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
- 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
- Across-the-line
- Line by-pass
- Antenna coupling
- EMI / RFI suppression and filtering

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_{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

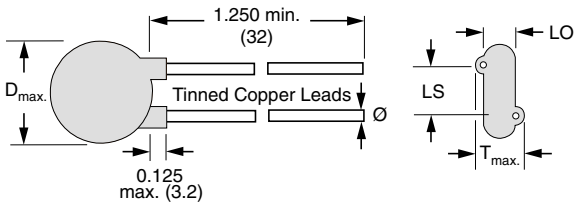
As repeated test admissible only once with:
2250 V_{AC}, 50 Hz, 2 s

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		0.560 (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)	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

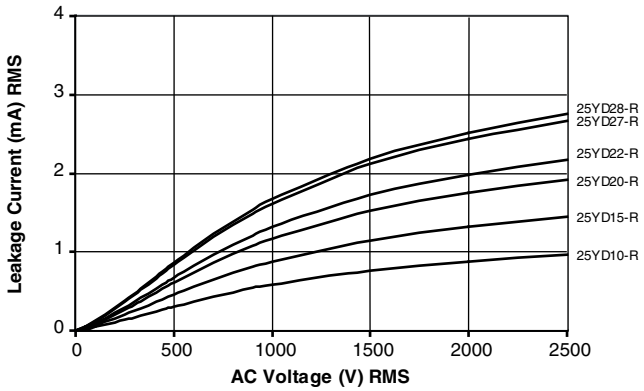
Notes

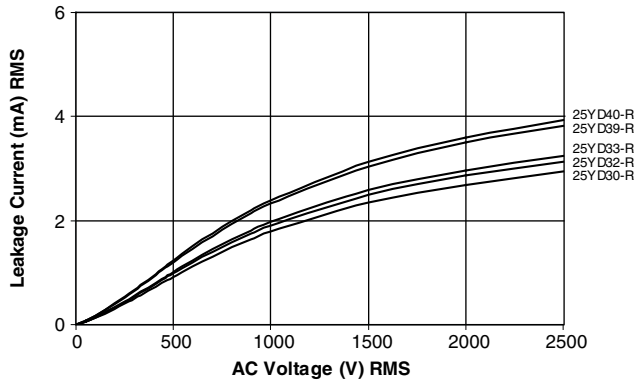
- Alternate lead spacings of 7.5 mm and 10 mm are available bulk or tape and reel on request
- Minimum lead clearance according to IEC 60384-14: 0.118" (3 mm)

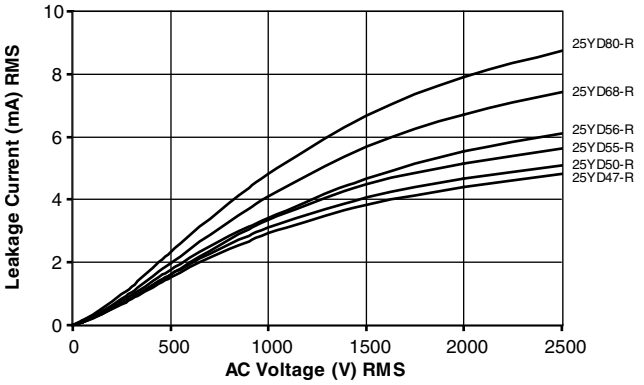
TAPE AND REEL OPTIONS

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

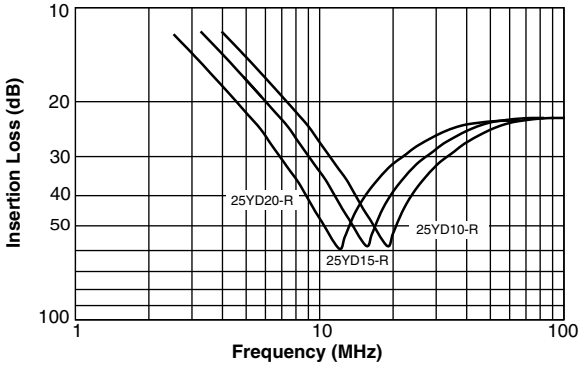
LEAKAGE CURRENT VS. VOLTAGE (Typical)

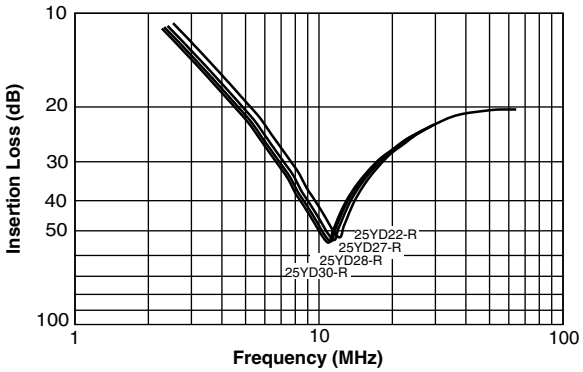


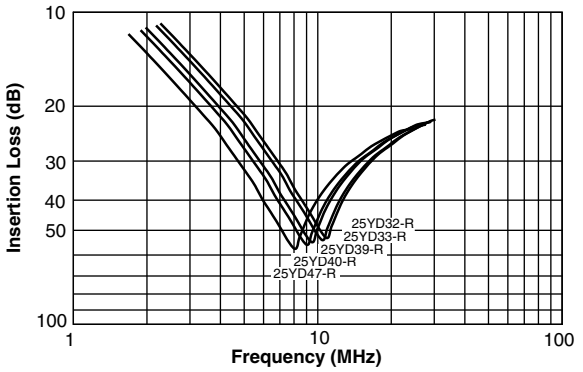


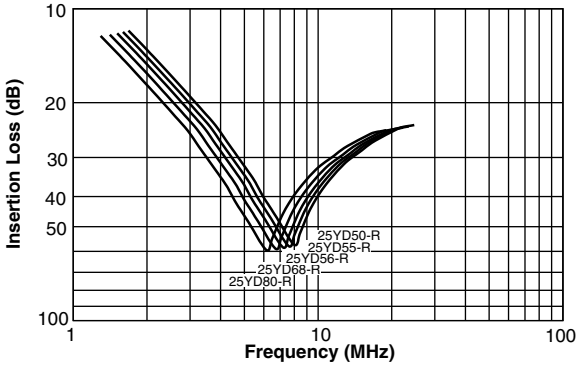


INSERTION LOSS VS. FREQUENCY (Typical)









APPROVALS

IEC 60384-14 - Safety tests
This approval together with CB test certificate substitutes all national approvals.

CB Certificate

Y2-capacitor: CB test certificate:	DE1-63498	1 nF to 8 nF	250 V_{AC}
X1-capacitor: CB test certificate:	DE1-63498	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 - 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, CSA E60384-14

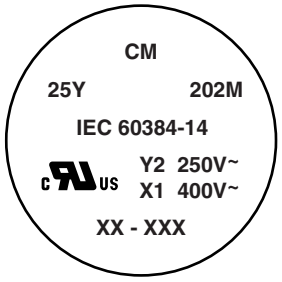
Fixed capacitors for electromagnetic interference suppression and connection to the supply mains.

Note

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

MARKING

Sample



Notes

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

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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