

AC Line Rated Ceramic Disc Capacitors

Class X1, 440 V_{AC}, Class Y2, 300 V_{AC}


DESIGN SUPPORT TOOLS
[click logo to get started](#)
3D
Models
Available

QUICK REFERENCE DATA	
DESCRIPTION	VALUE
Ceramic Class	2
Ceramic Dielectric	Y5U
Voltage (V _{AC})	440 300
Min. Capacitance (pF)	1000
Max. Capacitance (pF)	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 2 Y5U

SECTIONAL SPECIFICATIONS

Climatic category (according to EN 60058-1)

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
- Small dimensions
- 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.

The capacitors may be supplied with straight or kinked leads having a lead spacing of 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 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)

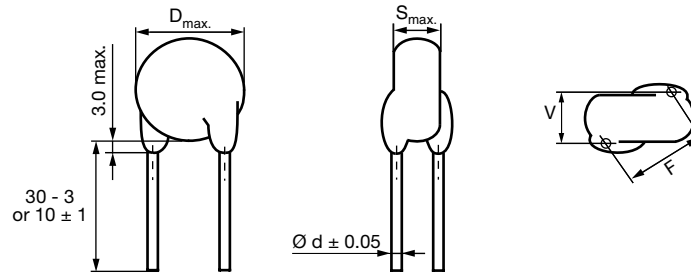
INSULATION RESISTANCE AT 500 V_{Dc}

≥ 6000 MΩ (60 s)

DISSIPATION FACTOR

Class 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
Y5U (2E3)							
1000	± 10 %, ± 20 %	7.0	4.5	7.5	0.6	1.6	VKO102#CQ###KR
1500		8.0	6.0				VKO152#CQ###KR
2200		10.0					VKO222#CQ###KR
3300		12.0					VKO332#CQ###KR
3900		13.5	4.5				VKO392#CQ###KR
4700		13.5					VKO472#CQ###KR

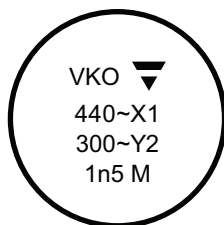
Notes

- ⁽¹⁾ Standard lead configuration, other lead spacing and diameter available on request
- ⁽²⁾ When capacitance values less than 1 nF are required, the usage of WKO series is recommended

ORDERING CODE

#	7 th digit	Capacitance tolerance	± 10 % = K, ± 20 % = M				
###	10 th to 12 th digit	Lead configuration	see "General Information"				
Example	VKO	102	K	CQ	TC0	K	R
	Series	Capacitance value	Tolerance code	Voltage code	Lead configuration	Internal code	RoHS compliant

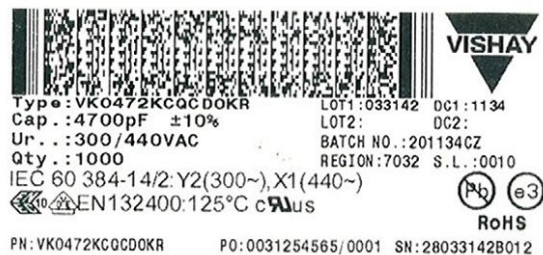
MARKING



VKO 1.0 nF to 1.5 nF

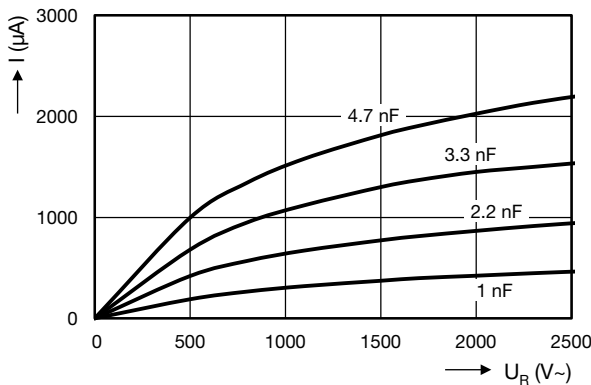
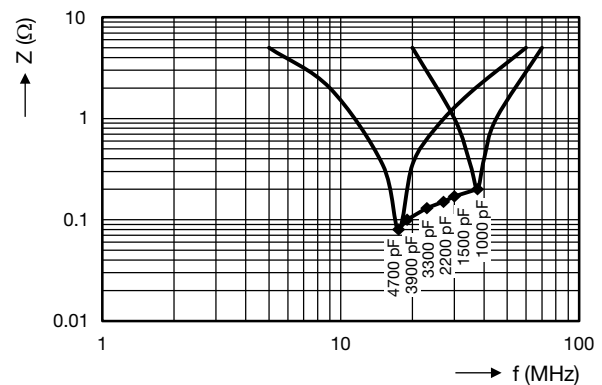


VKO 2.2 nF to 4.7 nF



PN: VKO472KCQCD0KR PO: 0031254565/0001 SN: 28033142B012

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-26162-UL	1 nF to 4.7 nF	300 V _{AC}	
X1-capacitor: CB test certificate:	US-26162-UL	1 nF to 4.7 nF	440 V _{AC}	
Minimum thickness of insulation: 0.4 mm				
VDE				
Y2-capacitor: VDE marks approval:	137866	1 nF to 4.7 nF	300 V _{AC}	
X1-capacitor: VDE marks approval:	137866	1 nF 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	1 nF to 4.7 nF	300 V _{AC}	
X1-capacitor: UL-test certificate:	E183844	1 nF to 4.7 nF	440 V _{AC}	
UL 60384-14.1, CSA E60384-1:03 2 nd edition, CSA E60384-14:09 2 nd 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?22220
VDE Marks Approval	www.vishay.com/doc?22222
UL Test Certificate	www.vishay.com/doc?22221



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