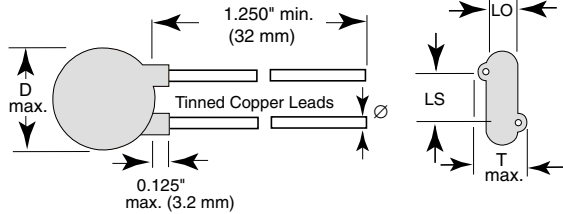


**AC Line Rated Disc Capacitors**  
**Class X1, 400 VAC/Class Y2, 250 VAC**



LO' = 0.132" (3.4 mm) typ.

**INSULATION RESISTANCE**

Min. 1000 ΩF

**TOLERANCE ON CAPACITANCE**

± 20 %

**DISSIPATION FACTOR**

2.0 % max. at 1 kHz; 1 V

**CERAMIC DIELECTRIC**

Y5S (Class 2)

**CATEGORY TEMPERATURE RANGE**

- 25 °C to + 125 °C

**CLIMATIC CATEGORY ACC. TO EN60068-1**

25/125/21

**OPERATING TEMPERATURE RANGE**

- 30 °C to + 125 °C

**FEATURES**

- Worldwide safety agency recognition  
Underwriters laboratories - UL 1414 and UL 1283  
Canadian standards association - CSA 22.2  
European EN132400 to IEC 60384-14 second edition
- Complete range of capacitance values
- Radial leads
- Compliant to RoHS directive 2002/95/EC



**APPLICATIONS**

- Required in AC Power Supply and Filter Applications
- Specific Industry Requirements

**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 60384-14.2: | (Y2): 250 VAC, 50 Hz |
| IEC 60384-14.2: | (X1): 400 VAC, 50 Hz |
| UL 1414:        | 250 VAC, 60 Hz       |
| UL 1283:        | 250 VAC, 60 Hz       |
| CSA 22.2 No.1:  | 250 VAC, 60 Hz       |
| CSA 22.2 No.8:  | 400 VAC, 60 Hz       |

**DIELECTRIC STRENGTH BETWEEN LEADS**

Component test:  
2500 VAC, 50 Hz, 2 s  
As repeated test admissible only once with:  
2250 VAC, 50 Hz, 2 s  
Random sampling test (destructive test):  
2500 VAC, 50 Hz, 60 s

**DIELECTRIC STRENGTH OF BODY INSULATION**

2300 VAC, 50 Hz, 60 s (destructive test)

| ORDERING INFORMATION, CERAMIC X1/Y2 CAPACITORS 25Y      |             |                            |                             |           |              |                               |                  |
|---|-------------|----------------------------|-----------------------------|-----------|--------------|-------------------------------|------------------|
| C<br>(pF)   | TOL.<br>(%) | D<br>DIAMETER<br>INCH (mm) | T<br>THICKNESS<br>INCH (mm) | WIRE SIZE |              | LS<br>LEAD SPACE<br>INCH (mm) | ORDERING<br>CODE |
|   |             |                            |                             | AWG       | INCH (mm)    |                               |                  |
| Y5S TEMPERATURE STABLE ( $\pm 22\%$ , -30 °C to +85 °C) |             |                            |                             |           |              |                               |                  |
| 1000  | $\pm 20\%$  | 0.330 (8.4)                | 0.170 (4.3)                 | 22        | 0.025 (0.64) | 0.250 (6.4)                   | 25YD10-R         |
| 1500  |             | 0.400 (10.2)               | 0.175 (4.4)                 |           |              |                               | 25YD15-R         |
| 2000  |             | 0.430 (10.9)               | 0.170 (4.3)                 |           |              |                               | 25YD20-R         |
| 2200  |             | 0.460 (11.7)               | 0.170 (4.3)                 |           |              |                               | 25YD22-R         |
| 2700  |             | 0.490 (12.4)               | 0.170 (4.3)                 |           |              |                               | 25YD27-R         |
| 2800  |             | 0.530 (13.5)               | 0.175 (4.4)                 |           |              |                               | 25YD28-R         |
| 3000  |             | 0.530 (13.5)               | 0.175 (4.4)                 | 25YD30-R  |              |                               |                  |
| 3200  |             | 0.560 (14.2)               | 0.185 (4.7)                 | 20        | 0.032 (0.81) | 0.375 (9.5)                   | 25YD32-R         |
| 3300  |             | 0.560 (14.2)               | 0.185 (4.7)                 |           |              |                               | 25YD33-R         |
| 3900  |             | 0.620 (15.7)               | 0.185 (4.7)                 |           |              |                               | 25YD39-R         |
| 4000  |             | 0.620 (15.7)               | 0.185 (4.7)                 |           |              |                               | 25YD40-R         |
| 4700  |             | 0.680 (17.3)               | 0.185 (4.7)                 |           |              |                               | 25YD47-R         |
| 5000  |             | 0.680 (17.3)               | 0.185 (4.7)                 |           |              |                               | 25YD50-R         |
| 5500  |             | 0.720 (18.3)               | 0.190 (4.7)                 | 25YD55-R  |              |                               |                  |
| 5600  |             | 0.720 (18.3)               | 0.190 (4.7)                 | 25YD56-R  |              |                               |                  |
| 6800  |             | 0.790 (20.1)               | 0.185 (4.7)                 | 25YD68-R  |              |                               |                  |
| 8000  |             | 0.900 (22.9)               | 0.200 (5.1)                 | 25YD80-R  |              |                               |                  |

### Notes

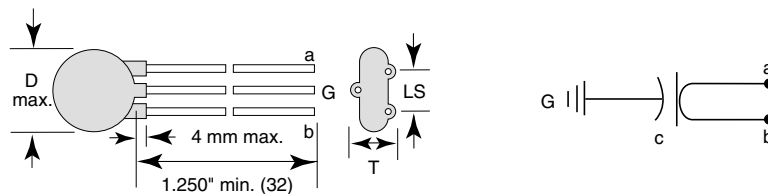
- Alternate lead spacings of 7.5 mm and 10 mm are available bulk or tape and reel on request.
- European required minimum lead clearance (prevents use of inside crimp) 0.118" (3 mm)

### 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)

### OPTIONAL 3-LEADED STYLE

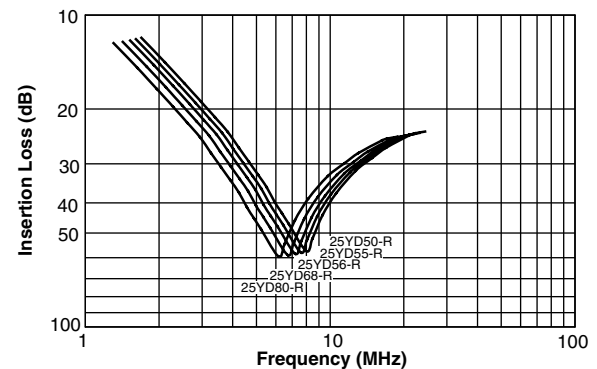
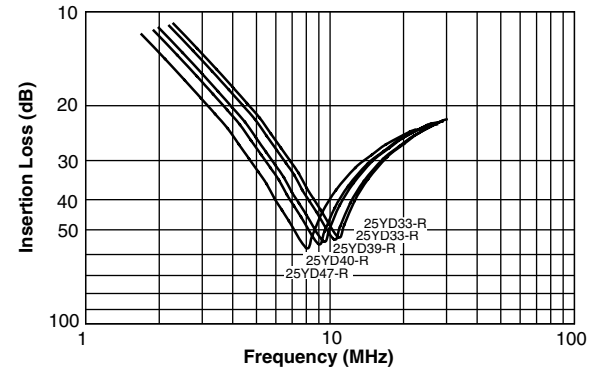
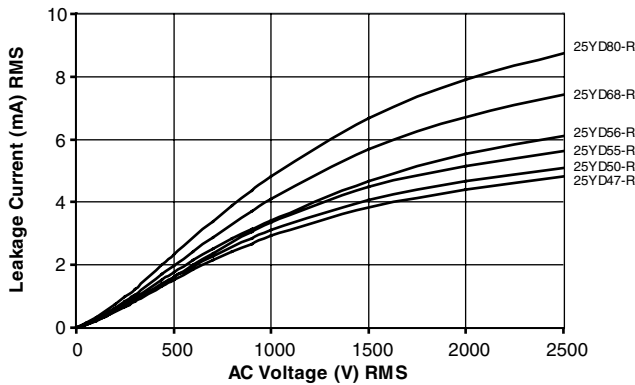
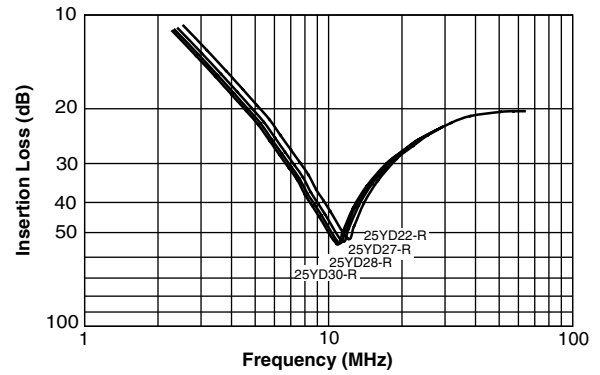
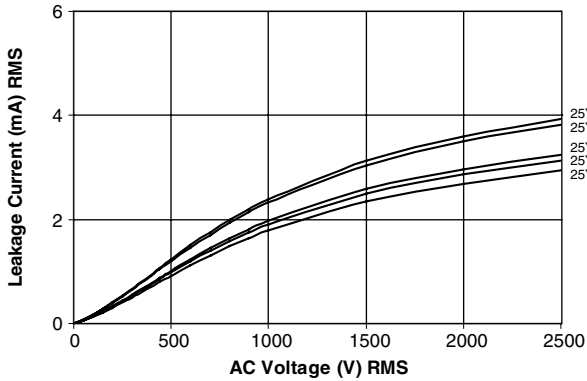
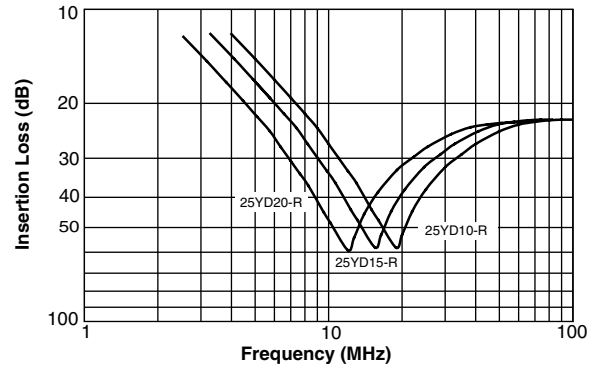
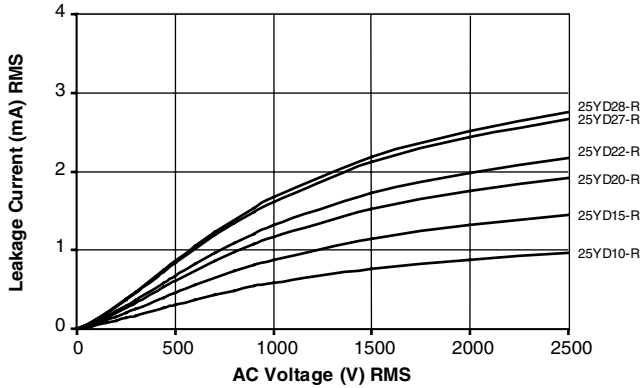
An optional 3-leaded construction is available. It consists of a single capacitor with the two outside leads attached to one electrode, and the center lead attached to the electrode. Used in feed-thru or line-to-ground applications, it allows a short ground lead for enhanced high frequency performance.





**LEAKAGE CURRENT VS. VOLTAGE (TYPICAL)**

**INSERTION LOSS VS. FREQUENCY (TYPICAL)**





| APPROVALS  |   |             |                    |           |                     |                |
|--|---|-------------|--------------------|-----------|---------------------|----------------|
| IEC 60384 - 14/2 <sup>nd</sup> Issue (1993) incl. Am.1 (1995) - Safety Tests<br>EN132400 (1994) - Safety Tests |   |             |                    |           |                     |                |
| That approval together with CB Test Certificate substitutes the national approval of the following nations:    |   |             |                    |           |                     |                |
| Belgium  | France  | Italy       | Austria            | China     | Japan               | Spain          |
| Denmark  | Greece  | Luxembourg  | Portugal           | Singapore | Poland              | United Kingdom |
| Germany  | Ireland                                       | Netherlands | Sweden             | Slovenia  | Hungaria            | Czech Republic |
| Finland  | Iceland                                       | Norway      | Switzerland        | Korea     | Israel              |                |
| X1 Capacitor: CB-Test Certificate:   | DE 1-19449                                    |             | 1000 pF to 8000 pF |           | 400 V <sub>AC</sub> |                |
| Y2 Capacitor: CB-Test Certificate:   | DE 1-19449                                    |             | 1000 pF to 8000 pF |           | 250 V <sub>AC</sub> |                |
| UNDERWRITERS LABORATORIES INC.   |   |             |                    |           |                     |                |
| <b>UL 1414</b>   | Line-by-pass component<br>Agency File/License | E99264 V2S1 | 1000 pF to 8000 pF |           | 250 V <sub>AC</sub> |                |
| <b>UL 1283</b>   | EMI Filters<br>Agency File/License            | E99264 V2S1 | 1000 pF to 8000 pF |           | 250 V <sub>AC</sub> |                |
| CANADIAN STANDARDS ASSOCIATION   |   |             |                    |           |                     |                |
| <b>CSA C22.2 No. 1</b>   | Isolation component<br>Agency File/License    | LR 62016-12 | 1000 pF to 8000 pF |           | 250 V <sub>AC</sub> |                |
| <b>CSA C22.2 No. 8</b>   | EMI filter<br>Agency File/License             | LR 62016-3  | 1000 pF to 8000 pF |           | 400 V <sub>AC</sub> |                |

### Note 1

UL1414 Across-The-Line, Antenna Coupling, and Line-By-Pass Capacitors:

- Across-The-Line - A capacitor connected either across a supply circuit or between one side of a supply circuit and a conductive part that may be connected to earth ground.
- Antenna-Coupling - A capacitor connected from an antenna terminal to circuits within an appliance.
- Line-By-Pass - A capacitor connected between one side of a supply circuit and an accessible conductive part

### Note 2

IEC 60384-14 Subclass Y Capacitors:

- A capacitor of a type suitable for use in situations where failure of the capacitor could lead to danger of electric shock.
- Class Y capacitors are divided into sub-classes based on type of insulation bridged and voltage ranges.
- For definitions of basic, supplementary, double and reinforced insulation, see IEC Publication 536.
- Subclass Y capacitors may be used in applications which require a Subclass X rating.

### Note 3

IEC 60384-14 Subclass X Capacitors:

- A capacitor of a type suitable for use in situations where failure of the capacitor would not lead to danger of electric shock.
- Class X capacitors are divided into subclasses according to the peak impulse test voltage superimposed on the main voltage

| MARKING       |   |
|---------------|---|
| <p>Sample</p> | <p><b>VISHAY</b></p> <p>Type: 041C045A251AY802ML-R<br/>           CM PN: 25YD80-R E3<br/>           Qty.: 125<br/>           IEC60384-14/2:<br/>           Y2 (250~), X1 (400~)<br/>           R.C.: 7032 S.L.: 0010<br/>           BATCH NO.: 200622CZ<br/>           PN: 25YD80-R</p> <p>LOT1: 11647770<br/>           LOT2:<br/>           R.C.: 7032 S.L.: 0010<br/>           BATCH NO.: 200622CZ<br/>           PO: 0011647770/0001</p> <p>DC1: 0622<br/>           DC2:<br/>           Op.No.: 771</p> <p>SN: 290B1B81A001</p> <p>   LR62016<br/> </p> |



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