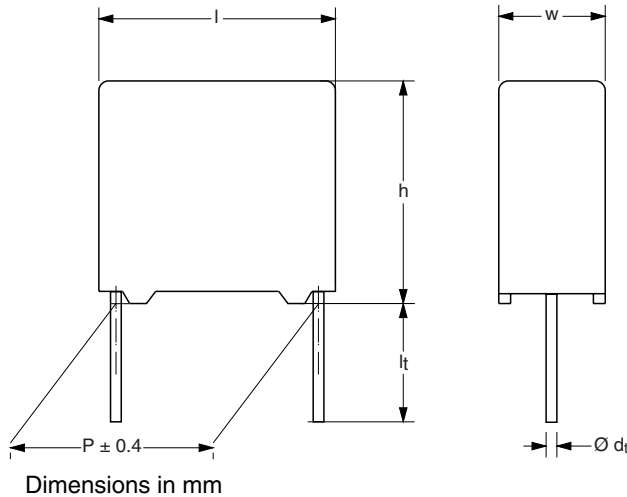


## Interference Suppression Film Capacitors MKP Radial Potted Type



**NO FOCUS PRODUCT: USE MKP 339 X2**

### APPLICATIONS

X2 class

For X2 electromagnetic interference suppression in across the line applications (50/60 Hz) with a maximum mains voltage of 275 V (AC).

For application limitations please refer to section "Application Notes"

### REFERENCE STANDARDS

"IEC 60384-14 2nd edition and EN 132400"

"IEC 60065, pass. flamm. class B"

250 V: CSA-C22.2 No 1; UL1414

275 V: CSA-C22.2 No 8; ENEC; CQC

305 V: UL1283

### MARKING

C-value; tolerance; rated voltage; sub-class; manufacturer's type designation; code for dielectric material, only for pitch  $\geq 15$  mm; manufacturer location; year and week

### DIELECTRIC

Polypropylene film

### ELECTRODES

Metallized film

### FEATURES

10 to 27.5 mm lead pitch. Supplied loose in box, taped on reel

Lead (Pb)-free product

RoHS-compliant product

### CONSTRUCTION

Mono construction

### RATED VOLTAGE

AC 275 V; 50 to 60 Hz

### PERMISSIBLE DC VOLTAGE

DC 630 V

### ENCAPSULATION

Plastic case, epoxy resin sealed, flame retardant UL-class 94 V-0

### CLIMATIC TESTING CLASS ACC. TO EN 60068-1

55/105/56/B

### CAPACITANCE RANGE (E12 SERIES)

E12 series 0.001 to 2.2  $\mu$ F

Preferred values acc. to E6

### CAPACITANCE TOLERANCE

$\pm 20\%$ ;  $\pm 10\%$ ;  $\pm 5\%$

### LEADS

Tinned wire

### RATED TEMPERATURE

105 °C

### MAXIMUM APPLICATION TEMPERATURE

105 °C

### DETAIL SPECIFICATION

For more detailed data and test requirements, contact: [rfi@vishay.com](mailto:rfi@vishay.com)



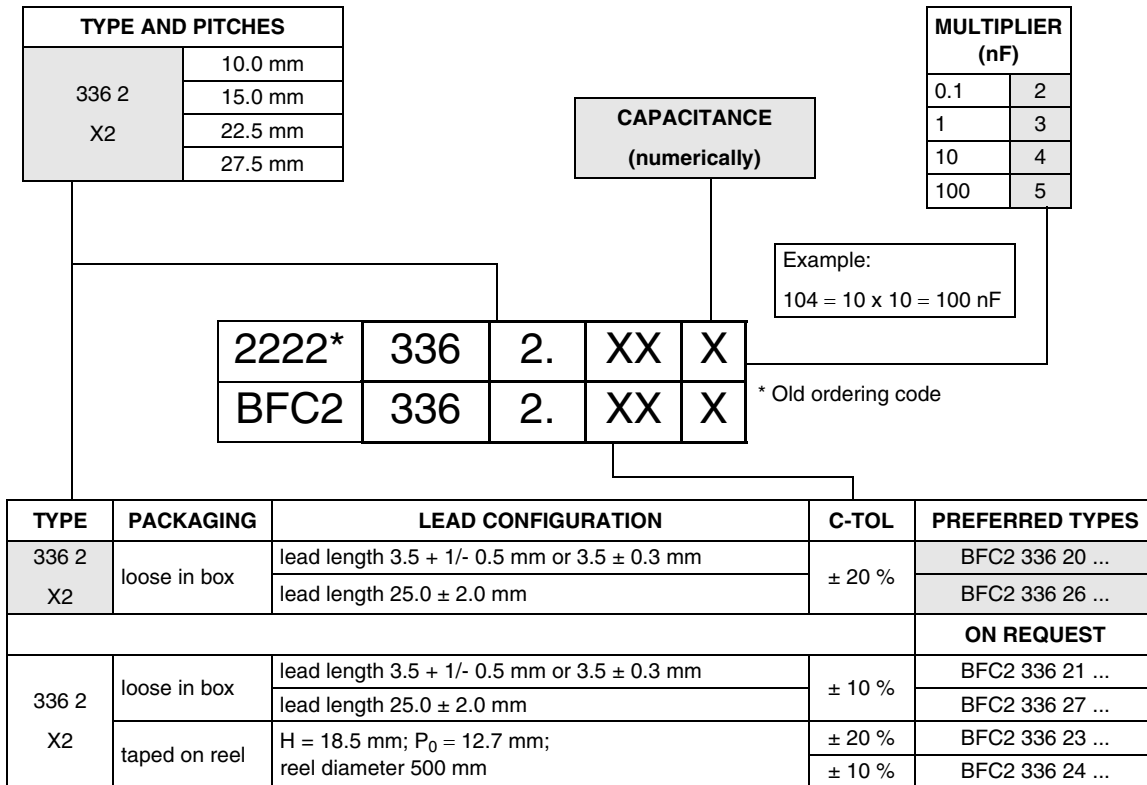
**RoHS**  
COMPLIANT

# MKP 336 2 X2

Vishay BCcomponents Interference Suppression Film Capacitors  
MKP Radial Potted Type



## COMPOSITION OF CATALOG NUMBER



## SPECIFIC REFERENCE DATA MKP 336 2 275 VAC

DESCRIPTION	VALUE	
	at 1 kHz	at 10 kHz
Tangent of loss angle:		
C < 470 nF	≤ 10 x 10 <sup>-4</sup>	≤ 20 x 10 <sup>-4</sup>
470 nF ≤ C ≤ 1 μF	≤ 20 x 10 <sup>-4</sup>	≤ 70 x 10 <sup>-4</sup>
C > 1 μF	≤ 30 x 10 <sup>-4</sup>	-
Rated voltage pulse slope (dU/dt) <sub>R</sub> at 385 V (DC)	100 V/μs	
R between leads, for C ≤ 0.33 μF at 100 V; 1 min	> 15 000 MΩ	
RC between leads, for C > 0.33 μF at 100 V; 1 min	> 5000 s	
R between leads and case; 100 V; 1 min	> 30 000 MΩ	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s:		
C ≤ 1 μF	2200 V; 1 min	
C > 1 μF	1800 V; 1 min	
Withstanding (AC) voltage between leads and case	2050 V; 1 min	



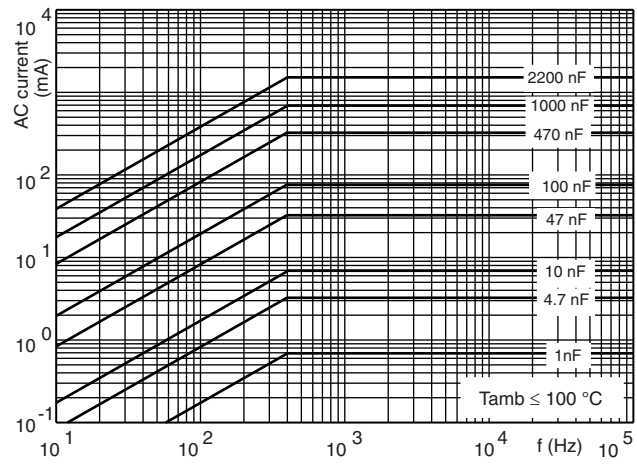
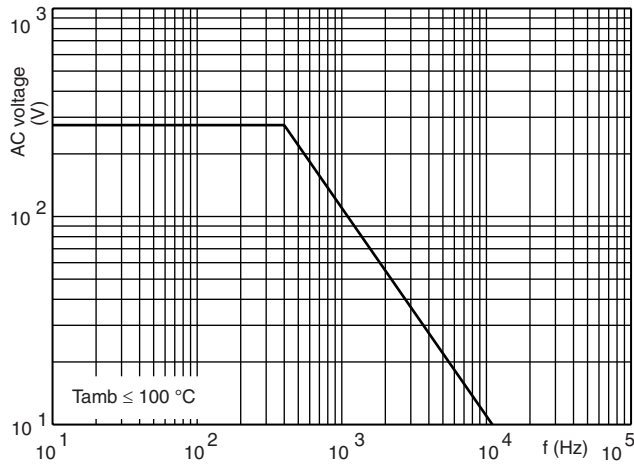
$U_{Rac} = 275\text{ V}$ ;  $C\text{-tol} = \pm 20\%$

C ( $\mu\text{F}$ )	DIMENSIONS <sup>(1)</sup> w × H × L (mm)	MASS (g) <sup>(3)</sup>	CATALOG NUMBER BFC2 336 2..... AND PACKAGING					
			LOOSE IN BOX				REEL	
			$l_t = 3.5 + 1/- 0.5\text{ mm}^{(2)}$		$l_t = 25.0 \pm 2.0\text{ mm}$		H = 18.5 mm; P <sub>0</sub> = 12.7 mm	
			LAST 5 DIGITS OF CATALOG NUMBER	SPQ	LAST 5 DIGITS OF CATALOG NUMBER	SPQ	LAST 5 DIGITS OF CATALOG NUMBER	SPQ
<b>Pitch = 10.0 ± 0.4 mm; d<sub>t</sub> = 0.60 ± 0.06 mm</b>								
0.001	4.0 × 10.0 × 12.5	0.6	20102	1000	26102	1250	23102	1400
0.0015			20152		26152		23152	
0.0022			20222		26222		23222	
0.0033			20332	1000	26332	1000	23332	1100
0.0047			20472		26472		23472	
0.0068			20682		26682		23682	
0.01			20103		26103		23103	
0.015			20153		26153		23153	
0.022			20223		26223		23223	
0.033			20333	750	26333	750	23333	900
<b>Pitch = 15.0 ± 0.4 mm; d<sub>t</sub> = 0.60 ± 0.06 mm</b>								
0.01	5.0 × 11.0 × 17.5	0.98	29001	1000	29097	1000	29004	1100
0.015			29011		29071		29014	
0.022			29021		29076		29024	
0.033			29031		29082		29034	
0.047			20473		26473		23473	
0.068			20683		26683		23683	
0.1	20104	1000	26104	23104	900			
0.15	6.0 × 12.0 × 17.5	1.4	20154	1000	26154	500	23154	650
<b>Pitch = 15.0 ± 0.4 mm; d<sub>t</sub> = 0.80 ± 0.08 mm</b>								
0.22	7.0 × 13.5 × 17.5	1.8	20224	500	26224	500	23224	600
<b>Pitch = 22.5 ± 0.4 mm; d<sub>t</sub> = 0.80 ± 0.08 mm</b>								
0.15	6.0 × 15.5 × 26.0	2.4	29041	300	29087	500	29044	600
0.22			29051	300	29093	500	29053	550
0.33			20334	300	26334	500	23334	450
0.47	7.0 × 16.5 × 26.0	2.9	20474	200	26474	500	23474	400
<b>Pitch = 27.5 ± 0.4 mm; d<sub>t</sub> = 0.80 ± 0.08 mm</b>								
0.47	9.0 × 19.0 × 31.0	5.5	29055	100	29095	150		
0.68			20684	100	26684	125		
1	11.0 × 21.0 × 31.0	7.4	20105	100	26105	125		
1.5	13.0 × 23.0 × 31.0	9.2	20155	100	26155	125		
2.2	15.0 × 25.0 × 31.0	12.3	20225	100	26225	75		

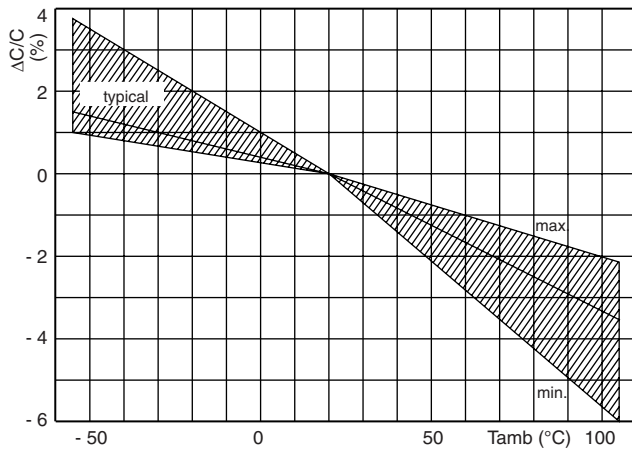
**Notes**

- Specified dimensions only valid for ± 20 % tolerance values.
- $l_t = 3.5 \pm 0.3\text{ mm}$  for pitch = 15 mm; 22.5 mm and 27.5 mm.
- Weight for short lead products only

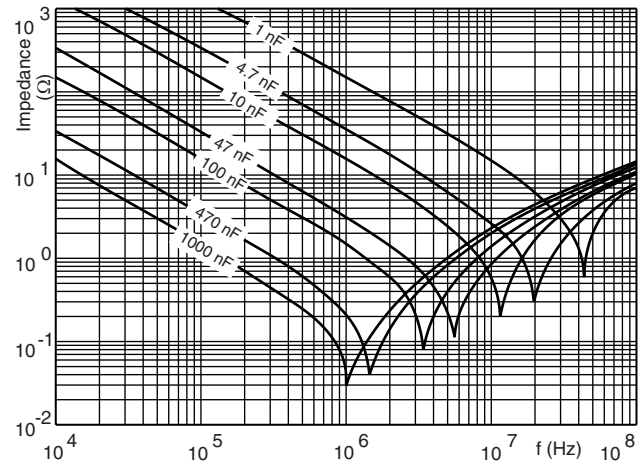
## MAXIMUM RMS VOLTAGE AND AC CURRENT (SENAVE) AS A FUNCTION OF FREQUENCY



## CAPACITANCE



## IMPEDANCE



## APPROVALS

COUNTRY	SPECIFICATION	ELECTRICAL VALUES	FILE NUMBERS	APPROVAL MARK
U.S.A. and Canada (for AC 250 V)	UL1414 and CSA-C22.2 No.1	1 nF to 1 $\mu\text{F}$	E112471	
U.S.A. (for AC 305 V)	UL1283	1 nF to 2.2 $\mu\text{F}$	E109565	
Canada (for AC 275 V)	CSA-C22.2 No.8	1 nF to 2.2 $\mu\text{F}$	1438188	
China	CQC	1 nF to 2.2 $\mu\text{F}$	CQC04001009253 (Roeselare) CQC04001009254 (Shanghai) CQC04001009262 (Famalicao)	
CQC03001004372 (Roeselare factory)		1 nF to 2.2 $\mu\text{F}$ : 55/105/56/B	BE-619	
Europe	EN132400 IEC 60384-14 2 <sup>nd</sup> edition	1 nF to 2.2 $\mu\text{F}$	14218	

**APPLICATION NOTES**

- For X2 electromagnetic interference suppression in **across the line applications** (50/60 Hz) with a maximum mains voltage of 275 V (AC).
- These capacitors are not intended for continuous pulse applications. For these situations, capacitors of the AC and pulse programs must be used.
- These capacitors are not intended for series impedance application. For these situations in case safety approvals are requested, please refer to our special capacitors of 1772 series with internal series connection.
- The maximum ambient temperature must not exceed 105 °C.
- Rated voltage pulse slope:  
If the pulse voltage is lower than the rated voltage, the values of the specific reference data can be multiplied by 385 V (DC) and divided by the applied voltage.



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