

AC Line Rated Disc Capacitors

Class X1, 400 V_{AC} / Class Y2, 300 V_{AC} / 250 V_{AC}



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

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."

CAPACITANCE RANGE

1.0 nF to 0.01 μ F

RATED VOLTAGE

IEC 60384-14:

- X1: 400 V_{AC}, 50 Hz
- Y2: 300 V_{AC}, 50 Hz (LS \geq 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)

QUICK REFERENCE DATA						
DESCRIPTION		VALUE				
Ceramic Class		2				
Ceramic Dielectric	Y5U	Y5U	Y5U	Y5V	Y5V	Y5V
Voltage (V _{AC})	250	300	400	250	300	400
Min. Capacitance (pF)	1000		4700			
Max. Capacitance (pF)	10 000		10 000			
Mounting	Radial					

INSULATION RESISTANCE

Min. 1000 Ω F

TOLERANCE ON CAPACITANCE

$\pm 20\%$

DISSIPATION FACTOR

2.0 % max. at 1 kHz; 1 V

CERAMIC DIELECTRIC

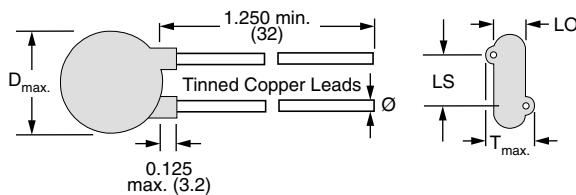
Y5U, Y5V (Class 2)

CLIMATIC CATEGORY ACC. TO EN 60068-1

25/125/21

OPERATING TEMPERATURE RANGE

-30 °C to +125 °C

DIMENSIONS in inches (millimeters)

ORDERING INFORMATION, CERAMIC X1 / Y2 CAPACITORS 30LVS

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	
Y5U								
1000	± 20	0.330 (8.4)	0.195 (5.0)	22	0.250 (6.4)	0.098 (2.5)	30LVSD10-R	
1500		0.330 (8.4)	0.185 (4.7)			0.091 (2.3)	30LVSD15-R	
2000		0.330 (8.4)	0.180 (4.6)			0.083 (2.1)	30LVSD20-R	
2200		0.330 (8.4)	0.170 (4.3)			0.079 (2.0)	30LVSD22-R	
2700		0.365 (9.3)	0.180 (4.6)			0.083 (2.1)	30LVSD27-R	
2800		0.365 (9.3)	0.175 (4.4)			0.079 (2.0)	30LVSD28-R	
3000		0.400 (10.2)	0.180 (4.6)			0.083 (2.1)	30LVSD30-R	
3200		0.400 (10.2)	0.180 (4.6)			0.091 (2.3)	30LVSD32-R	
3300		0.400 (10.2)	0.175 (4.4)			0.083 (2.1)	30LVSD33-R	
3900		0.460 (11.7)	0.185 (4.7)			0.098 (2.5)	30LVSD39-R	
4000		0.490 (12.4)	0.190 (4.8)			0.102 (2.6)	30LVSD40-R	
4700		0.490 (12.4)	0.185 (4.7)			0.094 (2.4)	30LVSD47-R	
5000		0.530 (13.5)	0.190 (4.8)			0.098 (2.5)	30LVSD50-R	
5500		0.530 (13.5)	0.180 (4.6)			0.091 (2.3)	30LVSD55-R	
6800		0.620 (15.7)	0.200 (5.1)	20	0.375 (9.5)	0.098 (2.5)	30LVSD68-R	
0.010 µF		0.720 (18.3)	0.200 (5.1)			0.102 (2.6)	30LVSS10-R	
Y5V								
4700	± 20	0.430 (10.9)	0.185 (4.7)	22	0.025 (0.64)	0.250 (6.4)	0.091 (2.3)	30LVSVD47-R
0.010 µF	± 20	0.620 (15.7)	0.200 (5.1)	20	0.032 (0.81)	0.375 (9.5)	0.098 (2.5)	30LVSVS10-R

Notes

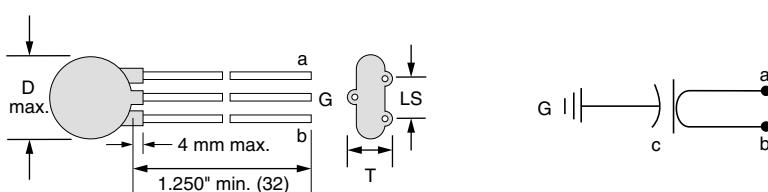
- Alternate lead spacings of 7.5 mm and 10 mm are available bulk or tape and reel on request.
- Minimum lead clearance according to IEC 60384-14: 0.118" (3 mm)

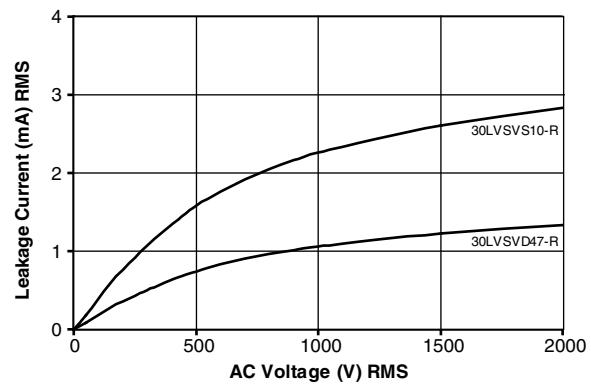
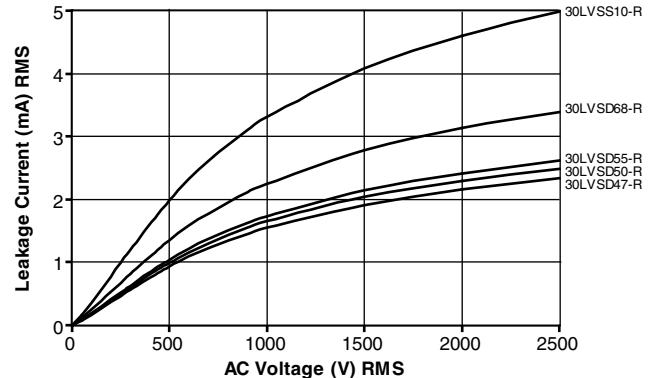
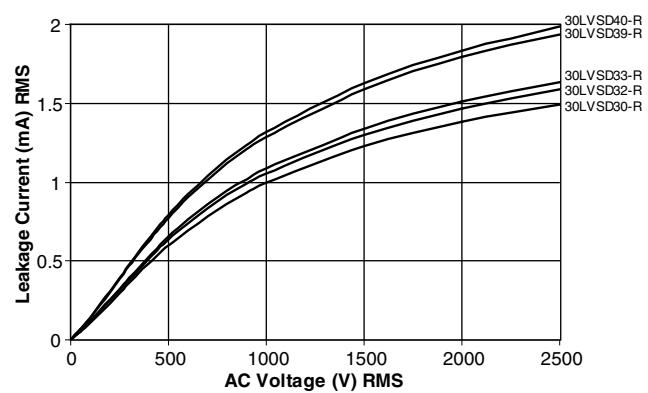
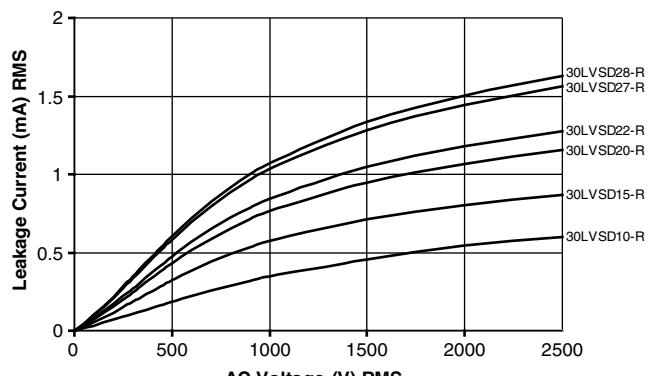
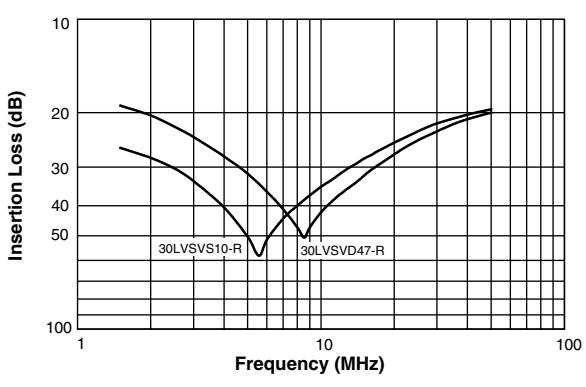
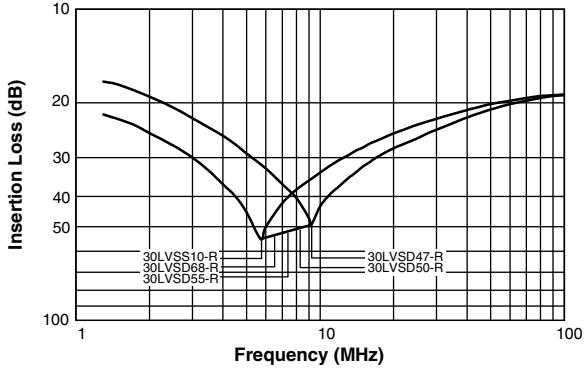
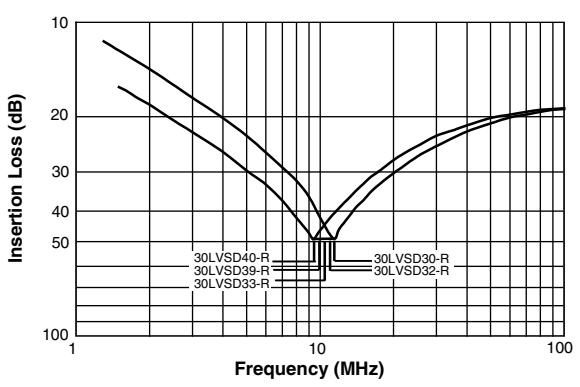
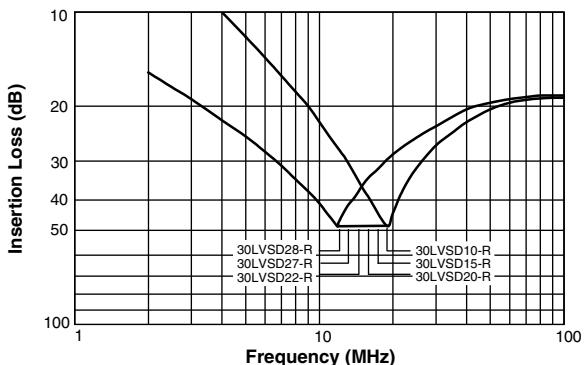
TAPE AND REEL OPTIONS

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 - Safety tests

This approval together with CB test certificate substitutes all national approvals.

CB Certificate

Y2-capacitor: CB test certificate:	CA/14038/CSA	1 nF to 10 nF	300 V _{AC} ⁽¹⁾	
Y2-capacitor: CB test certificate:	CA/14038/CSA	1 nF to 10 nF	250 V _{AC} ⁽¹⁾	
X1-capacitor: CB test certificate:	CA/14038/CSA	1 nF to 10 nF	400 V _{AC}	

VDE

Y2-capacitor: VDE marks approval:	40003969	1 nF to 10 nF	250 V _{AC}	
X1-capacitor: VDE marks approval:	40003969	1 nF to 10 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 10 nF	300 V _{AC} ⁽¹⁾	
Y2-capacitor: UL test certificate:	E99264	1 nF to 10 nF	250 V _{AC} ⁽¹⁾	
X1-capacitor: UL test certificate:	E99264	1 nF to 10 nF	400 V _{AC}	

UL 60384-14, CSA E60384-1, CSA E60384-14

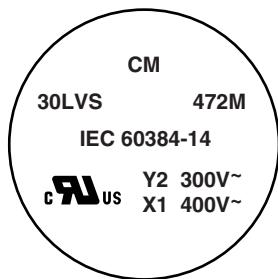
Fixed capacitors for electromagnetic interference suppression and connection to the supply mains.

Note

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

MARKING

Sample



Note

- Marking IEC 60384-14 does not apply for Ø ≤ 9 mm

RELATED DOCUMENTS

General Information	www.vishay.com/doc?23140
CB Test Certificate	www.vishay.com/doc?22231
VDE Marks Approval	www.vishay.com/doc?22232
UL Test Certificate	www.vishay.com/doc?22233

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