

## AC Line Rated Ceramic Disc Capacitors

### Class X1, 440 V<sub>AC</sub>, Class Y2, 250 V<sub>AC</sub>



#### LINKS TO ADDITIONAL RESOURCES



QUICK REFERENCE DATA	
DESCRIPTION	VALUE
Ceramic Class	2
Ceramic Dielectric	Y5U
Voltage (V <sub>AC</sub> )	440      250
Min. Capacitance (pF)	1000
Max. Capacitance (pF)	12 000
Mounting	Radial

#### MARKING

Marking indicates series, AC rating, capacitance, tolerance code, and approvals.

#### OPERATING TEMPERATURE RANGE

-40 °C to +125 °C

#### TEMPERATURE CHARACTERISTICS

Class 2      Y5U

#### SECTIONAL SPECIFICATIONS

Climatic category (according to EN 60058-1)

Class 2      40/125/21

#### APPROVALS

IEC 60384-14 (edition 4)

UL 60384-14 2<sup>nd</sup> edition

DIN EN 60384-14

CSA E60384-1:03 2<sup>nd</sup> edition, CSA E60384-14:14 3<sup>rd</sup> edition

#### FEATURES

- Complying with IEC 60384-14 (edition 4)
- High reliability
- Wide range of capacitance values
- Wide range of different leadstyles
- 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, Y2 according to IEC 60384-14 (edition 4)
- Line-by-pass
- EMI / RFI suppression and filtering

#### DESIGN

The capacitors consist of ceramic disc both sides of which are silver plated. Connection leads are made of tinned copper having diameters of 0.6 mm.

The capacitors may be supplied with straight or kinked leads having a lead spacing of 5.0 mm or 7.5 mm.

Coating is made of blue colored flame retardant epoxy resin in accordance with UL 94 V-0.

#### CAPACITANCE RANGE

1.0 nF to 12 nF

#### TOLERANCE ON CAPACITANCE

± 20 %

#### RATED VOLTAGE

- X1:      440 V<sub>AC</sub>, 50 Hz (IEC 60384-14)  
          440 V<sub>AC</sub>, 50 Hz / 60 Hz (US/UL/CSA 60384-14)
- Y2:      250 V<sub>AC</sub>, 50 Hz (IEC 60384-14)  
          250 V<sub>AC</sub>, 50 Hz / 60 Hz (US/UL/CSA 60384-14)

#### TEST VOLTAGE

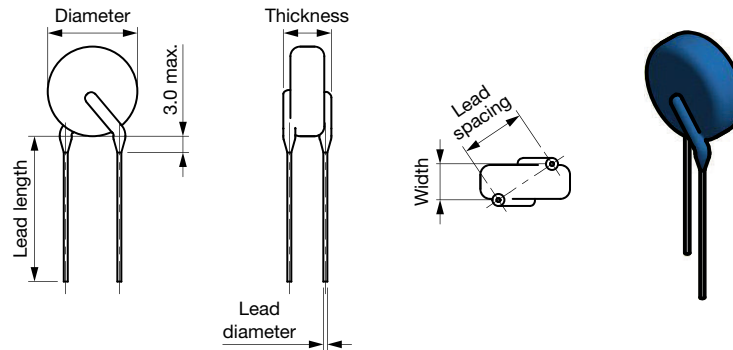
- 2500 V<sub>AC</sub>, 50 Hz, 2 s      Component test (100 %)
- 1500 V<sub>AC</sub>, 50 Hz, 60 s      Random sampling test (destructive)
- 2000 V<sub>AC</sub>, 60 Hz, 60 s      Voltage proof of coating (destructive)

#### INSULATION RESISTANCE AT 500 V<sub>DC</sub>

≥ 6000 MΩ (60 s)

#### DISSIPATION FACTOR

Class 2: max. 2.5 % (1 kHz)

**DIMENSIONS** in millimeters

**TECHNICAL DATA**

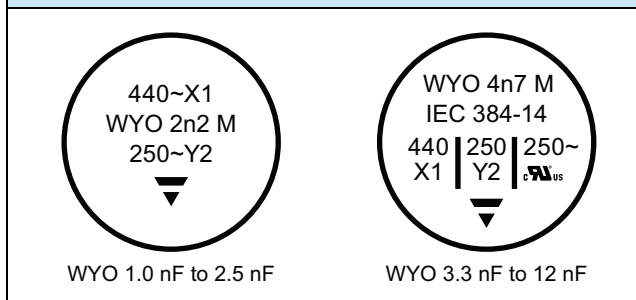
CAPACITANCE C (pF)	CAPACITANCE TOLERANCE	BODY DIAMETER D <sub>MAX.</sub> (mm)	BODY THICKNESS S <sub>MAX.</sub> (mm)	LEAD SPACING (1) F (mm) ± 1 mm	LEAD DIAMETER (1) d (mm) ± 0.05 mm	WIDTH (1) V (mm) ± 0.5 mm	PART NUMBER MISSING DIGITS SEE ORDERING CODE BELOW
<b>Y5U (2E3)</b>							
1000	± 20 %	6.5	4.5	5.0	0.6	1.4	WYO102#CM###KR
1500		8.0					WYO152#CM###KR
1800		8.0					WYO182#CM###KR
2200		9.0					WYO222#CM###KR
2500		9.0					WYO252#CM###KR
3300		11.0					WYO332#CM###KR
4700		12.5		WYO472#CM###KR			
5000		12.5		WYO502#CM###KR			
6800		17.0		WYO682#CM###KR			
8200		17.0		WYO822#CM###KR			
10 000		21.0		WYO103#CM###KR			
12 000		21.0		WYO123#CM###KR			

**Note**

(1) Standard lead configuration, other lead spacing and diameter available on request

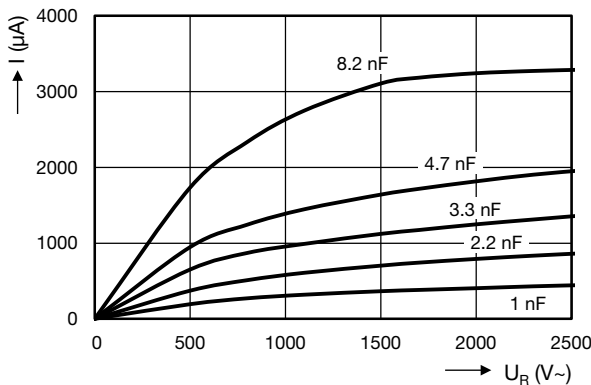
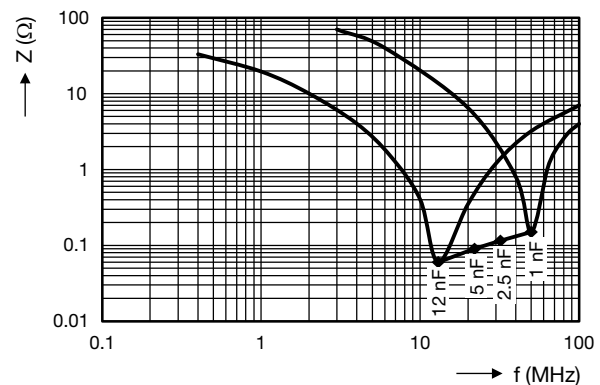
**ORDERING CODE**

#	7 <sup>th</sup> digit	Capacitance tolerance	± 10 % = K, ± 20 % = M				
###	10 <sup>th</sup> to 12 <sup>th</sup> digit	Lead configuration	see "General Information"				
<b>Example</b>	<b>WYO</b>	<b>103</b>	<b>M</b>	<b>CM</b>	<b>CF0</b>	<b>K</b>	<b>R</b>
	Series	Capacitance value	Tolerance code	Voltage code	Lead configuration	Internal code	RoHS compliant

**STANDARD EXAMPLE FOR MARKING**

**STANDARD EXAMPLE FOR LABEL PRINTING**

Type: WYO222MCMCRBKR LOT1:072877 DC1:1748  
 Cap.: 2200pF ± 20% LOT2: DC2:  
 Ur.: 250/440VAC BATCH NO.: 201748CZ  
 Qty.: 1800 REGION: 7032 S.L.: 0010  
 IEC 60384-14:2013:Y2(250~).X1(440~)  
 DIN EN 60384-14:125°C   
 H0=16±0.5, F=7.5  
 PN: WYO222MCMCRBKR PO: 0034325216/0001 SN: 28072877B008

<b>APPROVALS</b>				
IEC 60384-14 (edition 4) - Safety tests This approval together with CB test certificate substitutes all national approvals.				
<b>CB Certificate</b>				
Y2-capacitor: CB test certificate:	US-26154-UL	1 nF to 12 nF	250 V <sub>AC</sub>	
X1-capacitor: CB test certificate:	US-26154-UL	1 nF to 12 nF	440 V <sub>AC</sub>	
Minimum thickness of insulation: 0.4 mm				
<b>VDE</b>				
Y2-capacitor: VDE marks approval:	133769	1 nF to 12 nF	250 V <sub>AC</sub>	
X1-capacitor: VDE marks approval:	133769	1 nF to 12 nF	440 V <sub>AC</sub>	
DIN EN 60384-14 (VDE 0565-1-1):2014-04; EN 60384-14:2013-08; IEC 60384-14 (edition 4)				
Minimum thickness of insulation: 0.4 mm				
<b>Underwriters Laboratories Inc. / Canadian Standards Association</b>				
Y2-capacitor: UL-test certificate:	E183844	1 nF to 12 nF	250 V <sub>AC</sub>	
X1-capacitor: UL-test certificate:	E183844	1 nF to 12 nF	440 V <sub>AC</sub>	
UL 60384-14.2, CSA E60384-1:03 2 <sup>nd</sup> edition, CSA E60384-14:14 3 <sup>rd</sup> edition				
Across-the-line, antenna-coupling and line-by-pass component				
Minimum thickness of insulation: 0.4 mm				

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

**IMPEDANCE VS. FREQUENCY (typical)**


<b>RELATED DOCUMENTS</b>	
General Information	<a href="http://www.vishay.com/doc?22001">www.vishay.com/doc?22001</a>
CB Test Certificate	<a href="http://www.vishay.com/doc?22225">www.vishay.com/doc?22225</a>
VDE Marks Approval	<a href="http://www.vishay.com/doc?22227">www.vishay.com/doc?22227</a>
UL Test Certificate	<a href="http://www.vishay.com/doc?22226">www.vishay.com/doc?22226</a>



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