

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



| QUICK REFERENCE DATA | | | | |
|----------------------------|-------------------------|-------------------------|----------|----------|
| DESCRIPTION | VALUE | | | |
| Ceramic Class | 1 | | 2 | |
| Ceramic Dielectric | C0G, U2J, P3K, R3L, S3L | C0G, U2J, P3K, R3L, S3L | X7R, Y5U | X7R, Y5U |
| Voltage (V _{AC}) | 300 | 400 | 300 | 400 |
| Min. Capacitance (pF) | 10 | | 100 | |
| Max. Capacitance (pF) | 68 | | 15 000 | |
| Mounting | Radial | | | |

INSULATION RESISTANCE

Min. 1000 ΩF

TOLERANCE ON CAPACITANCE

± 10 %; ± 20 %

DISSIPATION FACTOR

2.0 % max. at 1 kHz; 1 V

CERAMIC DIELECTRIC

C0G, U2J, P3K, R3L (Class 1)
X7R, Y5U (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

10 pF to 0.015 μF

RATED VOLTAGE

IEC 60384-14.3:

- X1: 400 V_{AC}, 50 Hz
- Y2: 300 V_{AC}, 50 Hz

DIELECTRIC STRENGTH BETWEEN LEADS

Component test:

2500 V_{AC}, 50 Hz, 2 s

As repeated test admissible only once with:

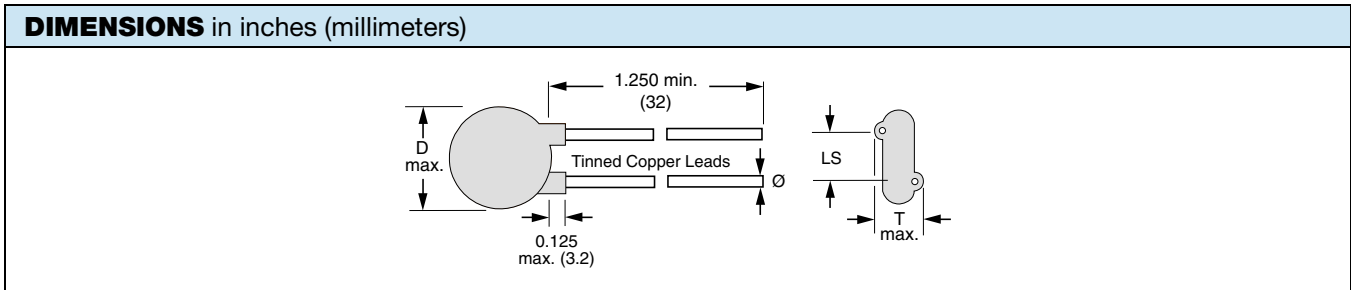
2250 V_{AC}, 50 Hz, 2 s

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)



| ORDERING INFORMATION, CERAMIC X1/2 CAPACITORS 30LV | | | | | | | |
|--|----------|--------------------------------------|---------------------------------------|-----------|--------------|-------------------------|---------------|
| C (pF) | TOL. (%) | D _{max.} DIAMETER INCH (mm) | T _{max.} THICKNESS INCH (mm) | WIRE SIZE | | LS LEAD SPACE INCH (mm) | ORDERING CODE |
| | | | | AWG | INCH (mm) | | |
| C0G | | | | | | | |
| 10 | ± 10 | 0.330 (8.4) | 0.190 (4.8) | 22 | 0.025 (0.64) | 0.250 (6.4) | 30LVQ10-R |
| U2J | | | | | | | |
| 15 | ± 10 | 0.330 (8.4) | 0.200 (5.1) | 22 | 0.025 (0.64) | 0.250 (6.4) | 30LVQ15-R |
| P3K | | | | | | | |
| 22 | ± 10 | 0.330 (8.4) | 0.185 (4.7) | 22 | 0.025 (0.64) | 0.250 (6.4) | 30LVQ22-R |
| R3L | | | | | | | |
| 33 | ± 10 | 0.330 (8.4) | 0.190 (4.8) | 22 | 0.025 (0.64) | 0.250 (6.4) | 30LVQ33-R |
| 47 | ± 10 | 0.330 (8.4) | 0.170 (4.3) | 22 | 0.025 (0.64) | 0.250 (6.4) | 30LVQ47-R |
| S3L | | | | | | | |
| 68 | ± 10 | 0.330 (8.4) | 0.175 (4.4) | 22 | 0.025 (0.64) | 0.250 (6.4) | 30LVQ68-R |
| X7R | | | | | | | |
| 100 | ± 10 | 0.330 (8.4) | 0.200 (5.1) | 22 | 0.025 (0.64) | 0.250 (6.4) | 30LVT10-R |
| 150 | | 0.330 (8.4) | 0.180 (4.6) | | | | 30LVT15-R |
| 220 | | 0.330 (8.4) | 0.190 (4.8) | | | | 30LVT22-R |
| 330 | | 0.330 (8.4) | 0.210 (5.3) | | | | 30LVT33-R |
| 470 | | 0.330 (8.4) | 0.180 (4.6) | | | | 30LVT47-R |
| 560 | | 0.330 (8.4) | 0.190 (4.8) | | | | 30LVT56-R |
| 680 | | 0.330 (8.4) | 0.180 (4.6) | | | | 30LVT68-R |
| 1000 | | 0.365 (9.3) | 0.185 (4.7) | | | | 30LVTD10-R |
| 1500 | | 0.460 (11.7) | 0.180 (4.6) | | | | 30LVTD15-R |
| Y5U | | | | | | | |
| 680 | ± 20 | 0.330 (8.4) | 0.210 (5.3) | 22 | 0.025 (0.64) | 0.250 (6.4) | 30LVT68-R |
| 1000 | | 0.330 (8.4) | 0.215 (5.5) | | | | 30LVD10-R |
| 1500 | | 0.330 (8.4) | 0.195 (5.0) | | | | 30LVD15-R |
| 2000 | | 0.400 (10.2) | 0.210 (5.3) | | | | 30LVD20-R |
| 2200 | | 0.400 (10.2) | 0.200 (5.1) | | | | 30LVD22-R |
| 2700 | | 0.430 (10.9) | 0.200 (5.1) | | | | 30LVD27-R |
| 2800 | | 0.430 (10.9) | 0.200 (5.1) | | | | 30LVD28-R |
| 3000 | | 0.460 (11.7) | 0.200 (5.1) | | | | 30LVD30-R |
| 3200 | | 0.430 (10.9) | 0.200 (5.1) | | | | 30LVD32-R |
| 3300 | | 0.460 (11.7) | 0.195 (5.0) | | | | 30LVD33-R |
| 3900 | | 0.490 (12.4) | 0.200 (5.1) | | | | 30LVD39-R |
| 4000 | | 0.530 (13.5) | 0.210 (5.3) | | | | 30LVD40-R |



ORDERING INFORMATION, CERAMIC X1/Y2 CAPACITORS 30LV

| C (pF) | TOL. (%) | D _{max.} DIAMETER INCH (mm) | T _{max.} THICKNESS INCH (mm) | WIRE SIZE | | LS LEAD SPACE INCH (mm) | ORDERING CODE |
|------------|-------------|--|---|-----------|--------------|-------------------------------|------------------|
| | | | | AWG | INCH (mm) | | |
| Y5U | | | | | | | |
| 4700 | ± 20 | 0.620 (15.7) | 0.230 (5.8) | 20 | 0.032 (0.81) | 0.375 (9.5) | 30LVD47-R |
| 5000 | | 0.620 (15.7) | 0.225 (5.7) | | | | 30LVD50-R |
| 5500 | | 0.560 (14.2) | 0.195 (5.0) | | | | 30LVD55-R |
| 5600 | | 0.560 (14.2) | 0.205 (5.2) | | | | 30LVD56-R |
| 6800 | | 0.620 (15.7) | 0.215 (5.5) | | | | 30LVD68-R |
| 8000 | | 0.680 (17.3) | 0.205 (5.2) | | | | 30LVD80-R |
| 9000 | | 0.720 (18.3) | 0.210 (5.3) | | | | 30LVD90-R |
| 0.010 μF | | 0.790 (20.1) | 0.225 (5.7) | | | | 30LVS10-R |
| 0.015 μF | | 0.900 (22.9) | 0.210 (5.3) | | | | 30LVS15-R |

Notes

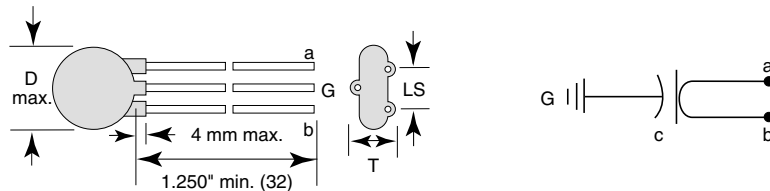
- Alternate lead spacings of 7.5 mm and 10 mm are available bulk or tape and reel on request.
- Minimum lead clearance according to IEC 60384-14: 0.118" (3 mm)

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.

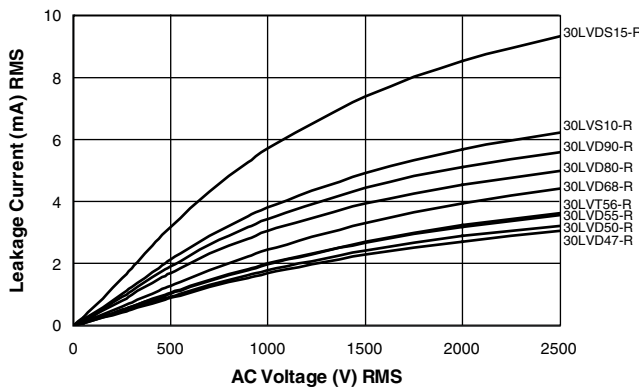
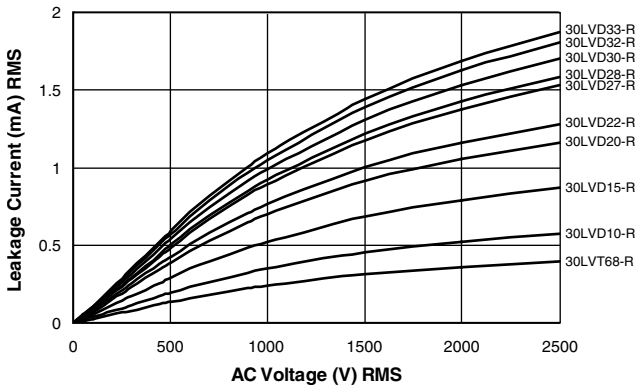
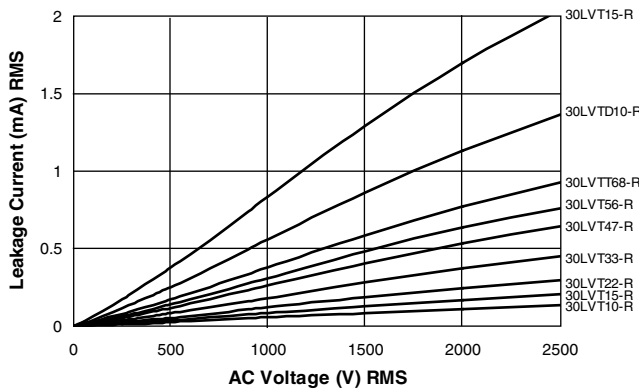
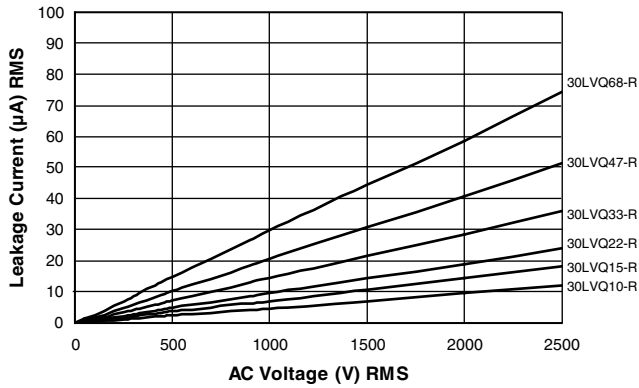
OPTIONAL 3-LEADED STYLE

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.

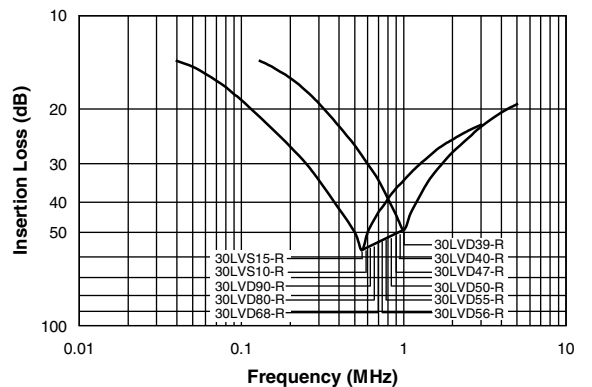
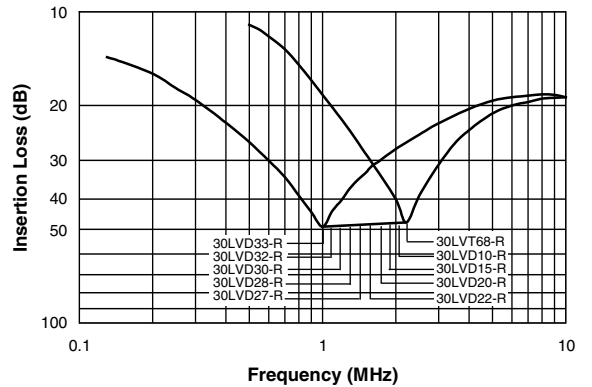
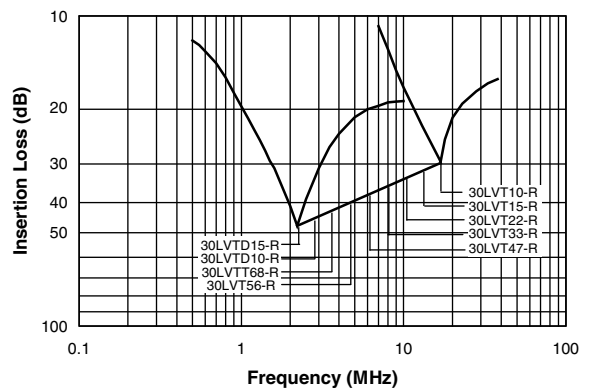
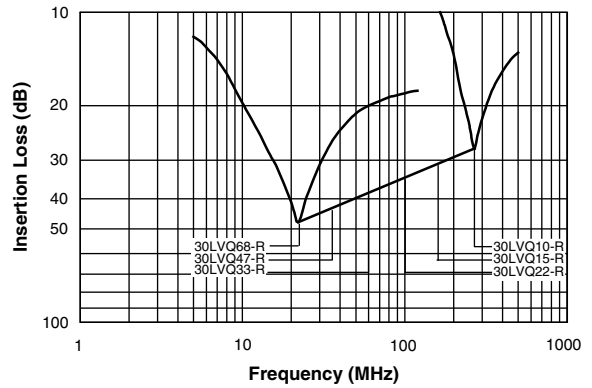




LEAKAGE CURRENT VS. VOLTAGE (Typical)



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/14037/CSA | 10 pF to 15 nF | 300 V _{AC} | |
| X1-capacitor: CB test certificate: | CA/14037/CSA | 10 pF to 15 nF | 400 V _{AC} | |
| VDE | | | | |
| Y2-capacitor: VDE marks approval: | 40003992 | 10 pF to 15 nF | 300 V _{AC} ⁽¹⁾ | |
| Y2-capacitor: VDE marks approval: | 40003992 | 10 pF to 15 nF | 250 V _{AC} ⁽¹⁾ | |
| X1-capacitor: VDE marks approval: | 40003992 | 10 pF to 15 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 | 10 pF to 15 nF | 300 V _{AC} | |
| X1-capacitor: UL test certificate: | E99264 | 10 pF to 15 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 ≥ 7.5 mm: 300 V_{AC}; 5.0 mm ≤ LS < 7.5 mm: 250 V_{AC}

| MARKING | |
|---------------|--|
| <p>Sample</p> | <p>VISHAY</p> <p>Type: 040C024A251BY331KLA660-R</p> <p>CM PN: 30LVT33-R E3</p> <p>Qty. : 250</p> <p>IEC60384-14 / 2:</p> <p>Y2 (300~), X1 (400~)</p> <p>PN: 30LVT33-R</p> <p>LOT1: 11636835</p> <p>LOT2:</p> <p>R.C.: 7032 S.L.: 0010</p> <p>BATCH NO.: 200622CZ</p> <p>PO: 0011636835/0001</p> <p>DC1: 0622</p> <p>DC2:</p> <p>Op.No.: 771</p> <p>RoHS</p> <p>SN: 290D19063023</p> |

| RELATED DOCUMENTS | |
|---------------------|--|
| General Information | www.vishay.com/doc?23140 |
| CB Test Certificate | www.vishay.com/doc?22228 |
| VDE Marks Approval | www.vishay.com/doc?22229 |
| UL Test Certificate | www.vishay.com/doc?22230 |



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