

## AC Line Rated Ceramic Disc Capacitors

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



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 40/125/21B

#### APPROVALS

IEC 60384-14.3

UL 60384-14.1

CSA E60384-1:03 2<sup>nd</sup> edition, CSA E60384-14:09 2<sup>nd</sup> edition

#### FEATURES

- Complying with IEC 60384-14 3<sup>rd</sup> edition
- High reliability
- Wide range of capacitance values
- Wide range of different leadstyles
- Singlelayer AC Disc 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 60384-14.3
- Line-by-pass

#### 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 60384-14.3)  
440 V<sub>AC</sub>, 50 Hz/60 Hz (US/UL/CSA 60384-14)
- Y2: 250 V<sub>AC</sub>, 50 Hz (IEC 60384-14.3)  
250 V<sub>AC</sub>, 50 Hz/60 Hz (US/UL/CSA 60384-14)

#### TEST VOLTAGE

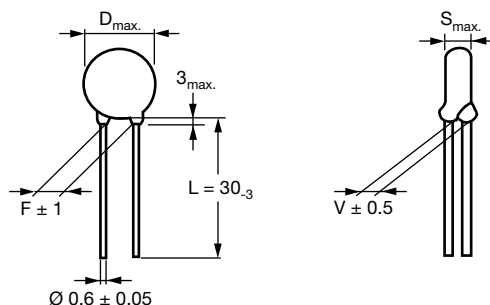
- 2500 V<sub>AC</sub>, 50 Hz, 2 s Component test (100 %)
- 1500 V<sub>AC</sub>, 50 Hz, 60 s Random sampling test (destructive)
- 2000 V<sub>AC</sub>, 60 Hz, 60 s Voltage proof of coating (destructive)

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

≥ 6000 MΩ (60 s)

#### DISSIPATION FACTOR

Class 2: Max. 2.5 % (1 kHz)

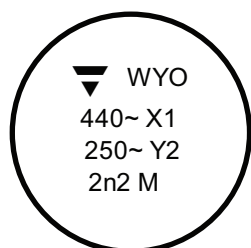
**DIMENSIONS** in millimeters

**TECHNICAL DATA**

CAPACITANCE C (pF)	CAPACITANCE TOLERANCE	BODY DIAMETER D <sub>MAX.</sub> (mm)	BODY THICKNESS S <sub>MAX.</sub> (mm)	LEAD SPACING <sup>(1)</sup> F (mm) ± 1 mm	LEAD DIAMETER <sup>(1)</sup> d (mm) ± 0.05 mm	WIDTH <sup>(1)</sup> V (mm) ± 0.5 mm	PART NUMBER MISSING DIGITS SEE ORDERING CODE BELOW
Y5U (2E3)							
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		10.0					WYO332#CM###KR
4700		12.0		7.5		WYO472#CM###KR	
5000		12.0				WYO502#CM###KR	
6800		17.0				1.6	WYO682#CM###KR
8200		17.0					WYO822#CM###KR
10 000		21.0					WYO102#CM###KR
12 000		21.0					WYO123#CP###KR

**Note**
<sup>(1)</sup> 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>
	Series	Capacitance value	Tolerance code
			<b>CM</b>
			Voltage code
			<b>CF0</b>
			Lead configuration
			<b>K</b>
			Internal code
			<b>R</b>
			RoHS compliant

**MARKING**


WYO 1.0 nF to 2.5 nF



WYO 3.3 nF to 12 nF



## APPROVALS

IEC 60384-14.3 - Safety tests

This approval together with CB test certificate substitutes all national approvals.

### CB Certificate

Y2-capacitor: CB test certificate:

US-19593-UL

1 nF to 12 nF

250 V<sub>AC</sub>

X1-capacitor: CB test certificate:

US-19593-UL

1 nF to 12 nF

440 V<sub>AC</sub>

Minimum thickness of insulation: 0.4 mm



### VDE

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 0565-1-1:2006-04 - Safety tests

Minimum thickness of insulation: 0.4 mm



### Underwriters Laboratories Inc./Canadian Standards Association

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>

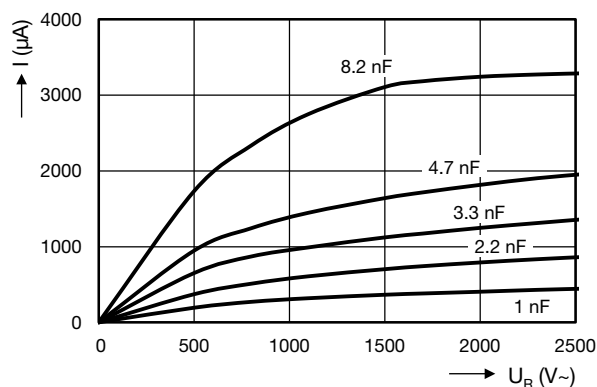
UL 60384-14.1, CSA E60384-1:03 2<sup>nd</sup> edition, CSA E60384-14:09 2<sup>nd</sup> edition

Across-the-line, antenna-coupling and line-by-pass component

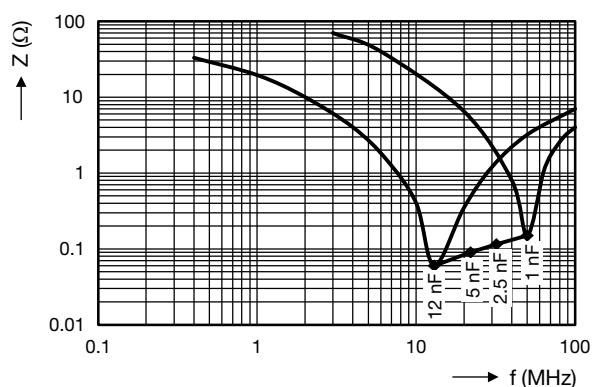
Minimum thickness of insulation: 0.4 mm



## LEAKAGE CURRENT VS. VOLTAGE (typical)



## IMPEDANCE VS. FREQUENCY (typical)



## RELATED DOCUMENTS

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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**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.**

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# Mouser Electronics

Authorized Distributor

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Vishay:

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[WYO472MCMDF0K](#) [WYO222MCMBF0K](#) [WYO252MCMBRAK](#) [WYO222MCMCF0K](#) [WYO472MCMBF0KR](#)  
[WYO103MCMCF0KR](#) [WYO332MCMCF0KR](#) [WYO332MCMCF0K](#) [WYO472MCMCRBK](#) [WYO472MCMCRAK](#)  
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[WYO472MCMNZ0K](#) [WYO682MCMBF0K](#) [WYO222MCMBRBK](#) [WYO222MCMBRAK](#) [WYO182MCMBF0K](#)  
[WYO472MCMDRUK](#) [WYO102MCMBF0K](#) [WYO252MCMBF0K](#) [WYO152MCMBF0K](#) [WYO102MCMBRBK](#)  
[WYO102MCMBRAK](#) [WYO222MCMBLBK](#) [WYO682MCMCRUK](#) [WYO102MCMRGCK](#) [WYO502MCMSAGK](#)  
[WYO222MCMKAGK](#) [WYO502MCMCF0K](#) [WYO222MBMBF0K](#) [WYO102MCMBLAKR](#) [WYO102MCMBLBK](#)  
[WYO472MCMBRBK](#) [WYO182MCMBLAK](#) [WYO472MCMKGGK](#) [WYO252MCMKAGK](#) [WYO502MCMCRAK](#)  
[WYO822MCMCF0KR](#) [WYO102MCMBF0KR](#) [WYO252MCMBF0KR](#) [WYO332MCMBF0K](#) [WYO102MCMBRAKR](#)  
[WYO472MCMCRAKR](#) [WYO502MCMCF0KR](#)