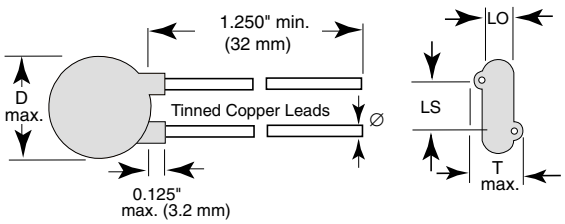
AC Line Rated Disc Capacitors
Class X1, 400 VAC/Class Y1, 500 VAC



LO' = 0.158" (4.0 mm) typ.

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)

CATEGORY TEMPERATURE RANGE

- 25 °C to + 125 °C

OPERATING TEMPERATURE RANGE

- 30 °C to + 125 °C

CLIMATIC CATEGORY ACC. TO EN60068-1

25/125/21

FEATURES

RoHS COMPLIANT

- 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). The capacitors may be supplied with radial kinked or straight leads having a lead spacing of 0.375" (9.5 mm). The standard tolerances are ± 10 % or ± 20 %. Coating is made of flame retardant epoxy resin in accordance with "UL 94 V-0".

CAPACITANCE RANGE

10 pF to 0.01 µF

RATED VOLTAGE U_R

IEC 60384-14.2	(Y1): 500 VAC, 50 Hz
IEC 60384-14.2	(X1): 400 VAC, 50 Hz
UL 1414:	250 VAC, 60 Hz
UL 1283:	600 VAC, 60 Hz
CSA 22.2:	250 VAC, 60 Hz

DIELECTRIC STRENGTH BETWEEN LEADS

Component test:
4000 VAC, 50 Hz, 2 s
As repeated test admissible only once with:
3600 VAC, 50 Hz, 2 s
Random sampling test (destructive test):
4000 VAC, 50 Hz, 60 s

DIELECTRIC STRENGTH OF BODY INSULATION

4000 VAC, 50 Hz, 60 s (destructive test)

ORDERING INFORMATION, CERAMIC X1/Y1 CAPACITORS 440L							
C (pF)	TOL. (%)	D DIAMETER	T THICKNESS	WIRE SIZE		LS LEAD SPACE	ORDERING CODE
				AWG	INCH (mm)		
C0G							
10	± 10 %	0.330 (8.4)	0.195 (5.0)	20	0.032 (0.81)	0.375 (9.5)	440LQ10-R
U2J							
15	± 10 %	0.330 (8.4)	0.210 (5.3)	20	0.032 (0.81)	0.375 (9.5)	440LQ15-R
P3K							
22	± 10 %	0.330 (8.4)	0.190 (4.8)	20	0.032 (0.81)	0.375 (9.5)	440LQ22-R
R3L							
33	± 10 %	0.330 (8.4)	0.200 (5.1)	20	0.032 (0.81)	0.375 (9.5)	440LQ33-R
47	± 10 %	0.330 (8.4)	0.180 (4.6)	20	0.032 (0.81)	0.375 (9.5)	440LQ47-R
X7R							
68	± 10 %	0.330 (8.4)	0.220 (5.6)	20	0.032 (0.81)	0.375 (9.5)	440LQ68-R
100			0.220 (5.6)				440LT10-R
150			0.235 (6.0)				440LT15-R
220			0.235 (6.0)				440LT22-R
330			0.225 (5.7)				440LT33-R
Y5U							
470	± 20 %	0.330 (8.4)	0.230 (5.8)	20	0.032 (0.81)	0.375 (9.5)	440LT47-R
560		0.330 (8.4)	0.230 (5.8)				440LT56-R
680		0.330 (8.4)	0.235 (6.0)				440LT68-R
1000		0.365 (9.3)	0.220 (5.6)				440LD10-R
1500		0.365 (9.3)	0.220 (5.6)				440LD15-R
2000		0.400 (10.2)	0.220 (5.6)				440LD20-R
2200		0.430 (10.9)	0.225 (5.7)				440LD22-R
2700		0.460 (11.7)	0.225 (5.7)				440LD27-R
2800		0.460 (11.7)	0.220 (5.6)				440LD28-R
3000		0.490 (12.4)	0.225 (5.7)				440LD30-R
3200		0.490 (12.4)	0.220 (5.6)				440LD32-R
3300		0.490 (10.9)	0.215 (5.5)				440LD33-R
3900		0.530 (13.5)	0.220 (5.6)				440LD39-R
4000		0.530 (13.5)	0.220 (5.6)				440LD40-R
4700		0.620 (15.7)	0.230 (5.8)				440LD47-R
5000		0.620 (15.7)	0.225 (5.7)				440LD50-R
5500		0.680 (17.3)	0.230 (5.8)				440LD55-R
5600		0.680 (17.3)	0.230 (5.8)				440LD56-R
6800		0.720 (18.3)	0.235 (6.0)				440LD68-R
8000		0.720 (18.3)	0.220 (5.6)				440LD80-R
9000		0.790 (20.1)	0.225 (5.7)				440LD90-R
0.01 µF		0.850 (21.6)	0.230 (5.8)				440LS10-R

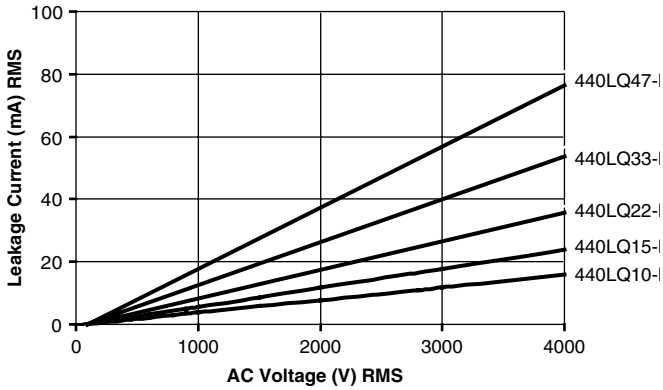
Notes

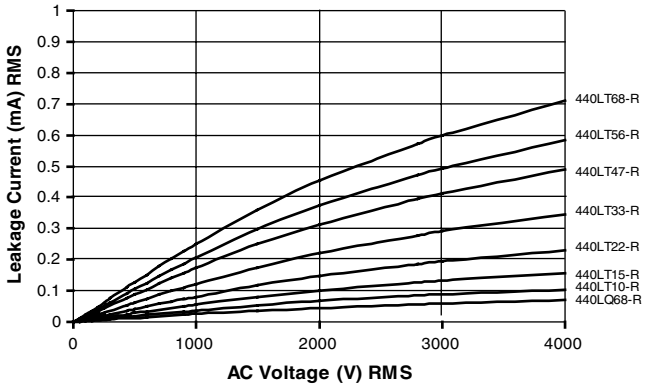
- Alternate lead spacings are available bulk or tape and reel on request.
- European required minimum lead clearance (prevents use of inside crimp) 0.315" (8 mm)

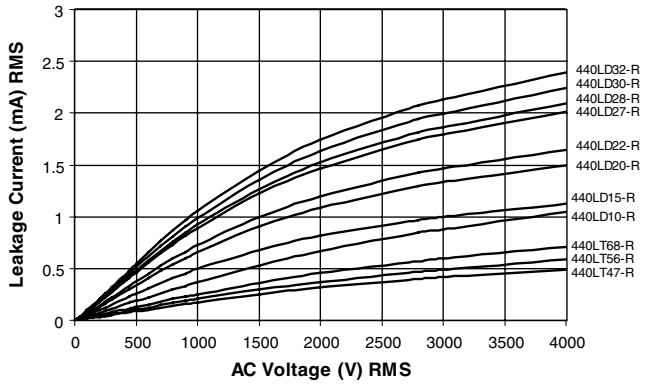
TAPE AND REEL OPTIONS

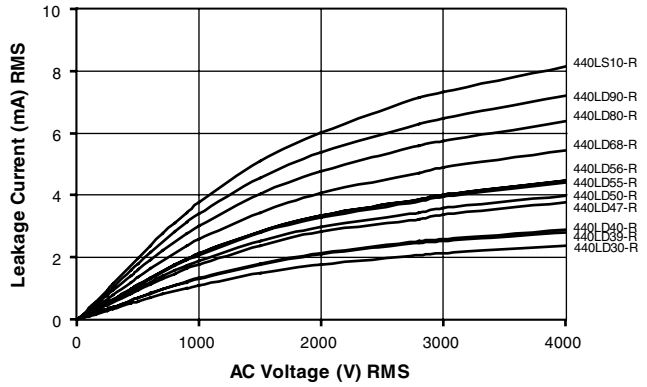
- To specify tape and reel, add two letter suffix to the ordering code (for details of the packaging code see general section of the catalog)

LEAKAGE CURRENT VS. VOLTAGE (TYPICAL)

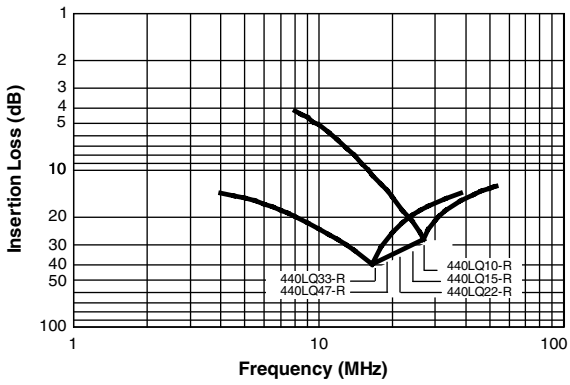


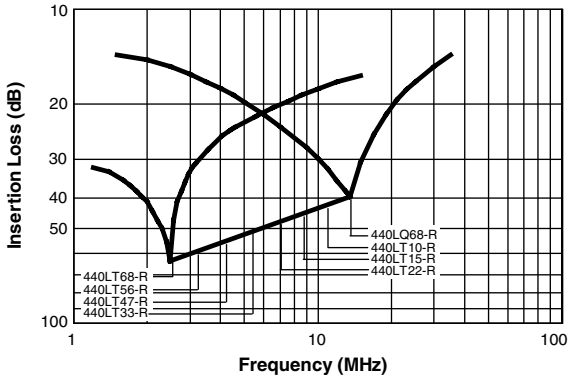


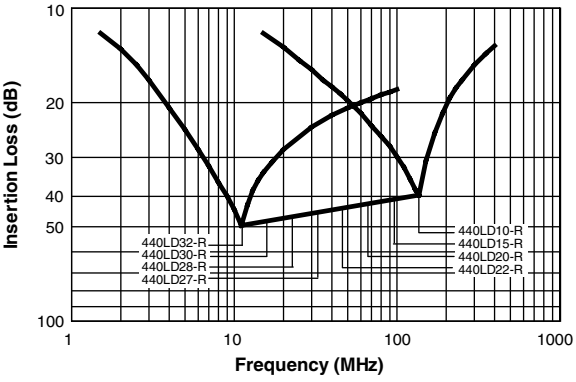


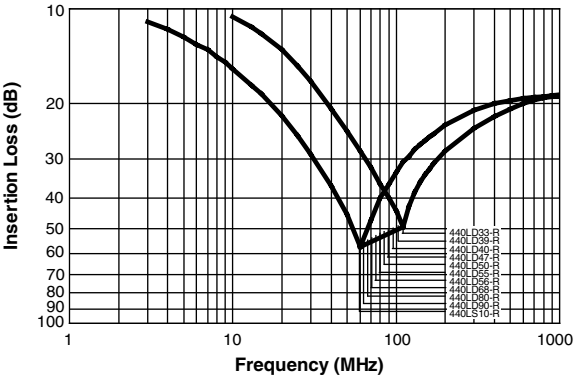


INSERTION LOSS VS. FREQUENCY (TYPICAL)









APPROVALS

IEC 60384 - 14/2nd Issue (1993) incl. Am. 1 (1995) - Safety Tests
EN 132 400 (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	

Y1 Capacitor: CB-Test Certificate: DE 1-19452		10 pF... 0.01 µF	500 V_{AC}
X1 Capacitor: CB-Test Certificate: DE 1-19452		10 pF... 0.01 µF	400 V_{AC}
UNDERWRITERS LABORATORIES			
UL 1414	Across-the-line, Antenna-coupling and Line-by-pass component.	10 pF... 0.01 µF	
	Agency File/License E99264 V2S2		250 V_{AC}
UL 1283	EMI Filters	10 pF... 0.01 µF	
	Agency File/License E128046 V1S2		600 V_{AC}
CANADIAN STANDARDS ASSOCIATION			
CSA C22.2 No. 1-98	Across-the-line, Isolation capacitor	10 pF... 0.01 µF	
	Agency File/License LR 62016-12		250 V_{AC}
No. 1-94	Across-the-line, Line to ground, Isolation capacitor	100 pF... 0.01 µF	
	Agency File/License LR 62016-1		250 V_{AC}

Note 1

UL 1414 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:

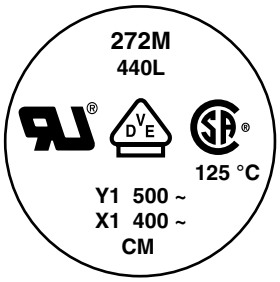
- A capacitor of a type suitable for use in situations where failure of the capacitor could lead to danger of electric shock.
- Class Y capacitors are divided into sub- classes based on type of insulation bridged and voltage ranges.
- For definitions of basic, supplementary, double and reinforced insulation,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

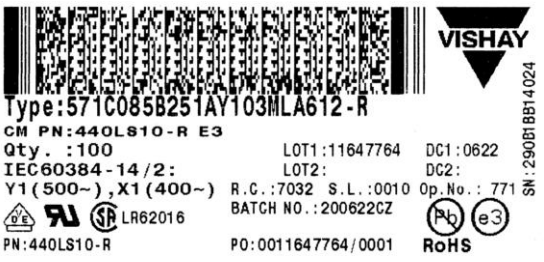
Note 3

IEC 60384-14 Subclass X Capacitors:

- A capacitor of a type suitable for use in situations where failure of the capacitor 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





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