

## Ceramic Disc Capacitors Type CDC

### Δ Features

- Linear temperature coefficient of capacitance.
- High stability of capacitance.
- Low loss at wide range of frequency.

### Δ Part Numbering

<u>CDC</u>	<u>101</u>	<u>CG</u>	<u>1H</u>	<u>K</u>	<u>□</u>	<u>□</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)

- (1) Type
- (2) Nominal Capacitance
- (3) Temperature Characteristics
- (4) Rated Voltage
- (5) Capacitance Tolerance
- (6) Lead type (Omitted in straight leads)
- (7) Suffix (Omitted in bulk package)

### (3) Temperature Characteristics

#### Class I (Temperature Compensating Type)

Code	CG/SL/GP
Temp. Range	-25°C to 105°C
Temp. Coeff.	+350ppm to -1000ppm/°C

#### Class II (High Dielectric Type)

Code	Y5F(YF)/Y5P(YP)	Y5V(YV)/Z5V(ZV)	Y5U(YU)/Z5U(ZU)
Temp. Range	-25°C to 85°C	-25°C to 85°C	-25°C to 85°C
Temp. Coeff.	±10%	+20% to -30%	+20% to -55%

### (5) Capacitance Tolerance

Symbol	Tolerance	Capacitance Range
J	±5%	
K	±10%	
M	±20%	

Other nonstandard values are available on special request.

### (7) Suffix

Use the letter "T" when taped/box packages are needed.

### Δ Applications

- Temperature compensation of resonant circuit and filters
- Where low losses and high stability of capacitance tolerance and high insulation resistance are required.

### (2) Nominal Capacitance Designation

Stated in three digits and in units of pico farads (pF). The capacitance shall be expressed in a 3 digit code. The first and second digits identify the first and second significant figures of the capacitance, the third digit identifies the multiplier. However, when capacitance is below 10pF there are decimal digits included, they are stated as D. Please check examples below:

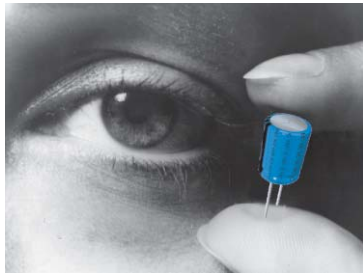
Symbol	Capacitance (pF)
D75	0.75
5D0	5.0
100	10
101	100

### (4) Rated Voltage

Symbol	Rated Voltage	VDC
1H	50	50V
2A	100	100V
2H	500	500V
3A	1000	1kV

### (6) Lead Type

Use the letter "C" when crimped leads are needed.



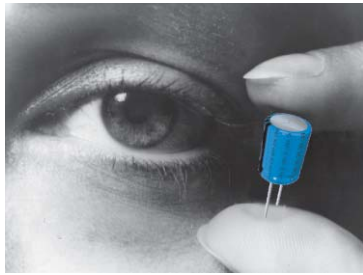
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Δ Electrical Specifications (Class I, T.C. Type)

Item	Test Method	Requirements															
<b>Operating Temp. Range</b>		-25°C to +85°C															
<b>Rated Voltage</b>		50VDC - 100VDC															
<b>Dielectric Withstanding Voltage</b>	250% of the rated voltage for 1 to 5 seconds	No damage occurs when the test voltage is applied between terminals															
<b>Capacitance</b>	Measured at 1MHz, 5Vrms Max. and 20°C	Within the specified tolerance Standard capacitance tolerance ±0.25pF      (1 to 5pF) ±0.50pF      (1 to 10pF) ±1pF          (10pF) ±5%            (Over 10pF E24 series) ±10%          (Over 10pF E24 series)															
<b>Q-Factor</b>		Cap. <30pF: Q≥400+20 X C (C:Rated capacitance in pF) Cap. ≥30pF: Q≥1000															
<b>Insulation Resistance</b>	Measured at the rated voltage and 1 Minute Electrification	I.R. ≥ 10,000MΩ															
<b>Temperature Coefficient of Capacitance</b>	Temperature Range: -25°C to +85°C Reference Temperature: 20°C  $T.C. = \frac{\Delta C}{C_{20} \times \Delta T}$	Temperature coefficient tolerance <table border="1"> <thead> <tr> <th>Capacitance (pF)</th> <th colspan="2">Rated temperature coefficient (ppm/°C)</th> </tr> <tr> <td></td> <th>NPO</th> <th>SL</th> </tr> </thead> <tbody> <tr> <td>1 to 2</td> <td>±250</td> <td>+350</td> </tr> <tr> <td>3</td> <td>±120</td> <td>to</td> </tr> <tr> <td>4 &amp; Up</td> <td>±60</td> <td>-1000</td> </tr> </tbody> </table>	Capacitance (pF)	Rated temperature coefficient (ppm/°C)			NPO	SL	1 to 2	±250	+350	3	±120	to	4 & Up	±60	-1000
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	NPO	SL															
1 to 2	±250	+350															
3	±120	to															
4 & Up	±60	-1000															

Δ Electrical Specifications (Class II High-K Type)

Item	Test Method	Requirements																		
<b>Operating Temp. Range</b>		-25°C to +85°C																		
<b>Rated Voltage</b>		25VDC - 500VDC																		
<b>Dielectric Withstanding Voltage</b>	250% of the rated voltage for 1 to 5 seconds	No damage occurs when the test voltage is applied between terminals																		
<b>Capacitance</b>	Measured at 1MHz, 5Vrms Max. and 20°C	Within the specified tolerance Standard capacitance tolerance [Y5F/Y5P]:      ±10%                   (In E-12 Series) [Y5T]:            ±20%                   (In E-6 Series) [Y5U/Z5U]:      ±20%                   (In E-6 Series) [Y5V/Z5V]:      +80%, -20%           (In E-3 Series)																		
<b>Dissipation Factor (tan φ)</b>		[Y5F/Y5P, Y5T, Y5U/Z5U]:      tan φ ≤2.5% [Y5V/Z5V]:                        tan φ ≤5.0%																		
<b>Insulation Resistance</b>	Measured at the rated voltage and 1 Minute Electrification	Cap. ≤ 0.02μF: I.R. ≥ 10000MΩ Cap. > 0.02μF: CR products ≥200MΩ · μF																		
<b>Temperature Coefficient of Capacitance</b>	Capacitance Change = $\frac{\Delta C}{C_{20}} \times 100\%$ ΔC: Capacitance drifts in the pF from the capacitance value at 20°C over the specified temperature range  C20: Capacitance Value in pF at the specified reference temperature of 20°C	<table border="1"> <thead> <tr> <th>Temp. Char.</th> <th>Max. Cap. Change</th> <th>Temp. Range</th> </tr> </thead> <tbody> <tr> <td>Y5F/Y5P</td> <td>±10%</td> <td>-25°C ~ +85°C</td> </tr> <tr> <td>Y5T</td> <td>+20% ~ -30%</td> <td>-25°C ~ +85°C</td> </tr> <tr> <td>Y5U/Z5U</td> <td>+20% ~ -55%</td> <td>-10°C ~ +85°C</td> </tr> <tr> <td>Y5V</td> <td>+30% ~ -80%</td> <td>-25°C ~ +85°C</td> </tr> <tr> <td>Z5V</td> <td>+30% ~ -80%</td> <td>+10°C ~ +85°C</td> </tr> </tbody> </table>	Temp. Char.	Max. Cap. Change	Temp. Range	Y5F/Y5P	±10%	-25°C ~ +85°C	Y5T	+20% ~ -30%	-25°C ~ +85°C	Y5U/Z5U	+20% ~ -55%	-10°C ~ +85°C	Y5V	+30% ~ -80%	-25°C ~ +85°C	Z5V	+30% ~ -80%	+10°C ~ +85°C
Temp. Char.	Max. Cap. Change	Temp. Range																		
Y5F/Y5P	±10%	-25°C ~ +85°C																		
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Y5U/Z5U	+20% ~ -55%	-10°C ~ +85°C																		
Y5V	+30% ~ -80%	-25°C ~ +85°C																		
Z5V	+30% ~ -80%	+10°C ~ +85°C																		



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Δ Dimensions (Rated 50VDC - 100VDC)

Temperature Coefficient	"D" Max mm T.C. Code	5	6.5	8	9.5	10.5	12.5	Capacitance Change(ppm/°C)
NPO	CG	1 to 47	51 to 100	110 to 150	160 to 220	240 to 270	300 to 390	0±60
SL/gp*	SL	1 to 180	200 to 330	360 to 470	520 to 680	750 to 1000	NIL	+350~-1000

Note:

\*SL/GP is for general purpose capacitor with temperature coefficient of +350 to -1000ppm/°C.

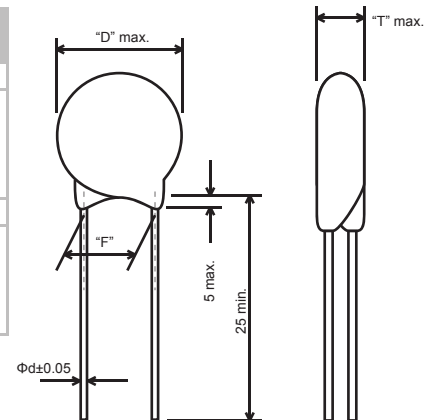
\*\*Other sizes of lead spacing are available upon request.

Δ Features

W.V. (DC)	Temp.Char.Capacitance Range (PF)						DIA(min)
	NP0(CH)	SL	Y5F/Y5P	Z5U	Z5V		
50V/100V	0.5~47	33~150	100~2200	1000~5000	3000~10000		5±1
	60~68	180~220	3000	5600~6800	-		6±1
	75~100	250~330	3900	7500~10000	12000~22000		7±1
	120~150	390	4700~6800	-	-		8±1
	180~200	470~560	-	-	-		9±1
	220~270	680~820	7500~8200,10000	20000~22000	-		10±1
	300~330	-	-	-	-		12±1

Voltage	Capacitance (µF)		D.F. (% MAX.)	Dimensions			
	(Y5U/Z5U)	(Y5V/Z5V)		D	T	F	d
50v		0.022	5.0	5.0	3.5	2.5±1.0	0.5
	0.047	0.047		6.0		5.0±1.0	
		0.1		8.0		6.3±1.0	
				8.4		10.0±1.0	
	0.1						
100v		0.022	5.0	5.0	3.5	2.5±1.0	0.5
	0.047	0.047		6.0		5.0±1.0	
		0.1		8.0		6.3±1.0	
				8.4		10.0±1.0	
	0.1						

Unit: mm



Fixed Component Capacitors