

# METALIZED POLYPROPYLENE FILM X1 CAPACITOR

## X1 Series

FOR INTERFERENCE SUPPRESSION AND ACROSS-THE-LINE, CLASS X1

### INTRODUCTION :

◆ **CTX X1 Series** are non-inductively wound with a metallized polypropylene film dielectric/electrode, encapsulated in flame retardant(UL94,V-0) plastic case and epoxy resin end seal.

#### CKX

- S Tinned copper clad steel wire radial leads.
- P UL 1015 or UL1017 AWG#20~22 solid PVC insulation wire radial leads.

### APPLICATIONS

- ◆ Ideal for use in line by pass, antenna coupling, across-the line and spark killer circuits.
- ◆ Available for EMI filter.
- ◆ Switching power supply application.
- ◆ Business machines appliances, such as: typewriters, adding machines, computer displays and monitors.
- ◆ Household appliances, such as: mixers, fans, coffee grinders audion and circuits.
- ◆ Thyristor and triac appliances, such as: dimmers:

### FEATURES

- ◆ Provides interference suppression, all safety approval
- ◆ Overvoltage stress withstanding
- ◆ Self-healing properties
- ◆ Active and passive flame retardent

### SPECIFICATIONS

#### 1. Climate Category:

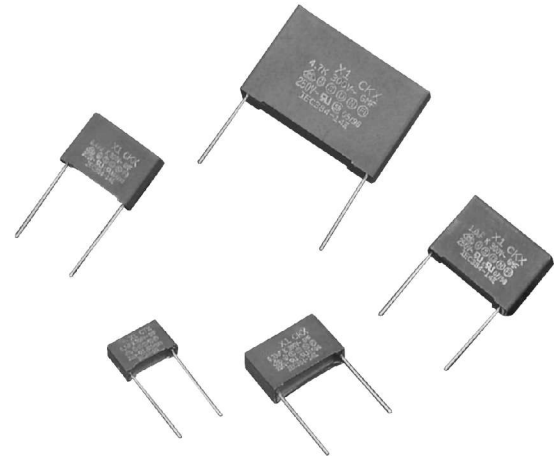
In accordance with DIN40040 GMF  
 a/G = Minimum Limit Temperature ... -40°C  
 b/M = Maximum Limit Temperature ... +100°C  
 c/F = Humidity Category ... Average relative humidity

≤ 75%,95% for 30 days per year, continuously  
 85% for the remaining days, occasionally.

2. **Rated Voltage:** 250 V /300 V.AC, 50~60Hz

3. **Capacitance Range:** 0.0047~4.7 μF

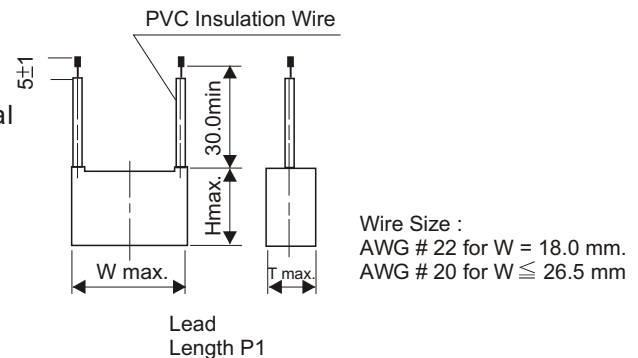
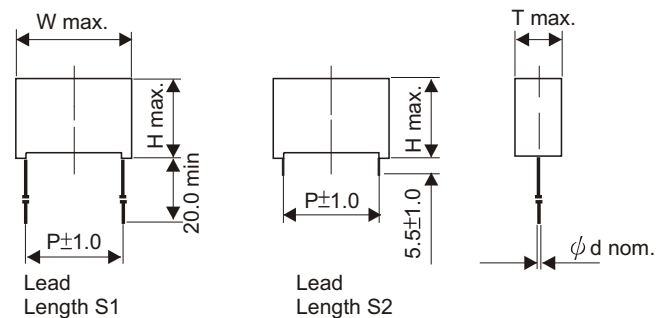
4. **Capacitance Tolerance:** J ( ± 5% ),  
 K ( ± 10% ), M ( ± 20% )



### DIAGRAM OF DIMENSIONS

Unit-mm

W	13.0	18.0	26.5	31.5	37.0	51.0
P	10.0	15.0	22.5	27.5	32.5	47.5
d	0.6	0.8	0.8	0.8	0.8	0.8



#### 5. Withstand Voltage:

Between terminals :  
 1200 V.AC, 60Hz or 2200 V.DC 1s.  
 Between terminal and case :  
 2200 V.AC, 60Hz 60s.

6. **Dissipation Factor:** ≤ 0.1% at 1 KHz and 20°C  
 ≤ 0.3% at 10 KHz and 20°C

#### 7. Insulation Resistance:

Between terminals ≥ 3 x 10<sup>4</sup> MΩ for c ≤ 0.33 μF  
 ≥ 1 x 10<sup>4</sup> MΩ / μF for C > 0.33 μF  
 Between Terminals and Case : ≥ 3 x 10<sup>4</sup> MΩ  
 Measured at 100 ± 15V.DC, 60s 20°C



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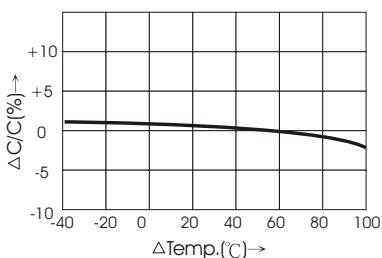
## X1 Series

Unit:mm

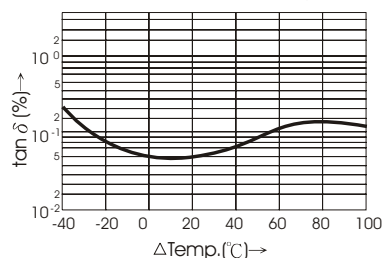
CAPACITANCE $\mu\text{F}$	Rated-voltage VAC	Dimensions				
		W	H	T	P	D
0.0047	300	13	11	5	10	0.6
0.0056	300	13	11	5	10	0.6
0.0068	300	13	11	5	10	0.6
0.0082	300	13	11	5	10	0.6
0.01	300	18	11	5	15	0.8
0.012	300	18	11	5	15	0.8
0.015	300	18	11	5	15	0.8
0.018	300	18	11	5	15	0.8
0.022	300	18	11	5	15	0.8
0.027	300	18	11	5	15	0.8
0.033	300	18	11	5	15	0.8
0.047	300	18	11	5	15	0.8
0.056	300	18	11	5	15	0.8
0.068	300	18	11	5	15	0.8
0.082	300	18	11	5	15	0.8
0.1	300	18	11	6.0	15	0.8
0.12	300	18	12	6.0	15	0.8
0.15	300	18	13.5	7.5	15	0.8
0.22	300	18	15.5	8.5	15	0.8
0.22	300	26.5	16.5	7.0	22.5	0.8
0.27	300	26.5	16.5	7.0	22.5	0.8
0.33	300	26.5	16.5	7.0	22.5	0.8
0.39	300	26.5	17.0	8.5	22.5	0.8
0.47	300	26.5	17.0	8.5	22.5	0.8
0.56	300	26.5	19.0	10.0	22.5	0.8
0.60	300	31.5 / 26.5	20.0 / 19.0	11.0	27.5 / 22.5	0.8
0.68	300	31.5 / 26.5	20.0 / 20.0	11.0	27.5 / 22.5	0.8
0.82	300	31.5 / 26.5	20.0 / 20.0	11.0	27.5 / 22.5	0.8
1.0	300	31.5 / 26.5	21.5 / 21.5	13.0	27.5 / 22.5	0.8
1.0	300	37.0	24.0	13.5	32.5	0.8
1.2	300	37.0 / 31.5	24.0 / 22.0	13.5	32.5 / 27.5	0.8
1.5	300	37.0 / 31.5	24.0 / 23.0	13.5	32.5 / 27.5	0.8
1.8	300	37.0	26.5	16.0	32.5	0.8
2.2	300	37.0	26.5	16.0	32.5	0.8
2.7	300	37.0	28.5	18.0	32.5	0.8
3.3	300	37.0	31.0	20.0	32.5	0.8
3.9	300	37.0	34.0	22.0	32.5	0.8
4.7	300	51.0	30.5	20.0	47.5	0.8
10	300	51.0	43.0	28.0	47.5	0.8

## Temperature and Frequency Characteristics

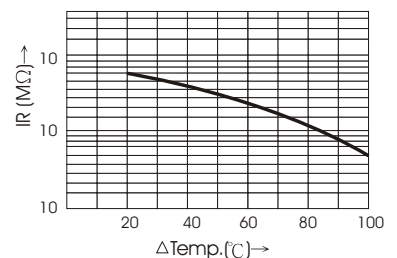
Capacitance Change vs. Temperature (Typical Values)



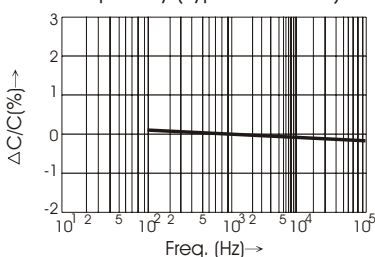
Dissipation Factor vs. Temperature at 10 KHz (Typical Values)



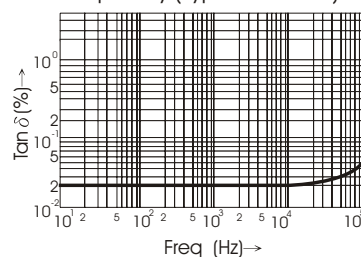
Insulation Resistance vs. Temperature (Typical Values)



Capacitance Change vs. Frequency (Typical Values)



Dissipation Factor vs. Frequency (Typical Values)



## Surge Voltage Test

According to VDE 0565-1 and IEC 384-14:

$U_p = 4\text{KV}$  for  $C \leq 1.0 \mu\text{F}$

$U_p = 4\text{KV}$  ( $e^{(1.0-C)}$ ) for  $C > 1.0 \mu\text{F}$

According to SEV 1055:

$U_p = 3\text{KV}$

