

# WIMA MP 3-X2

**Metallized Paper (MP)  
RFI-Capacitors Class X2  
PCM 10 mm to 27.5 mm**

勝特力材料 886-3-5753170  
勝特力电子(上海) 86-21-54151736  
勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)



## Special Features

- Particularly high reliability against active and passive flammability
- Excellent self-healing as well as high voltage strength
- High degree of interference suppression due to good attenuation and low ESR
- For temperatures up to +110° C
- According to RoHS 2002/95/EC

## Typical Applications

**Class X2 RFI applications to meet EMC regulations**

- Capacitors connected to the mains between phase and neutral or phase and phase conductors
- Installation category II in accordance with IEC 60664, pulse peak voltage  $\leq 2.5$  kV

## Construction

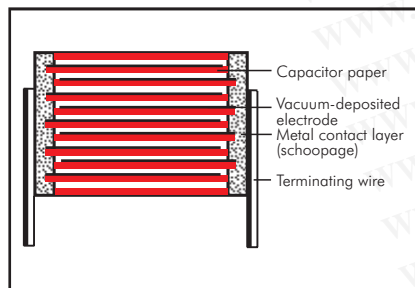
### Dielectric:

Paper, epoxy resin impregnated

### Capacitor electrodes:

Vacuum-deposited

### Internal construction:



### Encapsulation:

Self-extinguishing epoxy resin, UL 94 V-0, metal foil

### Terminations:

Tinned wire.

### Marking:

Marking: Black on Silver.

## Electrical Data

### Capacitance range:

1000 pF to 1.0  $\mu$ F (E12-values on request)

### Rated voltages:

250 VAC, 275 VAC

### Capacitance tolerances:

$\pm 20\%$

### Operating temperature range:

-40° C to +110° C

### Climatic test category:

40/110/56/C in accordance with IEC

### Insulation resistance at +20° C:

$C \leq 0.33 \mu\text{F}$ :  $\geq 12 \times 10^3 \text{ M}\Omega$

$C > 0.33 \mu\text{F}$ :  $\geq 4000 \text{ sec (M}\Omega \times \mu\text{F)}$

Measuring voltage: 100 V/1 min.

### Dissipation factors:

$\tan \delta \leq 13 \times 10^{-3}$  at 1 kHz and +20° C

### Test specifications:

In accordance with DIN EN 132400

### Approvals:

Country	Authority	Specification	Symbol	Approval-No. 250 VAC	Approval-No. 275 VAC
Germany	VDE	DIN EN 132400 IEC 60384-14/2		89749	89749
USA	UL	UL 1283		E 100438	E 100438
Canada	CSA	C 22.2 No. 8		LR 93312-1	LR 93312-1

### Maximum pulse rise time:

Capacitance pF/ $\mu$ F	Pulse rise time V/ $\mu$ sec max. operation
1000	1000
1500	600
2200 ... 4700	450
6800 ... 0.022	300
0.033 ... 0.047	200
0.068 ... 1.0	100

for pulses equal to the rated voltage,

$U_{pp} = 390 \text{ V}$

**Test voltage:** 2700 VDC, 2 sec.

### Reliability:

Operating life > 300 000 hours

Failure rate < 1 fit ( $0.5 \times U_r$  and 40° C)

## Mounting Recommendation

To minimize or avoid shock and/or vibration stresses to terminating wires and solder connections we recommend to fix voluminous resin-potted MP capacitors as from e.g. PCM 22.5 mm in an appropriate way since for constructional reasons they do not sit tight on the board.

## Packing

Available taped and reeled up to and including PCM 22.5 mm.

Detailed taping information and graphs at the end of the catalogue.

For further details and graphs please refer to Technical Information.

## Continuation

### General Data

Capacitance	250 VAC*				275 VAC*			
	W	H	L	PCM**	W	H	L	PCM**
1000 pF	4	8.5	13.5	10	4	8.5	13.5	10
1500 "	4	8.5	13.5	10	4	8.5	13.5	10
2200 "	4	8.5	13.5	10	4	8.5	13.5	10
3300 "	4	8.5	13.5	10	4	8.5	13.5	10
4700 "	5	10	13.5	10	5	10	13.5	10
6800 "	5	13	19	15	5	13	19	15
0.01 $\mu$ F	5	13	19	15	5	13	19	15
0.015 "	5	13	19	15	5	13	19	15
0.022 "	5	13	19	15	5	13	19	15
0.033 "	6	14	19	15	6	14	19	15
0.047 "	7	15	19	15	7	15	19	15
0.068 "	8	17	19	15	8	17	19	15
0.1 $\mu$ F	10	18	19	15*	10	18	19	15*
	8	20	28	22.5*	8	20	28	22.5*
0.15 "	8	20	28	22.5	8	20	28	22.5
0.22 "	10	22	28	22.5	10	22	28	22.5
0.33 "	12	24	28	22.5	12	24	28	22.5
0.47 "	13	25	33	27.5	13	25	33	27.5
0.68 "	15	26	33	27.5	15	26	33	27.5
1.0 $\mu$ F	20	32	33	27.5	20	32	33	27.5

\* f = 50/60 Hz

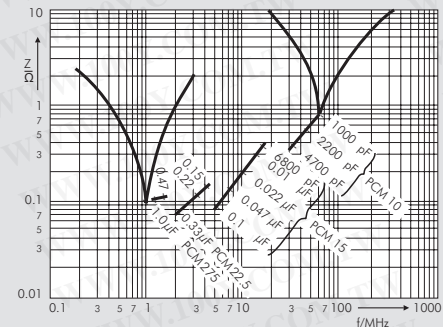
\*\* PCM = Printed circuit module = lead spacing

Upon request with long leads 35-2 mm max.

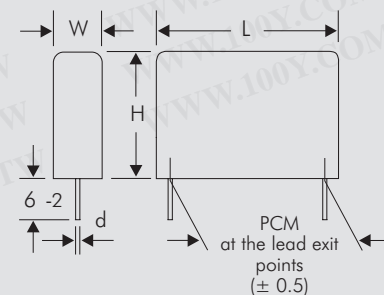
\* On ordering please state the required PCM (lead spacing).  
 If not specified, smaller PCM will be booked.

Dims. in mm.

Taped version see page 100.



Impedance change with frequency  
 (general guide)



d = 0.7  $\phi$  if PCM 10  
 d = 0.8  $\phi$  if PCM  $\geq$  15

Rights reserved to amend design data without prior notification.

## Typical Graphs of Metallized Paper RFI Capacitors

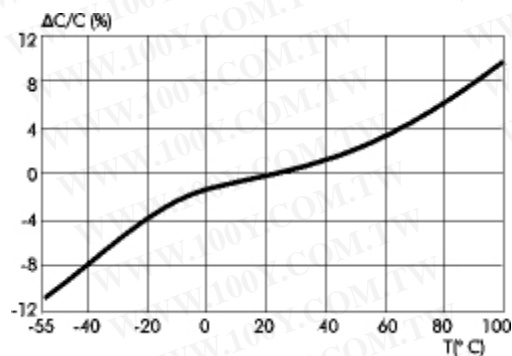
valid for:

**MP 3-X2**

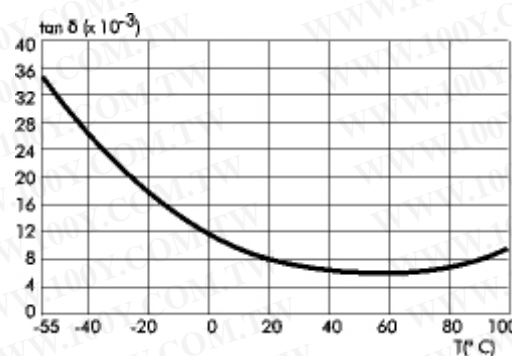
**MP 3-X1**

**MP 3-Y2**

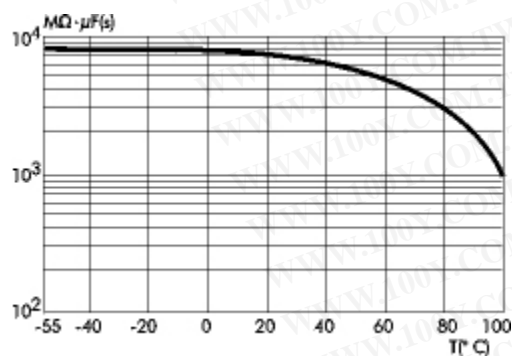
**MP 3R-Y2**



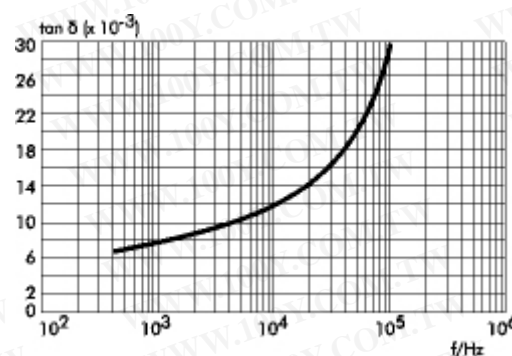
Capacitance change with temperature  
(f=1 kHz) (general guide)



Dissipation factor change with temperature  
(f=1 kHz) (general guide)



Insulation resistance change with temperature  
(general guide)



Dissipation factor change with frequency  
(general guide)

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## Recommendation for Processing and Application of Through-Hole Capacitors

### Soldering Process

A preheating of through-hole WIMA capacitors is allowed for temperatures  $T_{\max.} < 100^{\circ}\text{C}$ .

In practice a preheating duration of  $t < 5 \text{ min.}$  has been proven to be best.

#### Single wave soldering:

Soldering bath temperature:  $T < 260^{\circ}\text{C}$

Immersion time:  $t < 5 \text{ sec}$

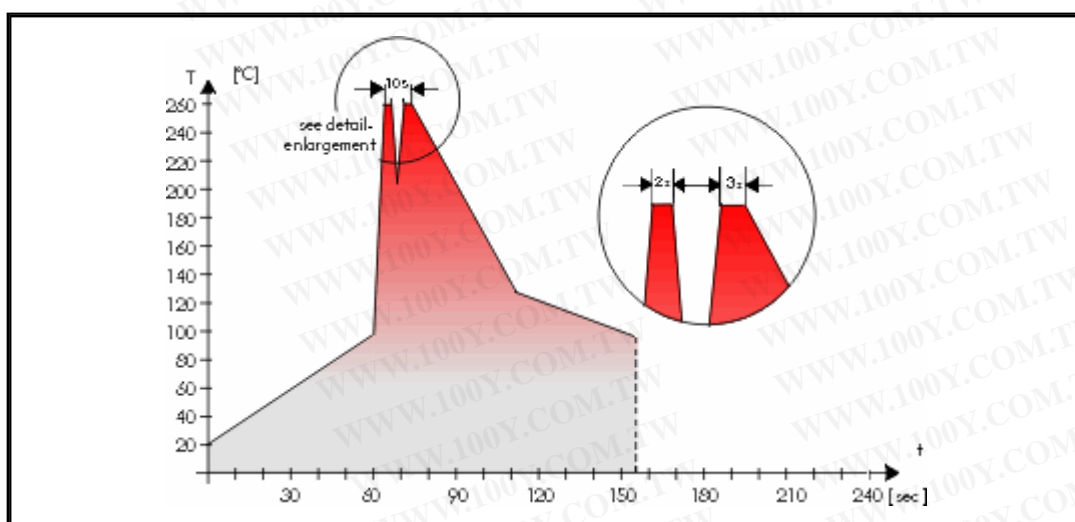
#### Double wave soldering:

Soldering bath temperature  $T < 260^{\circ}\text{C}$

Immersion time:  $2 \times t < 3 \text{ sec}$

### Wave Soldering

Temperature/time graph for the maximum permissible solder bath temperature for the wave soldering of through-hole WIMA capacitors.



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