

**AC Line Rated Disc Capacitors**  
**Class X1, 400 VAC/Class Y2, 250 VAC**



LO' = 0.132" (3.4 mm) typ.

**INSULATION RESISTANCE**

Min. 1000 ΩF

**TOLERANCE ON CAPACITANCE**

± 20 %

**DISSIPATION FACTOR**

2.0 % max. at 1 kHz; 1 V

**CERAMIC DIELECTRIC**

Y5S (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

**FEATURES**

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

**CAPACITANCE RANGE**

1.0 nF to 8.0 nF

**RATED VOLTAGE**

IEC 60384-14.2:	(Y2): 250 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)

**ORDERING INFORMATION, CERAMIC X1/Y2 CAPACITORS 25Y**

C (pF)	TOL. (%)	D DIAMETER INCH (mm)	T THICKNESS INCH (mm)	WIRE SIZE		LS LEAD SPACE INCH (mm)	ORDERING CODE
				AWG	INCH (mm)		
<b>Y5S TEMPERATURE STABLE (<math>\pm 22\%</math>, - 30 °C to + 85 °C)</b>							
1000	$\pm 20\%$	0.330 (8.4)	0.170 (4.3)	22	0.025 (0.64)	0.250 (6.4)	25YD10-R
1500		0.400 (10.2)	0.175 (4.4)				25YD15-R
2000		0.430 (10.9)	0.170 (4.3)				25YD20-R
2200		0.460 (11.7)	0.170 (4.3)				25YD22-R
2700		0.490 (12.4)	0.170 (4.3)				25YD27-R
2800		0.530 (13.5)	0.175 (4.4)				25YD28-R
3000		0.530 (13.5)	0.175 (4.4)	25YD30-R			
3200		0.560 (14.2)	0.185 (4.7)	20	0.032 (0.81)	0.375 (9.5)	25YD32-R
3300		0.560 (14.2)	0.185 (4.7)				25YD33-R
3900		0.620 (15.7)	0.185 (4.7)				25YD39-R
4000		0.620 (15.7)	0.185 (4.7)				25YD40-R
4700		0.680 (17.3)	0.185 (4.7)				25YD47-R
5000		0.680 (17.3)	0.185 (4.7)				25YD50-R
5500		0.720 (18.3)	0.190 (4.7)	25YD55-R			
5600		0.720 (18.3)	0.190 (4.7)	25YD56-R			
6800		0.790 (20.1)	0.185 (4.7)	25YD68-R			
8000		0.900 (22.9)	0.200 (5.1)	25YD80-R			

**Notes**

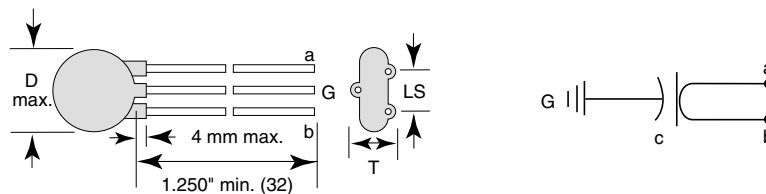
- Alternate lead spacings of 7.5 mm and 10 mm are available bulk or tape and reel on request.
- European required minimum lead clearance (prevents use of inside crimp) 0.118" (3 mm)

**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)

**OPTIONAL 3-LEADED STYLE**

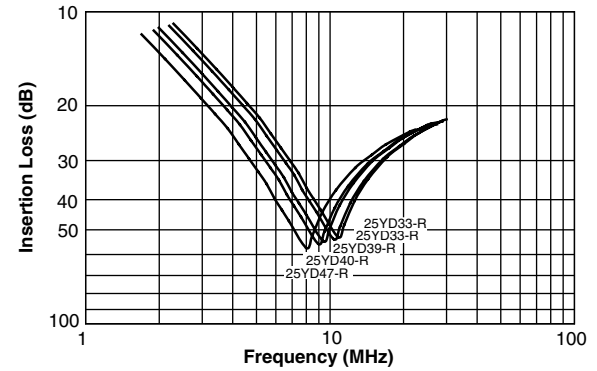
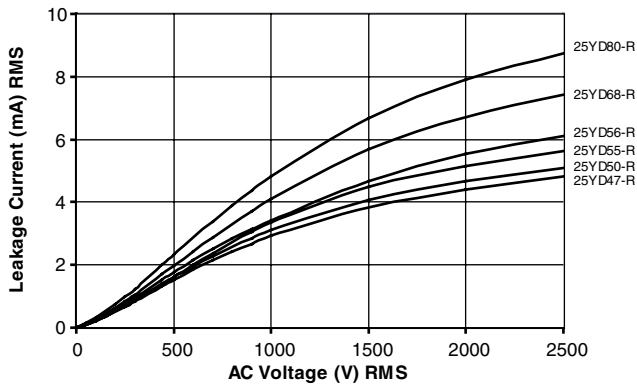
An optional 3-leaded construction is available. It consists of a single capacitor with the two outside leads attached to one electrode, and the center lead attached to the electrode. Used in feed-thru or line-to-ground applications, it allows a short ground lead for enhanced high frequency performance.





**LEAKAGE CURRENT VS. VOLTAGE (TYPICAL)**

**INSERTION LOSS VS. FREQUENCY (TYPICAL)**





APPROVALS						
IEC 60384 - 14/2 <sup>nd</sup> 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	
X1 Capacitor: CB-Test Certificate:	DE 1-19449		1000 pF to 8000 pF		400 V <sub>AC</sub>	
Y2 Capacitor: CB-Test Certificate:	DE 1-19449		1000 pF to 8000 pF		250 V <sub>AC</sub>	
UNDERWRITERS LABORATORIES INC.						
<b>UL 1414</b>	Line-by-pass component Agency File/License	E99264 V2S1	1000 pF to 8000 pF		250 V <sub>AC</sub>	
<b>UL 1283</b>	EMI Filters Agency File/License	E99264 V2S1	1000 pF to 8000 pF		250 V <sub>AC</sub>	
CANADIAN STANDARDS ASSOCIATION						
<b>CSA C22.2 No. 1</b>	Isolation component Agency File/License	LR 62016-12	1000 pF to 8000 pF		250 V <sub>AC</sub>	
<b>CSA C22.2 No. 8</b>	EMI filter Agency File/License	LR 62016-3	1000 pF to 8000 pF		400 V <sub>AC</sub>	

### 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><b>VISHAY</b></p> <p>Type: 041C045A251AY802ML-R            CM PN: 25YD80-R E3            Qty. : 125            IEC60384-14/2:            Y2 (250~), X1 (400~)            R.C.: 7032 S.L.: 0010            BATCH NO.: 200622CZ            PN: 25YD80-R</p> <p>LOT1: 11647770            LOT2:            R.C.: 7032 S.L.: 0010            BATCH NO.: 200622CZ            PO: 0011647770/0001</p> <p>DC1: 0622            DC2:            Op.No.: 771            SN: 290B1B81A001</p> <p>   LR62016  </p>



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### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

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