

Disc Ceramic Capacitors



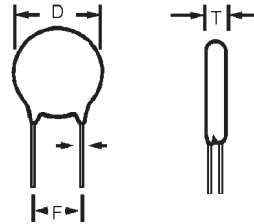
General Specifications - Class II General Purpose

DIELECTRIC - CLASS II

These ceramic capacitors have a high dielectric constant, what makes possible high capacitance values in reduced dimensions, however temperature coefficient and loss factor are greater than Class I.

Typical applications are decoupling and by pass.

Meets IEC 384-9 (1988).



HOW TO ORDER



100V / 500V PERFORMANCE CHARACTERISTICS CLASS II

Voltage Rating	100V ... 500V	1kV ... 5kV
Measured at	1.0 kHz @ 0.3 Vrms / 25°C	1.0 kHz @ 0.3 Vrms / 25°C
Dissipation Factor (%)	Y5E / Y5F / Y5P ≤ 2.5% Y5U / Y5V / Z5V ≤ 3.0%	Y5F ≤ 2.5% Y5U / Y5V ≤ 3.0%
Tolerance	$C_R < 10 \text{ pF} \rightarrow \pm 0.25 \text{ pF}, \pm 0.5 \text{ pF}$ $C_R \geq 10 \text{ pF} \rightarrow \pm 5\%, \pm 10\%$	$C_R < 10 \text{ pF} \rightarrow \pm 0.25 \text{ pF}, \pm 0.5 \text{ pF}$ $C_R \geq 10 \text{ pF} \rightarrow \pm 5\%, \pm 10\%$
Insulation Resistance (IR)	@ $V_R \rightarrow \geq 10 \text{ G}\Omega$	@ 500V $\rightarrow \geq 10 \text{ G}\Omega$
Dielectric Strength NOTE: Charging current limited to 50 mA	@ $V_R = 100\text{V} \rightarrow V_t = 250\text{V (DC)}$ @ $V_R = 500\text{V} \rightarrow V_t = 1250\text{V (DC)}$	$1.5 \times V_R + 500 \text{ (DC)}$
dV/dt test	-	up to 3.0 kV/ μsec for 5NR; 5NS Series
Operating Temperature Range (°C)	-30... +85°C	-30 ... +85°C Phenolic Coated -30 ... +125°C Epoxy Coated
Climatic Category	30 / 085 / 21 Phenolic Coated	30 / 85 / 21 Phenolic Coated 30 / 85 / 56 Epoxy Coated

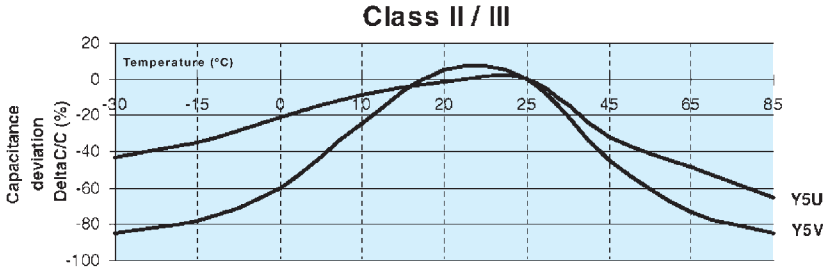
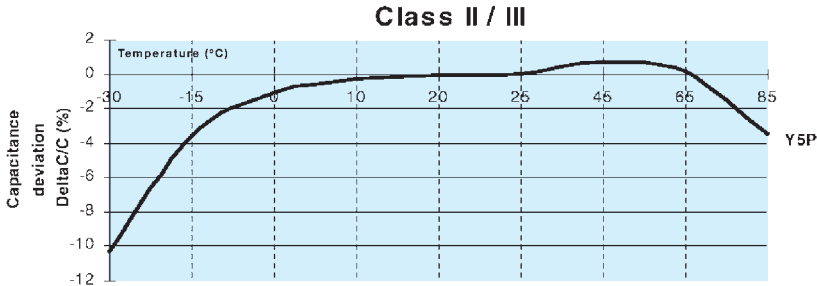
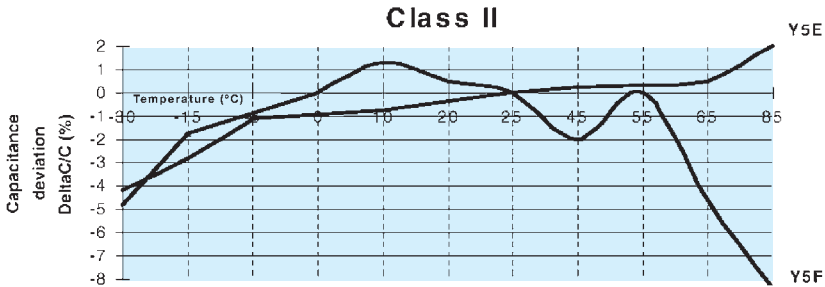
Note: Damp Heat Steady State: 90... 95% R.H. 40°C / 21 days. No voltage to be applied.

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General Specifications - Class II General Purpose



TEMPERATURE COEFFICIENT – TYPICAL CURVES



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Dimension Table - Class II

Low and Medium Voltage General Purpose



100V / 500V CLASS II – CAPACITANCE VS. DISC DIAMETER

millimeters (inches)

Temp. Coefficient	Y5E		Y5F		Y5P		Y5U		Y5V		Z5V
Digits 1,2,3 of P.N.	5MK	5MQ	5NK	5NQ	5OK	5OQ	5SK	5SQ	5TK	5TQ	5UK
Rated Voltage (V _R)	100 VDC	500 VDC	100 VDC	500 VDC	100 VDC	500 VDC	100 VDC	500 VDC	100 VDC	500 VDC	100 VDC
C _R (pF)											
56	5.0 (0.197)	5.0 (0.197)									
68											
82											
100											
120											
150											
180											
220											
270											
330											
390											
470											
560	6.0 (0.236)	6.0 (0.236)	5.0 (0.197)	5.0 (0.197)	5.0 (0.197)	5.0 (0.197)	6.0 (0.236)	5.0 (0.197)			
680											
820	7.0 (0.276)	7.0 (0.276)	6.0 (0.236)	7.0 (0.276)	6.0 (0.236)	7.0 (0.276)	5.0 (0.197)	5.0 (0.197)			
1,000											
1,200											
1,500											
1,800	9.0 (0.354)	9.0 (0.354)	7.0 (0.276)	9.0 (0.354)	7.0 (0.276)	9.0 (0.354)	6.0 (0.236)	7.0 (0.276)	5.0 (0.197)	5.0 (0.197)	
2,200											
2,700	10.0 (0.394)	11.0 (0.433)	9.0 (0.354)	10.0 (0.394)	9.0 (0.354)	10.0 (0.394)	6.0 (0.236)	7.0 (0.276)	5.0 (0.197)		
3,300											
3,900	11.0 (0.433)	12.0 (0.472)	9.0 (0.354)	10.0 (0.394)	9.0 (0.354)	10.0 (0.394)	7.0 (0.276)	9.0 (0.354)	5.0 (0.197)	5.0 (0.197)	
4,700											
5,600											
6,800											
8,200											
10,000											
12,000											
15,000											
22,000											
33,000											
47,000	16.0 (0.630)	16.0 (0.630)	11.0 (0.433)	14.0 (0.551)	14.0 (0.551)	16.0 (0.630)	7.0 (0.276)	10.0 (0.394)	7.0 (0.276)	7.0 (0.276)	
100,000											
	19.0 (0.748)	23.0 (0.906)									

Diameter (φ) = 9th Part Number Digit



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Dimension Table - Class II

High Voltage - Class II General Purpose



1kV / 5kV CLASS II – CAPACITANCE VS. DISC DIAMETER

millimeters (inches)

Temp. Coefficient	Y5F			Y5U					Y5V		
Digits 1,2,3 of P.N.	5NR	5NS	5NT	5SR	5SS	5ST	5SU	5SW	5TR	5TS	5TT
Rated Voltage (V _R)	1000 VDC 100 VAC	2000 VDC 150 VAC	3000 VDC 150 VAC	1000 VDC 100 VAC	2000 VDC 150 VAC	3000 VDC 150 VAC	4000 VDC 150 VAC	5000 VDC 150 VAC	1000 VDC 100 VAC	2000 VDC 150 VAC	3000 VDC 150 VAC
C _R (pF)											
47	5.0 (0.197)	5.0 (0.197)	5.0 (0.197)	5.0 (0.197)	5.0 (0.197)	5.0 (0.197)	5.0 (0.197)	5.0 (0.197)	5.0 (0.197)	5.0 (0.197)	5.0 (0.197)
56											
68											
82											
100											
120											
150											
180											
220											
270											
330											
390											
470											
560											
680	6.0 (0.236)	8.0 (0.315)	9.0 (0.354)	8.0 (0.315)	6.0 (0.236)	8.0 (0.315)	9.0 (0.354)	10.0 (0.394)	5.0 (0.197)	5.0 (0.197)	8.0 (0.315)
820	8.0 (0.315)	9.0 (0.354)	10.0 (0.394)	8.0 (0.315)	6.0 (0.236)	8.0 (0.315)	9.0 (0.354)	10.0 (0.394)	5.0 (0.197)	5.0 (0.197)	
1,000	8.0 (0.315)	9.0 (0.354)	10.0 (0.394)	8.0 (0.315)	6.0 (0.236)	8.0 (0.315)	9.0 (0.354)	10.0 (0.394)	5.0 (0.197)	5.0 (0.197)	
1,200	8.0 (0.315)	9.0 (0.354)	10.0 (0.394)	8.0 (0.315)	6.0 (0.236)	8.0 (0.315)	9.0 (0.354)	10.0 (0.394)	5.0 (0.197)	5.0 (0.197)	
1,500	8.0 (0.315)	9.0 (0.354)	10.0 (0.394)	8.0 (0.315)	6.0 (0.236)	8.0 (0.315)	9.0 (0.354)	10.0 (0.394)	5.0 (0.197)	5.0 (0.197)	
1,800	9.0 (0.354)	11.0 (0.433)	12.0 (0.472)	8.0 (0.315)	8.0 (0.315)	9.0 (0.354)	10.0 (0.394)	11.0 (0.433)	6.0 (0.236)	6.0 (0.236)	
2,200	10.0 (0.394)	11.0 (0.433)	12.0 (0.472)	8.0 (0.315)	8.0 (0.315)	9.0 (0.354)	10.0 (0.394)	11.0 (0.433)	6.0 (0.236)	6.0 (0.236)	
2,700	11.0 (0.433)	12.0 (0.472)	14.0 (0.551)	8.0 (0.315)	9.0 (0.354)	10.0 (0.394)	14.0 (0.551)	14.0 (0.551)	6.0 (0.236)	6.0 (0.236)	
3,300	12.0 (0.472)	12.0 (0.472)	14.0 (0.551)	8.0 (0.315)	9.0 (0.354)	10.0 (0.394)	14.0 (0.551)	14.0 (0.551)	6.0 (0.236)	6.0 (0.236)	
3,900	14.0 (0.551)	14.0 (0.551)	19.0 (0.748)	8.0 (0.315)	10.0 (0.394)	12.0 (0.472)	14.0 (0.551)	16.0 (0.630)	8.0 (0.315)	8.0 (0.315)	
4,700	16.0 (0.630)	16.0 (0.630)	19.0 (0.748)	8.0 (0.315)	10.0 (0.394)	12.0 (0.472)	14.0 (0.551)	16.0 (0.630)	8.0 (0.315)	8.0 (0.315)	
5,600	16.0 (0.630)	16.0 (0.630)	19.0 (0.748)	8.0 (0.315)	10.0 (0.394)	12.0 (0.472)	14.0 (0.551)	16.0 (0.630)	8.0 (0.315)	8.0 (0.315)	
6,800	16.0 (0.630)	16.0 (0.630)	19.0 (0.748)	8.0 (0.315)	10.0 (0.394)	12.0 (0.472)	14.0 (0.551)	16.0 (0.630)	8.0 (0.315)	8.0 (0.315)	
8,200	16.0 (0.630)	16.0 (0.630)	19.0 (0.748)	8.0 (0.315)	10.0 (0.394)	12.0 (0.472)	14.0 (0.551)	16.0 (0.630)	8.0 (0.315)	8.0 (0.315)	
10,000	16.0 (0.630)	16.0 (0.630)	19.0 (0.748)	8.0 (0.315)	10.0 (0.394)	12.0 (0.472)	14.0 (0.551)	16.0 (0.630)	8.0 (0.315)	8.0 (0.315)	
12,000	16.0 (0.630)	16.0 (0.630)	19.0 (0.748)	8.0 (0.315)	10.0 (0.394)	12.0 (0.472)	14.0 (0.551)	16.0 (0.630)	8.0 (0.315)	8.0 (0.315)	
15,000	16.0 (0.630)	16.0 (0.630)	19.0 (0.748)	8.0 (0.315)	10.0 (0.394)	12.0 (0.472)	14.0 (0.551)	16.0 (0.630)	8.0 (0.315)	8.0 (0.315)	
22,000	16.0 (0.630)	16.0 (0.630)	19.0 (0.748)	8.0 (0.315)	10.0 (0.394)	12.0 (0.472)	14.0 (0.551)	16.0 (0.630)	8.0 (0.315)	8.0 (0.315)	
50,000	16.0 (0.630)	16.0 (0.630)	19.0 (0.748)	8.0 (0.315)	10.0 (0.394)	12.0 (0.472)	14.0 (0.551)	16.0 (0.630)	8.0 (0.315)	8.0 (0.315)	
100,000	16.0 (0.630)	16.0 (0.630)	19.0 (0.748)	8.0 (0.315)	10.0 (0.394)	12.0 (0.472)	14.0 (0.551)	16.0 (0.630)	8.0 (0.315)	8.0 (0.315)	

Diameter (φ) = 9th Part Number Digit

