

Lower Voltage Ceramic Singlelayer DC Disc Capacitors 2 kV_{DC} to 7.5 kV_{DC}


FEATURES

- Low losses
- High capacitance in small sizes
- High stability
- Radial leads
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

APPLICATIONS

- Lighting ballasts
- SMPS
- DC and pulse high voltage

DESIGN

The capacitors consist of a ceramic disc of which both sides are silver-plated. Connection leads are made of tinned copper having diameters of 0.025" (0.64 mm) or 0.032" (0.81 mm).

The capacitors may be supplied with radial kinked or straight leads having lead spacing of 0.250" (6.35 mm) or 0.375" (9.5 mm) or 0.500" (12.7 mm).

The standard tolerances are ± 10 % or ± 20 %.

Coating is made of resin coating or flame retardant epoxy resin in accordance with "UL 94 V-0".

QUICK REFERENCE DATA						
DESCRIPTION	VALUE					
Ceramic Class	1		2			
Ceramic Dielectric	U2J, R3L	C0G, U2J, R3L	X7R, Y5S, Y5U, Z5U, Y5V	X7R, Y5S, Y5U, Z5U, Y5V	X5F, X5S, Y5U, Z5U	X5F, Y5U, Z5U
Voltage (V _{DC})	3000	6000	2000	3000	6000	7500
Min. Capacitance (pF)	10	10	100	47	100	100
Max. Capacitance (pF)	33	47	100 000	33 000	10 000	2500
Mounting	Radial					

INSULATION RESISTANCE

2 kV _{DC}	min. 10 000 MΩ
3 kV _{DC}	min. 50 000 MΩ
6 kV _{DC}	min. 75 000 MΩ
7.5 kV _{DC}	min. 200 000 MΩ

TOLERANCE ON CAPACITANCE

± 10 %, ± 20 %, - 20 % to + 80 %

DISSIPATION FACTOR

0.2 % max. at 1 MHz; 1 V
2.0 % max. at 1 kHz; 1 V

CATEGORY TEMPERATURE RANGE

- 25 °C to + 85 °C

CLIMATIC CATEGORY ACC. TO EN 60068-1

25/085/21

OPERATING TEMPERATURE RANGE

- 25 °C to + 105 °C

CAPACITANCE RANGE

10 pF to 0.10 μF

RATED VOLTAGE

2 kV_{DC}
3 kV_{DC}
6 kV_{DC}
7.5 kV_{DC}

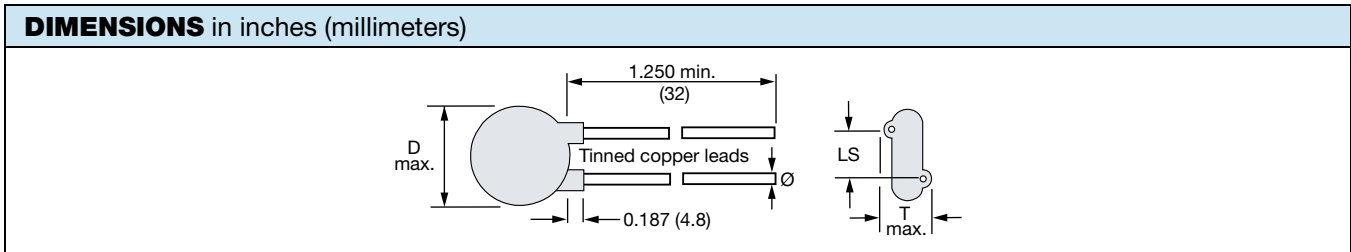
DIELECTRIC STRENGTH BETWEEN LEADS

Component test:

2 kV _{DC}	3500 V _{DC} , 2 s
3 kV _{DC}	5000 V _{DC} , 2 s
6 kV _{DC}	10 500 V _{DC} , 2 s
7.5 kV _{DC}	11 250 V _{DC} , 2 s

CERAMIC DIELECTRIC

C0G, U2J, R3L (Class 1)
X7R, X5F, X5S, Y5S, Y5U, Y5V, Z5U (Class 2)



ORDERING INFORMATION, CERAMIC 2 kV_{DC}											
C (pF)	TOL. (%)	D _{max.} DIAMETER INCH (mm)	T _{max.} THICKNESS INCH (mm)	LS LEAD SPACE INCH (mm)	WIRE SIZE		ORDERING CODE				
					AWG	INCH (mm)					
X7R											
100	± 10	0.330 (8.4)	0.190 (4.8)	0.250 (6.4)	20	0.032 (0.81)	564R20TST10				
220			0.180 (4.6)				564R20TST22				
330			0.170 (4.3)				564R20TST33				
470			0.185 (4.7)				564R20TST47				
560			0.170 (4.3)				564R20TST56				
680			0.400 (10.2)				564R20TST68				
1000		0.430 (10.9)	564R20TSD10								
1500		0.460 (11.7)	564R20TSD15								
1800		0.530 (13.5)	0.170 (4.3)				564R20TSD18				
2200			0.160 (4.1)				564R20TSD22				
2700			0.170 (4.3)				564R20TSD27				
3300			0.160 (4.1)				564R20TSD33				
3900			0.680 (17.3)				564R20TSD39				
4700			0.170 (4.3)				564R20TSD47				
							0.375 (9.5)				564R20TSD47
Y5S											
1000	± 20	0.330 (8.4)	0.175 (4.4)	0.250 (6.4)	20	0.032 (0.81)	564R20TSSD10				
1500		0.400 (10.2)	0.170 (4.3)				564R20TSSD15				
1800		0.430 (10.9)					564R20TSSD18				
2200		0.460 (11.7)					564R20TSSD22				
2700		0.530 (13.5)					0.175 (4.4)	564R20TSSD27			
3300			0.375 (9.5)				564R20TSSD33				
3900							564R20TSSD39				
4700							564R20TSSD47				
5600		0.680 (17.3)					564R20TSSD56				
6800		0.720 (18.3)	564R20TSSD68								
Y5U											
1000		± 20	0.330 (8.4)				0.170 (4.3)	0.250 (6.4)	20	0.032 (0.81)	564R20GAD10
1500	0.330 (8.4)		0.170 (4.3)	564R20GAD15							
Z5U											
1800	± 20	0.360 (9.1)	0.170 (4.3)	0.250 (6.4)	20	0.032 (0.81)	564R20GAD18				
2200		0.400 (10.2)	0.175 (4.4)				564R20GAD22				
2700		0.430 (10.9)					564R20GAD27				
3300		0.490 (12.4)					564R20GAD33				
3900							564R20GAD39				
4700			564R20GAD47								
6800			0.560 (14.2)				0.170 (4.3)	564R20GAD68			
0.010 μF		0.680 (17.3)						0.375 (9.5)	564R20GAS10		
Y5V											
0.01 μF		± 20	0.620 (15.7)				0.170 (4.3)	0.375 (9.5)	20	0.032 (0.81)	564R20GASS10
0.05 μF	0.950 (24.1)		0.174 (4.4)	20	564R20GAS50						
0.10 μF	0.950 (24.1)		0.240 (6.1)	22	0.025 (0.64)	565R20GAP10					



ORDERING INFORMATION, CERAMIC 3 kV _{DC}										
C (pF)	TOL. (%)	D _{max.} DIAMETER INCH (mm)	T _{max.} THICKNESS INCH (mm)	LS LEAD SPACE INCH (mm)	WIRE SIZE		ORDERING CODE			
					AWG	INCH (mm)				
U2J (N750)										
10	± 20	0.330 (8.4)	0.210 (5.3)	0.250 (6.4)	20	0.032 (0.81)	564R30GAQ10			
12			0.210 (5.3)				564R30GAQ12			
15			0.180 (4.6)				564R30GAQ15			
R3L (N2200)										
22	± 20	0.330 (8.4)	0.200 (5.1)	0.250 (6.4)	20	0.032 (0.81)	564R30GAQ22			
27			0.190 (4.8)				564R30GAQ27			
33			0.170 (4.3)				564R30GAQ33			
X7R										
47	± 20	0.330 (8.4)	0.230 (5.8)	0.250 (6.4)	20	0.032 (0.81)	564R30GAQ47			
56			0.190 (4.8)				564R30GAQ56			
68			0.200 (5.1)				564R30GAQ68			
100			0.180 (4.6)				564R30GAT10			
150			0.190 (4.8)				564R30GAT15			
220			0.175 (4.4)				564R30GAT22			
270			0.180 (4.6)				564R30GAT27			
330			0.175 (4.4)				0.180 (4.6)	564R30GAT33		
390								564R30GAT39		
470			± 10				0.400 (10.2)	0.180 (4.6)	0.375 (9.5)	20
680	0.175 (4.4)	564R30TST68								
1000	0.490 (12.5)	564R30TSD10								
1500	0.530 (13.5)	0.185 (4.7)		564R30TSD15						
1800		0.180 (4.6)		564R30TSD18						
2200	0.620 (15.7)	0.185 (4.7)		564R30TSD22						
2700		0.170 (4.3)		564R30TSD27						
3300	0.720 (18.3)	0.185 (4.7)		564R30TSD33						
3900		0.175 (4.4)		564R30TSD39						
4700	0.900 (22.9)	0.175 (4.4)		564R30TSD47						
6800		0.185 (4.7)	564R30TSD68							
Y5S										
1000	± 20	0.400 (10.2)	0.190 (4.8)	0.250 (6.4)	20	0.032 (0.81)	564R30TSSD10			
1500		0.460 (11.7)					564R30TSSD15			
1800		0.490 (12.4)					564R30TSSD18			
2200		0.530 (13.5)					564R30TSSD22			
2700		0.560 (14.2)					564R30TSSD27			
3300		0.620 (15.7)	0.185 (4.7)	564R30TSSD33						
3900				564R30TSSD39						
4700		0.680 (17.3)	0.375 (9.5)	564R30TSSD47						
5600		0.790 (20.0)	0.190 (4.8)	564R30TSSD56						
6800		0.900 (22.9)	0.205 (5.2)	564R30TSSD68						
Y5U										
680	± 20	0.330 (8.4)	0.175 (4.4)	0.250 (6.4)	20	0.032 (0.81)	564R30GAT68			
Z5U										
1000	± 20	0.330 (8.4)	0.195 (5.0)	0.250 (6.4)	20	0.032 (0.81)	564R30GAD10			
1500		0.360 (9.1)	0.190 (4.8)				564R30GAD15			
1800		0.400 (10.2)					564R30GAD18			
2200		0.430 (10.9)					564R30GAD22			
2700		0.460 (11.7)	0.200 (5.1)				564R30GAD27			
3300		0.490 (12.4)	0.185 (4.7)	564R30GAD33						
3900		0.530 (13.5)		564R30GAD39						
4700		0.620 (15.7)	0.195 (5.0)	564R30GAD47						
6800		0.680 (17.3)	0.185 (4.7)	564R30GAD68						
8200				564R30GAD82						
0.010 µF				0.720 (18.3)			0.375 (9.5)	564R30GAS10		
0.020 µF		0.720 (18.3)	22	0.025 (0.64)				565R30GASS20		
0.033 µF		0.900 (22.9)	0.240 (6.1)	22				0.025 (0.64)	565R30GASS33	
Y5V										
0.010 µF		± 20	0.720 (18.3)	0.185 (4.7)			0.375 (9.5)	20	0.032 (0.81)	564R30GASS10



ORDERING INFORMATION, CERAMIC 6 kV _{DC}							
C (pF)	TOL. (%)	D _{max.} DIAMETER INCH (mm)	T _{max.} THICKNESS INCH (mm)	LS LEAD SPACE INCH (mm)	WIRE SIZE		ORDERING CODE
					AWG	INCH (mm)	
C0G (NP0)							
10	± 20	0.400 (10.2)	0.220 (5.6)	0.375 (9.5)	20	0.032 (0.81)	564R60GAQ10
U2J (N750)							
22	± 20	0.460 (11.7)	0.240 (6.1)	0.375 (9.5)	20	0.032 (0.81)	564R60GAQ22
R3L (N2200)							
33	± 20	0.400 (10.2)	0.230 (5.8)	0.375 (9.5)	20	0.032 (0.81)	564R60GAQ33
47		0.460 (11.7)	0.205 (5.2)				564R60GAQ47
X5F							
100	± 20	0.400 (10.2)	0.240 (6.1)	0.375 (9.5)	20	0.032 (0.81)	564R60GAT10
220			0.265 (6.7)				564R60GAT22
X5S							
330	± 20	0.400 (10.2)	0.260 (6.6)	0.375 (9.5)	20	0.032 (0.81)	564R60GAT33
Y5U							
470	± 20	0.400 (10.2)	0.265 (6.7)	0.375 (9.5)	20	0.032 (0.81)	564R60GAT47
560			0.240 (6.1)				564R60GAT56
Z5U							
1000	± 20	0.400 (10.2)	0.270 (6.9)	0.375 (9.5)	20	0.032 (0.81)	564R60GAD10
1500		0.460 (11.7)	0.280 (7.1)				564R60GAD15
2200		0.530 (13.5)	0.240 (6.1)				564R60GAD22
3300		0.620 (15.7)	0.260 (6.6)				564R60GAD33
4700		0.790 (20.0)					564R60GAD47
0.010 µF		0.950 (24.1)	0.250 (6.4)				564R60GAS10

ORDERING INFORMATION, CERAMIC 7.5 kV _{DC}							
C (pF)	TOL. (%)	D _{max.} DIAMETER INCH (mm)	T _{max.} THICKNESS INCH (mm)	LS LEAD SPACE INCH (mm)	WIRE SIZE		ORDERING CODE
					AWG	INCH (mm)	
X5F							
100	± 20	0.530 (13.5)	0.310 (7.9)	0.500 (12.7)	20	0.032 (0.81)	564R75GAT10
470		0.620 (15.7)	0.270 (6.9)				564R75GAT47
Y5U							
1000	+ 80/- 20	0.620 (15.7)	0.320 (8.1)	0.500 (12.7)	20	0.032 (0.81)	564R75GAD10
Z5U							
2500	+ 80/- 20	0.620 (15.7)	0.280 (7.1)	0.500 (12.7)	20	0.032 (0.81)	564R75GAD25

TAPE AND REEL OPTIONS

Part number codes and specifications for tape and reel packaging are found in the general information document - find web-link below.

RELATED DOCUMENTS	
General Information	www.vishay.com/doc?23140



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[564R2DF0T18](#) [564R2DF0T22](#) [564R2DF0T33](#) [564R30GAD10](#) [564R30GAD15](#) [564R30GAD47](#) [564R30GAD50](#)
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[564R3DF0Q33](#) [564R60GAD10](#) [564R60GAD33](#) [564R60GAD47](#) [564R60GAQ10](#) [564R60GAQ22](#) [564R60GAQ33](#)
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[564RC0GAA302EL680J](#) [564RC0GAA302EP101J](#) [564RC0GAA302EP121J](#) [564RC0GAA302EP151J](#)
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[564RC0HAE402EE5R6D](#) [564RC0JAE402EE3R0D](#) [564RC0JAE402EE3R9D](#) [564RC0KAA502EE1R0C](#)
[564RC0KAE402EE1R0D](#) [564RC0KAE402EE2R0D](#) [564RC0KNA202EC1R5D](#) [564RX5EAA302EF271K](#)
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