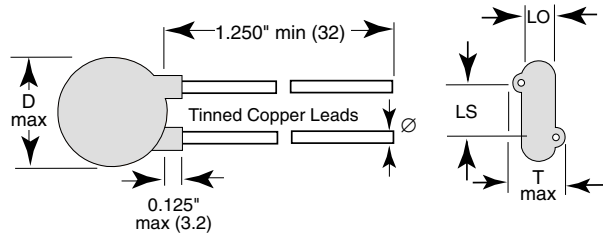


## AC Line Rated Disc Capacitors Class X1, 400 VAC/Class Y1, 500 VAC



LO' = 0.158" (4.0) typ.

### INSULATION RESISTANCE:

min. 1000  $\Omega$ 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 to + 125) °C

### OPERATING TEMPERATURE RANGE:

(- 30 to + 125) °C

### CLIMATIC CATEGORY ACC. TO EN60068-1:

25/125/21

### FEATURES

- Worldwide Safety Agency Recognition  
Underwriters Laboratories - UL1414 & UL1283  
Canadian Standards Association - CSA 22.2  
European EN132400 to IEC 60384-14  
Second Edition
- Complete Range of Capacitance Values



### 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  $\pm 10\%$  or  $\pm 20\%$ . Coating is made of flame retardant epoxy resin in accordance with "UL94V-0".

### CAPACITANCE RANGE:

10 pF to 0.01  $\mu$ F

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

### DIELECTRIC STRENGTH OF BODY INSULATION:

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

# 440L Series



Vishay Cera-Mite

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

ORDERING INFORMATION, CERAMIC X1/Y1 CAPACITORS 440L							
C (pF)	TOL. (%)	D DIAMETER INCH (mm)	T THICKNESS INCH (mm)	WIRE SIZE		LS LEAD SPACE INCH (mm)	ORDERING CODE
				AWG	INCH (mm)		
<b>COG</b>							
10	± 10 %	0.330 (8.4)	0.195 (5.0)	20	0.032 (0.81)	0.375 (9.5)	440LQ10-R
<b>U2J</b>							
15	± 10 %	0.330 (8.4)	0.210 (5.3)	20	0.032 (0.81)	0.375 (9.5)	440LQ15-R
<b>P3K</b>							
22	± 10 %	0.330 (8.4)	0.190 (4.8)	20	0.032 (0.81)	0.375 (9.5)	440LQ22-R
<b>R3L</b>							
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
<b>X7R</b>							
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
<b>Y5U</b>							
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

**Note:**

1. Alternate Lead Spacings are available bulk or tape & reel on request.
2. European Required Minimum Lead Clearance (Prevents Use of Inside Crimp) 0.315" (8 mm)

**TAPE & REEL OPTIONS**

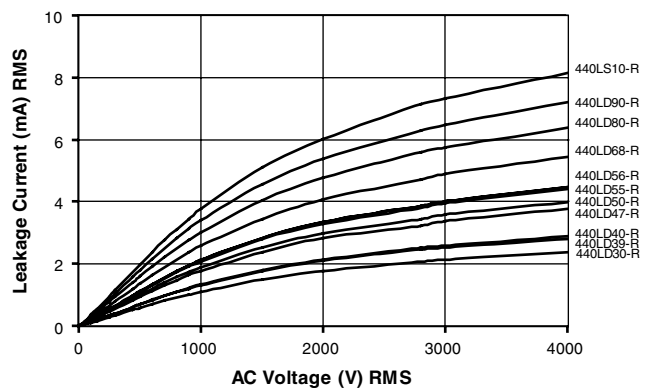
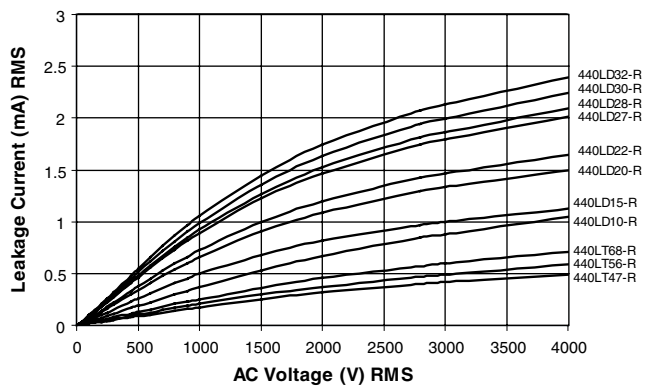
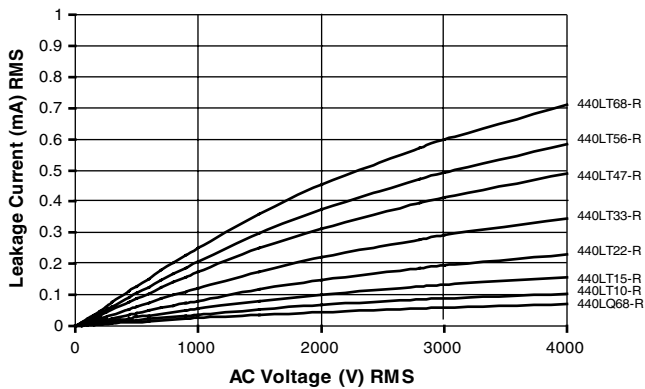
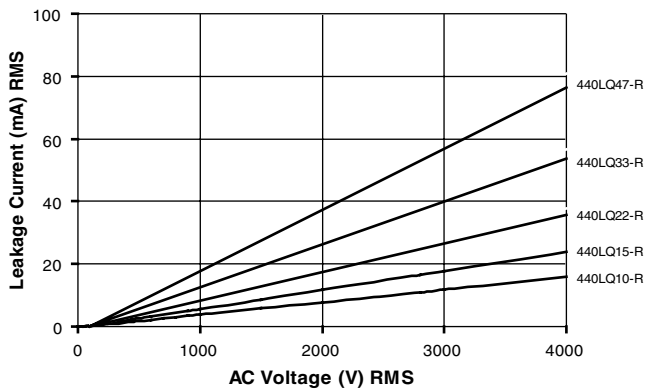
To specify T & R, add two letter suffix to the ordering code (Details of the packaging code see general section of the catalog)



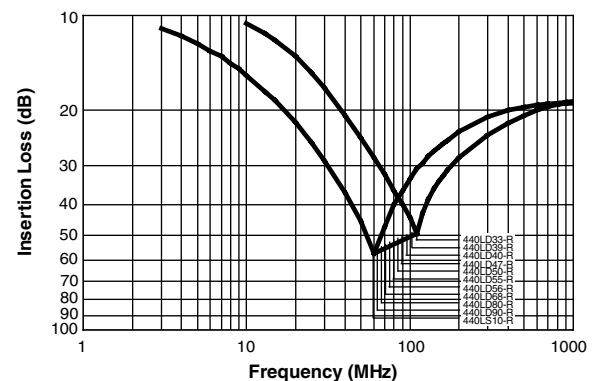
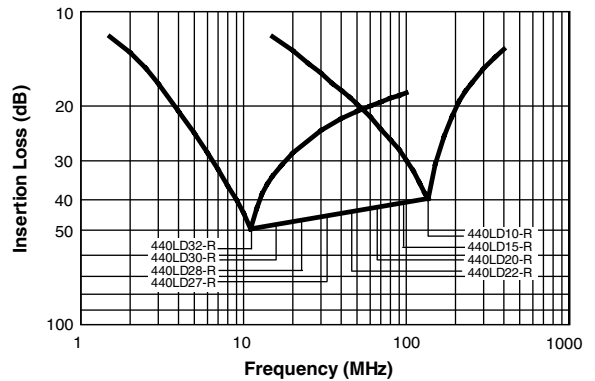
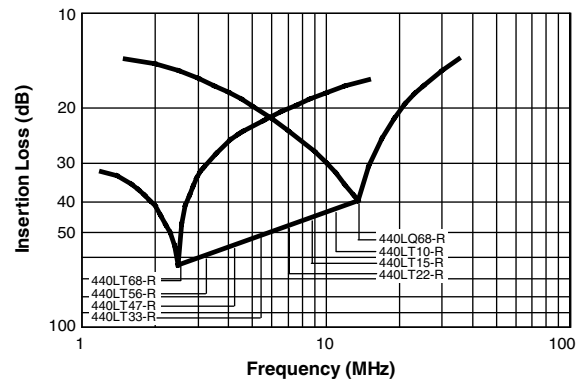
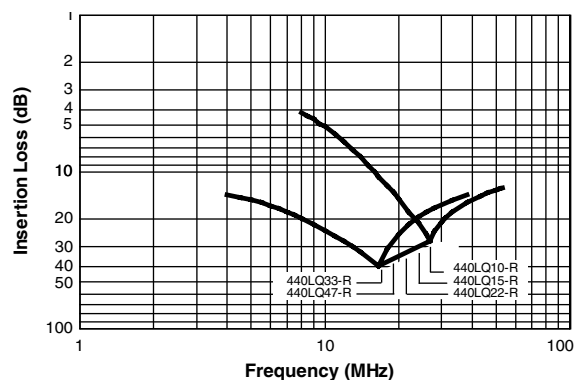
# AC Line Rated Disc Capacitors Class X1, 400 VAC/Class Y1, 500 VAC

# 440L Series Vishay Cera-Mite

### LEAKAGE CURRENT VS. VOLTAGE (TYPICAL)



### INSERTION LOSS VS. FREQUENCY (TYPICAL)





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

**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 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.

<b>MARKING</b>	
	<p>Type: 571C0858251AY103MLA612-R            CM PN: 440LS10-R E3            Qty. : 100 LOT1: 11647764 DC1: 0622            IEC 60384 - 14 / 2: LOT2: DC2:            Y1 (500~), X1 (400~) R.C.: 7032 S.L.: 0010 Op.No.: 771            BATCH NO.: 200622CZ                 PN: 440LS10-R PO: 0011647764/0001 RoHS</p>



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