

## Lower Voltage Ceramic Disc Capacitors 2 kV<sub>DC</sub> to 7.5 kV<sub>DC</sub>



LEAD OFFSET "LO"	
<b>NOMINAL</b>	~ THICKNESS - 0.100"
	0.07" (1.8 mm) -565R20GAP10
<b>EXCEPTION</b>	0.08" (2.0 mm) -565R30GASS20
	0.10" (2.54 mm) -565R30GASS33

QUICK REFERENCE DATA						
DESCRIPTION	VALUE					
Ceramic Class	1	1	2	2	2	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 <sub>DC</sub> )	3000	6000	2000	3000	6000	7500
Min. Capacitance (pF)	10	10	100	47	100	100
Max. Capacitance (pF)	33	47	100 000	10 000	10 000	2500
Mounting	Through hole					

### INSULATION RESISTANCE

2 kV <sub>DC</sub>	min. 10 000 MΩ
3 kV <sub>DC</sub>	min. 50 000 MΩ
6 kV <sub>DC</sub>	min. 75 000 MΩ
7.5 kV <sub>DC</sub>	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 EN60068-1

25/085/21

### OPERATING TEMPERATURE RANGE

- 25 °C to + 105 °C

### 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](http://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".

### CAPACITANCE RANGE

10 pF to 0.10 μF

### RATED VOLTAGE

2 kV<sub>DC</sub>  
3 kV<sub>DC</sub>  
6 kV<sub>DC</sub>  
7.5 kV<sub>DC</sub>

### DIELECTRIC STRENGTH BETWEEN LEADS

Component test:

2 kV <sub>DC</sub>	3500 V <sub>DC</sub> , 2 s
3 kV <sub>DC</sub>	5000 V <sub>DC</sub> , 2 s
6 kV <sub>DC</sub>	10 500 V <sub>DC</sub> , 2 s
7.5 kV <sub>DC</sub>	11 250 V <sub>DC</sub> , 2 s

### CERAMIC DIELECTRIC

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



ORDERING INFORMATION, CERAMIC 2 kV <sub>DC</sub>											
C (pF)	TOL. (%)	D DIAMETER INCH (mm)	T THICKNESS INCH (mm)	LS LEAD SPACE INCH (mm)	WIRE SIZE		ORDERING CODE				
					AWG	INCH (mm)					
<b>X7R</b>											
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			0.175 (4.4)				564R20TST68				
1000		0.430 (10.9)	0.160 (4.1)				564R20TSD10				
1500		0.460 (11.7)	0.170 (4.3)				564R20TSD15				
1800		0.530 (13.5)	0.170 (4.3)				564R20TSD18				
2200		0.530 (13.5)	0.160 (4.1)				564R20TSD22				
2700		0.680 (17.3)	0.170 (4.3)				564R20TSD27				
3300							564R20TSD33				
3900							564R20TSD39				
4700							564R20TSD47				
							0.375 (9.5)				564R20TSD47
<b>Y5S</b>											
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)					564R20TSSD27				
3300		0.620 (15.7)	0.175 (4.4)				564R20TSSD33				
3900		0.680 (17.3)					564R20TSSD39				
4700		0.720 (18.3)	0.170 (4.3)				564R20TSSD47				
5600							0.375 (9.5)	564R20TSSD56			
6800							564R20TSSD68				
<b>Y5U</b>											
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				
<b>Z5U</b>											
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		0.560 (14.2)					564R20GAD39				
4700		0.680 (17.3)	0.170 (4.3)				564R20GAD47				
6800							0.375 (9.5)	564R20GAD68			
0.010 μF											564R20GAS10
<b>Y5V</b>											
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					

**TAPE AND REEL OPTIONS**

To specify tape and reel, add two letter suffix to the ordering code (for details of the packaging code see general section of the catalog).



ORDERING INFORMATION, CERAMIC 3 kV <sub>DC</sub>							
C (pF)	TOL. (%)	D DIAMETER INCH (mm)	T THICKNESS INCH (mm)	LS LEAD SPACE INCH (mm)	WIRE SIZE		ORDERING CODE
					AWG	INCH (mm)	
<b>U2J (N750)</b>							
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
<b>R3L (N2200)</b>							
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
<b>X7R</b>							
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			0.180 (4.6)				564R30GAT39
470			0.175 (4.4)				564R30GAT47
680	± 10	0.400 (10.2)	0.180 (4.6)	0.375 (9.5)	20	0.032 (0.81)	564R30TST68
1000			0.175 (4.4)				564R30TSD10
1500			0.490 (12.5)				564R30TSD15
1800			0.185 (4.7)				564R30TSD18
2200			0.530 (13.5)				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			0.900 (22.9)				564R30TSD68
<b>Y5S</b>							
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)	0.375 (9.5)	564R30TSSD27		
3300		0.620 (15.7)			564R30TSSD33		
3900		0.680 (17.3)	0.190 (4.8)	564R30TSSD39			
4700		0.790 (20.0)	0.190 (4.8)	564R30TSSD47			
5600		0.900 (22.9)	0.205 (5.2)	564R30TSSD56			
6800				564R30TSSD68			
<b>Y5U</b>							
680	± 20	0.330 (8.4)	0.175 (4.4)	0.250 (6.4)	20	0.032 (0.81)	564R30GAT68
<b>Z5U</b>							
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)	564R30GAD15				
1800		0.400 (10.2)	0.190 (4.8)				564R30GAD18
2200		0.430 (10.9)	0.200 (5.1)				564R30GAD22
2700		0.460 (11.7)	0.185 (4.7)	0.375 (9.5)	564R30GAD27		
3300		0.490 (12.4)			564R30GAD33		
3900		0.530 (13.5)	0.195 (5.0)	564R30GAD39			
4700		0.620 (15.7)	0.185 (4.7)	564R30GAD47			
6800		0.680 (17.3)	0.185 (4.7)	564R30GAD68			
8200		0.720 (18.3)	0.265 (6.7)	564R30GAD82			
0.010 µF		0.720 (18.3)	0.240 (6.1)	564R30GAS10			
0.020 µF				22	0.025 (0.64)	565R30GASS20	
0.033 µF				22	0.025 (0.64)	565R30GASS33	
<b>Y5V</b>							
0.010 µF	± 20	0.720 (18.3)	0.185 (4.7)	0.375 (9.5)	20	0.032 (0.81)	564R30GASS10

**TAPE AND REEL OPTIONS**

To specify tape and reel, add two letter suffix to the ordering code (for details of the packaging code see general section of the catalog).



ORDERING INFORMATION, CERAMIC 6 kV <sub>DC</sub>							
C (pF)	TOL. (%)	D DIAMETER INCH (mm)	T THICKNESS INCH (mm)	LS LEAD SPACE INCH (mm)	WIRE SIZE		ORDERING CODE
					AWG	INCH (mm)	
<b>C0G (NP0)</b>							
10	± 20	0.400 (10.2)	0.220 (5.6)	0.375 (9.5)	20	0.032 (0.81)	564R60GAQ10
<b>U2J (N750)</b>							
22	± 20	0.460 (11.7)	0.240 (6.1)	0.375 (9.5)	20	0.032 (0.81)	564R60GAQ22
<b>R3L (N2200)</b>							
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
<b>X5F</b>							
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
<b>X5S</b>							
330	± 20	0.400 (10.2)	0.260 (6.6)	0.375 (9.5)	20	0.032 (0.81)	564R60GAT33
<b>Y5U</b>							
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
<b>Z5U</b>							
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)
0.010 µF		0.950 (24.1)	0.250 (6.4)				564R60GAS10

ORDERING INFORMATION, CERAMIC 7.5 kV <sub>DC</sub>							
C (pF)	TOL. (%)	D DIAMETER INCH (mm)	T THICKNESS INCH (mm)	LS LEAD SPACE INCH (mm)	WIRE SIZE		ORDERING CODE
					AWG	INCH (mm)	
<b>X5F</b>							
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
<b>Y5U</b>							
1000	+ 80/- 20	0.620 (15.7)	0.320 (8.1)	0.500 (12.7)	20	0.032 (0.81)	564R75GAD10
<b>Z5U</b>							
2500	+ 80/- 20	0.620 (15.7)	0.280 (7.1)	0.500 (12.7)	20	0.032 (0.81)	564R75GAD25



## 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.**



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.