

## AC Line Rated Ceramic Disc Capacitors Class X1, 400 V<sub>AC</sub> / Class Y2, 300 V<sub>AC</sub> / 250 V<sub>AC</sub>



QUICK REFERENCE DATA			
DESCRIPTION	VALUE		
Ceramic Class	2		
Ceramic Dielectric	Y5S		
Voltage (V <sub>AC</sub> )	250	300	400
Min. Capacitance (pF)	1000		
Max. Capacitance (pF)	8000		
Mounting	Radial		

### INSULATION RESISTANCE

Min. 1000 ΩF

### TOLERANCE ON CAPACITANCE

± 20 %

### DISSIPATION FACTOR

2.0 % max. at 1 kHz; 1 V

### CERAMIC DIELECTRIC

Y5S (Class 2)

### CLIMATIC CATEGORY ACC. TO EN 60068-1

25/125/21

### OPERATING TEMPERATURE RANGE

-30 °C to +125 °C

### FEATURES

- Complying with IEC 60384-14
- High reliability
- Complete range of capacitance values
- Radial leads
- Singlelayer AC disc safety capacitors
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

### APPLICATIONS

- X1 / Y2 according to IEC 60384-14
- Across-the-line
- Line by-pass
- Antenna coupling

### DESIGN

The capacitors consist of a ceramic disc of which both sides are silver-plated. Connection leads are made of tinned copper having a diameter of 0.032" (0.81 mm) or 0.025" (0.64 mm). The capacitors may be supplied with radial kinked or straight leads having a lead spacing of 0.375" (9.5 mm) or 0.250" (6.4 mm). The standard tolerance is ± 20 %. Coating is made of flame retardant epoxy resin in accordance with "UL 94 V-0."

### CAPACITANCE RANGE

1.0 nF to 8.0 nF

### RATED VOLTAGE

IEC 60384-14:

- X1: 400 V<sub>AC</sub>, 50 Hz
- Y2: 300 V<sub>AC</sub>, 50 Hz (LS ≥ 5.5 mm)
- Y2: 250 V<sub>AC</sub>, 50 Hz (LS < 5.5 mm)

### DIELECTRIC STRENGTH BETWEEN LEADS

Component test:

2500 V<sub>AC</sub>, 50 Hz, 2 s

As repeated test admissible only once with:

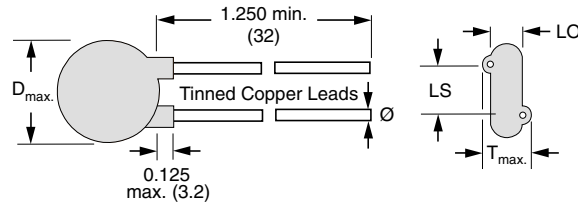
2250 V<sub>AC</sub>, 50 Hz, 2 s

Random sampling test (destructive test):

2500 V<sub>AC</sub>, 50 Hz, 60 s

### DIELECTRIC STRENGTH OF BODY INSULATION

2300 V<sub>AC</sub>, 50 Hz, 60 s (destructive test)

**DIMENSIONS** in inches (millimeters)

**ORDERING INFORMATION, CERAMIC X1 / Y2 CAPACITORS 25Y**

C (pF)	TOL. (%)	$D_{max.}$ DIAMETER INCH (mm)	$T_{max.}$ THICKNESS INCH (mm)	WIRE SIZE		LS LEAD SPACE INCH (mm) $\pm 1$ mm	LO LEAD OFFSET INCH (mm) $\pm 0.5$ mm	ORDERING CODE
				AWG	INCH (mm)			
<b>Y5S TEMPERATURE STABLE (<math>\pm 22\%</math>, <math>-30\text{ }^{\circ}\text{C}</math> TO <math>+85\text{ }^{\circ}\text{C}</math>)</b>								
1000	$\pm 20$	0.330 (8.4)	0.170 (4.3)	22	0.025 (0.64)	0.250 (6.4)	0.075 (1.9)	25YD10-R
1500		0.400 (10.2)	0.175 (4.4)				0.079 (2.0)	25YD15-R
2000		0.430 (10.9)	0.170 (4.3)				0.075 (1.9)	25YD20-R
2200		0.460 (11.7)					0.079 (2.0)	25YD22-R
2700		0.490 (12.4)	0.075 (1.9)				25YD27-R	
2800		0.530 (13.5)	0.175 (4.4)				0.079 (2.0)	25YD28-R
3000		0.530 (13.5)	0.175 (4.4)	0.079 (2.0)	25YD30-R			
3200		0.560 (14.2)	0.185 (4.7)	20	0.032 (0.81)	0.375 (9.5)	0.087 (2.2)	25YD32-R
3300		0.560 (14.2)					0.087 (2.2)	25YD33-R
3900		0.620 (15.7)					0.087 (2.2)	25YD39-R
4000		0.620 (15.7)					0.175 (4.4)	0.083 (2.1)
4700		0.680 (17.3)	0.185 (4.7)				0.087 (2.2)	25YD47-R
5000		0.680 (17.3)	0.185 (4.7)				0.087 (2.2)	25YD50-R
5500		0.720 (18.3)	0.190 (4.7)				0.091 (2.3)	25YD55-R
5600		0.720 (18.3)	0.190 (4.7)				0.091 (2.3)	25YD56-R
6800		0.790 (20.1)	0.185 (4.7)	0.087 (2.2)	25YD68-R			
8000	0.900 (22.9)	0.200 (5.1)	0.102 (2.6)	25YD80-R				

**Notes**

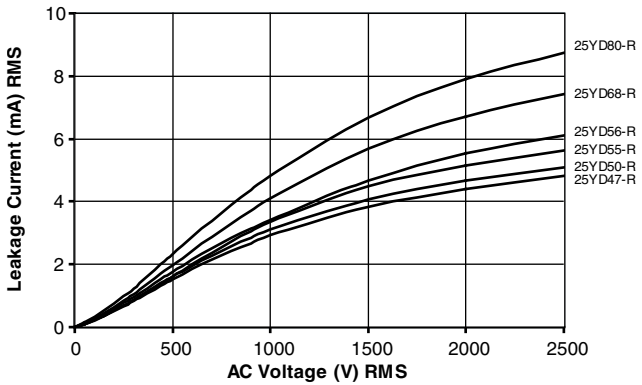
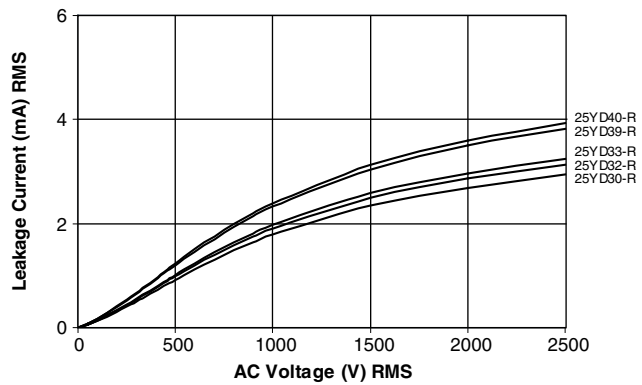
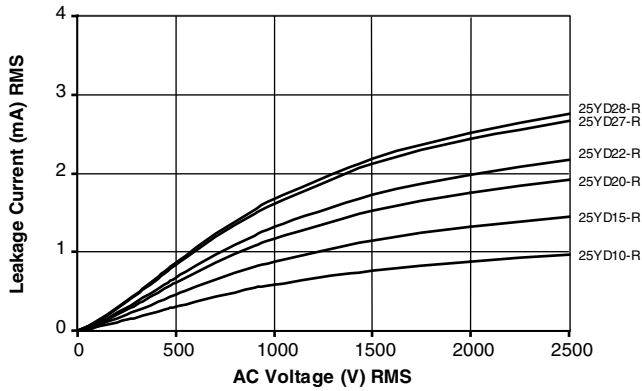
- Alternate lead spacings of 7.5 mm and 10 mm are available bulk or tape and reel on request
- Minimum lead clearance according to IEC 60384-14: 0.118" (3 mm)

**TAPE AND REEL OPTIONS**

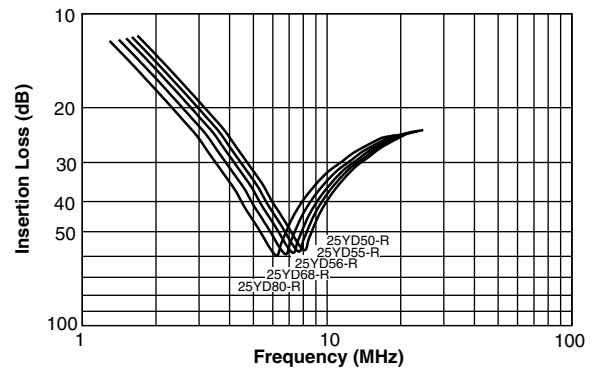
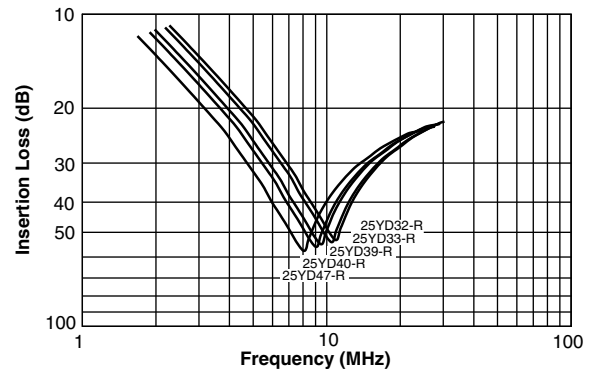
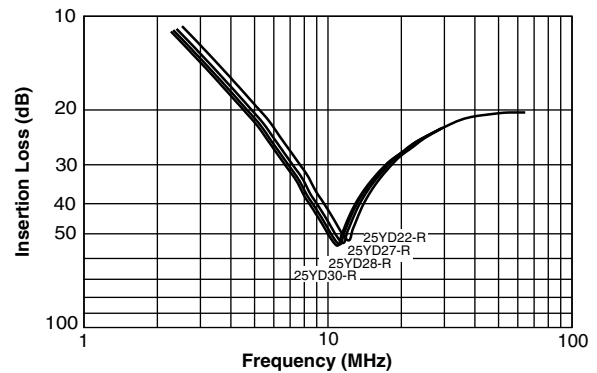
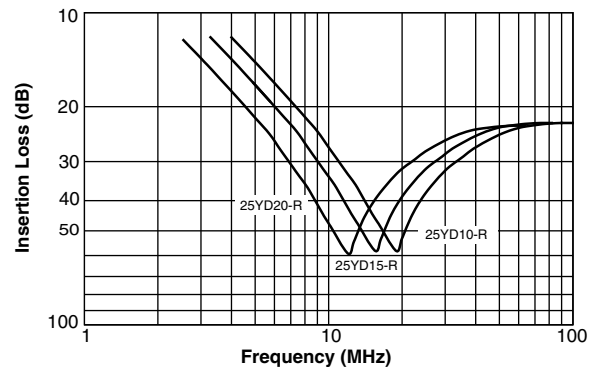
Part number codes and specifications for tape and reel packaging are found in the general information document - find web-link below.



LEAKAGE CURRENT VS. VOLTAGE (Typical)



INSERTION LOSS VS. FREQUENCY (Typical)





APPROVALS				
IEC 60384-14 - Safety tests This approval together with CB test certificate substitutes all national approvals.				
<b>CB Certificate</b>				
Y2-capacitor: CB test certificate:	CA/13631/CSA	1 nF to 8 nF	300 V <sub>AC</sub> <sup>(1)</sup>	
Y2-capacitor: CB test certificate:	CA/13631/CSA	1 nF to 8 nF	250 V <sub>AC</sub> <sup>(1)</sup>	
X1-capacitor: CB test certificate:	CA/13631/CSA	1 nF to 8 nF	400 V <sub>AC</sub>	
<b>VDE</b>				
Y2-capacitor: VDE marks approval:	40003978	1 nF to 8 nF	250 V <sub>AC</sub>	
X1-capacitor: VDE marks approval:	40003978	1 nF to 8 nF	400 V <sub>AC</sub>	
DIN EN 60384-14 VDE 0565-1-1 - Safety tests				
<b>Underwriters Laboratories Inc.</b>				
Y2-capacitor: UL test certificate:	E99264	1 nF to 8 nF	300 V <sub>AC</sub> <sup>(1)</sup>	
Y2-capacitor: UL test certificate:	E99264	1 nF to 8 nF	250 V <sub>AC</sub> <sup>(1)</sup>	
X1-capacitor: UL test certificate:	E99264	1 nF to 8 nF	400 V <sub>AC</sub>	
UL 60384-14, CSA E60384-1, CSA E60384-14 Fixed capacitors for electromagnetic interference suppression and connection to the supply mains.				

**Note**

<sup>(1)</sup> LS ≥ 5.5 mm: 300 V<sub>AC</sub>; LS < 5.5 mm: 250 V<sub>AC</sub>

MARKING	
<p>Sample</p>	<p>PN:25YD22-R      LOT1:34658941      DC1:1849  Cap.:2200PF ±20%      LOT2:      DC2:  Ur.:Y2(250~),X1(400~)      BATCH NO.:201949CZ  Qty.:250      R.C.:7032      S.L.:0010  IEC 60384-14:2013:    PO:0034658941/0001      SN:29210DA7D007      RoHS</p>

**Notes**

- Marking IEC 60384-14 does not apply for Ø ≤ 9 mm
- Coding is as follows: 1<sup>st</sup> figure indicates the year and 2<sup>nd</sup> figure indicates the month according to IEC 60062. The 3<sup>rd</sup> to 5<sup>th</sup> figure indicate the last three digits of the lot number

RELATED DOCUMENTS	
General Information	<a href="http://www.vishay.com/doc?23140">www.vishay.com/doc?23140</a>
CB Test Certificate	<a href="http://www.vishay.com/doc?22240">www.vishay.com/doc?22240</a>
VDE Marks Approval	<a href="http://www.vishay.com/doc?22241">www.vishay.com/doc?22241</a>
UL Test Certificate	<a href="http://www.vishay.com/doc?22242">www.vishay.com/doc?22242</a>



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