



# **DAIN ELECTRONICS CO., LTD.**

**Matellized Polypropylene Film**

**Interference Suppression Capacitors  
(Class-X2)**

**MPX Type**



# Metallized Polypropylene Film Capacitor

Product Code: **MPX**

Class X2 capacitor, molded box construction suppression capacitor, radial lead

## Typical application

Fixed capacitors for use in electronics equipment-component

Across-the-line

Antenna-coupling

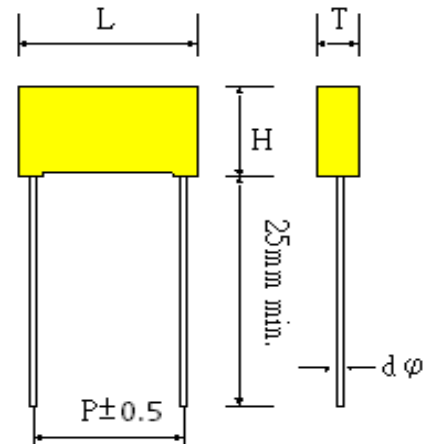
Line-by-pass

Interference suppression

Connection to the supply mains

## Features

- UL, VDE, cUL, CSA, ENEC, CQC, CE APPROVALS.
- NON-INDUCTIVE & SELF-HEALING CONSTRUCTION
- RoHS COMPLIANT & Pb-FREE FINISH
- MOLDED PLASTIC CASE & EPOXY RESIN MEETS UL-94-0 FLAMMABILITY TEST

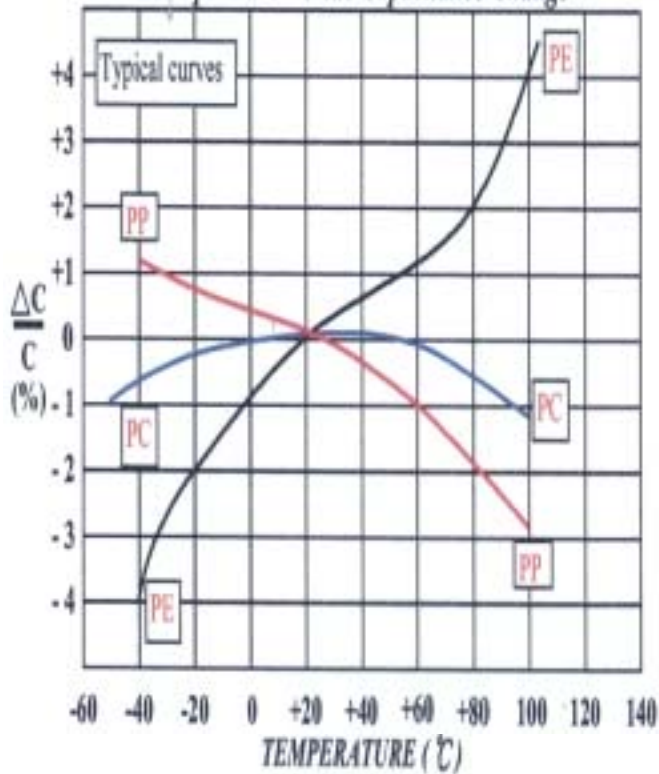


## Electrical Characteristics

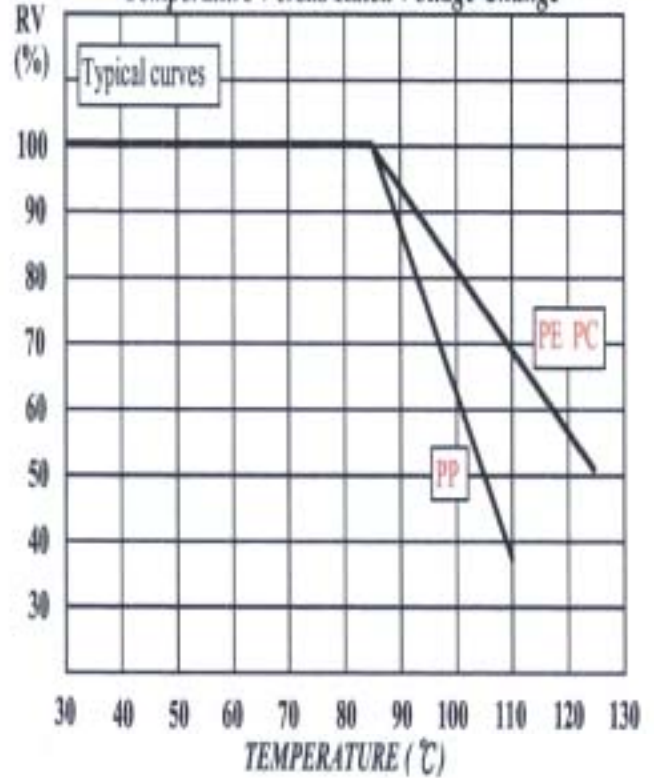
Dielectric	Polypropylene film
Electrodes	Metallized film
Capacitance Tolerance	J (±5%), K (±10%), M (±20%)
Range Capacitance	0.001uF ~ 1.0uF
Dissipation Factor	0.1% Max. at 1 KHz and 25
Insulation Resistance	15000MΩ (Min.) for C = 0.33uF > 5000MΩ for C > 0.33uF
Dielectric Strength	2000 VDC for 1 sec
Rated Voltage	250 VAC for UL, cUL, CSA 275 VAC for UL, cUL, VDE, CQC, CE, ENEC 310VAC for UL, cUL
Operating Temperature	IEC60384-14 DIN EN60384-14 & CAN/CSA-E60384-14:09 GMF/C. (C: passive flammability category C) & UL60384-14(Passive flammability category B) Minimum Limit Temperature: G = -40 Maximum Limit Temperature: M = +100

# Plastic Film Capacitors Characteristics

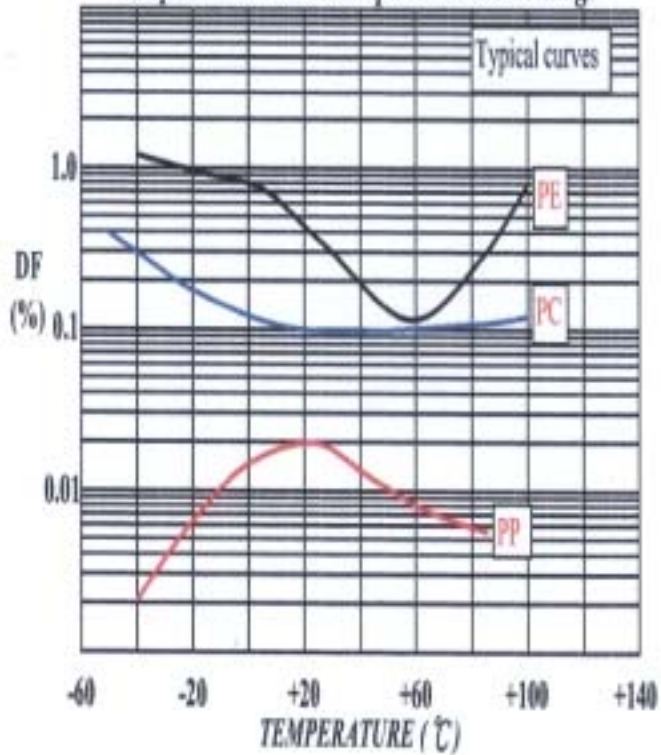
Temperature Versus Capacitance Change



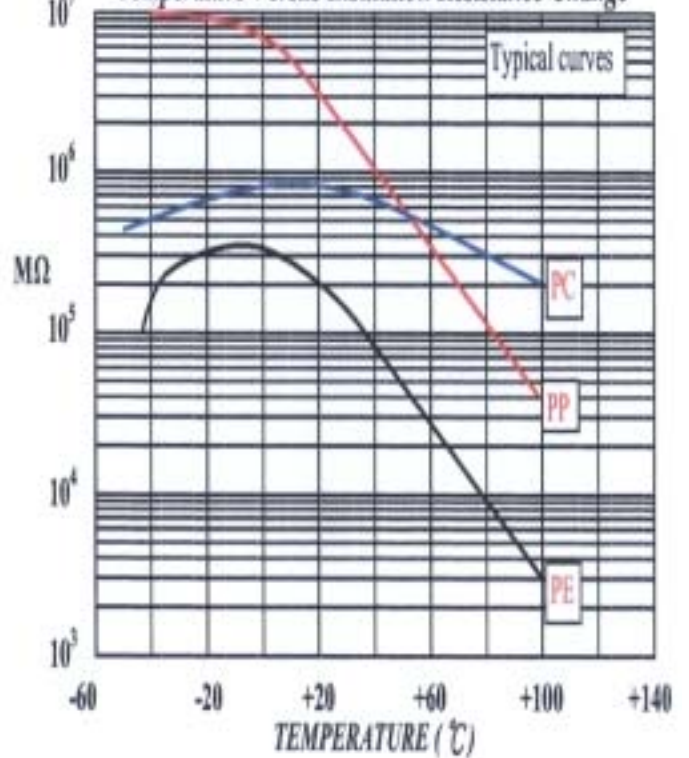
Temperature Versus Rated Voltage Change



Temperature Versus Dissipation Factor Change



Temperature Versus Insulation Resistance Change



## Code System

The part number, comprising 16 digits, is formed as follows:

<b>M</b>	<b>P</b>	<b>X</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>K</b>	<b>2</b>	<b>7</b>	<b>5</b>	<b>A</b>	<b>C</b>	<b>P</b>	<b>4</b>	<b>C</b>	<b>1</b>
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

### Digit 1 to 3 : Type

### Digit 4 to 6 : Rated Capacitance

Nominal capacitance in uF(MFD), such as 0.1

CODE	CAPACITANCE (uF / MFD)	CODE	CAPACITANCE (uF / MFD)
102	0.001	472	0.0047
103	0.01	473	0.047
104	0.1	474	0.47
105	1	475	4.7
106	10		

1F=1000mF 1mF=1000uF 1uF=1000nF 1nF=1000pF

1F=10<sup>-6</sup>uF 1F=10<sup>-9</sup>nF 1F=10<sup>-12</sup>pF

(F=Farad m=Milli u or MF=Micro Farad n=Nano p=Pico)

### Digit 7 : Capacitance Tolerance

J (±10%), K (±10%), M (±20%)

### Digit 8 to 12 : Rated Voltage

250AC=250VAC

275AC = 275VAC

310AC=310VAC

### Digit 13 to 16 :Special Conditions , shows the pitch and the length

P: pitch F:clubfoot C:cutfoot L:lengh

CODE	1	2	3	4	5	6	7	8	9
mm	5	7.5	10	15	20	22.5	27.5	32	35

CODE	S	T	U	V	W	X	Z	R	A	-
mm	4	6	8	19	22	30	Blue	Copper	Tapping	Customer request

**Exception: 13-14 box code**

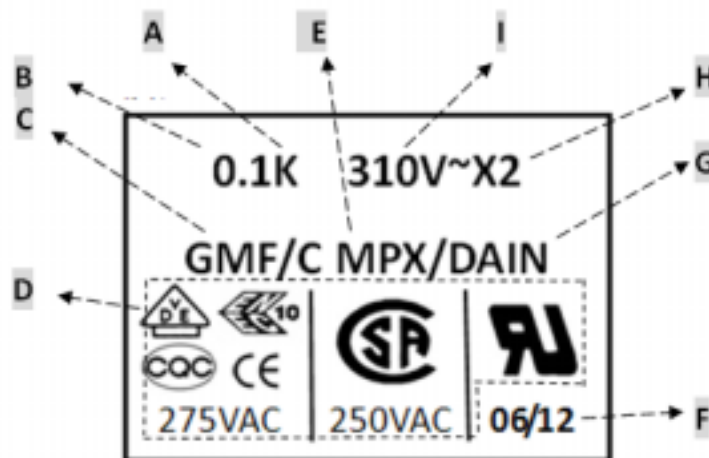
**Dimension: (mm)**

CODE	MDF	310VAC				
		L+-1.0	H+-1.0	T+-1.0	P+-0.5	d+-0.08
102	0.001	13	11	5	10	0.6
222	0.0022	13	11	5	10	0.6
332	0.0033	13	11	5	10	0.6
472	0.0047	13	11	5	10	0.6
562	0.0056	13	11	5	10	0.6
682	0.0068	13	11	5	10	0.6
822	0.0082	13	11	5	10	0.6
103	0.01	13	11	5	10	0.6
103	0.01	18	11	5	15	0.8
123	0.012	18	11	5	15	0.8
153	0.015	18	11	5	15	0.8
183	0.018	18	11	5	15	0.8
223	0.022	13	11	5	10	0.6
223	0.022	18	11	5	15	0.8
273	0.027	13	11	5	10	0.6
273	0.027	18	11	5	15	0.8
333	0.033	13	11	5	10	0.6
333	0.033	18	11	5	15	0.8
393	0.039	18	11	5	15	0.8
473	0.047	13	11	5	10	0.6
473	0.047	18	11	5	15	0.8
563	0.056	13	11	5	10	0.6
563	0.056	18	11	5	15	0.8
683	0.068	13	11	5	10	0.6
683	0.068	18	11	5	15	0.8
823	0.082	13	12	6	10	0.6
823	0.082	18	12	6	15	0.8
104	0.1	18	11	5	15	0.8
104	0.1	13	12	6	10	0.6
104	0.1	18	12	6	15	0.8
124	0.12	18	12	6	15	0.8
154	0.15	13	13	7	10	0.6
154	0.15	18	13	6.2	15	0.8
154	0.15	18	14.5	8.5	15	0.8
184	0.18	18	14.5	8.5	15	0.8

**Dimension: (mm)**

CODE	MDF	310VAC				
		L+-1.0	H+-1.0	T+-1.0	P+-0.5	d+-0.08
224	0.22	18	13	6.2	15	0.8
224	0.22	18	14.5	8.5	15	0.8
224	0.22	18	16	10	15	0.8
224	0.22	26.5	16.5	7	22.5	0.8
274	0.27	26.5	17	8.5	22.5	0.8
334	0.33	18	16	10	15	0.8
334	0.33	26.5	17	8.5	22.5	0.8
394	0.39	26.5	19	10	22.5	0.8
474	0.47	18	16	10	15	0.8
474	0.47	26.5	17	8.5	22.5	0.8
474	0.47	26.5	19	10	22.5	0.8
474	0.47	32	20	11	27.5	0.8
564	0.56	18	18.5	11	15	0.8
564	0.56	26.5	19	10	22.5	0.8
564	0.56	32	20	11	27.5	0.8
684	0.68	26.5	19	10	22.5	0.8
684	0.68	32	20	11	27.5	0.8
824	0.82	18	18.5	11	15	0.8
824	0.82	26.5	21.5	12	22.5	0.8
824	0.82	32	22	13	27.5	0.8
105	1	26.5	21.5	12	22.5	0.8
105	1	32	20	11	27.5	0.8
105	1	32	22	13	27.5	0.8

## Marking Reference



**A** Symbol of capacitance tolerance, such as J, K, M

**B** Nominal capacitance in uF(MFD)  
 1F=1000mF    1mF=1000uF  
 1uF=1000nF    1nF=1000pF  
 1F=10 - 6uF    1F=10 - 9nF    1F=10 - 12pF  
 (F=Farad    m=Milli u or  
 MF=Micro Farad    n=Nano    p=Pico)

CODE	CAPACITANCE (uf / MFD)	CODE	CAPACITANCE (uf / MFD)
102	0.001	472	0.0047
103	0.01	473	0.047
104	0.1	474	0.47
105	1	475	4.7
106	10		

**C** Climatic category, such as GMF/C  
 (GPF = -40/85/21, GMF = -40/100/21, GLF = -40/110/21  
 C: passive flammability category C)

**D** Recognized approval mark

**E** Rated Voltage in AC  
 such as 250 VAC for UL, CSA  
 275 VAC for VDE, CQC, CE, ENEC  
 310VAC for UL

**F** Date code.  
 Described by four digits, 1st and 2nd digit is month, the 3rd and 4th digit is year.  
 Example: date code 06/12    Month – 06 , Year – 2012

**G** Trade mark of DAIN

**H** Type of the capacitors MPX

**I** Capacitors class, such as X2







## The latest Safety Regulation Approval

### INTERFERENCE SUPPRESSION CAPACITOR: MPX series

**Capacitance Rating:** 0.001uf ~ 1.0uF

**Tolerance:** J ( $\pm 5\%$ ), K ( $\pm 10\%$ ), M ( $\pm 20\%$ )

**Voltage Rating:** 250VAC / 275VAC /310VAC

Approve Date	Approve Monogram		Country	Related Standard
Dec. 01, 1996	CE		EUROPE	EN132400 : 1994 / IEC384-14 2nd 73/23/EEC / 93/68/EEC
Nov. 07, 1996	CSA		CANADA	CAN/CSA-C22.2 NO.1 & 2 NO.0-M91 & 1-M94 2010.1.1 for CAN/CSA-EN60384-14:09 - Fixed Capacitors for Use in Electronic Equipment##Part 14: Sectional
Sep. 06, 2006	ENEC		EUROPE	EN132400, DIN EN60384-14 (VDE 0565 Teil 1-1); 2006-04; DIN EN60384-14 (VDE 0565 Teil 1-1); 2008-04; EN 60384-14; 2005-08 IEC 60384-14(ed.3) Value assignment range E12 according to DIN IEC 60063:1985-12
Mar. 08, 2012	UL		U.S.A.	UL 60384-14 Standard Fixed Capacitors for Use in Electronic Equipment UL1414 Standard First passed UL certification on 1997
Sep. 06, 2006	VDE		GERMANY	DIN EN60384-14 (VDE 0565 Teil 1-1); 2006-04; DIN EN60384-14 (VDE 0565 Teil 1-1); 2008-04; EN 60384-14; 2005-08 IEC 60384-14(ed.3) Value assignment range E12 according to DIN IEC 60063:1985-12 First passed VDE certification on 1997
Feb. 03, 2005	CQC		CHINA	GB/T 14472-1998 First passed CQC certification on 2003