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

ADDITIONAL RESOURCES

3D Models

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)

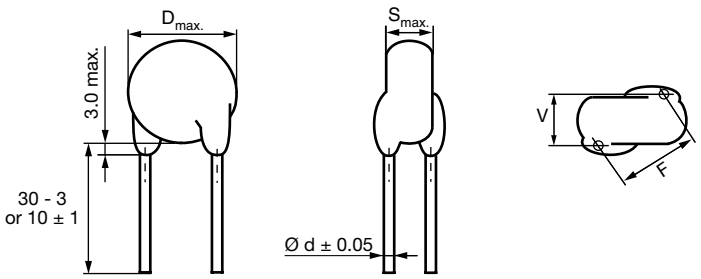
INSULATION RESISTANCE AT 500 V_{DC}

≥ 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

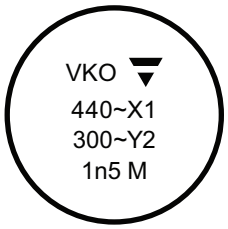
(1) Standard lead configuration, other lead spacing and diameter available on request

(2) When capacitance values less than 1 nF are required, the usage of WKO series is recommended

ORDERING CODE

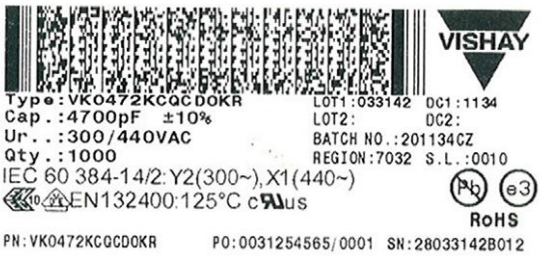
#	7th digit	Capacitance tolerance	± 10 % = K, ± 20 % = M				
###	10th to 12th digit	Lead configuration	see “General Information”				
Example	**VKO**	**102**	**K**	**CQ**	**TC0**	**K**	**R**
	Series	Capacitance value	Tolerance code	Voltage code	Lead configuration	Internal code	RoHS compliant

MARKING



VKO 1.0 nF to 1.5 nF

VKO 2.2 nF to 4.7 nF

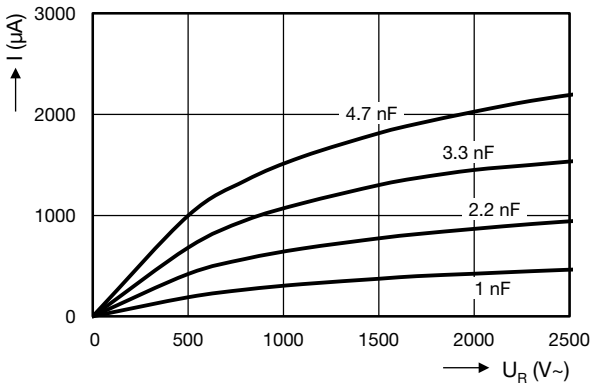


APPROVALS

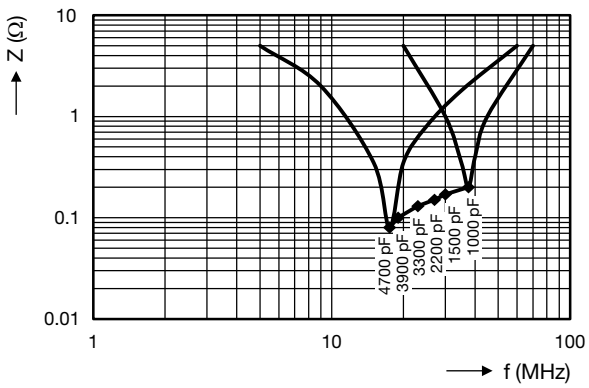
IEC 60384-14.4 - Safety tests
This approval together with CB test certificate substitutes all national approvals.

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 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?22220
VDE Marks Approval	www.vishay.com/doc?22222
UL Test Certificate	www.vishay.com/doc?22221

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