TDK

May 2019

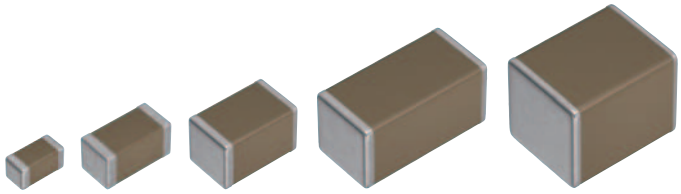
MULTILAYER CERAMIC CHIP CAPACITORS

Automotive grade, conductive epoxy application

CGA series

CGA2	**1005 [0402 inch]**
CGA3	**1608 [0603 inch]**
CGA4	**2012 [0805 inch]**
CGA5	**3216 [1206 inch]**
CGA6	**3225 [1210 inch]**

*** Dimensions code: JIS[EIA]**



REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using this products.

⚠ REMINDERS

1. The products listed in this specification are intended for use in automotive applications under normal operation and usage conditions.
   The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality requires a more stringent level of safety or reliability, or whose failure, malfunction or defect could cause serious damage to society, person or property.
   Please understand that we are not responsible for any damage or liability caused by use of the products in any of the applications below or for any other use exceeding the range or conditions set forth in this specification sheet. If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in this specification, please contact us.

   (1) Aerospace/aviation equipment
   (2) Transportation equipment (electric trains, ships, etc.)
   (3) Medical equipment (excepting Pharmaceutical Affairs Law classification Class1,2)
   (4) Power-generation control equipment
   (5) Atomic energy-related equipment
   (6) Seabed equipment
   (7) Transportation control equipment
   (8) Public information-processing equipment
   (9) Military equipment
   (10) Electric heating apparatus, burning equipment
   (11) Disaster prevention/crime prevention equipment
   (12) Safety equipment
   (13) Other applications that are not considered general-purpose applications

   When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.

   In addition, although the products listed in this specification are intended for use in automotive applications as described above, they are not prohibited to use in general electronic equipment, whose performance and/or quality doesn't require a more stringent level of safety or reliability, or whose failure, malfunction or defect could not cause serious damage to society, person or property. Therefore, the description of this caution will be applied, when the products are used in general electronic equipment under a normal operation and usage conditions.
2. We may modify products or discontinue production of a product listed in this catalog without prior notification.
3. We provide "Delivery Specification" that explain precautions for the specifications and safety of each product listed in this catalog. We strongly recommend that you exchange these delivery specifications with customers that use one of these products.
4. If you plan to export a product listed in this catalog, keep in mind that it may be a restricted item according to the "Foreign Exchange and Foreign Trade Control Law". In such cases, it is necessary to acquire export permission in harmony with this law.
5. Any reproduction or transferring of the contents of this catalog is prohibited without prior permission from our company.
6. We are not responsible for problems that occur related to the intellectual property rights or other rights of our company or a third party when you use a product listed in this catalog. We do not grant license of these rights.
7. This catalog only applies to products purchased through our company or one of our company's official agencies. This catalog does not apply to products that are purchased through other third parties.

Notice: Effective January 2013, TDK will use a new catalog number which adds product thickness and packaging specification detail. This new catalog number should be referenced on all catalog orders going forward, and is not applicable for OEM part number orders.
Please be aware the last five digits of the catalog number will differ from the item description (internal control number) on the product label.
Contact your local TDK Sales representative for more information.

(Example)

Catalog issued date	Catalog number	Item description (on delivery label)
Prior to January 2013	C1608C0G1E103J(080AA)	C1608C0G1E103JT000N
January 2013 and later	C1608C0G1E103J080AA	C1608C0G1E103JT000N

CGA series

Conductive epoxy application

RoHS REACH SVHC-Free Halogen Free Lead Free

Type: CGA2/1005 [0402 inch], CGA3/1608 [0603 inch], CGA4/2012 [0805 inch], CGA5/3216 [1206 inch], CGA6/3225 [1210 inch]

SERIES OVERVIEW

Conductive epoxy application CGA series, automotive grade of TDK's multilayer ceramic chip capacitor, is a product for conductive glue mounting, not for solder mounting. The risk of silver migration is reduced due to AgPdCu termination. The maximum operating temperature is 150°C and the capacitance range is up to 10μF.

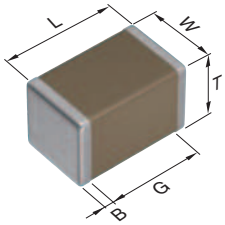
FEATURES

- The risk of silver migration is reduced due to AgPdCu termination.
- The maximum operating temperature is 150°C (X8R).
- C0G temperature characteristic which has excellent stable temperature and DC-bias characteristics is available.
- AEC-Q200 compliant.

APPLICATIONS

- For only conductive glue mounting, not for solder mounting.
- ABS, transmission, engine sensors, etc.

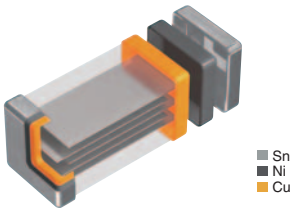
SHAPE & DIMENSIONS



L	Body length
W	Body width
T	Body height
B	Terminal width
G	Terminal spacing

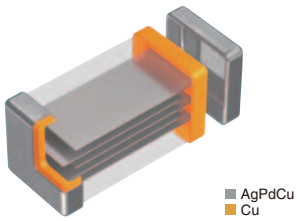
PRODUCT STRUCTURE

General type



Termination consists of 3 layers by Cu, Ni and Sn.

Conductive epoxy type



The risk of silver migration is reduced due to AgPdCu termination.

Dimensions in mm

Type	L	W	T	B	G
CGA2	1.00±0.15	0.50±0.10	0.50±0.10	0.10min.	0.30min.
CGA3	1.60±0.15	0.80±0.15	0.80±0.15	0.20min.	0.30min.
CGA4	2.00±0.25	1.25±0.25	1.25±0.25	0.20min.	0.50min.
CGA5	3.20+0.30,-0.10	1.60+0.30,-0.10	1.60+0.30,-0.10	0.20min.	1.00min.
CGA6	3.20±0.45	2.50±0.30	2.50±0.30	0.20min.	—

∗Dimensional tolerances are typical values.

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Please note that the contents may change without any prior notice due to reasons such as upgrading.

CATALOG NUMBER CONSTRUCTION

CGA	6	P	1	X8R	1E	106	K	250	A	D
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

(1) Series

(2) Dimensions L x W (mm)

Code	EIA	Length	Width	Terminal width
2	CC0402	1.00	0.50	0.10
3	CC0603	1.60	0.80	0.20
4	CC0805	2.00	1.25	0.20
5	CC1206	3.20	1.60	0.20
6	CC1210	3.20	2.50	0.20

(3) Thickness code

Code	Thickness
B	0.50mm
C	0.60mm
E	0.80mm
F	0.85mm
H	1.15mm
J	1.25mm
L	1.60mm
M	2.00mm
P	2.50mm

(4) Voltage condition for life test

Symbol	Condition
1	1 × R.V.
2	2 × R.V.
3	1.5 × R.V.

(5) Temperature characteristics

Temperature characteristics	Temperature coefficient or capacitance change	Temperature range
C0G	0±30 ppm/°C	−55 to +125°C
X7R	±15%	−55 to +125°C
X8R	±15%	−55 to +150°C

(6) Rated voltage (DC)

Code	Voltage (DC)
0J	6.3V
1C	16V
1E	25V
1V	35V
1H	50V
2A	100V

(7) Nominal capacitance (pF)

The capacitance is expressed in three digit codes and in units of pico Farads (pF). The first and second digits identify the first and second significant figures of the capacitance. The third digit identifies the multiplier. R designates a decimal point.

(Example)0R5 = 0.5pF
101 = 100pF
225 = 2,200,000pF = 2.2μF

(8) Capacitance tolerance

Code	Tolerance
C	±0.25pF
D	±0.50pF
J	±5%
K	±10%
M	±20%

(9) Thickness

Code	Thickness
050	0.50mm
060	0.60mm
080	0.80mm
085	0.85mm
115	1.15mm
125	1.25mm
160	1.60mm
200	2.00mm
250	2.50mm

(10) Packaging style

Code	Style
A	178mm reel, 4mm pitch
B	178mm reel, 2mm pitch

(11) Special reserved code

Code	Description
D	Conductive epoxy application

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Capacitance range chart

CGA2/1005 [0402 inch]

Capacitance		C0G	X7R			X8R		
(pF)	Code	1H (50V)	1H (50V)	1E (25V)	1C (16V)	1H (50V)	1E (25V)	1C (16V)
1	010							
1.5	1R5							
2	020							
2.2	2R2							
3	030							
3.3	3R3							
4	040							
4.7	4R7							
5	050							
6	060							
6.8	6R8							
7	070							
8	080							
9	090							
10	100							
12	120							
15	150							
18	180							
22	220							
27	270							
33	330							
39	390							
47	470							
56	560							
68	680							
82	820							
100	101							
120	121							
150	151							
180	181							
220	221							
270	271							
330	331							
390	391							
470	471							
560	561							
680	681							
820	821							
1,000	102							
1,500	152							
2,200	222							
3,300	332							
4,700	472							
6,800	682							
10,000	103							
15,000	153							
22,000	223							
33,000	333							
47,000	473							
68,000	683							
100,000	104							

Standard thickness 0.50mm

Background gray: The product which is not recommended to a new design.

■ Please refer to the capacitance range table at P-10 and after for the details such as product thickness and capacitance tolerance.

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Capacitance range chart

CGA3/1608 [0603 inch]

Capacitance		C0G		X7R	X8R	
(pF)	Code	2A (100V)	1H (50V)	1H (50V)	2A (100V)	1H (50V)
1	010					
1.5	1R5					
2	020					
2.2	2R2					
3	030					
3.3	3R3					
4	040					
4.7	4R7					
5	050					
6	060					
6.8	6R8					
7	070					
8	080					
9	090					
10	100					
12	120					
15	150					
18	180					
22	220					
27	270					
33	330					
39	390					
47	470					
56	560					
68	680					
82	820					
100	101					
120	121					
150	151					
180	181					
220	221					
270	271					
330	331					
390	391					
470	471					
560	561					
680	681					
820	821					
1000	102					
1200	122					
1500	152					
1800	182					
2200	222					
2700	272					
3300	332					
3900	392					
4700	472					
5600	562					
6800	682					
8200	822					
10000	103					

Standard thickness 0.80mm

Background gray: The product which is not recommended to a new design.

■ Please refer to the capacitance range table at P-10 and after for the details such as product thickness and capacitance tolerance.

⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use.
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Capacitance range chart

CGA3/1608 [0603 inch]

Capacitance		X7R				X8R			
(pF)	Code	1H (50V)	1V (35V)	1E (25V)	1C (16V)	2A (100V)	1H (50V)	1E (25V)	1C (16V)
15000	153								
22000	223								
33000	333								
47000	473								
68000	683								
100000	104								
150000	154								
220000	224								
330000	334								
470000	474								
680000	684								
1000000	105								

Standard thickness 0.80mm

Background gray: The product which is not recommended to a new design.

■ Please refer to the capacitance range table at P-10 and after for the details such as product thickness and capacitance tolerance.

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Capacitance range chart

CGA4/2012 [0805 inch]

Capacitance		C0G	X7R				X8R			
(pF)	Code	1H (50V)	1H (50V)	1E (25V)	1C (16V)	0J (6.3V)	2A (100V)	1H (50V)	1E (25V)	1C (16V)
2,700	272									
3,300	332									
3,900	392									
4,700	472									
5,600	562									
6,800	682									
8,200	822									
10,000	103									
15,000	153									
22,000	223									
33,000	333									
47,000	473									
68,000	683									
100,000	104									
150,000	154									
220,000	224									
330,000	334									
470,000	474									
680,000	684									
1,000,000	105									
1,500,000	155									
2,200,000	225									
3,300,000	335									
4,700,000	475									
6,800,000	685									
10,000,000	106									

Standard thickness 0.60 mm 0.85 mm 1.25 mm

Background gray: The product which is not recommended to a new design.

■ Please refer to the capacitance range table at P-10 and after for the details such as product thickness and capacitance tolerance.

⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use.
Please note that the contents may change without any prior notice due to reasons such as upgrading.

Capacitance range chart

CGA5/3216 [1206 inch]

Capacitance		C0G	X7R			X8R			
(pF)	Code	1H (50V)	1H (50V)	1E (25V)	1C (16V)	2A (100V)	1H (50V)	1E (25V)	1C (16V)
4,700	472								
5,600	562								
6,800	682								
8,200	822								
10,000	103								
15,000	153								
22,000	223								
33,000	333								
47,000	473								
68,000	683								
100,000	104								
150,000	154								
220,000	224								
330,000	334								
470,000	474								
680,000	684								
1,000,000	105								
1,500,000	155								
2,200,000	225								
3,300,000	335								
4,700,000	475								
6,800,000	685								
10,000,000	106								

Standard thickness 0.60 mm 0.85 mm 1.15 mm 1.60 mm

Background gray: The product which is not recommended to a new design.

■ Please refer to the capacitance range table at P-10 and after for the details such as product thickness and capacitance tolerance.

Capacitance range chart

CGA6/3225 [1210 inch]

Capacitance		X7R		X8R		
(pF)	Code	1H (50V)	1E (25V)	2A (100V)	1E (25V)	1C (16V)
470,000	474					
680,000	684					
1,000,000	105					
1,500,000	155					
2,200,000	225					
3,300,000	335					
4,700,000	475					
6,800,000	685					
10,000,000	106					

Standard thickness 1.60 mm 2.00 mm 2.50 mm

■ Please refer to the capacitance range table at P-10 and after for the details such as product thickness and capacitance tolerance.

⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use.
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Capacitance range table — Temperature characteristics: C0G (–55 to +125°C, 0±30ppm/°C)

Capacitance	Dimensions	Thickness (mm)	Capacitance tolerance	Catalog number	
				Rated voltage Edc: 100V	Rated voltage Edc: 50V
1pF	1005	0.50±0.10	±0.25pF		CGA2B2C0G1H010C050BD
	1608	0.80±0.15	±0.25pF	CGA3E2C0G2A010C080AD	CGA3E2C0G1H010C080AD
1.5pF	1005	0.50±0.10	±0.25pF		CGA2B2C0G1H1R5C050BD
	1608	0.80±0.15	±0.25pF	CGA3E2C0G2A1R5C080AD	CGA3E2C0G1H1R5C080AD
2pF	1005	0.50±0.10	±0.25pF		CGA2B2C0G1H020C050BD
	1608	0.80±0.15	±0.25pF	CGA3E2C0G2A020C080AD	CGA3E2C0G1H020C080AD
2.2pF	1005	0.50±0.10	±0.25pF		CGA2B2C0G1H2R2C050BD
	1608	0.80±0.15	±0.25pF	CGA3E2C0G2A2R2C080AD	CGA3E2C0G1H2R2C080AD
3pF	1005	0.50±0.10	±0.25pF		CGA2B2C0G1H030C050BD
	1608	0.80±0.15	±0.25pF	CGA3E2C0G2A030C080AD	CGA3E2C0G1H030C080AD
3.3pF	1005	0.50±0.10	±0.25pF		CGA2B2C0G1H3R3C050BD
	1608	0.80±0.15	±0.25pF	CGA3E2C0G2A3R3C080AD	CGA3E2C0G1H3R3C080AD
4pF	1005	0.50±0.10	±0.25pF		CGA2B2C0G1H040C050BD
	1608	0.80±0.15	±0.25pF	CGA3E2C0G2A040C080AD	CGA3E2C0G1H040C080AD
4.7pF	1005	0.50±0.10	±0.25pF		CGA2B2C0G1H4R7C050BD
	1608	0.80±0.15	±0.25pF	CGA3E2C0G2A4R7C080AD	CGA3E2C0G1H4R7C080AD
5pF	1005	0.50±0.10	±0.25pF		CGA2B2C0G1H050C050BD
	1608	0.80±0.15	±0.25pF	CGA3E2C0G2A050C080AD	CGA3E2C0G1H050C080AD
6pF	1005	0.50±0.10	±0.50pF		CGA2B2C0G1H060D050BD
	1608	0.80±0.15	±0.50pF	CGA3E2C0G2A060D080AD	CGA3E2C0G1H060D080AD
6.8pF	1005	0.50±0.10	±0.50pF		CGA2B2C0G1H6R8D050BD
	1608	0.80±0.15	±0.50pF	CGA3E2C0G2A6R8D080AD	CGA3E2C0G1H6R8D080AD
7pF	1005	0.50±0.10	±0.50pF		CGA2B2C0G1H070D050BD
	1608	0.80±0.15	±0.50pF	CGA3E2C0G2A070D080AD	CGA3E2C0G1H070D080AD
8pF	1005	0.50±0.10	±0.50pF		CGA2B2C0G1H080D050BD
	1608	0.80±0.15	±0.50pF	CGA3E2C0G2A080D080AD	CGA3E2C0G1H080D080AD
9pF	1005	0.50±0.10	±0.50pF		CGA2B2C0G1H090D050BD
	1608	0.80±0.15	±0.50pF	CGA3E2C0G2A090D080AD	CGA3E2C0G1H090D080AD
10pF	1005	0.50±0.10	±0.50pF		CGA2B2C0G1H100D050BD
	1608	0.80±0.15	±0.50pF	CGA3E2C0G2A100D080AD	CGA3E2C0G1H100D080AD
12pF	1005	0.50±0.10	±5%		CGA2B2C0G1H120J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A120J080AD	CGA3E2C0G1H120J080AD
15pF	1005	0.50±0.10	±5%		CGA2B2C0G1H150J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A150J080AD	CGA3E2C0G1H150J080AD
18pF	1005	0.50±0.10	±5%		CGA2B2C0G1H180J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A180J080AD	CGA3E2C0G1H180J080AD
22pF	1005	0.50±0.10	±5%		CGA2B2C0G1H220J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A220J080AD	CGA3E2C0G1H220J080AD
27pF	1005	0.50±0.10	±5%		CGA2B2C0G1H270J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A270J080AD	CGA3E2C0G1H270J080AD
33pF	1005	0.50±0.10	±5%		CGA2B2C0G1H330J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A330J080AD	CGA3E2C0G1H330J080AD
39pF	1005	0.50±0.10	±5%		CGA2B2C0G1H390J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A390J080AD	CGA3E2C0G1H390J080AD
47pF	1005	0.50±0.10	±5%		CGA2B2C0G1H470J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A470J080AD	CGA3E2C0G1H470J080AD
56pF	1005	0.50±0.10	±5%		CGA2B2C0G1H560J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A560J080AD	CGA3E2C0G1H560J080AD
68pF	1005	0.50±0.10	±5%		CGA2B2C0G1H680J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A680J080AD	CGA3E2C0G1H680J080AD
82pF	1005	0.50±0.10	±5%		CGA2B2C0G1H820J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A820J080AD	CGA3E2C0G1H820J080AD
100pF	1005	0.50±0.10	±5%		CGA2B2C0G1H101J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A101J080AD	CGA3E2C0G1H101J080AD
120pF	1005	0.50±0.10	±5%		CGA2B2C0G1H121J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A121J080AD	CGA3E2C0G1H121J080AD
150pF	1005	0.50±0.10	±5%		CGA2B2C0G1H151J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A151J080AD	CGA3E2C0G1H151J080AD
180pF	1005	0.50±0.10	±5%		CGA2B2C0G1H181J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A181J080AD	CGA3E2C0G1H181J080AD
220pF	1005	0.50±0.10	±5%		CGA2B2C0G1H221J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A221J080AD	CGA3E2C0G1H221J080AD
270pF	1005	0.50±0.10	±5%		CGA2B2C0G1H271J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A271J080AD	CGA3E2C0G1H271J080AD

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Capacitance range table — Temperature characteristics: C0G (–55 to +125°C, 0±30ppm/°C)

Capacitance	Dimensions	Thickness (mm)	Capacitance tolerance	Catalog number	
				Rated voltage Edc: 100V	Rated voltage Edc: 50V
330pF	1005	0.50±0.10	±5%		CGA2B2C0G1H331J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A331J080AD	CGA3E2C0G1H331J080AD
390pF	1005	0.50±0.10	±5%		CGA2B2C0G1H391J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A391J080AD	CGA3E2C0G1H391J080AD
470pF	1005	0.50±0.10	±5%		CGA2B2C0G1H471J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A471J080AD	CGA3E2C0G1H471J080AD
560pF	1005	0.50±0.10	±5%		CGA2B2C0G1H561J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A561J080AD	CGA3E2C0G1H561J080AD
680pF	1005	0.50±0.10	±5%		CGA2B2C0G1H681J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A681J080AD	CGA3E2C0G1H681J080AD
820pF	1005	0.50±0.10	±5%		CGA2B2C0G1H821J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A821J080AD	CGA3E2C0G1H821J080AD
1nF	1005	0.50±0.10	±5%		CGA2B2C0G1H102J050BD
	1608	0.80±0.15	±5%	CGA3E2C0G2A102J080AD	CGA3E2C0G1H102J080AD
1.2nF	1608	0.80±0.15	±5%	CGA3E2C0G2A122J080AD	CGA3E2C0G1H122J080AD
1.5nF	1608	0.80±0.15	±5%		CGA3E2C0G1H152J080AD
1.8nF	1608	0.80±0.15	±5%		CGA3E2C0G1H182J080AD
2.2nF	1608	0.80±0.15	±5%		CGA3E2C0G1H222J080AD
2.7nF	1608	0.80±0.15	±5%		CGA3E2C0G1H272J080AD
	2012	0.60±0.15	±5%		CGA4C2C0G1H272J060AD
3.3nF	1608	0.80±0.15	±5%		CGA3E2C0G1H332J080AD
	2012	0.60±0.15	±5%		CGA4C2C0G1H332J060AD
3.9nF	1608	0.80±0.15	±5%		CGA3E2C0G1H392J080AD
	2012	0.60±0.15	±5%		CGA4C2C0G1H392J060AD
4.7nF	1608	0.80±0.15	±5%		CGA3E2C0G1H472J080AD
	2012	0.60±0.15	±5%		CGA4C2C0G1H472J060AD
	3216	0.60±0.15	±5%		CGA5C2C0G1H472J060AD
5.6nF	1608	0.80±0.15	±5%		CGA3E2C0G1H562J080AD
	2012	0.60±0.15	±5%		CGA4C2C0G1H562J060AD
	3216	0.60±0.15	±5%		CGA5C2C0G1H562J060AD
6.8nF	1608	0.80±0.15	±5%		CGA3E2C0G1H682J080AD
	2012	0.60±0.15	±5%		CGA4C2C0G1H682J060AD
	3216	0.60±0.15	±5%		CGA5C2C0G1H682J060AD
8.2nF	1608	0.80±0.15	±5%		CGA3E2C0G1H822J080AD
	2012	0.60±0.15	±5%		CGA4C2C0G1H822J060AD
	3216	0.60±0.15	±5%		CGA5C2C0G1H822J060AD
10nF	1608	0.80±0.15	±5%		CGA3E2C0G1H103J080AD
	2012	0.60±0.15	±5%		CGA4C2C0G1H103J060AD
	3216	0.60±0.15	±5%		CGA5C2C0G1H103J060AD
15nF	2012	0.85±0.15	±5%		CGA4F2C0G1H153J085AD
	3216	0.60±0.15	±5%		CGA5C2C0G1H153J060AD
22nF	2012	1.25±0.25	±5%		CGA4J2C0G1H223J125AD
	3216	0.60±0.15	±5%		CGA5C2C0G1H223J060AD
33nF	2012	1.25±0.25	±5%		CGA4J2C0G1H333J125AD
	3216	0.85±0.15	±5%		CGA5F2C0G1H333J085AD
47nF	3216	1.15±0.15	±5%		CGA5H2C0G1H473J115AD
68nF	3216	1.60+0.30,-0.10	±5%		CGA5L2C0G1H683J160AD
100nF	3216	1.60+0.30,-0.10	±5%		CGA5L2C0G1H104J160AD

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Capacitance range table — Temperature characteristics: X7R (–55 to +125°C, ±15%)

Capacitance	Dimensions	Thickness (mm)	Capacitance tolerance	Catalog number			
				Rated voltage Edc: 50V	Rated voltage Edc: 35V	Rated voltage Edc: 25V	Rated voltage Edc: 16V
1nF	1608	0.80±0.15	±10%	CGA3E2X7R1H102K080AD			
			±20%	CGA3E2X7R1H102M080AD			
1.5nF	1608	0.80±0.15	±10%	CGA3E2X7R1H152K080AD			
			±20%	CGA3E2X7R1H152M080AD			
2.2nF	1608	0.80±0.15	±10%	CGA3E2X7R1H222K080AD			
			±20%	CGA3E2X7R1H222M080AD			
3.3nF	1608	0.80±0.15	±10%	CGA3E2X7R1H332K080AD			
			±20%	CGA3E2X7R1H332M080AD			
4.7nF	1608	0.80±0.15	±10%	CGA3E2X7R1H472K080AD			
			±20%	CGA3E2X7R1H472M080AD			
6.8nF	1608	0.80±0.15	±10%	CGA3E2X7R1H682K080AD			
			±20%	CGA3E2X7R1H682M080AD			
10nF	1005	0.50±0.10	±10%	CGA2B3X7R1H103K050BD			
			±20%	CGA2B3X7R1H103M050BD			
	1608	0.80±0.15	±10%	CGA3E2X7R1H103K080AD			
			±20%	CGA3E2X7R1H103M080AD			
15nF	1005	0.50±0.10	±10%	CGA2B3X7R1H153K050BD		CGA2B2X7R1E153K050BD	
			±20%	CGA2B3X7R1H153M050BD		CGA2B2X7R1E153M050BD	
	1608	0.80±0.15	±10%	CGA3E2X7R1H153K080AD			
			±20%	CGA3E2X7R1H153M080AD			
22nF	1005	0.50±0.10	±10%	CGA2B3X7R1H223K050BD		CGA2B2X7R1E223K050BD	
			±20%	CGA2B3X7R1H223M050BD		CGA2B2X7R1E223M050BD	
	1608	0.80±0.15	±10%	CGA3E2X7R1H223K080AD			
			±20%	CGA3E2X7R1H223M080AD			
33nF	1005	0.50±0.10	±10%	CGA2B3X7R1H333K050BD			CGA2B2X7R1C333K050BD
			±20%	CGA2B3X7R1H333M050BD			CGA2B2X7R1C333M050BD
	1608	0.80±0.15	±10%	CGA3E2X7R1H333K080AD			
			±20%	CGA3E2X7R1H333M080AD			
47nF	1005	0.50±0.10	±10%	CGA2B3X7R1H473K050BD			
			±20%	CGA2B3X7R1H473M050BD			
	1608	0.80±0.15	±10%	CGA3E2X7R1H473K080AD			
			±20%	CGA3E2X7R1H473M080AD			
68nF	1005	0.50±0.10	±10%	CGA2B3X7R1H683K050BD			
			±20%	CGA2B3X7R1H683M050BD			
	1608	0.80±0.15	±10%	CGA3E2X7R1H683K080AD			
			±20%	CGA3E2X7R1H683M080AD			
100nF	1005	0.50±0.10	±10%	CGA2B3X7R1H104K050BD			
			±20%	CGA2B3X7R1H104M050BD			
	1608	0.80±0.15	±10%	CGA3E2X7R1H104K080AD			
			±20%	CGA3E2X7R1H104M080AD			
150nF	1608	0.80±0.15	±10%	CGA3E3X7R1H154K080AD		CGA3E2X7R1E154K080AD	
			±20%	CGA3E3X7R1H154M080AD		CGA3E2X7R1E154M080AD	
	2012	1.25±0.25	±10%	CGA4J2X7R1H154K125AD			
			±20%	CGA4J2X7R1H154M125AD			
220nF	1608	0.80±0.15	±10%	CGA3E3X7R1H224K080AD			CGA3E2X7R1C224K080AD
			±20%	CGA3E3X7R1H224M080AD			CGA3E2X7R1C224M080AD
	2012	1.25±0.25	±10%	CGA4J2X7R1H224K125AD			
			±20%	CGA4J2X7R1H224M125AD			
330nF	1608	0.80±0.15	±10%		CGA3E1X7R1V334K080AD	CGA3E3X7R1E334K080AD	
			±20%		CGA3E1X7R1V334M080AD	CGA3E3X7R1E334M080AD	
	2012	1.25±0.25	±10%	CGA4J2X7R1H334K125AD			
			±20%	CGA4J2X7R1H334M125AD			
470nF	1608	0.80±0.15	±10%		CGA3E1X7R1V474K080AD	CGA3E3X7R1E474K080AD	
			±20%		CGA3E1X7R1V474M080AD	CGA3E3X7R1E474M080AD	
	2012	1.25±0.25	±10%			CGA4J2X7R1E474K125AD	
			±20%			CGA4J2X7R1E474M125AD	
	3216	1.60+0.30,-0.10	±10%	CGA5L2X7R1H474K160AD			
			±20%	CGA5L2X7R1H474M160AD			
680nF	1608	0.80±0.15	±10%			CGA3E1X7R1E684K080AD	
			±20%			CGA3E1X7R1E684M080AD	
	2012	1.25±0.25	±10%			CGA4J3X7R1E684K125AD	CGA4J2X7R1C684K125AD
			±20%			CGA4J3X7R1E684M125AD	CGA4J2X7R1C684M125AD
	3216	1.60+0.30,-0.10	±10%	CGA5L2X7R1H684K160AD			
			±20%	CGA5L2X7R1H684M160AD			

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Capacitance range table — Temperature characteristics: X7R (–55 to +125°C, ±15%)

Capacitance	Dimensions	Thickness (mm)	Capacitance tolerance	Catalog number			
				Rated voltage Edc: 50V	Rated voltage Edc: 25V	Rated voltage Edc: 16V	Rated voltage Edc: 6.3V
1μF	1608	0.80±0.15	±10%		CGA3E1X7R1E105K080AD		
			±20%		CGA3E1X7R1E105M080AD		
	2012	1.25±0.25	±10%		CGA4J3X7R1E105K125AD	CGA4J2X7R1C105K125AD	
			±20%		CGA4J3X7R1E105M125AD	CGA4J2X7R1C105M125AD	
	3216	1.60+0.30,-0.10	±10%		CGA5L2X7R1E105K160AD		
			±20%		CGA5L2X7R1E105M160AD		
	3225	1.60±0.20	±10%	CGA6L2X7R1H105K160AD			
			±20%	CGA6L2X7R1H105M160AD			
1.5μF	2012	1.25±0.25	±10%		CGA4J1X7R1E155K125AD		
			±20%		CGA4J1X7R1E155M125AD		
	3225	2.00±0.20	±10%	CGA6M2X7R1H155K200AD			
			±20%	CGA6M2X7R1H155M200AD			
2.2μF	2012	1.25±0.25	±10%		CGA4J3X7R1E225K125AD		
			±20%		CGA4J3X7R1E225M125AD		
	3216	1.60+0.30,-0.10	±10%		CGA5L2X7R1E225K160AD		
			±20%		CGA5L2X7R1E225M160AD		
3.3μF	2012	1.25±0.25	±10%		CGA4J1X7R1E335K125AD	CGA4J3X7R1C335K125AD	
			±20%		CGA4J1X7R1E335M125AD	CGA4J3X7R1C335M125AD	
4.7μF	2012	1.25+0.30,-0.25	±10%		CGA4J1X7R1E475K125AD	CGA4J3X7R1C475K125AD	
			±20%		CGA4J1X7R1E475M125AD	CGA4J3X7R1C475M125AD	
	3216	1.60+0.30,-0.10	±10%			CGA5L3X7R1C475K160AD	
			±20%			CGA5L3X7R1C475M160AD	
	3225	2.00±0.20	±10%		CGA6M2X7R1E475K200AD		
			±20%		CGA6M2X7R1E475M200AD		
		2.50±0.30	±10%	CGA6P3X7R1H475K250AD			
			±20%	CGA6P3X7R1H475M250AD			
6.8μF	2012	1.25±0.25	±10%				CGA4J1X7R0J685K125AD
			±20%				CGA4J1X7R0J685M125AD
	3216	1.60+0.30,-0.10	±10%		CGA5L1X7R1E685K160AD		
			±20%		CGA5L1X7R1E685M160AD		
10μF	2012	1.25±0.25	±10%				CGA4J1X7R0J106K125AD
			±20%				CGA4J1X7R0J106M125AD
	3216	1.60+0.30,-0.10	±10%		CGA5L1X7R1E106K160AD		
			±20%		CGA5L1X7R1E106M160AD		

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Capacitance range table — Temperature characteristics: X8R (–55 to +150°C, ±15%)

Capacitance	Dimensions	Thickness (mm)	Capacitance tolerance	Catalog number			
				Rated voltage Edc: 100V	Rated voltage Edc: 50V	Rated voltage Edc: 25V	Rated voltage Edc: 16V
150pF	1005	0.50±0.10	±10%		CGA2B2X8R1H151K050BD		
			±20%		CGA2B2X8R1H151M050BD		
220pF	1005	0.50±0.10	±10%		CGA2B2X8R1H221K050BD		
			±20%		CGA2B2X8R1H221M050BD		
330pF	1005	0.50±0.10	±10%		CGA2B2X8R1H331K050BD		
			±20%		CGA2B2X8R1H331M050BD		
470pF	1005	0.50±0.10	±10%		CGA2B2X8R1H471K050BD		
			±20%		CGA2B2X8R1H471M050BD		
680pF	1005	0.50±0.10	±10%		CGA2B2X8R1H681K050BD		
			±20%		CGA2B2X8R1H681M050BD		
1nF	1005	0.50±0.10	±10%		CGA2B2X8R1H102K050BD		
			±20%		CGA2B2X8R1H102M050BD		
	1608	0.80±0.15	±10%	CGA3E2X8R2A102K080AD	CGA3E2X8R1H102K080AD		
			±20%	CGA3E2X8R2A102M080AD	CGA3E2X8R1H102M080AD		
1.5nF	1005	0.50±0.10	±10%		CGA2B2X8R1H152K050BD		
			±20%		CGA2B2X8R1H152M050BD		
	1608	0.80±0.15	±10%	CGA3E2X8R2A152K080AD	CGA3E2X8R1H152K080AD		
			±20%	CGA3E2X8R2A152M080AD	CGA3E2X8R1H152M080AD		
2.2nF	1005	0.50±0.10	±10%		CGA2B2X8R1H222K050BD		
			±20%		CGA2B2X8R1H222M050BD		
	1608	0.80±0.15	±10%	CGA3E2X8R2A222K080AD	CGA3E2X8R1H222K080AD		
			±20%	CGA3E2X8R2A222M080AD	CGA3E2X8R1H222M080AD		
3.3nF	1005	0.50±0.10	±10%		CGA2B2X8R1H332K050BD		
			±20%		CGA2B2X8R1H332M050BD		
	1608	0.80±0.15	±10%	CGA3E2X8R2A332K080AD	CGA3E2X8R1H332K080AD		
			±20%	CGA3E2X8R2A332M080AD	CGA3E2X8R1H332M080AD		
4.7nF	1005	0.50±0.10	±10%		CGA2B2X8R1H472K050BD		
			±20%		CGA2B2X8R1H472M050BD		
	1608	0.80±0.15	±10%	CGA3E2X8R2A472K080AD	CGA3E2X8R1H472K080AD		
			±20%	CGA3E2X8R2A472M080AD	CGA3E2X8R1H472M080AD		
6.8nF	1005	0.50±0.10	±10%		CGA2B3X8R1H682K050BD	CGA2B2X8R1E682K050BD	
			±20%		CGA2B3X8R1H682M050BD	CGA2B2X8R1E682M050BD	
	1608	0.80±0.15	±10%	CGA3E2X8R2A682K080AD	CGA3E2X8R1H682K080AD		
			±20%	CGA3E2X8R2A682M080AD	CGA3E2X8R1H682M080AD		
10nF	1005	0.50±0.10	±10%		CGA2B3X8R1H103K050BD	CGA2B2X8R1E103K050BD	
			±20%		CGA2B3X8R1H103M050BD	CGA2B2X8R1E103M050BD	
	1608	0.80±0.15	±10%	CGA3E2X8R2A103K080AD	CGA3E2X8R1H103K080AD		
			±20%	CGA3E2X8R2A103M080AD	CGA3E2X8R1H103M080AD		
	2012	0.85±0.15	±10%	CGA4F2X8R2A103K085AD			
			±20%	CGA4F2X8R2A103M085AD			
15nF	1005	0.50±0.10	±10%			CGA2B3X8R1E153K050BD	
			±20%			CGA2B3X8R1E153M050BD	
	1608	0.80±0.15	±10%	CGA3E2X8R2A153K080AD	CGA3E2X8R1H153K080AD		
			±20%	CGA3E2X8R2A153M080AD	CGA3E2X8R1H153M080AD		
	2012	0.85±0.15	±10%	CGA4F2X8R2A153K085AD			
			±20%	CGA4F2X8R2A153M085AD			
22nF	1005	0.50±0.10	±10%			CGA2B3X8R1E223K050BD	
			±20%			CGA2B3X8R1E223M050BD	
	1608	0.80±0.15	±10%	CGA3E3X8R2A223K080AD	CGA3E2X8R1H223K080AD		
			±20%	CGA3E3X8R2A223M080AD	CGA3E2X8R1H223M080AD		
	2012	1.25±0.25	±10%	CGA4J2X8R2A223K125AD			
			±20%	CGA4J2X8R2A223M125AD			
33nF	1005	0.50±0.10	±10%			CGA2B1X8R1E333K050BD	CGA2B3X8R1C333K050BD
			±20%			CGA2B1X8R1E333M050BD	CGA2B3X8R1C333M050BD
	1608	0.80±0.15	±10%	CGA3E3X8R2A333K080AD	CGA3E2X8R1H333K080AD		
			±20%	CGA3E3X8R2A333M080AD	CGA3E2X8R1H333M080AD		
	2012	1.25±0.25	±10%	CGA4J3X8R2A333K125AD			
			±20%	CGA4J3X8R2A333M125AD			
	3216	0.85±0.15	±10%	CGA5F2X8R2A333K085AD			
			±20%	CGA5F2X8R2A333M085AD			
47nF	1005	0.50±0.10	±10%			CGA2B1X8R1E473K050BD	CGA2B3X8R1C473K050BD
			±20%			CGA2B1X8R1E473M050BD	CGA2B3X8R1C473M050BD
	1608	0.80±0.15	±10%		CGA3E2X8R1H473K080AD		
			±20%		CGA3E2X8R1H473M080AD		
	2012	1.25±0.25	±10%	CGA4J3X8R2A473K125AD			
			±20%	CGA4J3X8R2A473M125AD			
	3216	0.85±0.15	±10%	CGA5F2X8R2A473K085AD			
			±20%	CGA5F2X8R2A473M085AD			

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Capacitance range table — Temperature characteristics: X8R (–55 to +150°C, ±15%)

Capacitance	Dimensions	Thickness (mm)	Capacitance tolerance	Catalog number Rated voltage Edc: 100V	Rated voltage Edc: 50V	Rated voltage Edc: 25V	Rated voltage Edc: 16V
68nF	1608	0.80±0.15	±10%		CGA3E3X8R1H683K080AD	CGA3E2X8R1E683K080AD	
			±20%		CGA3E3X8R1H683M080AD	CGA3E2X8R1E683M080AD	
	2012	1.25±0.25	±10%	CGA4J3X8R2A683K125AD	CGA4J2X8R1H683K125AD		
			±20%	CGA4J3X8R2A683M125AD	CGA4J2X8R1H683M125AD		
	3216	1.15±0.15	±10%	CGA5H2X8R2A683K115AD			
			±20%	CGA5H2X8R2A683M115AD			
100nF	1608	0.80±0.15	±10%		CGA3E3X8R1H104K080AD	CGA3E2X8R1E104K080AD	
			±20%		CGA3E3X8R1H104M080AD	CGA3E2X8R1E104M080AD	
	2012	1.25±0.25	±10%		CGA4J2X8R1H104K125AD		
			±20%		CGA4J2X8R1H104M125AD		
	3216	1.15±0.15	±10%	CGA5H2X8R2A104K115AD			
			±20%	CGA5H2X8R2A104M115AD			
150nF	1608	0.80±0.15	±10%			CGA3E3X8R1E154K080AD	
			±20%			CGA3E3X8R1E154M080AD	
	2012	0.85±0.15	±10%			CGA4F2X8R1E154K085AD	
			±20%			CGA4F2X8R1E154M085AD	
		1.25±0.25	±10%		CGA4J3X8R1H154K125AD		
			±20%		CGA4J3X8R1H154M125AD		
	3216	0.85±0.15	±10%		CGA5F2X8R1H154K085AD		
			±20%		CGA5F2X8R1H154M085AD		
		1.60+0.30,-0.10	±10%	CGA5L2X8R2A154K160AD			
			±20%	CGA5L2X8R2A154M160AD			
220nF	1608	0.80±0.15	±10%			CGA3E3X8R1E224K080AD	
			±20%			CGA3E3X8R1E224M080AD	
	2012	1.25±0.25	±10%		CGA4J3X8R1H224K125AD	CGA4J2X8R1E224K125AD	
			±20%		CGA4J3X8R1H224M125AD	CGA4J2X8R1E224M125AD	
	3216	1.15±0.15	±10%		CGA5H2X8R1H224K115AD		
			±20%		CGA5H2X8R1H224M115AD		
		1.60+0.30,-0.10	±10%	CGA5L3X8R2A224K160AD			
			±20%	CGA5L3X8R2A224M160AD			
330nF	1608	0.80±0.15	±10%			CGA3E1X8R1E334K080AD	CGA3E3X8R1C334K080AD
			±20%			CGA3E1X8R1E334M080AD	CGA3E3X8R1C334M080AD
	2012	1.25±0.25	±10%			CGA4J2X8R1E334K125AD	
			±20%			CGA4J2X8R1E334M125AD	
	3216	0.85±0.15	±10%			CGA5F2X8R1E334K085AD	
			±20%			CGA5F2X8R1E334M085AD	
		1.60+0.30,-0.10	±10%	CGA5L3X8R2A334K160AD	CGA5L2X8R1H334K160AD		
			±20%	CGA5L3X8R2A334M160AD	CGA5L2X8R1H334M160AD		
470nF	1608	0.80±0.15	±10%				CGA3E3X8R1C474K080AD
			±20%				CGA3E3X8R1C474M080AD
	2012	1.25±0.25	±10%			CGA4J3X8R1E474K125AD	
			±20%			CGA4J3X8R1E474M125AD	
	3216	0.85±0.15	±10%			CGA5F2X8R1E474K085AD	
			±20%			CGA5F2X8R1E474M085AD	
		1.60+0.30,-0.10	±10%		CGA5L2X8R1H474K160AD		
			±20%		CGA5L2X8R1H474M160AD		
	3225	2.00±0.20	±10%	CGA6M3X8R2A474K200AD			
			±20%	CGA6M3X8R2A474M200AD			
680nF	2012	1.25±0.25	±10%			CGA4J1X8R1E684K125AD	CGA4J3X8R1C684K125AD
			±20%			CGA4J1X8R1E684M125AD	CGA4J3X8R1C684M125AD
	3216	1.15±0.15	±10%			CGA5H2X8R1E684K115AD	
			±20%			CGA5H2X8R1E684M115AD	
		1.60+0.30,-0.10	±10%		CGA5L3X8R1H684K160AD		
			±20%		CGA5L3X8R1H684M160AD		
	3225	2.50±0.30	±10%	CGA6P3X8R2A684K250AD			
			±20%	CGA6P3X8R2A684M250AD			
1μF	2012	1.25±0.25	±10%			CGA4J1X8R1E105K125AD	CGA4J3X8R1C105K125AD
			±20%			CGA4J1X8R1E105M125AD	CGA4J3X8R1C105M125AD
	3216	1.60+0.30,-0.10	±10%		CGA5L3X8R1H105K160AD	CGA5L2X8R1E105K160AD	
			±20%		CGA5L3X8R1H105M160AD	CGA5L2X8R1E105M160AD	
1.5μF	3216	1.60+0.30,-0.10	±10%			CGA5L3X8R1E155K160AD	
			±20%			CGA5L3X8R1E155M160AD	
	3225	1.60±0.20	±10%			CGA6L2X8R1E155K160AD	
			±20%			CGA6L2X8R1E155M160AD	
2.2μF	3216	1.60+0.30,-0.10	±10%			CGA5L3X8R1E225K160AD	
			±20%			CGA5L3X8R1E225M160AD	
	3225	2.00±0.20	±10%			CGA6M2X8R1E225K200AD	
			±20%			CGA6M2X8R1E225M200AD	

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Capacitance range table — Temperature characteristics: X8R (–55 to +150°C, ±15%)

Capacitance	Dimensions	Thickness (mm)	Capacitance tolerance	Catalog number	
				Rated voltage Edc: 25V	Rated voltage Edc: 16V
3.3µF	3216	1.60+0.30,-0.10	±10%	CGA5L1X8R1E335K160AD	CGA5L3X8R1C335K160AD
			±20%	CGA5L1X8R1E335M160AD	CGA5L3X8R1C335M160AD
	3225	2.50±0.30	±10%	CGA6P2X8R1E335K250AD	
			±20%	CGA6P2X8R1E335M250AD	
4.7µF	3216	1.60+0.30,-0.10	±10%	CGA5L1X8R1E475K160AD	CGA5L3X8R1C475K160AD
			±20%	CGA5L1X8R1E475M160AD	CGA5L3X8R1C475M160AD
	3225	2.50±0.30	±10%	CGA6P3X8R1E475K250AD	
			±20%	CGA6P3X8R1E475M250AD	
6.8µF	3225	2.00±0.20	±10%	CGA6M1X8R1E685K200AD	CGA6M3X8R1C685K200AD
			±20%	CGA6M1X8R1E685M200AD	CGA6M3X8R1C685M200AD
10µF	3225	2.50±0.30	±10%	CGA6P1X8R1E106K250AD	CGA6P3X8R1C106K250AD
			±20%	CGA6P1X8R1E106M250AD	CGA6P3X8R1C106M250AD

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