



## Interference Suppression Film Capacitors MKP Radial Potted Type

### APPLICATIONS

X1 class

### REFERENCE STANDARDS

"IEC 60384-14 2<sup>nd</sup> edition and EN 132400"

"IEC 60065, pass. flamm. class B"

250 V: UL1414

440 V: UL1283; ENEC

### MARKING

C-value; tolerance; rated voltage; sub-class; manufacturer's type designation; code for dielectric material; manufacturer location; manufacturer's emblem; year and week

### DIELECTRIC

Polypropylene film

### ELECTRODES

Metallized film

### CONSTRUCTION

Mono construction

### RATED VOLTAGE

AC 440 V; 50 to 60 Hz

### PERMISSIBLE DC VOLTAGE

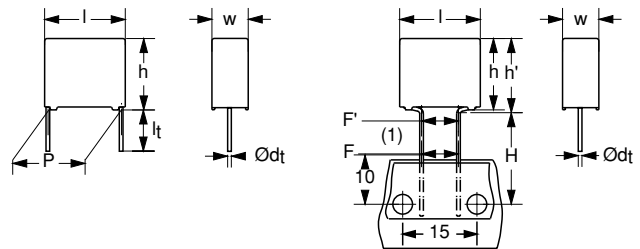
DC 1000 V

### 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



Dimensions in mm

(1)  $|F - F'| < 0.3$  mm  
 $F = 7.5 + 0.6/-0.1$  mm

### CAPACITANCE RANGE (E12 SERIES)

E12 series 0.01 to 1  $\mu$ 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

### FEATURES

15 to 27.5 mm lead pitch and 15 mm bent back to 7.5 mm. Supplied loose in box, taped on ammopack or reel

### DETAIL SPECIFICATION

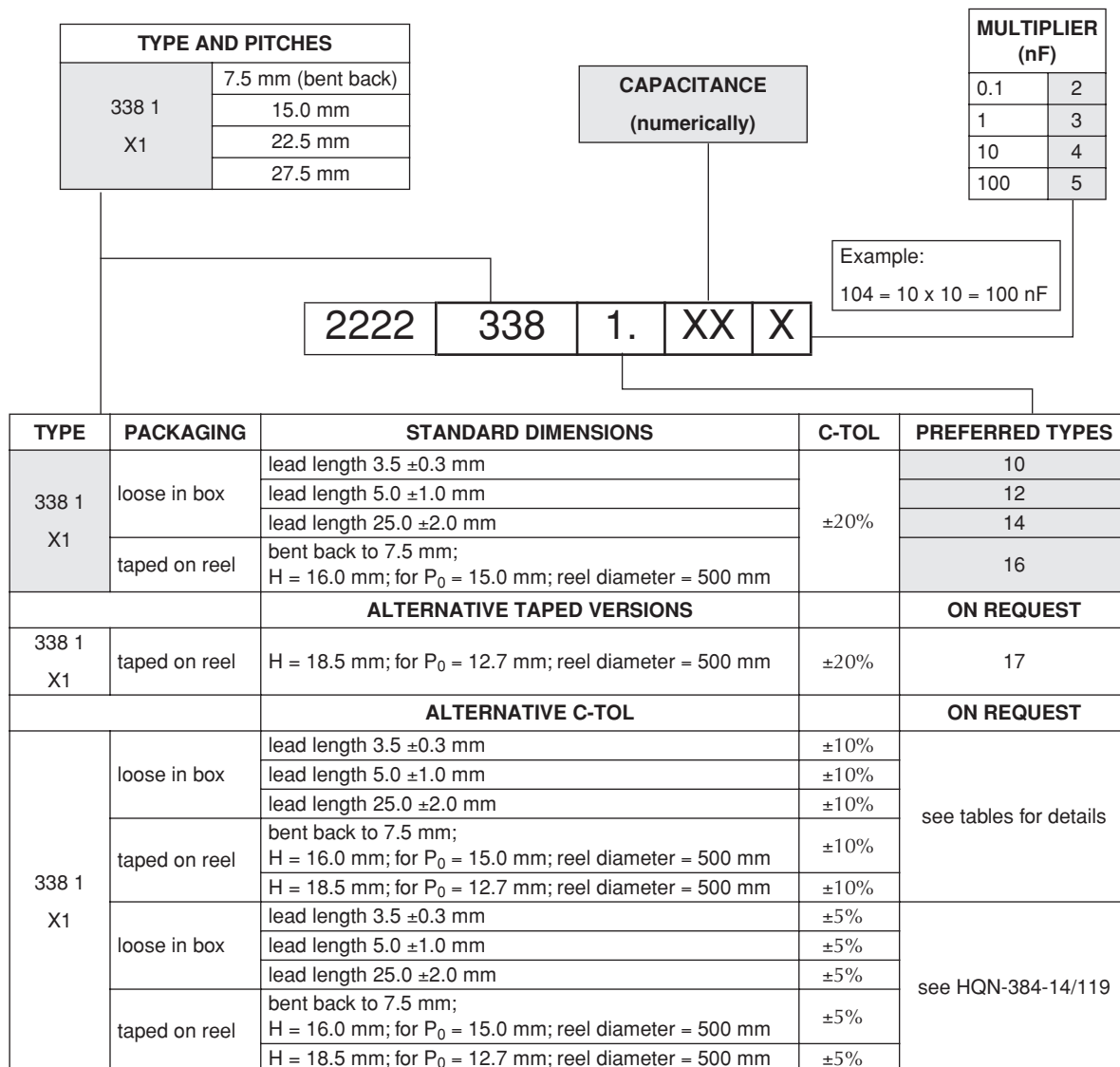
For more detailed data and test requirements see "Type detail specification HQN-384-14/119"

# MKP 338 1 X1

Vishay BCcomponents Interference Suppression Film Capacitors  
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## COMPOSITION OF CATALOGUE NUMBER



## SPECIFIC REFERENCE DATA

DESCRIPTION	VALUE		
	at 1 kHz	at 10 kHz	at 100 kHz
Tangent of loss angle:			
C ≤ 470 nF	≤10 × 10 <sup>-4</sup>	≤20 × 10 <sup>-4</sup>	≤100 × 10 <sup>-4</sup>
C > 470 nF	≤20 × 10 <sup>-4</sup>	≤70 × 10 <sup>-4</sup>	-
Rated voltage pulse slope (dU/dt) <sub>R</sub> at 615 V:			
Pitch = 15 mm and 7.5 mm (bent back)		250 V/μs	
Pitch = 22.5 mm		150 V/μs	
Pitch = 27.5 mm		100 V/μs	
R between leads, for C ≤ 0.33 μF at 100 V; 1 minute		>15000 MΩ	
RC between leads, for C > 0.33 μF at 100 V; 1 minute		>5000 s	
R between leads and case; 100 V; 1 minute		>30000 MΩ	
Withstanding (DC) voltage (cut off current 10 mA); rise time 100 V/s		3400 V; 1 minute	
Withstanding (AC) voltage between leads and case		2380 V; 1 minute	



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

C ( $\mu\text{F}$ )	DIMENSIONS $w \times h \times l$ (mm)	MASS (g)	CATALOGUE NUMBER 2222 338 ..... AND PACKAGING						
			LOOSE IN BOX					TAPED	
			short leads			long leads			SPQ
			$l_t = 3.5 \pm 0.3\text{ mm}$	$l_t = 5.0 \pm 1.0\text{ mm}$	SPQ	$l_t = 25.0 \pm 2.0\text{ mm}$	SPQ		SPQ
<b>Pitch = <math>15.0 \pm 0.4\text{ mm}</math>; <math>d_t = 0.60 \pm 0.06\text{ mm}</math></b>							<b>reel: diameter = 500 mm H = 18.5 mm; <math>P_0 = 12.7\text{ mm}</math></b>		
0.01	5.0 × 11.0 × 17.5	1.2	10103	12103	1000	14103	1000	17103	1100
0.015			10153	12153		14153		17153	
0.022			10223	12223		14223		17223	
0.033	6.0 × 12.0 × 17.5	1.4	10333	12333	1000	14333	1000	17333	900
<b>Original pitch = 15.0 mm; bent back pitch = <math>7.5 \pm 0.4\text{ mm}</math>; <math>d_t = 0.60 \pm 0.06\text{ mm}</math></b>							<b>reel: diameter = 500 mm<sup>(1)</sup> H = 16.0; <math>P_0 = 15.0\text{ mm}</math></b>		
0.01	5.0 × 13.0 × 17.5	1.2						16103	950
0.015								16153	
0.022								16223	
0.033	6.0 × 14.0 × 17.5	1.4						16333	800
<b>Pitch = <math>15.0 \pm 0.4\text{ mm}</math>; <math>d_t = 0.80 \pm 0.08\text{ mm}</math></b>							<b>reel: diameter = 500 mm H = 18.5 mm; <math>P_0 = 12.7\text{ mm}</math></b>		
0.047	7.0 × 13.5 × 17.5	1.9	10473	12473	750	14473	500	17473	800
0.068	8.5 × 15.0 × 17.5	2.6	10683	12683	750	14683	500	17683	650
0.1	10.0 × 16.5 × 17.5	3.1	10104	12104	500	14104	450	17104	600
<b>Original pitch = 15.0 mm; bent back pitch = <math>7.5 \pm 0.4\text{ mm}</math>; <math>d_t = 0.80 \pm 0.08\text{ mm}</math></b>							<b>reel: diameter = 500 mm<sup>(1)</sup> H = 16.0; <math>P_0 = 15.0\text{ mm}</math></b>		
0.047	7.0 × 15.5 × 17.5	1.9						16473	700
0.068	8.5 × 17.0 × 17.5	2.6						16683	550
0.1	10.0 × 18.5 × 17.5	3.1						16104	500
<b>Pitch = <math>22.5 \pm 0.4\text{ mm}</math>; <math>d_t = 0.80 \pm 0.08\text{ mm}</math></b>							<b>reel: diameter = 500 mm H = 18.5 mm; <math>P_0 = 12.7\text{ mm}</math></b>		
0.15	8.5 × 18.0 × 26.0	4.4	10154	12154	200	14154	250	14154	450
0.22	10.0 × 19.5 × 26.0	5.5	10224	12224	200	14224	200	14224	350
<b>Pitch = <math>27.5 \pm 0.4\text{ mm}</math>; <math>d_t = 0.80 \pm 0.08\text{ mm}</math></b>							<b>reel: diameter = 500 mm H = 18.5 mm; <math>P_0 = 12.7\text{ mm}</math></b>		
0.33	13.0 × 23.0 × 31.0	10.4	10334	12334	100	14334	125		
0.47	15.0 × 25.0 × 31.0	12.8	10474	12474	100	14474	125		
0.68	18.0 × 28.0 × 31.0	17.2	10684	12684	100	14684	100		
1	21.0 × 31.0 × 31.0	20.4	10105	12105	50	14105	75		

### Note

1. Reel diameter = 356 mm is available on request.

# MKP 338 1 X1

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$U_{Rac} = 275\text{ V}$ ;  $C\text{-tol} = \pm 10\%$

C ( $\mu\text{F}$ )	DIMENSIONS w × h × l (mm)	MASS (g)	CATALOGUE NUMBER 2222 338 ..... AND PACKAGING							
			LOOSE IN BOX					TAPED		
			short leads			long leads				
			$l_t =$ 3.5 ±0.3 mm	$l_t =$ 5.0 ±1.0 mm	SPQ	$l_t =$ 25.0 ±2.0 mm	SPQ		SPQ	
<b>Pitch = 15.0 ±0.4 mm; <math>d_t = 0.60 \pm 0.06</math> mm</b>								reel: diameter = 500 mm H = 18.5 mm; $P_0 = 12.7$ mm		
0.01 0.015	5.0 × 11.0 × 17.5	1.2	18114 18116	18314 18316	1000	18514 18516	1000	18914 18916	1100	
0.022	6.0 × 12.0 × 17.5	1.4	18118	18318	1000	18518	1000	18918	900	
<b>Original pitch = 15.0 mm; bent back pitch = 7.5 ±0.4 mm; <math>d_t = 0.60 \pm 0.06</math> mm</b>								reel: diameter = 500 mm H = 16.0; $P_0 = 15.0$ mm <sup>(1)</sup>		
0.01 0.015	5.0 × 13.0 × 17.5	1.2						18714 18716	950	
0.022	6.0 × 14.0 × 17.5	1.4						18718	800	
<b>Pitch = 15.0 ±0.4 mm; <math>d_t = 0.80 \pm 0.08</math> mm</b>								reel: diameter = 500 mm H = 18.5 mm; $P_0 = 12.7$ mm		
0.033	7.0 × 13.5 × 17.5	1.9	18121	18321	750	18521	500	18921	800	
0.047	8.5 × 15.0 × 17.5	2.6	18123	18323	750	18523	500	18923	650	
0.068	10.0 × 16.5 × 17.5	3.1	18125	18325	500	18525	450	18925	600	
<b>Original pitch = 15.0 mm; bent back pitch = 7.5 ±0.4 mm; <math>d_t = 0.80 \pm 0.08</math> mm</b>								reel: diameter = 500 mm H = 16.0; $P_0 = 15.0$ mm <sup>(1)</sup>		
0.033	7.0 × 15.5 × 17.5	1.9						18721	700	
0.047	8.5 × 17.0 × 17.5	2.6						18723	550	
0.068	10.0 × 18.5 × 17.5	3.1						18725	500	
<b>Pitch = 22.5 ±0.4 mm; <math>d_t = 0.80 \pm 0.08</math> mm</b>								reel: diameter = 500 mm H = 18.5 mm; $P_0 = 12.7$ mm		
0.1	7.0 × 16.5 × 26.0	3.2	18127	18327	200	18527	250	18927	550	
0.15	8.5 × 18.0 × 26.0	4.4	18129	18329	200	18529	250	18929	450	
<b>Pitch = 27.5 ±0.4 mm; <math>d_t = 0.80 \pm 0.08</math> mm</b>								reel: diameter = 500 mm H = 18.5 mm; $P_0 = 12.7$ mm		
0.22	11.0 × 21.0 × 31.0	7.8	18132	18332	100	18532	125			
0.33	13.0 × 23.0 × 31.0	12.8	18134	18334	100	18534	125			
0.47	15.0 × 25.0 × 31.0	12.8	18136	18336	100	18536	125			
0.68	18.0 × 28.0 × 31.0	17.2	18138	18338	100	18538	100			

## Note

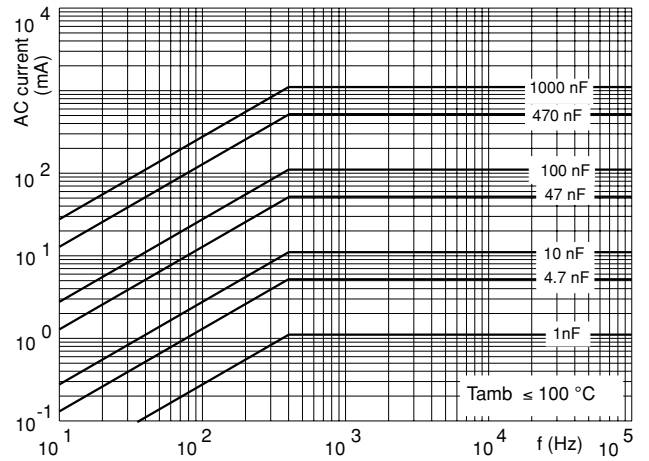
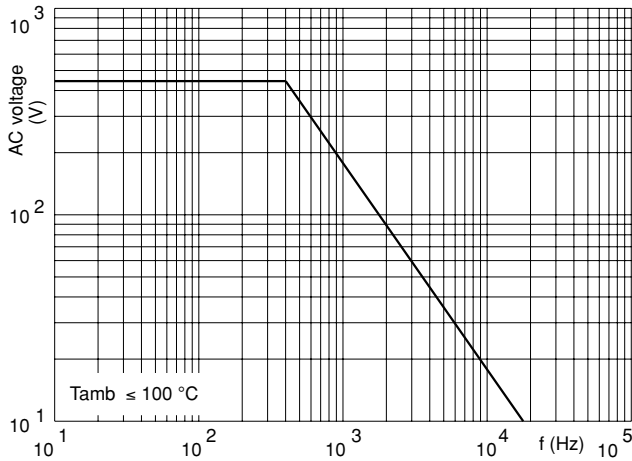
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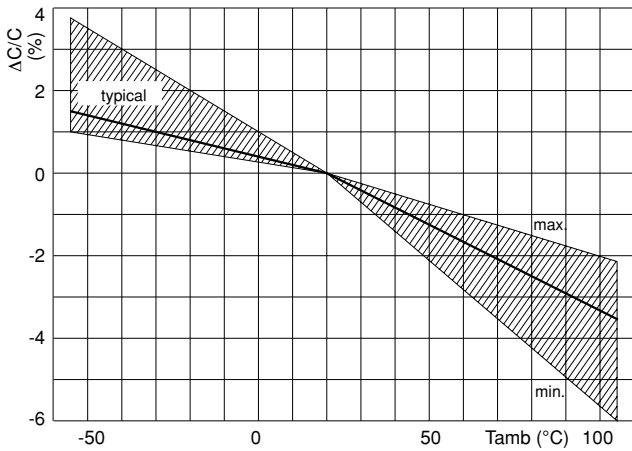
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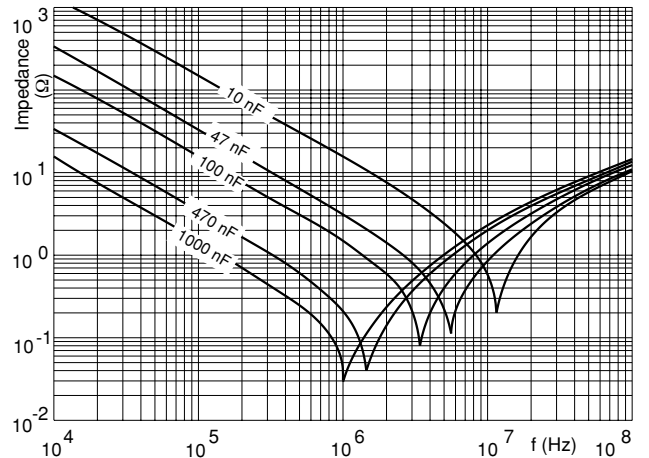
## MAXIMUM RMS VOLTAGE AND AC CURRENT (SINEWAVE) AS A FUNCTION OF FREQUENCY



## CAPACITANCE



## IMPEDANCE



## APPROVALS

COUNTRY	SPECIFICATION	ELECTRICAL VALUES	FILE NUMBERS	APPROVAL MARK
U.S.A. and Canada (for AC 440 V)	UL1283 and CSA-C22.8	100 nF to 1 $\mu\text{F}$	E109565	
U.S.A. (for AC 250 V)	UL1414	10 nF to 1 $\mu\text{F}$	E112471	
CB TEST CERTIFICATE (for AC 440 V)		10 nF to 1 $\mu\text{F}$ : 55/105/56/B	FI 1653	
Europe (for AC 440 V)	EN132400 IEC 60384-14 2 <sup>nd</sup> edition	10 nF to 1 $\mu\text{F}$	ENEC/B04/2001	