

AC Line Rated Ceramic Disc Capacitors Class X1, 440 V_{AC}, Class Y2, 300 V_{AC}


DESIGN SUPPORT TOOLS
[click logo to get started](#)


QUICK REFERENCE DATA				
DESCRIPTION	VALUE			
	1		2	
Ceramic Class				
Ceramic Dielectric	N750	N750	Y5S, Y5T, Y5U	Y5S, Y5T, Y5U
Voltage (V _{AC})	300	440	300	440
Min. Capacitance (pF)	33		68	
Max. Capacitance (pF)	47		4700	
Mounting	Radial			

MARKING

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

OPERATING TEMPERATURE RANGE

-40 °C to +125 °C

TEMPERATURE CHARACTERISTICS

Class 1 N750 (U2J)

Class 2 Y5S, Y5T, Y5U

SECTIONAL SPECIFICATIONS

Climatic category (according to EN 60058-1)

Class 1 40/125/21

Class 2 40/125/21

APPROVALS

IEC 60384-14.4

UL 60384-14.1

CSA E60384-1:03 2nd edition, CSA E60384-14:09 2nd edition

FEATURES

- Complying with IEC 60384-14 4th edition
- High reliability
- Wide range of different leadstyles
- Singlelayer AC disc safety capacitors
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

APPLICATIONS

- X1, Y2 according to IEC 60384-14.4
- 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 or 0.8 mm.

The capacitors may be supplied with straight or kinked leads having a lead spacing of 7.5 mm or 12.5 mm.

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

CAPACITANCE RANGE

33 pF to 4.7 nF

TOLERANCE ON CAPACITANCE

± 10 %, ± 20 %

RATED VOLTAGE

- X1: 440 V_{AC}, 50 Hz (IEC 60384-14.4)
440 V_{AC}, 50 Hz / 60 Hz (US/UL/CSA 60384-14)
- Y2: 300 V_{AC}, 50 Hz (IEC 60384-14.4)
300 V_{AC}, 50 Hz / 60 Hz (US/UL/CSA 60384-14)

TEST VOLTAGE

- 2600 V_{AC}, 50 Hz, 2 s Component test (100 %)
- 2600 V_{AC}, 50 Hz, 60 s Random sampling test (destructive)
- 2600 V_{AC}, 50 Hz, 60 s Voltage proof of coating (destructive)

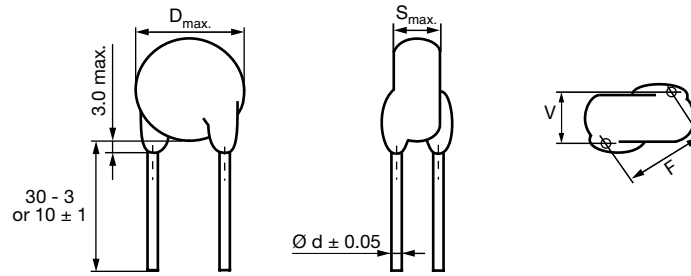
INSULATION RESISTANCE AT 500 V_{DC}

≥ 6000 MΩ (60 s)

DISSIPATION FACTOR

Class 1: max. 0.5 % (1 MHz)

Class 2: max. 2.5 % (1 kHz)

DIMENSIONS in millimeters

TECHNICAL DATA

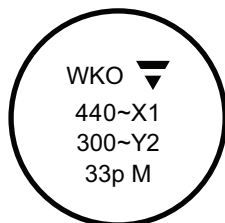
CAPACITANCE C (pF) ⁽²⁾	CAPACITANCE TOLERANCE	BODY DIAMETER D _{MAX.} (mm)	BODY THICKNESS S _{MAX.} (mm)	LEAD SPACING ⁽¹⁾ F (mm) ± 1 mm	LEAD DIAMETER ⁽¹⁾ d (mm) ± 0.05 mm	WIDTH ⁽¹⁾ V (mm) ± 0.5 mm	PART NUMBER MISSING DIGITS SEE ORDERING CODE BELOW
N750 (U2J)							
33	± 10 %, ± 20 %	8.0	5.0	7.5	0.6	1.6	WKO330#CP###KR
47							WKO470#CP###KR
Y5S (2C3)							
68	± 10 %, ± 20 %	8.0	5.0	7.5	0.6	1.9	WKO680#CP###KR
100							WKO101#CP###KR
Y5T (2D3)							
150	± 10 %, ± 20 %	8.0	5.0	7.5	0.6	1.9	WKO151#CP###KR
220							WKO221#CP###KR
330							WKO331#CP###KR
Y5U (2E3)							
470	± 10 %, ± 20 %	8.0	5.0	7.5	0.6	2.0	WKO471#CP###KR
680		9.0					WKO681#CP###KR
1000		10.0					WKO102#CP###KR
1500		12.0					WKO152#CP###KR
2200		13.0					WKO222#CP###KR
3300		15.0		WKO332#CP###KR			
3900		16.0		WKO392#CP###KR			
4700		18.0		12.5	0.8	1.6	WKO472#CP###KR

Notes

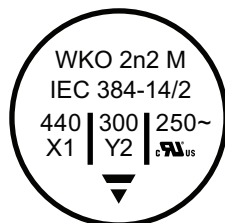
- (1) Standard lead configuration, other lead spacing and diameter available on request
 (2) Capacitance values from 1 nF to 4.7 nF: the alternative usage of VKO series is recommended for new application

ORDERING CODE

#	7 th digit	Capacitance tolerance	± 10 % = K, ± 20 % = M
###	10 th to 12 th digit	Lead configuration	see "General Information"
Example	WKO	222	M
	Series	Capacitance value	Tolerance code
			CP
			Voltage code
			CJ0
			Lead configuration
			K
			Internal code
			R
			RoHS compliant

MARKING


WKO 33 pF to 1.0 nF



WKO 1.5 nF to 4.7 nF

Type: WKO101MCPBRAKR
 Cap.: 100pF ±20%
 Ur.: 300/440VAC
 Qty.: 1500
 IEC 60 384-14/2: Y2(300~), X1(440~)
 EN132400:125°C c9uS
 H=18+2, F=5.0
 PN: WKO101MCPBRAKR
 LOT1: 033145 DC1: 1134
 LOT2: DC2:
 BATCH NO.: 201134CZ
 REGION: 7032 S.L.: 0010
 RoHS

APPROVALS

IEC 60384-14.4 - Safety tests
 This approval together with CB test certificate substitutes all national approvals.

CB Certificate

Y2-capacitor: CB test certificate:	US-26157-UL	33 pF to 4.7 nF	300 V _{AC}
X1-capacitor: CB test certificate:	US-26157-UL	33 pF to 4.7 nF	440 V _{AC}

Minimum thickness of insulation: 0.4 mm


VDE

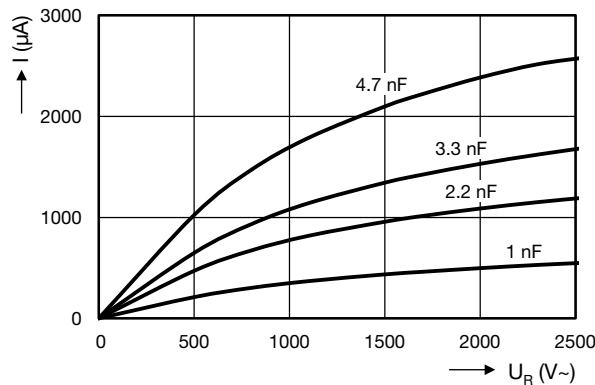
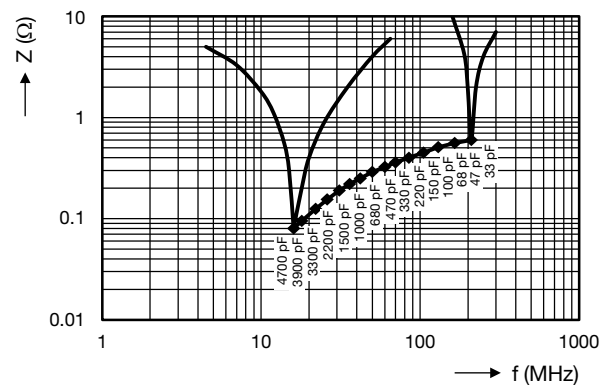
Y2-capacitor: VDE marks approval:	136820	33 pF to 4.7 nF	300 V _{AC}
X1-capacitor: VDE marks approval:	136820	33 pF to 4.7 nF	440 V _{AC}

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	33 pF to 4.7 nF	300 V _{AC}
X1-capacitor: UL-test certificate:	E183844	33 pF to 4.7 nF	440 V _{AC}

UL 60384-14.1, CSA E60384-1:03 2nd edition, CSA E60384-14:09 2nd 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	www.vishay.com/doc?22001
CB Test Certificate	www.vishay.com/doc?22217
VDE Marks Approval	www.vishay.com/doc?22219
UL Test Certificate	www.vishay.com/doc?22218



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