

AC Line Rated Disc Capacitors

Class X1, 400 V_{AC}/Class Y2, 300 V_{AC}


RoHS
COMPLIANT

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

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 $\pm 20\%$. Coating is made of flame retardant epoxy resin in accordance with "UL 94 V-0."

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 Ω F

TOLERANCE ON CAPACITANCE

 $\pm 10\%$; $\pm 20\%$

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

CAPACITANCE RANGE

10 pF to 0.015 μ F

RATED VOLTAGE

IEC 60384-14:

- 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):

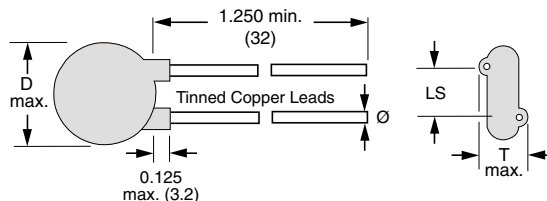
2500 V_{AC}, 50 Hz, 60 s

DIELECTRIC STRENGTH OF BODY INSULATION

2300 V_{AC}, 50 Hz, 60 s (destructive test)



DIMENSIONS in inches (millimeters)



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)		
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		0.460 (11.7)	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**

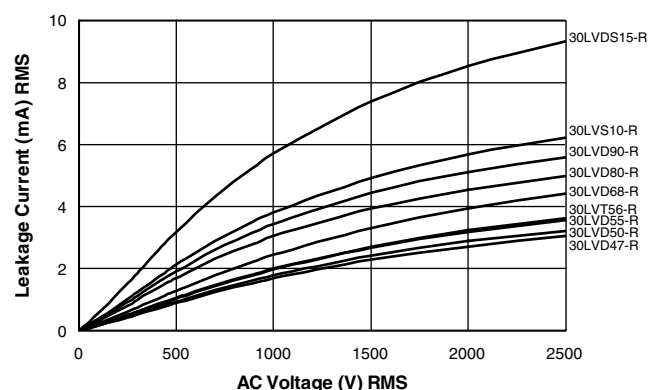
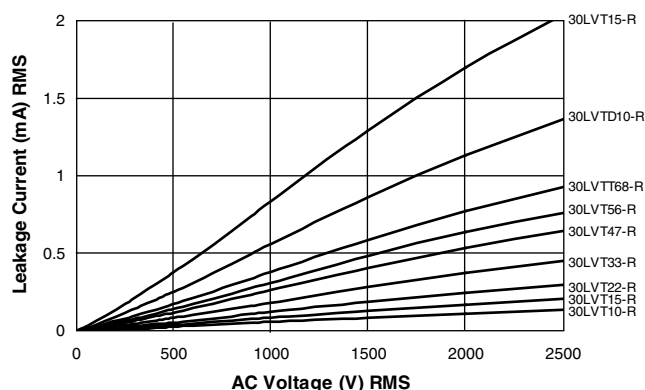
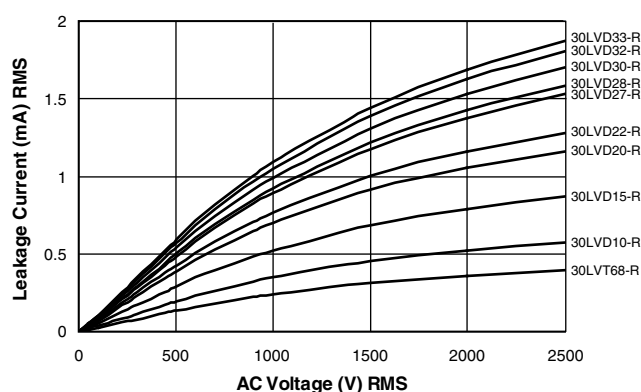
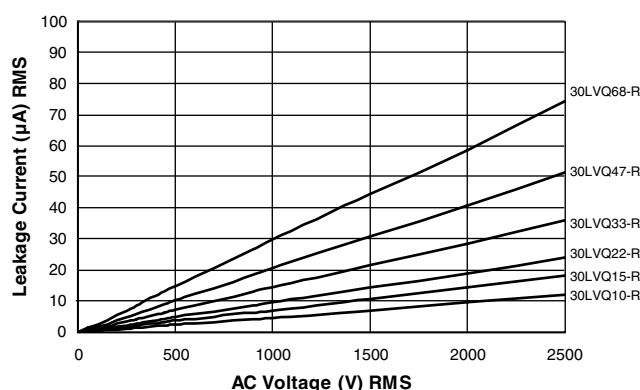
C (pF)	TOL. (%)	D ^{max.} DIAMETER INCH (mm)	T ^{max.} THICKNESS INCH (mm)	WIRE SIZE		LS LEAD SPACE INCH (mm)	ORDERING CODE
				AWG	INCH (mm)		
Y5U							
4700	± 20	0.620 (15.7)	0.230 (5.8)	20	0.032 (0.81)	0.375 (9.5)	30LVD47-R
5000		0.620 (15.7)	0.225 (5.7)				30LVD50-R
5500		0.560 (14.2)	0.195 (5.0)				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
10 000		0.790 (20.1)	0.225 (5.7)				30LVS10-R
15 000		0.900 (22.9)	0.210 (5.3)				30LVS15-R

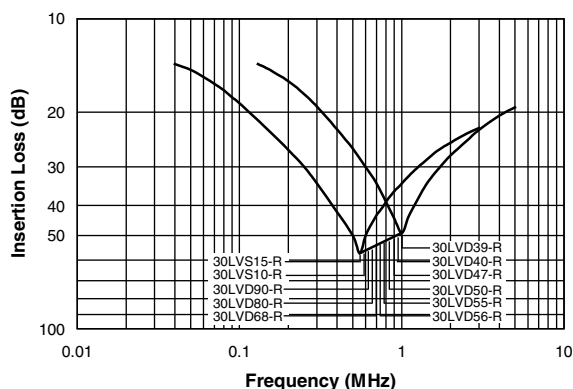
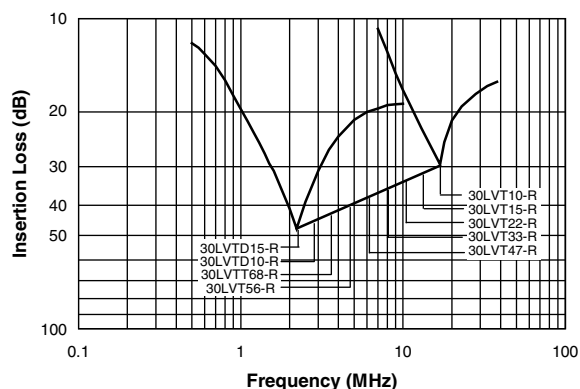
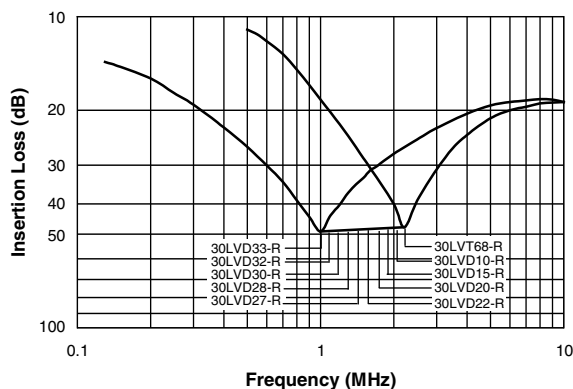
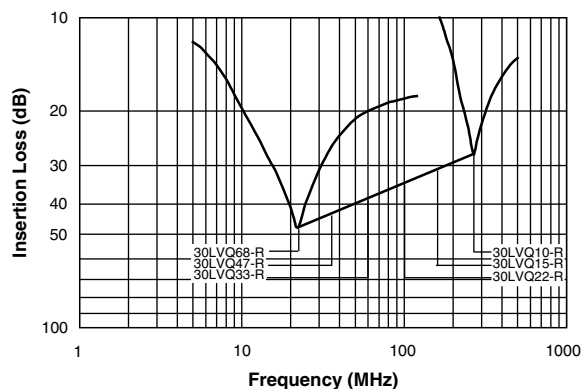
Notes

- 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.

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:	DE1-63499	10 pF to 15 nF	300 V _{AC} ⁽¹⁾
Y2-capacitor: CB test certificate:	DE1-63499	10 pF to 15 nF	250 V _{AC} ⁽¹⁾
X1-capacitor: CB test certificate:	DE1-63499	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 - 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, CSA E60384-14

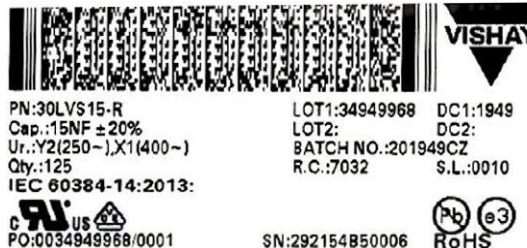
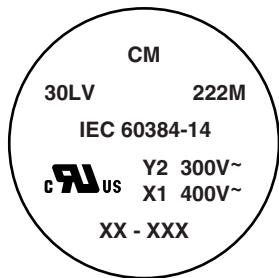
Fixed capacitors for electromagnetic interference suppression and connection to the supply mains.

Note⁽¹⁾ LS ≥ 7.5 mm: 300 V_{AC}; 5.0 mm ≤ LS < 7.5 mm: 250 V_{AC}



MARKING

Sample



Notes

- Marking IEC 60384-14 does not apply for $\varnothing \leq 9$ 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?22228
VDE Marks Approval	www.vishay.com/doc?22229
UL Test Certificate	www.vishay.com/doc?22230



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