions for operation as they determine the reliability of the product after assembly. The data herein are given in typical values, not guaranteed ratings.



Rating

1. Operating Temperature

- 1. The operating temperature limit depends on the capacitor.
 - 1-1. Do not apply temperatures exceeding the upper operating temperature.
 - It is necessary to select a capacitor with a suitable rated temperature that will cover the operating temperature range.
 - It is also necessary to consider the temperature distribution in equipment and the seasonal temperature variable factor.
 - 1-2. Consider the self-heating factor of the capacitor. The surface temperature of the capacitor shall be the upper operating temperature or less when including the self-heating factors.

2. Atmosphere Surroundings (gaseous and liquid)

- 1. Restriction on the operating environment of capacitors.
 - 1-1. Capacitors, when used in the above, unsuitable,

- operating environments may deteriorate due to the corrosion of the terminations and the penetration of moisture into the capacitor.
- 1-2. The same phenomenon as the above may occur when the electrodes or terminals of the capacitor are subject to moisture condensation.
- 1-3. The deterioration of characteristics and insulation resistance due to the oxidization or corrosion of terminal electrodes may result in breakdown when the capacitor is exposed to corrosive or volatile gases or solvents for long periods of time.

3. Piezo-electric Phenomenon

1. When using high dielectric constant type capacitors in AC or pulse circuits, the capacitor itself vibrates at specific frequencies and noise may be generated. Moreover, when the mechanical vibration or shock is added to the capacitor, noise may occur.

■ Soldering and Mounting

1. PCB Design

- 1. Notice for Pattern Forms
 - 1-1. Unlike leaded components, chip components are susceptible to flexing stresses since they are mounted directly on the substrate.

They are also more sensitive to mechanical and thermal stresses than leaded components.

Excess solder fillet height can multiply these stresses and cause chip cracking. When designing substrates, take land patterns and dimensions into consideration to eliminate the possibility of excess solder fillet height.

1-2. There is a possibility of chip cracking caused by PCB expansion/contraction with heat, because stress on a chip is different depending on PCB material and structure. When the thermal expansion coefficient greatly differs between the board used for mounting and the chip, it will cause cracking of the chip due to the thermal expansion and contraction. When small size capacitors of 0402 size or less are mounted on a single-layered glass epoxy board, it will also cause cracking of the chip for the same reason.

WWW	Prohibited	Correct
Placing Close to Chassis	Chassis Solder (ground) Electrode Pattern	Solder Resist
Placing of Chip Components and Leaded Components	Lead Wire	Solder Resist
Placing of Leaded Components after Chip Component	Soldering Iron Lead Wire	Solder Resist
Lateral Mounting		Solder Resist





GCJ Series

Notice

Continued from the preceding page.

2. Land Dimensions

2-1. Chip capacitors can be cracked due to the stress of PCB bending, etc. if the land area is larger than needed and has an excess amount of solder. Please refer to the land dimensions in table 1 for flow soldering, table 2 for reflow soldering. Please confirm the suitable land dimension by evaluating of the actual SET / PCB.

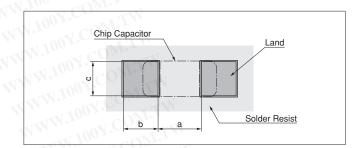


Table 1 Flow Soldering Method

Part Number	Dimensions	Chip (L×W)	a W.10	y.CO b	С
GC3/GCD/GCM/GCJ S (Rated Voltage: above 250VI		1.6×0.8	0.6 to 1.0	0.8 to 0.9	0.6 to 0.8
GC3/GCD/GCM/GCJ S (Rated Voltage: above 250VI		2.0×1.25	1.0 to 1.2	0.9 to 1.0	0.8 to 1.1
GC3/GCD/GCM/GCJ S	21.00	3.2×1.6	2.2 to 2.6	1.0 to 1.1	1.0 to 1.4

Table 2 Reflow Soldering Method

Dimensions Part Number	Chip (L×W)	a V	MM. poy.co	M.TW c
GC3/GCD/GCE/GCJ/GCM Series 03 size	0.6×0.3	0.2 to 0.3	0.2 to 0.35	0.2 to 0.4
GC3/GCD/GCE/GCJ/GCM Series 15 size	1.0×0.5	0.3 to 0.5	0.35 to 0.45	0.4 to 0.6
GQM/GR3/GRJ/GRM Series 18 size	1.6×0.8	0.6 to 0.8	0.6 to 0.7	0.6 to 0.8
GC3/GCD/GCE/GCJ/GCM Series 21 size	2.0×1.25	1.0 to 1.2	0.6 to 0.7	0.8 to 1.1
GC3/GCD/GCE/GCJ/GCM Series 31 size	3.2×1.6	2.2 to 2.4	0.8 to 0.9	1.0 to 1.4
GC3/GCD/GCE/GCJ/GCM Series 32 size	3.2×2.5	2.0 to 2.4	1.0 to 1.2	1.8 to 2.3
GC3/GCD/GCE/GCJ/GCM Series 43 size	4.5×3.2	3.0 to 3.5	1.2 to 1.4	2.3 to 3.0
GC3/GCD/GCE/GCJ/GCM Series 55 size	5.7×5.0	4.0 to 4.6	1.4 to 1.6	3.5 to 4.8

<Applicable to Part Number KC3/KCM>

Dimensions Part Number	Chip (L×W)	100Y. a OM.TY	b W	100 X COM.TY
KC3/KCM Series 55 size	5.7×5.0	2.6	2.7	5.6

<Applicable to beyond Rated Voltage of 250VDC>

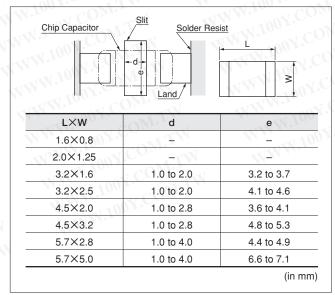
2-2. Dimensions of Slit (Example)

Preparing the slit helps flux cleaning and resin coating on the back of the capacitor.

However, the length of the slit design should be as short as possible to prevent mechanical damage in the capacitor.

A longer slit design might receive more severe mechanical stress from the PCB.

Recommended slit design is shown in the Table. WWW.100Y.COM.





Continued from the preceding page.

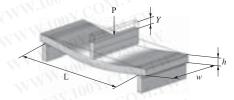
3. Board Design

When designing the board, keep in mind that the amount of strain which occurs will increase depending on the size and material of the board.

[Relationship with amount of strain to the board thickness, length, width, etc.]

$$\varepsilon = \frac{3\text{PL}}{2Ewh^2}$$
 Relationship between load and strain

- ε: Strain on center of board (μst)
- L: Distance between supporting points (mm)
- w: Board width (mm)
- h: Board thickness (mm)
- E: Elastic modulus of board (N/m²=Pa)
- Y: Deflection (mm)
- P: Load (N)



When the load is constant, the following relationship can be established. \cdot As the distance between the supporting points (L) increases,

- the amount of strain also increases
- →Reduce the distance between the supporting points.
- As the elastic modulus (E) decreases, the amount of strain increases. →Increase the elastic modulus.
- As the board width (w) decreases, the amount of strain increases. →Increase the width of the board.
- As the board thickness (h) decreases, the amount of strain increases. →Increase the thickness of the board

Since the board thickness is squared, the effect on the amount of strain becomes even greater.

2. Adhesive Application

- 1. Thin or insufficient adhesive can cause the chips to loosen or become disconnected during flow soldering. The amount of adhesive must be more than dimension c, shown in the drawing at right, to obtain the correct bonding strength.
 - The chip's electrode thickness and land thickness must also be taken into consideration.
- 2. Low viscosity adhesive can cause chips to slip after mounting. The adhesive must have a viscosity of 5000Pa · s (500ps) min. (at 25°C).

3. Adhesive Coverage

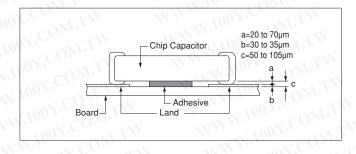
or riamount of or orago	
Size (L×W) (in mm)	Adhesive Coverage*
1.6×0.8	0.05mg min.
2.0×1.25	0.1mg min.
3.2×1.6	0.15mg min.

*Nominal Value

3. Adhesive Curing

1. Insufficient curing of the adhesive can cause chips to disconnect during flow soldering and causes deterioration in the insulation resistance between the outer electrodes due to moisture absorption.

Control curing temperature and time in order to prevent insufficient hardening.





GCJ Series

Notice

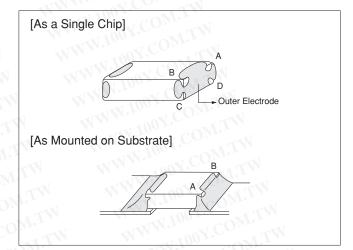
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4. Flux for Reflow and Flow Soldering

- 1. An excessive amount of flux generates a large quantity of flux gas, which can cause a deterioration of solder ability, so apply flux thinly and evenly throughout. (A foaming system is generally used for flow soldering.)
- 2. Flux containing too high a percentage of halide may cause corrosion of the outer electrodes unless there is sufficient cleaning. Use flux with a halide content of 0.1% max.
- 3. Do not use strong acidic flux.
- 4. Do not use water-soluble flux.* (*Water-soluble flux can be defined as non-rosin type flux including wash-type flux and non-wash-type flux.)

5. Flow Soldering

 Set temperature and time to ensure that leaching of the outer electrode does not exceed 25% of the chip end area as a single chip (full length of the edge A-B-C-D shown at right) and 25% of the length A-B shown as mounted on substrate.



- 1. Please evaluate the capacitor using actual cleaning equipment and conditions to confirm the quality, and select the solvent for cleaning.
- 2. Unsuitable cleaning solvent may leave residual flux or other foreign substances, causing deterioration of electrical characteristics and the reliability of the capacitors.
- 3. Select the proper cleaning conditions.
 - 3-1. Improper cleaning conditions (excessive or insufficient) may result in deterioration of the performance of the capacitors.

7. Coating

1. A crack may be caused in the capacitor due to the stress of the thermal contraction of the resin during curing process.

The stress is affected by the amount of resin and curing contraction.

Select a resin with low curing contraction.

The difference in the thermal expansion coefficient between a coating resin or a molding resin and the capacitor may cause the destruction and deterioration of the capacitor such as a crack or peeling, and lead to the deterioration of insulation resistance or dielectric breakdown.

Select a resin for which the thermal expansion coefficient is as close to that of the capacitor as possible.

A silicone resin can be used as an under-coating to buffer against the stress.

2. Select a resin that is less hygroscopic.

Using hygroscopic resins under high humidity conditions may cause the deterioration of the insulation resistance of a capacitor.

An epoxy resin can be used as a less hygroscopic resin.





KC3 Series

Continued from the preceding page.

Other

1. Transportation

- 1. The performance of a capacitor may be affected by the conditions during transportation.
 - 1-1. The capacitors shall be protected against excessive temperature, humidity, and mechanical force during transportation.
 - (1) Climatic condition
 - low air temperature: -40°C
 - · change of temperature air/air: -25°C/+25°C
 - · low air pressure: 30 kPa
 - change of air pressure: 6 kPa/min.
 - (2) Mechanical condition

Transportation shall be done in such a way that the boxes are not deformed and forces are not directly passed on to the inner packaging.

- 1-2. Do not apply excessive vibration, shock, or pressure to the capacitor.
 - (1) When excessive mechanical shock or pressure is applied to a capacitor, chipping or cracking may occur in the ceramic body of the capacitor.
 - (2) When the sharp edge of an air driver, a soldering iron, tweezers, a chassis, etc. impacts strongly on the surface of the capacitor. the capacitor may crack and short-circuit.
- 1-3. Do not use a capacitor to which excessive shock was applied by dropping, etc.

A capacitor dropped accidentally during processing may be damaged.

勝 特 力 材 料 886-3-5753170 胜特力电子(上海) 86-21-34970699 胜特力电子(深圳) 86-755-83298787 Http://www. 100y. com. tw

2. Characteristics Evaluation in the Actual System

- 1. Evaluate the capacitor in the actual system, to confirm that there is no problem with the performance and specification values in a finished product before using.
- 2. Since a voltage dependency and temperature dependency exists in the capacitance of high dielectric type ceramic capacitors, the capacitance may change depending on the operating conditions in the actual system. Therefore, be sure to evaluate the various characteristics, such as the leakage current and noise absorptivity, which will affect the capacitance value of the capacitor.
- 3. In addition, voltages exceeding the predetermined surge may be applied to the capacitor by the inductance in the actual system. Evaluate the surge resistance in the actual system as required.