

AC Line Rated Disc Capacitors
Class X1, 400 VAC/Class Y2, 300 VAC



LO' = 0.132" (3.4 mm) typ.



FEATURES

- Worldwide safety agency recognition
Underwriters laboratories - UL1414 and UL1283
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 $\pm 20\%$. Coating is made of flame retardant epoxy resin in accordance with "UL 94 V-0."

CAPACITANCE RANGE

10 pF to 0.015 μ F

RATED VOLTAGE

IEC 60384-14.2:	(Y2): 300 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)

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)

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

ORDERING INFORMATION, CERAMIC X1/Y2 CAPACITORS 30LV							
C (pF)	TOL. (%)	D DIAMETER INCH (mm)	T THICKNESS INCH (mm)	WIRE SIZE		LS LEAD SPACE INCH (mm)	ORDERING CODE
				AWG	INCH (mm)		
C0G							
10	± 10 %	0.330 (8.4)	0.185 (4.7)	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)	0.180 (4.6)	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)	0.180 (4.6)	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)	0.195 (5.0)				30LVT22-R
330		0.330 (8.4)	0.195 (5.0)				30LVT33-R
470		0.330 (8.4)	0.180 (4.6)				30LVT47-R
560		0.330 (8.4)	0.200 (5.1)				30LVT56-R
680		0.330 (8.4)	0.180 (4.6)				30LVT68-R
1000		0.365 (9.3)	0.185 (4.7)				30LVT10-R
1500		0.460 (11.7)	0.180 (4.6)				30LVT15-R
Y5U							
680	± 20 %	0.330 (8.4)	0.220 (5.6)	22	0.025 (0.64)	0.250 (6.4)	30LVD68-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)	0.205 (5.2)				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			
4700		0.620 (15.7)	0.220 (5.6)	30LVD47-R			
5000		0.620 (15.7)	0.215 (5.5)	30LVD50-R			
5500		0.560 (14.2)	0.195 (5.0)	30LVD55-R			
5600		0.560 (14.2)	0.195 (5.0)	30LVD56-R			
6800		0.680 (17.3)	0.205 (5.2)	30LVD68-R			
8000		0.680 (17.3)	0.195 (5.0)	30LVD80-R			
9000		0.720 (18.3)	0.200 (5.1)	30LVD90-R			
0.010 µF		0.790 (20.1)	0.190 (4.8)	30LVS10-R			
0.015 µF	0.900 (22.9)	0.200 (5.1)	30LVS15-R				

Notes

1. Alternate lead spacings of 7.5 mm and 10 mm are available bulk or tape and reel on request.
2. European required minimum lead clearance (prevents use of inside crimp) 0.118" (3 mm)
3. Type 30 LVS15 not available with UL 1414 recognition.

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)



30LV Series

Vishay Cera-Mite

AC Line Rated Disc Capacitors
Class X1, 400 VAC/Class Y2, 300 VAC



APPROVALS						
IEC 60384 - 14/2 nd Issue (1993) incl. Am.1 (1995) - Safety Tests 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	
Y2 Capacitor: CB-Test Certificate:	DE 1-19455		10 pF... 0.015 µF		300 V _{AC}	
X1 Capacitor: CB-Test Certificate:	DE 1-19455		10 pF... 0.015 µF		400 V _{AC}	
UNDERWRITERS LABORATORIES INC.						
UL 1414	Across-the-line, Antenna-coupling and Line-by-pass component		10 pF... 0.010 µF		250 V _{AC}	
	Agency File/License	E99264 V2S2				
UL 1283	EMI Filters		10 pF... 0.015 µF		250 V _{AC}	
	Agency File/License	E99264 V2S2				
CANADIAN STANDARDS ASSOCIATION						
CSA C22.2	Across-the-line, Isolation capacitor		10 pF... 0.015 µF		250 V _{AC}	
No. 1	Agency File/License	LR 62016-12				
No. 8	Line-to-ground capacitor		10 pF... 0.015 µF		400 V _{AC}	
	Agency File/License	LR 62016-12				

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>VISHAY</p> <p>Type: 040C024A251BY331KLA660-R CH PN: 30LVT33-R E3 Qty. : 250 IEC60384-14/2: Y2(300~), X1(400~) R.C.: 7032 S.L.: 0010 BATCH NO.: 200622CZ PN: 30LVT33-R</p> <p>LOT1: 11636835 LOT2: R.C.: 7032 S.L.: 0010 BATCH NO.: 200622CZ PO: 0011636835/0001</p> <p>DC1: 0622 DC2: Op.No.: 771</p> <p>RoHS</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">SN: 290B19063023</p>



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