AC Line Rated Ceramic Disc Capacitors Class X1, 760 V_{AC}, Class Y1, 500 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})	760	500
Min. Capacitance (pF)	470	
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

Pb e3 RoHS COMPLIANT

APPLICATIONS

- X1, Y1 according to IEC 60384-14.4
- Across-the-line
- Line-by-pass
- Antenna coupling

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 10.0 mm or 12.5 mm.

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

CAPACITANCE RANGE

470 pF to 4.7 nF

TOLERANCE ON CAPACITANCE

± 10 %, ± 20 %

RATED VOLTAGE

- X1: 760 V_{AC}, 50 Hz (IEC 60384-14.4)
  760 V_{AC}, 50 Hz / 60 Hz (US/UL/CSA 60384-14)
- Y1: 500 V_{AC}, 50 Hz (IEC 60384-14.4)
  500 V_{AC}, 50 Hz / 60 Hz (US/UL/CSA 60384-14)

TEST VOLTAGE

- 4000 V_{AC}, 50 Hz, 2 s Component test (100 %)
- 4000 V_{AC}, 50 Hz, 60 s Random sampling test (destructive)
- 4000 V_{AC}, 50 Hz, 60 s Voltage proof of coating (destructive)

INSULATION RESISTANCE AT 500 V_{DC}

≥ 10 000 MΩ (60 s)

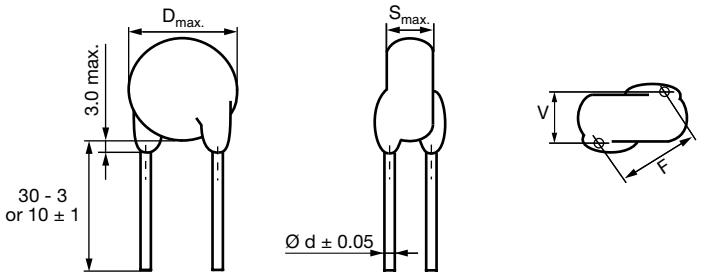
DISSIPATION FACTOR

Class 2: max. 2.5 % (1 kHz)

For technical questions, contact: slcap@vishay.com

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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
Y5U (2E3)							
470	± 10, ± 20	8.0	5.0	12.5	0.6	2.1	VKP471#CQ###KR
680		8.0					VKP681#CQ###KR
1000		9.0			0.8		VKP102#CQ###KR
1500		10.0					VKP152#CQ###KR
2200		12.0					VKP222#CQ###KR
2700		13.0					VKP272#CQ###KR
3300		15.0					VKP332#CQ###KR
3900		15.0					VKP392#CQ###KR
4700		17.0					VKP472#CQ###KR

Notes

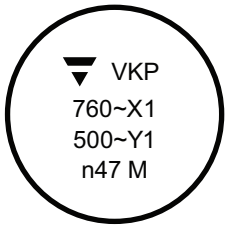
(1) Standard lead configuration, other lead spacing and diameter available on request

(2) When capacitance values less than 470 pF are required, the usage of WKP series is recommended

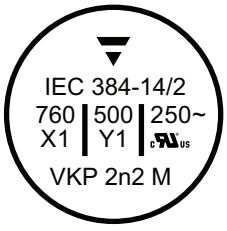
ORDERING CODE

#	7th digit	Capacitance tolerance	± 10 % = K, ± 20 % = M				
###	10th to 12th digit	Lead configuration	see “General Information”				
Example	**VKP**	**222**	**M**	**CQ**	**ED0**	**K**	**R**
	Series	Capacitance value	Tolerance code	Voltage code	Lead configuration	Internal code	RoHS compliant

MARKING



VKP 470 pF to 1.5 nF



VKP 2.2 nF to 4.7 nF



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APPROVALS

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

CB Test Certificate

Y1 Capacitor: CB-test certificate:	US-26551-UL	470 pF to 4.7 nF	500 V_{AC}
X1 Capacitor: CB-test certificate:	US-26551-UL	470 pF to 4.7 nF	760 V_{AC}

Minimum thickness of insulation: 0.4 mm

VDE

Y1 Capacitor: VDE marks approval:	136494	470 pF to 4.7 nF	500 V_{AC}
X1 Capacitor: VDE marks approval:	136494	470 pF to 4.7 nF	760 V_{AC}

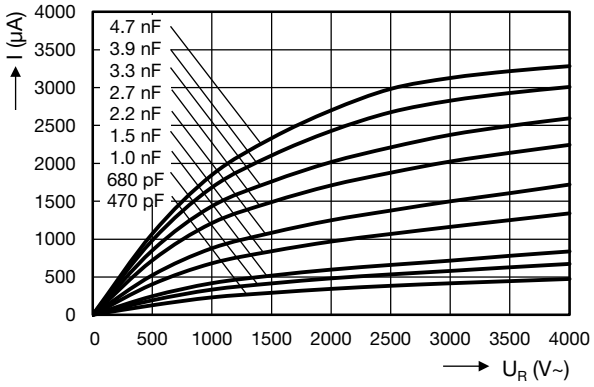
DIN EN 60384-14 VDE 0565-1-1:2006-04 - Safety tests
Minimum thickness of insulation: 0.4 mm

Underwriters Laboratories Inc. / Canadian Standards Association

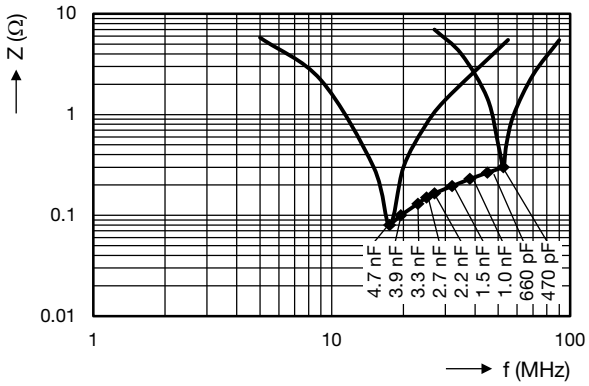
Y1 Capacitor: UL-test certificate:	E183844	470 pF to 4.7 nF	500 V_{AC}
X1 Capacitor: UL-test certificate:	E183844	470 pF to 4.7 nF	760 V_{AC}

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?22211
VDE Marks Approval	www.vishay.com/doc?22212
UL-Test Certificate	www.vishay.com/doc?22213

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