AC Line Rated Ceramic Disc Capacitors
Class X1, 400 V_{AC} / Class Y2, 300 V_{AC} / 250 V_{AC}

QUICK REFERENCE DATA			
DESCRIPTION	VALUE		
Ceramic Class	2		
Ceramic Dielectric	Y5S		
Voltage (V_{AC})	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 3rd edition
- 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

RoHS COMPLIANT

APPLICATIONS

- X1 / Y2 according to IEC 60384-14.3
- 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 60384-14.3:

- X1: 400 V_{AC}, 50 Hz
- Y2: 300 V_{AC}, 50 Hz (LS ≥ 5.5 mm)
- Y2: 250 V_{AC}, 50 Hz (LS < 5.5 mm)

DIELECTRIC STRENGTH BETWEEN LEADS

Component test:
2500 V_{AC}, 50 Hz, 2 s

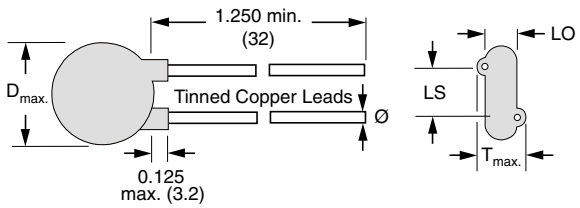
As repeated test admissible only once with:
2250 V_{AC}, 50 Hz, 2 s

Random sampling test (destructive test):
2500 V_{AC}, 50 Hz, 60 s

DIELECTRIC STRENGTH OF BODY INSULATION

2300 V_{AC}, 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) ± 1 mm	LO LEAD OFFSET INCH (mm) ± 0.5 mm	ORDERING CODE
				AWG	INCH (mm)			
Y5S TEMPERATURE STABLE (± 22 %, -30 °C TO +85 °C)								
1000	± 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		0.620 (15.7)	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)	25YD40-R
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

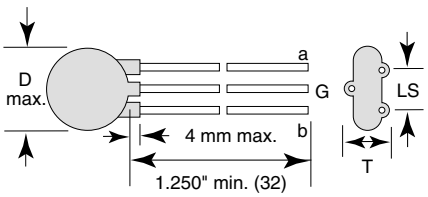
- Alternate lead spacings of 7.5 mm and 10 mm are available bulk or tape and reel on request.
- Minimum lead clearance according to IEC 60384-14: 0.118" (3 mm)

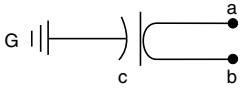
TAPE AND REEL OPTIONS

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

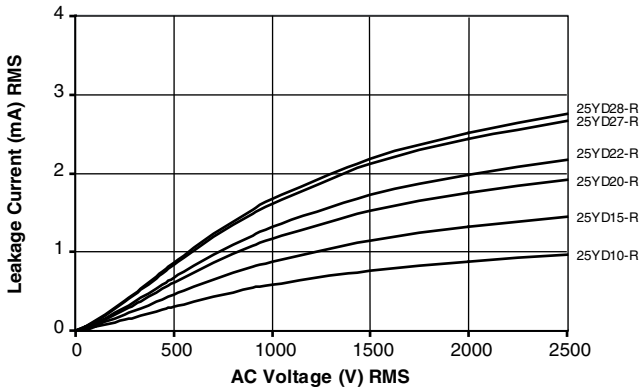
OPTIONAL 3-LEADED STYLE

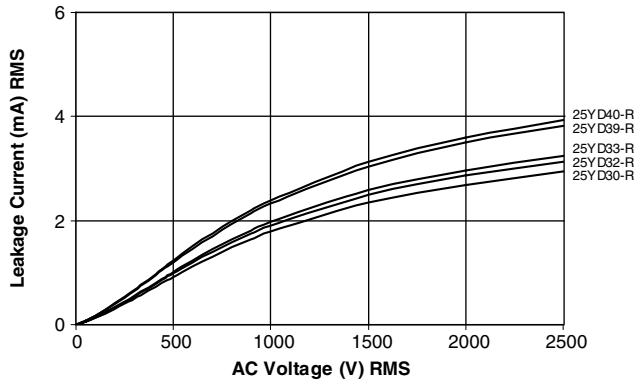
An optional 3-leaded construction is available. It consists of a single capacitor with the two outside leads attached to one electrode, and the center lead attached to the electrode. Used in feed-thru or line-to-ground applications, it allows a short ground lead for enhanced high frequency performance.

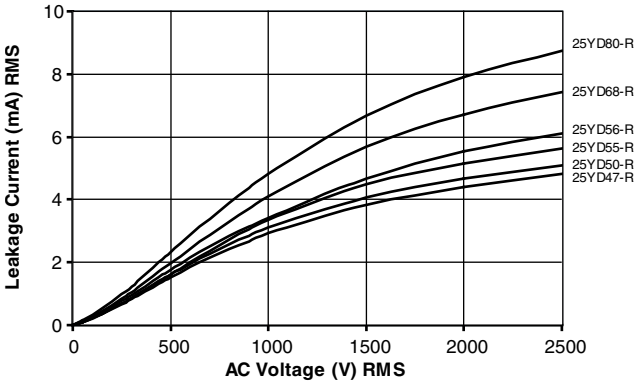




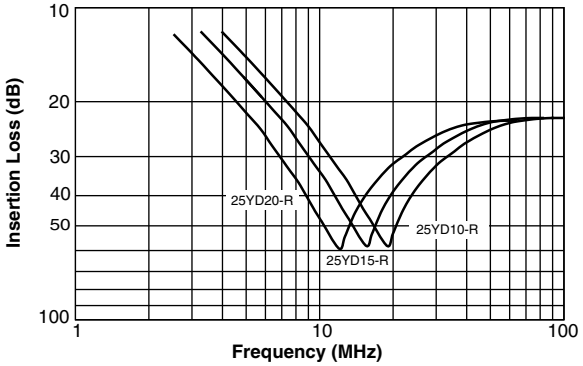
LEAKAGE CURRENT VS. VOLTAGE (Typical)

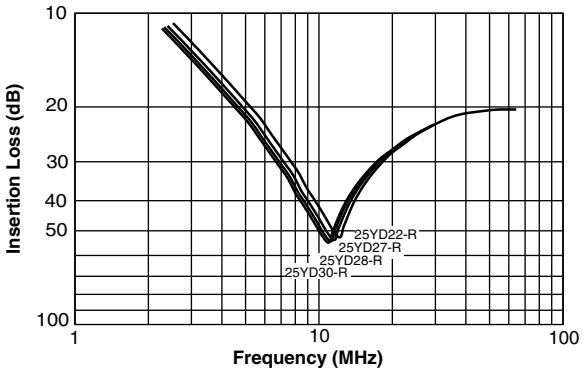


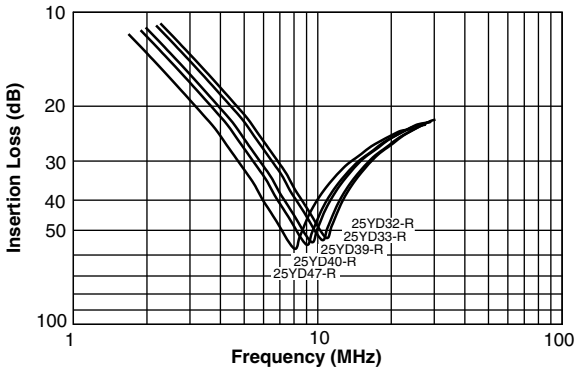


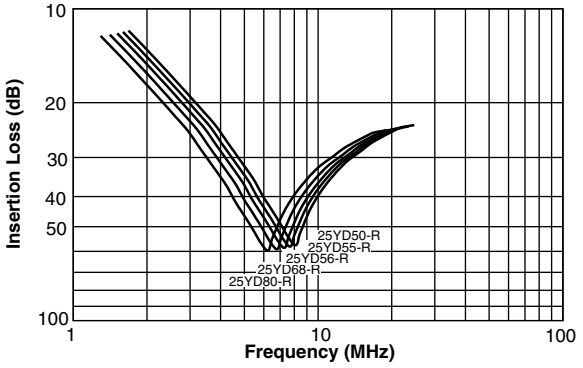


INSERTION LOSS VS. FREQUENCY (Typical)









APPROVALS

IEC 60384-14.3 - Safety tests
This approval together with CB test certificate substitutes all national approvals.

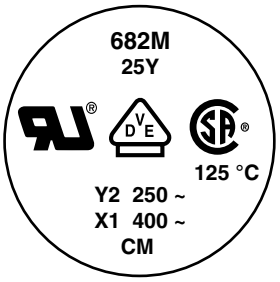
CB Certificate				
Y2-capacitor: CB test certificate:	CA/13631/CSA	1 nF to 8 nF	300 V_{AC} (1)	
Y2-capacitor: CB test certificate:	CA/13631/CSA	1 nF to 8 nF	250 V_{AC} (1)	
X1-capacitor: CB test certificate:	CA/13631/CSA	1 nF to 8 nF	400 V_{AC}	
VDE				
Y2-capacitor: VDE marks approval:	40003978	1 nF to 8 nF	250 V_{AC}	
X1-capacitor: VDE marks approval:	40003978	1 nF to 8 nF	400 V_{AC}	
DIN EN 60384-14 VDE 0565-1-1:2006-04 - Safety tests				
Underwriters Laboratories Inc.				
Y2-capacitor: UL test certificate:	E99264	1 nF to 8 nF	300 V_{AC} (1)	
Y2-capacitor: UL test certificate:	E99264	1 nF to 8 nF	250 V_{AC} (1)	
X1-capacitor: UL test certificate:	E99264	1 nF to 8 nF	400 V_{AC}	
UL 60384-14, CSA E60384-1:03, CSA E60384-14:09				
Fixed capacitors for electromagnetic interference suppression and connection to the supply mains.				

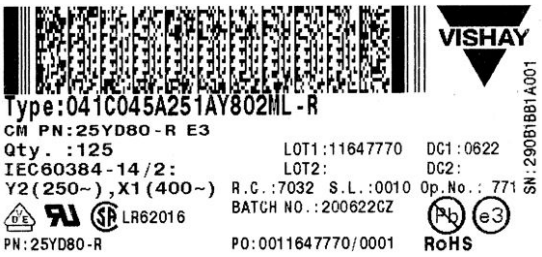
Note

(1) LS ≥ 5.5 mm: 300 V_{AC}; LS < 5.5 mm: 250 V_{AC}

MARKING

Sample





RELATED DOCUMENTS

General Information	www.vishay.com/doc?23140
CB Test Certificate	www.vishay.com/doc?22240
VDE Marks Approval	www.vishay.com/doc?22241
UL Test Certificate	www.vishay.com/doc?22242

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