

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 $\pm 10\%$ or $\pm 20\%$.

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

CAPACITANCE RANGE

10 pF to 0.10 μ F

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)

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 M Ω
3 kV_{DC} min. 50 000 M Ω
6 kV_{DC} min. 75 000 M Ω
7.5 kV_{DC} min. 200 000 M Ω

TOLERANCE ON CAPACITANCE

$\pm 10\%$, $\pm 20\%$, - 20 % to + 80 %

DISSIPATION FACTOR

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

CATEGORY TEMPERATURE RANGE

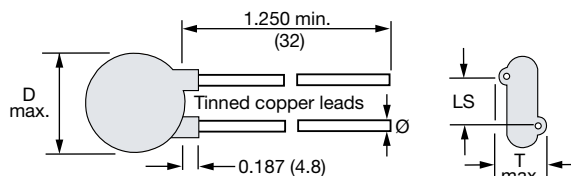
- 25 °C to + 85 °C

CLIMATIC CATEGORY ACC. TO EN 60068-1

25/085/21

OPERATING TEMPERATURE RANGE

- 25 °C to + 105 °C

DIMENSIONS in inches (millimeters)

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
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							564R20TST33
470			0.170 (4.3)				564R20TST47
560			0.185 (4.7)				564R20TST56
680			0.170 (4.3)				564R20TST68
1000		0.400 (10.2)	0.175 (4.4)				564R20TSD10
1500		0.430 (10.9)	0.160 (4.1)				564R20TSD15
1800		0.460 (11.7)	0.170 (4.3)				564R20TSD18
2200							564R20TSD22
2700		0.530 (13.5)	0.170 (4.3)				564R20TSD27
3300			0.160 (4.1)				564R20TSD33
3900		0.680 (17.3)	0.170 (4.3)				564R20TSD39
4700							0.375 (9.5)
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							564R20TSSD33
3900		0.620 (15.7)					564R20TSSD39
4700		0.680 (17.3)	0.170 (4.3)	564R20TSSD47			
5600				0.375 (9.5)			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							564R20GAD33
3900		0.490 (12.4)	0.170 (4.3)				564R20GAD39
4700							564R20GAD47
6800		0.560 (14.2)		0.375 (9.5)			564R20GAD68
0.010 μF		0.680 (17.3)	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	
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)				564R30GAT33	
390	± 10	0.330 (8.4)	0.175 (4.4)	0.375 (9.5)	20	0.032 (0.81)	564R30GAT39	
470			0.180 (4.6)				564R30GAT47	
680			0.180 (4.6)				564R30TST68	
1000			0.175 (4.4)				564R30TSD10	
1500			0.490 (12.5)				564R30TSD15	
1800			0.185 (4.7)				564R30TSD18	
2200			0.180 (4.6)				564R30TSD22	
2700			0.185 (4.7)				564R30TSD27	
3300			0.170 (4.3)				564R30TSD33	
3900			0.185 (4.7)				564R30TSD39	
4700			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)	0.185 (4.7)	564R30TSSD27				
3300		0.620 (15.7)		564R30TSSD33				
3900		0.680 (17.3)		564R30TSSD39				
4700		0.680 (17.3)		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)	0.265 (6.7)	22			0.025 (0.64)	564R30GAS10
0.020 μF		0.720 (18.3)						565R30GASS20
0.033 μF		0.900 (22.9)						0.240 (6.1)
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
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



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Vishay:](#)

[564R20GAS10](#) [564R30GAQ15](#) [564R30GAQ12](#) [564R20GAS10AP](#)