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

LINKS TO ADDITIONAL RESOURCES

3D Models

QUICK REFERENCE DATA				
DESCRIPTION	VALUE			
Ceramic Class	1		2	
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

Pb e3 RoHS COMPLIANT

APPLICATIONS

- X1, Y2 according to IEC 60384-14.4
- 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 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}

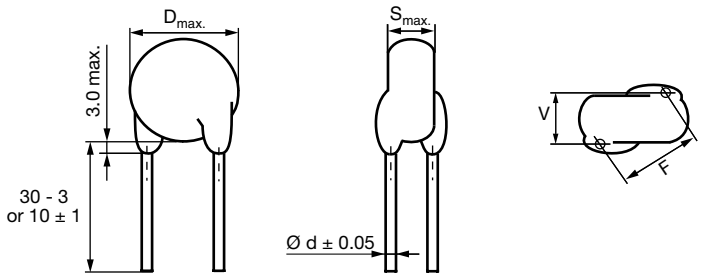
≥ 6000 MΩ (60 s)

DISSIPATION FACTOR

Class 1: max. 0.5 % (1 MHz)

Class 2: max. 2.5 % (1 kHz)

DIMENSIONS in millimeters



TECHNICAL DATA

CAPACITANCE (2) C (pF)	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			0.8	1.6	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			WKO472#CP###KR

Notes

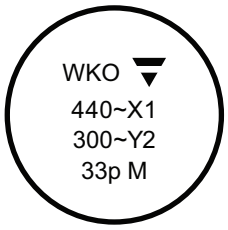
(1) Standard lead configuration, other lead spacing and diameter available on request

(2) Capacitance values from 1 nF to 4.7 nF: the alternative usage of VKO series is recommended for new application

ORDERING CODE

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

MARKING



WKO 33 pF to 1.0 nF

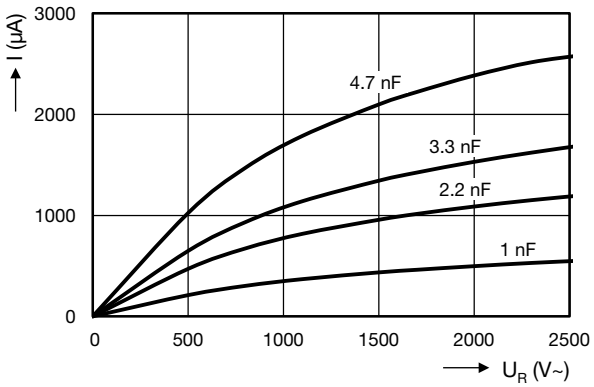
WKO 1.5 nF to 4.7 nF

APPROVALS

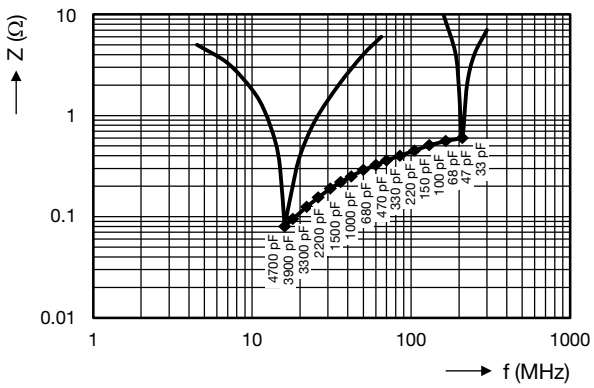
IEC 60384-14.4 - Safety tests
This approval together with CB test certificate substitutes all national approvals.

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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