

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:

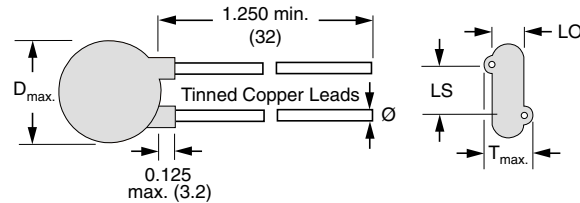
2250 V_{AC}, 50 Hz, 2 s

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) | 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

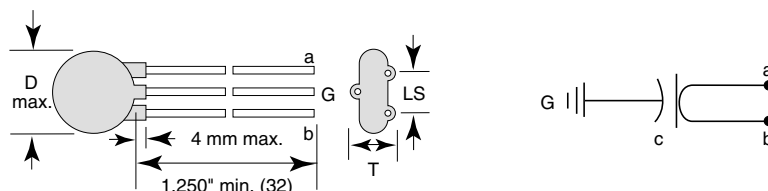
- Alternate lead spacings of 7.5 mm and 10 mm are available bulk or tape and reel on request.
- Minimum lead clearance according to IEC 60384-14: 0.118" (3 mm)

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.

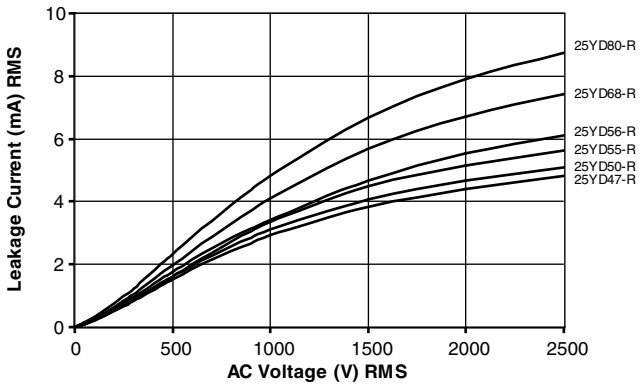
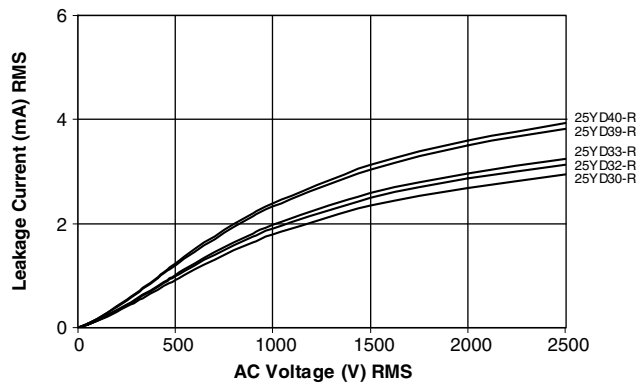
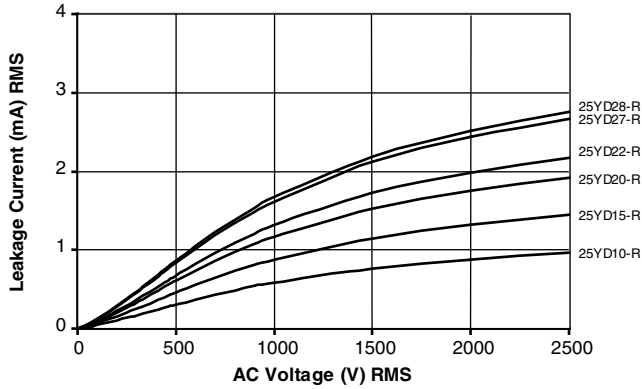
OPTIONAL 3-LEADED STYLE

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.

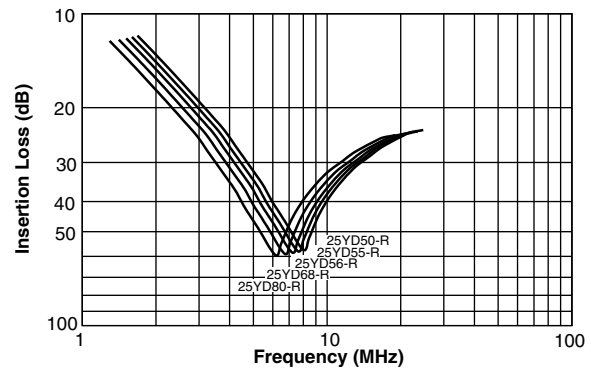
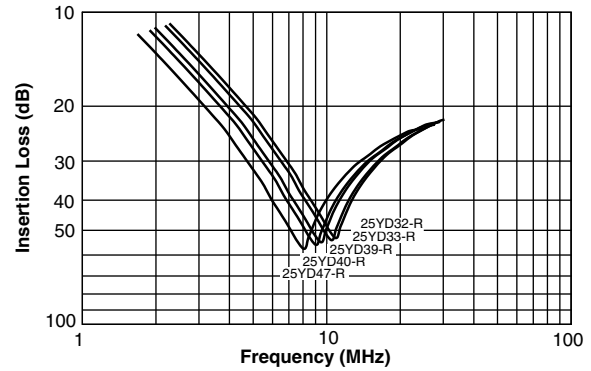
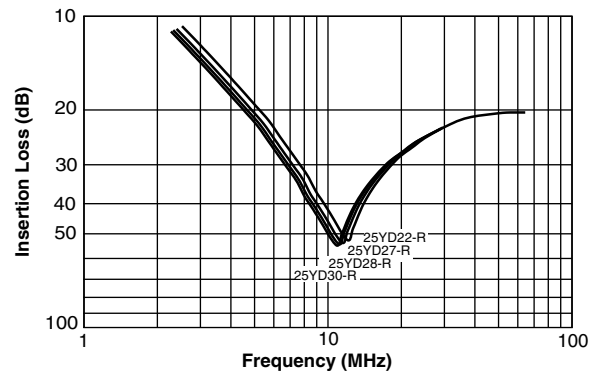
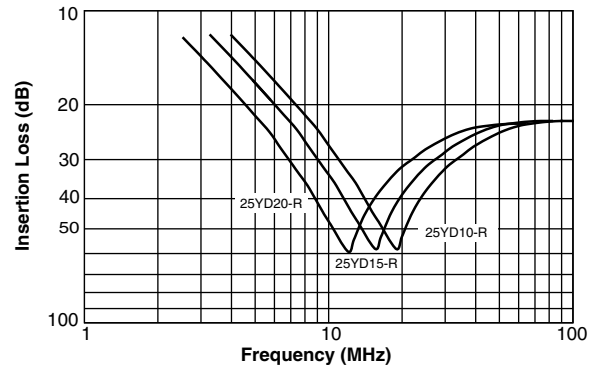




LEAKAGE CURRENT VS. VOLTAGE (Typical)



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 | |
|---------------|---|
| <p>Sample</p> | <p>VISHAY</p> <p>Type: 041C045A251AY802ML-R</p> <p>CM PN: 25YD80-R E3</p> <p>Qty. : 125 LOT1: 11647770 DC1: 0622</p> <p>IEC 60384-14 / 2: LOT2: DC2: SN: 290B1B1A001</p> <p>Y2 (250~), X1 (400~) R.C.: 7032 S.L.: 0010 Op.No.: 771</p> <p> LR62016 BATCH NO.: 200622GZ </p> <p>PN: 25YD80-R PO: 0011647770/0001 RoHS</p> |

| 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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