

**Suppression Capacitors**  
**Class X1 AC 440 V**  
**Class Y2 AC 250 V**

**Design:**

Disc capacitor with epoxy coating

**Rated Voltage  $U_R$ :**

X1  $\Rightarrow$  AC 440 V; 50 Hz  
Y2  $\Rightarrow$  AC 250 V; 50/60 Hz

**Test Voltage  $U_T$ :**

Component test:  
AC 2500 V / 50 Hz, 2 s  
As repeated voltage test admissible only once at: AC 2250 V / 50 Hz, 2 s

**Random Sampling Test:**

AC 2500 V / 50 Hz, 60 s

**Voltage Proof of Coating:**

AC 2500 V / 50 Hz, 60 s

**Dissipation Factor  $\tan\delta$ :**

$\leq 25 \times 10^{-3}$

**Insulation Resistance  $R_i$ :**

for  $C \leq 0,33 \mu\text{F}$   
 $\leq 6 \times 10^9 \Omega$

**Temperature Characteristic acc. to EN 130 700:**

2 E 3

**Category Temperature Range  $\delta_u$ :**

(-40 ... + 85) °C acc. to IEC 384-14/1  
(-40 ... + 125) °C acc. to IEC 384-14/2

**Climatic Testing Class acc. to EN 60068-1:**

40/085/21 acc. to IEC 384-14/1  
40/125/21 acc. to IEC 384-14/2

**Coating:**

Epoxy, dipped, insulating, flame retarding (UL 94V0)

Important:

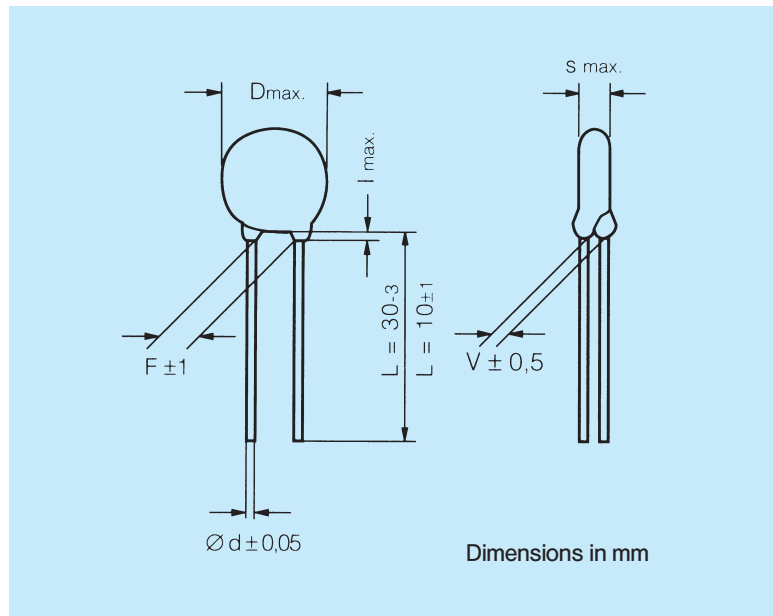
Minimum thickness of 0,4 mm for the epoxy coating is now confirmed by the VDE-approval board in Germany

**Taping:**

on request

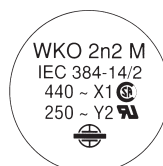
**Special Lead Configurations:**

on request



**Marking:**

**D  $\geq 10$  mm**



additional on the label:  
all approval marks

**Marking:**

**D  $\leq 9$  mm**



additional on the label:  
all approval marks

**Soldering Recommendations:**

When soldering this component to a PC board, the solder heat resistance specification of the capacitor must not be exceeded.

Subjecting this component to excessive heating could melt the internal solder junction and may cause thermal stress that can crack the ceramic element.

In order to keep a sufficient distance between solder wave and the capacitor element we recommend to use capacitor styles with crimped leads.

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Rated Voltage: AC 440 V (X1); AC 250 V (Y2)							
Capacitance pF	D x s (max.) in mm	F * ± 1 (mm)	d ± 0,05 (mm)	V ± 0,5 (mm)	Ordering Code **	Dielectric	
33	7,0 x 4,5	7,5	0,6	1,6	WKO330 * CPC * 0K	N 750	
47	7,0 x 4,5				WKO470 * CPC * 0K		
68	7,0 x 4,5			1,9	WKO680 * CPC * 0K	K 2000	
100	7,0 x 4,5				WKO101 * CPC * 0K		
150	7,0 x 4,5				WKO511 * CPC * 0K		
220	7,0 x 4,5				WKO221 * CPC * 0K		
330	7,0 x 4,5				WKO331 * CPC * 0K		
470	7,0 x 4,5				2,0		WKO471 * CPC * 0K
680	7,0 x 4,5			WKO681 * CPC * 0K			
1000	9,0 x 4,5			0,8	2,1	WKO102 * CPC * 0K	
1500	10,0 x 4,5					WKO152 * CPC * 0K	
2200	12,0 x 4,5					WKO222 * CPC * 0K	
3300	13,0 x 4,5					WKO332 * CPC * 0K	
3900	14,5 x 4,5					WKO392 * CPC * 0K	
4700	14,5 x 4,5	WKO722 * CPC * 0K					




C-Tolerance: ± 10 % / ± 20 %

\* Note: lead spacing F = 10 ± 1 mm on request

**\*\* Ordering Code:**

7. Digit: Tolerance: ± 10 % = "K"  
 ± 20 % = "M"  
 11. Digit: Lead length: L = 10 ± 1 mm = "D"  
 L = 30-3 mm = "F"

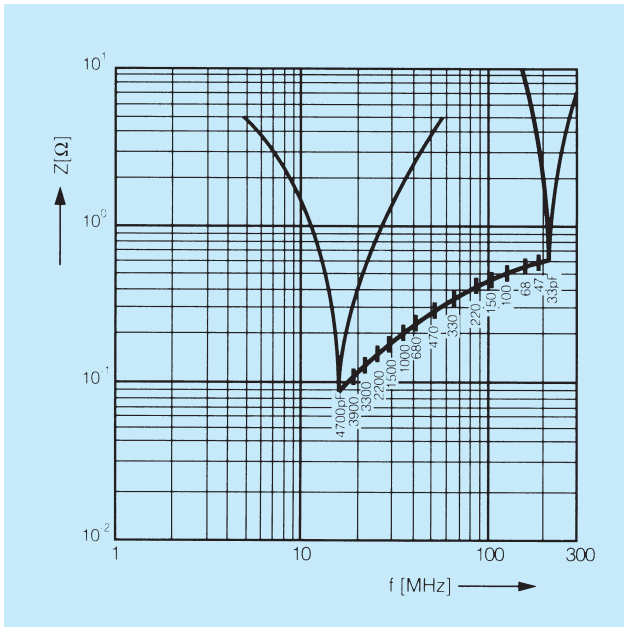
**Approvals:**

Country	Specification	Approval Reference	Approval Mark
Finland	EN 132 400 (1994) [safety tests] IEC 384-14.2 (1993) incl. Am. 1 (1995) [safety tests]	(X1) FI 435 A1 CB-Test Certificate (X2) FI 338 A2 CB-Test Certificate	
Finland	EN 132 400 (1994) [safety tests] IEC 384-14.2 (1993) incl. Am. 1 (1995) [safety tests]	(X1) 181452-01; 182654-01 182657-01, 182658-01 (Y2) 744-182812-01	
USA	UL 1414 (250Vz)	E 183844	
Canada	CSA C22.2 Nr. 1-M8 1 (250Vz) (33pF...1500pF: across the line, line to ground, antenna isolation capacitor) (2200pF...4700pF: antenna and line isolation capacitor)	064546x0000	

This approval mark together with the CB-Certificate replace all national approval marks of the following countries (they have already signed the CB-Agreement):

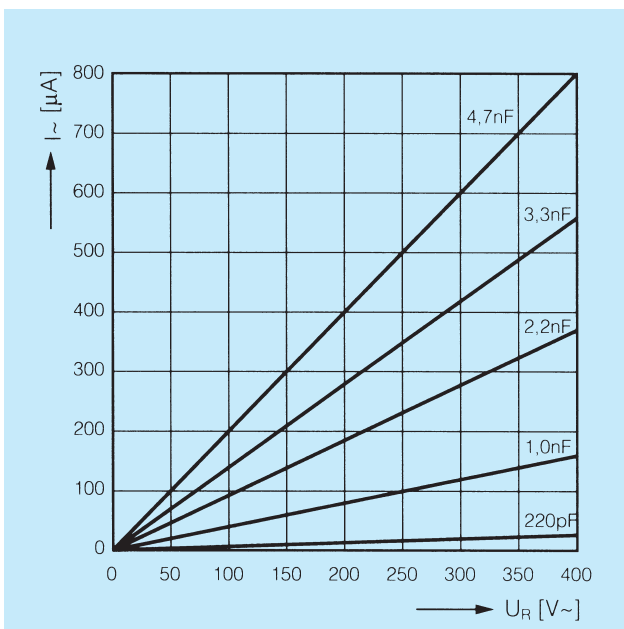
Austria	Belgium	Denmark	Finland	Sweden
France	Germany	Ireland	Italy	Switzerland
Netherlands	Israel	Portugal	Spain	Great Britain
Japan	Norway	China	Poland	Czech. Republic
Singapore	Rep. of Korea	Hungary	Iceland	Slovenian

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Impedance ( $Z$ ) as a function of frequency ( $f$ )  
at  $T_a = 20^\circ\text{C}$  (Average)

Measurement with lead length 6 mm



$I = f(U_R)$  (typ.)

**Ordering Example:**

WKO	102	"M"	CQ	C" F"0	K
Series	C-Value	Tolerance	Rated Voltage	Design	Internal code