



TEMEX-CERAMICS

High Voltage Disc Ceramic Capacitors

TEMEX CERAMICS reserves the right to modify herein specifications and information at any time when necessary to provide optimum performance and cost.

HIGH VOLTAGE DISC CERAMIC CAPACITORS

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HIGH VOLTAGE DISC CERAMIC CAPACITORS

I. General description

These discs capacitors have been developed for use in all electronic applications with voltage rating from 1KV to 15KV. Suitable for LAN/WLAN interfaces, DC-DC converters, modems and communication etc... Some of the main advantages of these capacitors are the high reliability and low loss at wide frequency range.

This family is RoHS compliant.

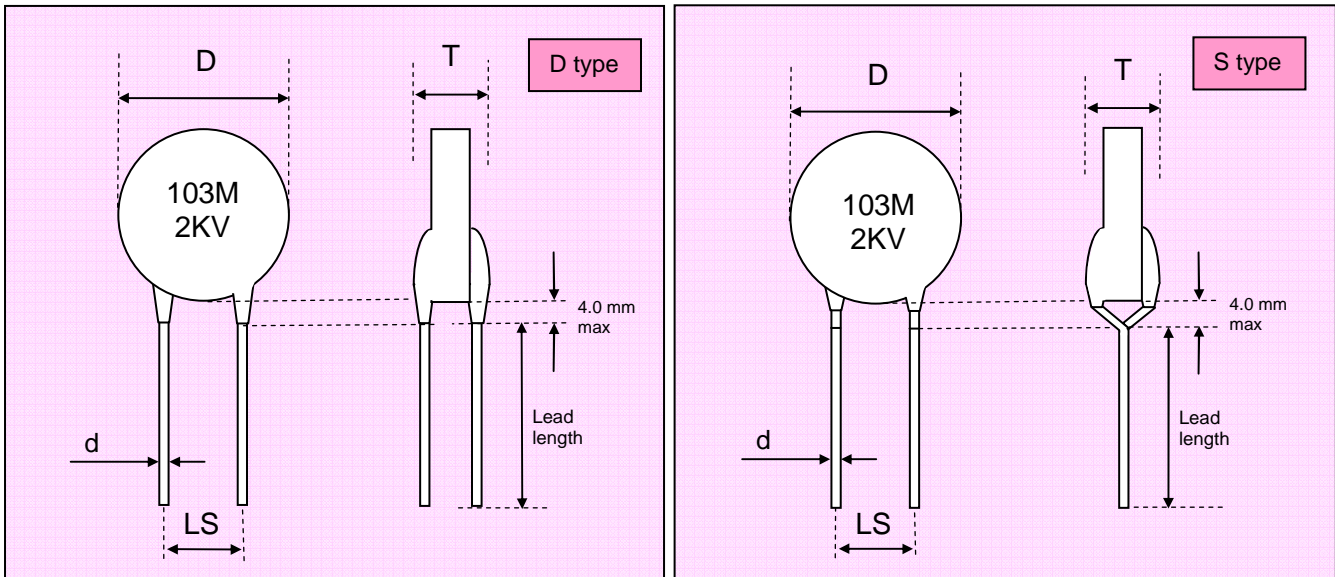
II Capacitance ranges

Dielectric Type	Rated Voltage	Capacitance Range																																			
		1R5	2R0	3R0	4R0	5R0	6R0	7R0	8R0	9R0	100	120	150	180	220	270	330	390	470	560	680	820	101	121	151	181	221	271	331	391	471	561	681	821	102		
NPO	3KV																																				
	6KV																																				
	10KV																																				
	15KV																																				
	20KV																																				
SL	1KV																																				
	2KV																																				
	3KV																																				
	6KV																																				
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	15KV																																				
20KV																																					

HIGH VOLTAGE DISC CERAMIC CAPACITORS

Dielectric Type	Rated Voltage	Capacitance Range																																				
		101	121	151	181	221	271	331	391	471	561	681	821	102	122	152	182	222	272	332	392	472	562	682	822	103	153	183	223	273	333	393	473					
X7R	1KV																																					
	2KV																																					
	3KV																																					
Y5P	1KV																																					
	2KV																																					
	3KV																																					
	10KV																																					
	12KV																																					
Y5S	3KV																																					
	6KV																																					
	10KV																																					
	12KV																																					
	15KV																																					
Y5U	1KV																																					
	2KV																																					
	3KV																																					
	10KV																																					
	12KV																																					
Y5V	1KV																																					
	2KV																																					
	3KV																																					
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	12KV																																					

III Dimensions



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HIGH VOLTAGE DISC CERAMIC CAPACITORS

NPO				
Rated Voltage (KV)	Capacitance Value (pF)	Lead Spacing (mm)	Body Diameter (mm)	Body Thickness (mm)
3	2	7.5 ± 1.5	5.5	6.0
	5 to 33		7.5	
	39 to 47		8.0	
	56		8.5	
	68		9.0	
	82		10.0	
	100		11.0	
6	2	7.5 ± 1.5	7.0	6.0

SL				
Rated Voltage (KV)	Capacitance Value (pF)	Lead Spacing (mm)	Body Diameter (mm)	Body Thickness (mm)
1	10 to 47	5.0 ± 1.0	5.5	3.0
	56		6.0	
	68		6.5	
	82		7.0	
	100		7.5	
	120		8.0	
	150		8.5	
	180		9.0	
	220		10.0	
	270		11.0	
	330		11.5	
	390		12.5	
	470		13.5	
	560		14.5	
	680		15.0	
820	15.5			
1000	16.0			
2	10 to 47	5.0 ± 1.0	5.5	5.0
	56		6.0	
	68		6.5	
	82		7.0	
	100		7.5	
	120		8.0	
	150		8.5	
	180		9.0	
	220		10.0	
	270	11.0		
	330	11.5		
	390	12.5		
	470	13.5		
	560	14.5		
	680	16.0		
		7.5 ± 1.0		

HIGH VOLTAGE DISC CERAMIC CAPACITORS

SL				
Rated Voltage (KV)	Capacitance Value (pF)	Lead Spacing (mm)	Body Diameter (mm)	Body Thickness (mm)
3	3 to 33	7.5 ± 1.5	7.0	6.0
	39 to 47		7.5	
	56		8.0	
	68		8.5	
	82		9.5	
	100 to 150		10.5	
	180		11.0	
	220		12.0	
	270		13.0	
	330		14.0	
	390		15.0	
470	16.0			
6	3 to 33	7.5 ± 1.5	7.5	6.0
	39		8.0	
	47		8.5	
	56		9.0	
	68		9.5	
	82		10.5	
	100		11.5	
	120		12	

X7R				
Rated Voltage (KV)	Capacitance Value (pF)	Lead Spacing (mm)	Body Diameter (mm)	Body Thickness (mm)
1	100 to 560	5.0 ± 1.0	6.0	3.0
	680		6.5	
	820 to 1000		7.0	
	1200		7.5	
	1500		8.0	
	1800		8.5	
	2200		9.0	
	2700		9.5	
	3300		10.0	
	3900		11.0	
	4700		11.5	
	5600		12.0	
	6800		13.5	
	8200		14.5	
	10000		15.5	
	22000		16.5	

HIGH VOLTAGE DISC CERAMIC CAPACITORS

X7R					
Rated Voltage (KV)	Capacitance Value (pF)	Lead Spacing (mm)	Body Diameter (mm)	Body Thickness (mm)	
2	100 to 150	5.0 ± 1.0	6.0	5.0	
	180		6.5		
	220 to 270		7.0		
	330		7.5		
	390		8.0		
	470		8.5		
	560		9.0		
	680		9.5		
	820		10.0		
	1000		11.0		
	1200	11.5			
	1500	12.0			
	1800	13.5			
	2200	14.5			
	2700	15.5			
	3300	17.0			
	3900	18.0			
	4700	19.5			
	3	100	7.5 ± 1.5		6.0
120		6.5			
150 to 180		7.0			
220		7.5			
270		8.0			
330		8.5			
390		9.0			
470		9.5			
560		10.0			
680		10.5			
820		11.5			
1000		12.0			
1200		13.0			
1500		14.5			
1800		15.5			
2200		16.5			
2700		18.0			
			10.0 ± 2.0		

HIGH VOLTAGE DISC CERAMIC CAPACITORS

Y5P							
Rated Voltage (KV)	Capacitance Value (pF)	Lead Spacing (mm)	Body Diameter (mm)	Body Thickness (mm)			
1	100 to 270	5.0 ± 1.0	7.5	3.0			
	330 to 390		8.0				
	470		8.5				
	560		9.0				
	680 to 820		10.0				
	1000		11.0				
	1200		11.5				
	1500		12.0				
	1800		13.5				
	2200		14.5				
	2700		15.0				
	3300		15.5				
	3900		16.5				
	4700		17.0				
	5600		17.5				
	6800		18.0				
8200	18.5						
10000	19.0						
2	100 to 270	5.0 ± 1.0	7.5	5.0			
	330 to 390		8.0				
	470		8.5				
	560		9.0				
	680 to 820		10.0				
	1000		11.0				
	1200	11.5					
	1500	7.5 ± 1.5	12.0				
	1800		13.5				
	2200		14.5				
	2700		15.0				
	3300		15.5				
	3900		16.5				
	4700		17.0				
	3		100 to 220		7.5 ± 1.5	7.5	6.0
			270 to 330			8.0	
390			9.0				
470		10.0					
560		10.5					
680		11.0					
820		12.0					
1000		12.5					
1200		13.5					
1500		14.5					
1800		10.0 ± 2.0	15.5				
2200			16.5				
2700 to 3300			18.0				

HIGH VOLTAGE DISC CERAMIC CAPACITORS

Y5S				
Rated Voltage (KV)	Capacitance Value (pF)	Lead Spacing (mm)	Body Diameter (mm)	Body Thickness (mm)
3	100	7.5 ± 1.5	5.5	5.0
	150		6.5	
	220		7.5	
	330		8.5	
	390		9.0	
	470		9.5	

Y5U				
Rated Voltage (KV)	Capacitance Value (pF)	Lead Spacing (mm)	Body Diameter (mm)	Body Thickness (mm)
1	470 to 680	5.0 ± 1.0	5.5	3.0
	1000		6.0	
	1500		7.0	
	2200		8.0	
	3300		9.0	
	4700		10.5	
	6800		12.5	
	10000		14.5	
2	470 to 680	5.0 ± 1.0	5.5	5.0
	1000		6.0	
	1500		7.0	
	2200		8.0	
	3300	7.5 ± 1.5	9.0	
	4700		10.5	
	6800		12.5	
	10000		14.5	
3	470	7.5 ± 1.5	6.0	6.0
	680		6.5	
	1000		7.5	
	1500		8.5	
	2200		9.5	
	3300		11.5	
	4700		12.5	
	6800	10.0 ± 2.0	15.0	

Y5V				
Rated Voltage (KV)	Capacitance Value (pF)	Lead Spacing (mm)	Body Diameter (mm)	Body Thickness (mm)
3	1000 to 2200	5.0 ± 1.0	8.0	6.0

For other products, please, contact us.

HIGH VOLTAGE DISC CERAMIC CAPACITORS

IV Dielectric characteristics

Dielectric code	Dielectric Type	EIA Class	Temperature Range	Temperature coefficient	Max $\Delta C/C$ vs Temperature
N	NP0	Class I	-55°C / +125°C	0 \pm 30ppm / °C	NA
K	SL	Class I	-25°C / +85°C	+350~1000ppm / °C	NA
X	X7R	Class II	-55°C / +125°C	NA	\pm 15% max
P	Y5P	Class II	-25°C / +85°C	NA	\pm 10% max
D	Y5S	Class II	-25°C / +85°C	NA	\pm 22% max
E	Y5U	Class II	-25°C / +85°C	NA	+22% / -56%
Y	Y5V	Class II	-25°C / +85°C	NA	+22% / -82%

Dielectric code	Dielectric Type	Aging ¹	Insulation Resistance ²	Q factor ³	Dissipation factor	Voltage Proof ⁴
N	NP0	None	10G Ω or 500 Ω F	\leq 30pF Q \geq 400+20°C >30pF Q \geq 1000	-	\leq 2KV 200% Ur 3KV 175% Ur \geq 6KV 150% Ur
K	SL	1.5%	10G Ω or 500 Ω F	\leq 30pF Q \geq 400+20°C >30pF Q \geq 1000	-	
X	X7R	3.5%	10G Ω or 500 Ω F	-	\leq 2.5%	
P	Y5P	3.5%	10G Ω or 500 Ω F	-	\leq 2.5%	
D	Y5S	3.5%	10G Ω or 500 Ω F	-	\leq 1%	
E	Y5U	5.0%	10G Ω or 500 Ω F	-	\leq 5.0%	
Y	Y5V	7.5%	10G Ω or 500 Ω F	-	\leq 5.0%	

- (1): per decade hour (typical)
 (2): whichever is the smaller (500V applied)
 (3): "C" is the capacitance value in pF
 (4): "Ur" is the rated voltage in volt

For Q factor and Dissipation factor, the frequency is 1MHz for N and D dielectrics, 1KHz for the others.

HIGH VOLTAGE DISC CERAMIC CAPACITORS

V How to order

102	S	X	471	K	1	5	L
<p>Rated Voltage</p> <p>1st two digits are significant; third digit denotes number of zeros</p> <p>Exemples: 102=1000V 202=2000V 602=6000V 103=10000V 153=15000V 203=20000V</p>	<p>Capacitor Shape Type</p> <p>S D</p>	<p>Dielectric</p> <p>N = NP0 K = SL X = X7R P = Y5P D = Y5S E = Y5U Y = Y5V</p>	<p>Capacitance</p> <p>1st two digits are significant; third digit denotes number of zeros</p> <p>Exemples: 101=100pF 472= 4.7nF 683 = 68nF 104 = 0.1µF</p>	<p>Tolerance</p> <p><u>Class I < 10pF</u> C (±0.25%) D (±0.50%)</p> <p><u>Class I ≥10pF</u> H (±3%) J (±5%)</p> <p><u>Class II</u> K (±10%) M (±20%)</p>	<p>Lead Diameter</p> <p>1: Ø = 0.50 mm 2: Ø = 0.60 mm 3: Ø = 0.65 mm 4: Ø = 0.80 mm</p>	<p>Lead Spacing</p> <p>5 = 5.00 mm 6 = 6.35 mm 7 = 7.50 mm A = 10.0 mm B = 12.5 mm</p>	<p>Packaging</p> <p><u>Bulk (lead length)</u> H = 3.1 mm C = 3.5mm S = 5.0mm M = 10.0mm L = 25.0mm mini</p> <p><u>Reel</u> T</p> <p><u>Ammo Box</u> A</p>

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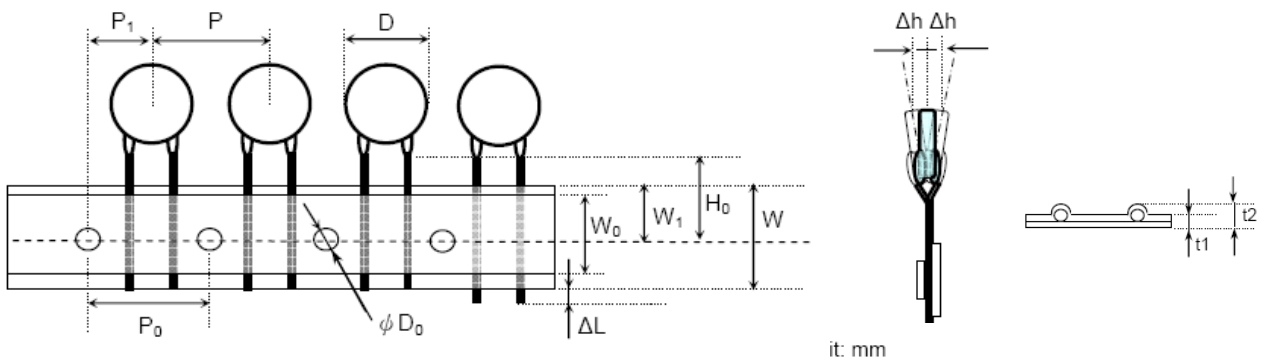
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VI Packaging

PACKAGING QUANTITY:

- Bulk:** 500 or 1000 pieces per pack, other according to request.
- Reel:** 1500 or 2000 pieces per reel
- Ammo Box:** 1000 or 1500 pieces per box

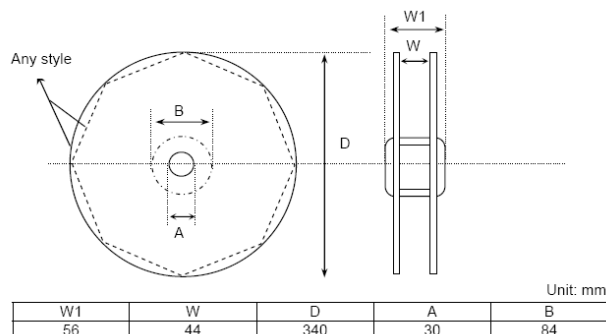
Tape dimensions (for Reel and Ammo pack)



it: mm

Symbol	Lead Space	5.0 mm	6.35 mm	7.5 mm	10.0 mm
P		12.7±1.0			
P ₀		12.7±0.3			
P ₁		6.35±1.3			
D		11.0 max			
W		18+1.0-0.5			
W ₀		10 min			
W ₁		9±0.5			
H ₀		16+1.5-0.5			
t1		0.6±0.3			
t2		1.5 max			
φD ₀		4.0±0.2			
Δh		2.0 max			
ΔL		1.0 max			

Reel dimensions



Unit: mm

W1	W	D	A	B
56	44	340	30	84

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Ammo dimensions

