

## AC Line Rated Ceramic Disc Capacitors

### Class X1, 400 V<sub>AC</sub> / Class Y4, 125 V<sub>AC</sub>



#### QUICK REFERENCE DATA

DESCRIPTION	VALUE	
Ceramic Class	2	
Ceramic Dielectric	Y5V	
Voltage (V <sub>AC</sub> )	125	400
Min. Capacitance (pF)	1000	
Max. Capacitance (pF)	50 000	
Mounting	Radial	

#### INSULATION RESISTANCE

Min. 1000 ΩF

#### TOLERANCE ON CAPACITANCE

± 20 %

#### DISSIPATION FACTOR

2.0 % max. at 1 kHz; 1 V

#### CERAMIC DIELECTRIC

Y5V (Class 2)

#### CLIMATIC CATEGORY ACC. TO EN 60068-1

25/125/21

#### OPERATING TEMPERATURE RANGE

-30 °C to +125 °C

#### 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](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

#### APPLICATIONS

- X1, Y4 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 ± 20 %. Coating is made of flame retardant epoxy resin in accordance with "UL 94 V-0".

#### CAPACITANCE RANGE

1.0 nF to 0.050 μF

#### RATED VOLTAGE

IEC 60384-14:

- X1: 400 V<sub>AC</sub>, 50 Hz
- Y4: 125 V<sub>AC</sub>, 50 Hz

#### DIELECTRIC STRENGTH BETWEEN LEADS

Component test:

2000 V<sub>AC</sub>, 50 Hz, 2 s

As repeated test admissible only once with:

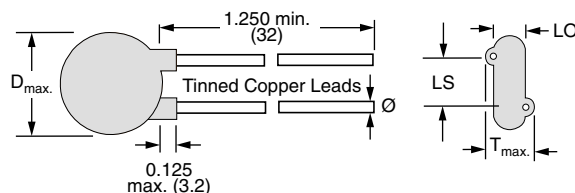
1800 V<sub>AC</sub>, 50 Hz, 2 s

Random sampling test (destructive test):

2000 V<sub>AC</sub>, 50 Hz, 60 s

#### DIELECTRIC STRENGTH OF BODY INSULATION

2300 V<sub>AC</sub>, 50 Hz, 60 s (destructive test)

**DIMENSIONS** in inches (millimeters)

**ORDERING INFORMATION, CERAMIC X1 / Y4 CAPACITORS 125L**

C (pF)	TOL. (%)	D <sub>max.</sub> DIAMETER INCH (mm)	T <sub>max.</sub> THICKNESS INCH (mm)	WIRE SIZE		LS LEAD SPACE INCH (mm) ± 1 mm	LO LEAD OFFSET INCH (mm) ± 0.5 mm	ORDERING CODE
				AWG	INCH (mm)			
1000	± 20	0.330 (8.4)	0.195 (5.0)	20	0.032 (0.81)	0.250 (6.4)	0.094 (2.4)	125LD10-R
1500		0.330 (8.4)	0.195 (5.0)				0.098 (2.5)	125LD15-R
2000		0.330 (8.4)	0.188 (4.8)				0.091 (2.3)	125LD20-R
2200		0.330 (8.4)	0.182 (4.7)				0.083 (2.1)	125LD22-R
3300		0.365 (9.3)	0.195 (5.0)				0.094 (2.4)	125LD33-R
4700		0.400 (10.2)	0.185 (4.7)				0.087 (2.2)	125LD47-R
5000		0.430 (11.0)	0.195 (5.0)			0.375 (9.5)	0.094 (2.4)	125LD50-R
6800		0.490 (12.5)	0.198 (5.1)				0.098 (2.5)	125LD68-R
8200		0.530 (13.5)	0.193 (5.0)				0.094 (2.4)	125LD82-R
0.010 µF		0.560 (14.3)	0.195 (5.0)				0.098 (2.5)	125LS10-R
0.015 µF		0.720 (18.3)	0.205 (5.3)				0.102 (2.6)	125LS15-R
0.018 µF		0.790 (20.1)	0.205 (5.3)				0.106 (2.7)	125LS18-R
0.020 µF		0.720 (18.3)	0.250 (6.4)	22	0.025 (0.64)		0.087 (2.2)	125LS20-R
0.022 µF		0.790 (20.1)	0.192 (4.9)	20	0.032 (0.81)		0.094 (2.4)	125LS22-R
0.030 µF		0.720 (18.3)	0.240 (6.1)	22	0.025 (0.64)		0.087 (2.2)	125LS30-R
0.050 µF		0.925 (23.5)	0.275 (7.0)	22	0.025 (0.64)		0.087 (2.2)	125LS50-R

**Notes**

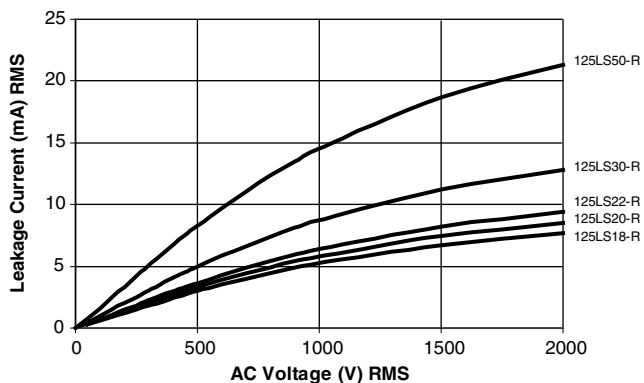
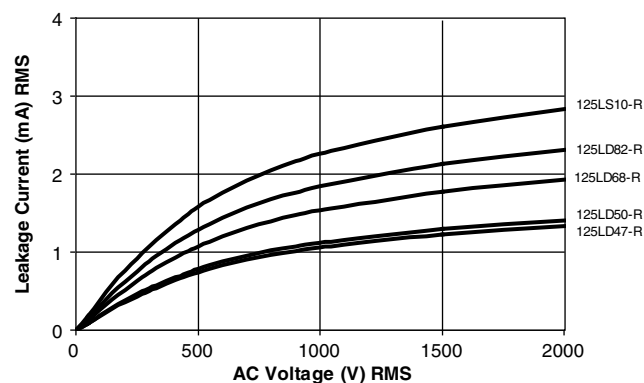
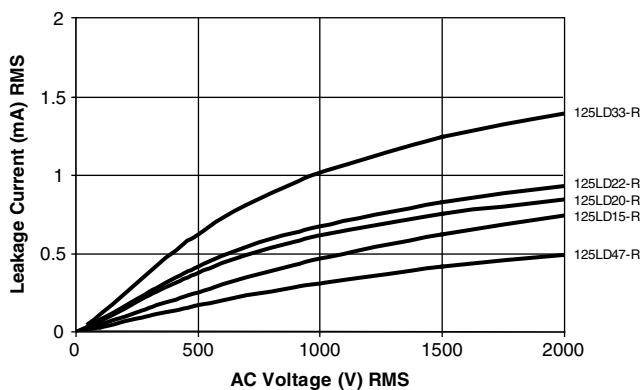
- Alternate lead spacings of 7.5 mm and 10 mm are available bulk or tape and reel on request.
- Minimum lead clearance according to IEC 60384-14: 0.118" (3 mm)

**TAPE AND REEL OPTIONS**

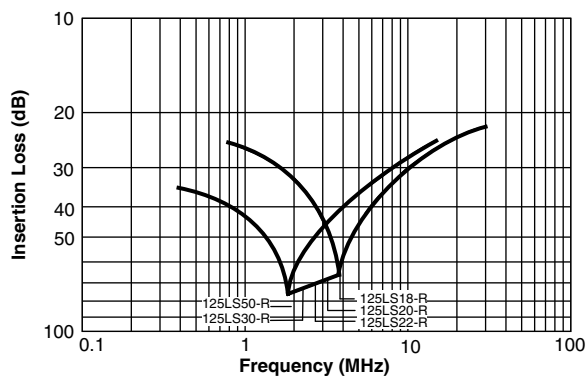
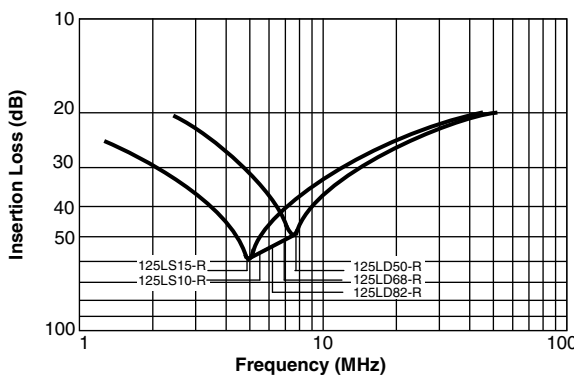
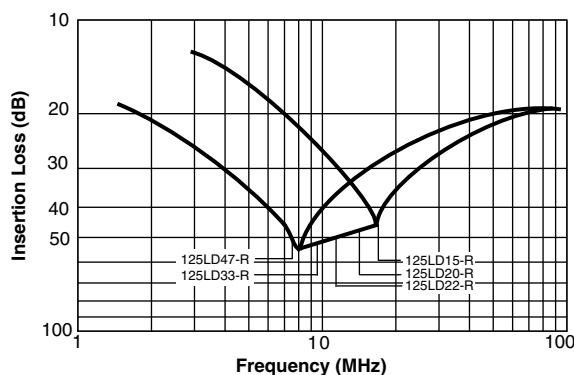
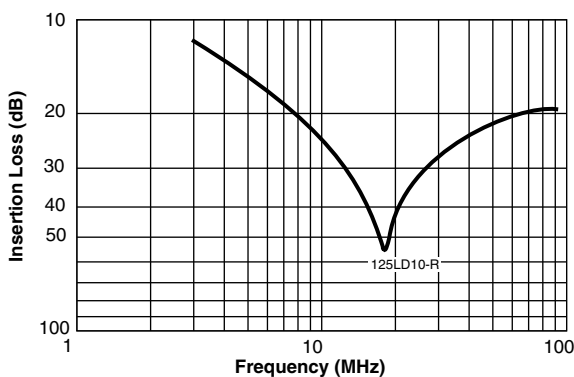
Part number codes and specifications for tape and reel packaging are found in the general information document - find web-link below.



## 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**

Y4-capacitor: CB test certificate:	CA/13650/CSA	1 nF to 50 nF	125 V <sub>AC</sub>
X1-capacitor: CB test certificate:	CA/13650/CSA	1 nF to 50 nF	400 V <sub>AC</sub>

**VDE**

Y4-capacitor: VDE marks approval:	40003976	1 nF to 50 nF	125 V <sub>AC</sub>
X1-capacitor: VDE marks approval:	40003976	1 nF to 50 nF	400 V <sub>AC</sub>



DIN EN 60384-14 VDE 0565-1-1 - Safety tests

**Underwriters Laboratories Inc.**

Y4-capacitor: UL test certificate:	E99264	1 nF to 50 nF	125 V <sub>AC</sub>
X1-capacitor: UL test certificate:	E99264	1 nF to 50 nF	400 V <sub>AC</sub>

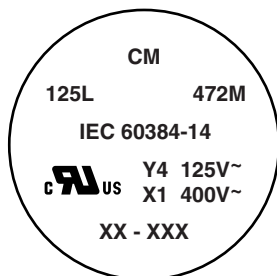


UL 60384-14, CSA E60384-1, CSA E60384-14

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

**MARKING**

Sample

**Notes**

- Marking IEC 60384-14 does not apply for  $\varnothing \leq 9$  mm
- Coding is as follows: 1<sup>st</sup> figure indicates the year and 2<sup>nd</sup> figure indicates the month according to IEC 60062. The 3<sup>rd</sup> to 5<sup>th</sup> figure indicate the last three digits of the lot number

**RELATED DOCUMENTS**

General Information	<a href="http://www.vishay.com/doc?23140">www.vishay.com/doc?23140</a>
CB Test Certificate	<a href="http://www.vishay.com/doc?22234">www.vishay.com/doc?22234</a>
VDE Marks Approval	<a href="http://www.vishay.com/doc?22235">www.vishay.com/doc?22235</a>
UL Test Certificate	<a href="http://www.vishay.com/doc?22236">www.vishay.com/doc?22236</a>



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