



## AC-Capacitors, Suppression Capacitors Class X2 AC 253V/275V/300V/305V/440V

### REFERENCE STANDARDS:

IEC 60384-14/2, 1995  
EN 132 400, 1999  
EN 60068-1  
UL 1283  
UL 1414  
CSA 22.2 No. 1-M 1990 (1994)  
CSA 22.2 No. 8-M 1986

### DIELECTRIC:

Polyester film (MKT): F1772-F1776  
Polypropylene film (MKP): F1778-F1779

### ELECTRODES:

Metal evaporated

### RATED VOLTAGE:

AC 253V, 50/60Hz  
AC 275V, 50/60Hz  
AC 300V, 50/60Hz  
AC 305V, 50/60Hz  
AC 440V, 50/60Hz

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

F1772, F1774: 40/100/56C  
F1773: C ≤ 1.0μF = 40/100/21C  
          C > 1.0μF = 40/085/21C  
F1776: 25/085/21C  
F1778, F1779: 40/100/56C  
F1772, F1778 with a case volume ≥ 1750mm<sup>3</sup>:  
40/100/56 B on request

### CAPACITANCE TOLERANCE:

Standard: ± 20% or ± 10%

### DISSIPATION FACTOR TANδ:

MKT: < 1% measured at 1kHz  
MKP: < 0.1% measured at 1kHz

### INSULATION RESISTANCE: FOR C ≤ 0.33μF:

30 GΩ average value  
15 GΩ minimum value

### TIME CONSTANT FOR C > 0.33μF:

10 000 sec. average value  
5 000 sec. minimum value

### TEST VOLTAGE:

Between terminations:

F1772-2000	ALL TYPES:
F1772-2200	
F1772-3000	
F1772-3200	
F1772-4000	
F1772-4200	
F1773-2000	
F1774-2000 / 2400	
F1774-2200 / 2240	
F1774-3000 / 3400	
F1774-3200 / 3240	DC 2150V/2 sec.
F1774-4000 / 4400	
F1774-4200 / 4240	
F1778- . . . .	
F1779- . . . .	

Between interconnected terminations and case (foil method):  
AC 2500V for 2 sec. at 25°C.

### LEAD (Pb) CONTENT:

**1772; 1773; 1776; 1778:**  
Lead (Pb) free scooping layers and terminals  
**1774; 1779:**  
Lead (Pb) free scooping layers  
Lead (Pb) free terminals not before 3rd quarter 2003

## AC-Capacitors, Suppression Capacitors Class X2 AC 275V (MKT)

LEAD LENGTH X (mm)	ORDERING CODE***
4 <sup>-1</sup>	F1772-... - 2004
6 <sup>-1</sup>	F1772-... - 2000
15 <sup>-1</sup>	F1772-... - 2015
30 <sup>+5</sup>	F1772-... - 2030

**REFERENCE STANDARDS:**

- EN 132 400, 1994
- EN 60068-1
- IEC 60384-14/2, 1993
- UL 1283
- UL 1414
- CSA 22.2 No. 8-M 86
- CSA 22.2 No. 1-M 90

**DIELECTRIC:**

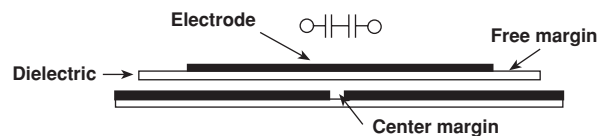
Polyester film

**ELECTRODES:**

Metal evaporated

**CONSTRUCTION:**

Metallized film capacitor  
Internal series connection



**MAXIMUM PULSE RISE TIME: ( $d_u/d_t$ ) in V/μs**

RATED VOLTAGE	PITCH (mm)			
	15.0	22.5	27.5	37.5
AC 275V	200	150	100	100

**RATED VOLTAGE:**

AC 275V, 50/60Hz

**PERMISSIBLE DC VOLTAGE:**

DC 630V

**TERMINALS:**

Radial tinned copper wire

**COATING:**

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

**CLIMATIC TESTING CLASS ACC. TO**

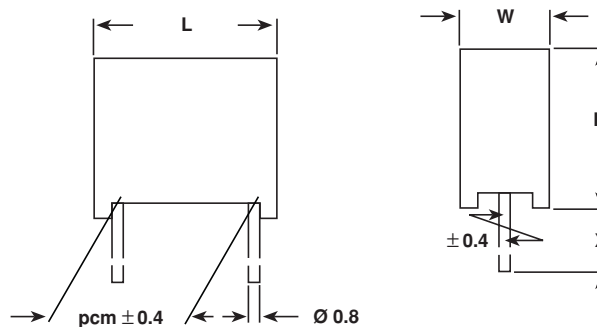
**EN 60068-1:**

40/100/56

**CAPACITANCE RANGE:**

E12 series 0.01μFX2 - 2.2μFX2  
preferred values acc. to E6

Dimensions in mm



**CAPACITANCE TOLERANCE:**

Standard: ± 10%

**DISSIPATION FACTOR TANδ:**

< 1% measured at 1kHz

**INSULATION RESISTANCE: FOR C ≤ 0.33μF:**

30 GΩ average value  
15 GΩ minimum value

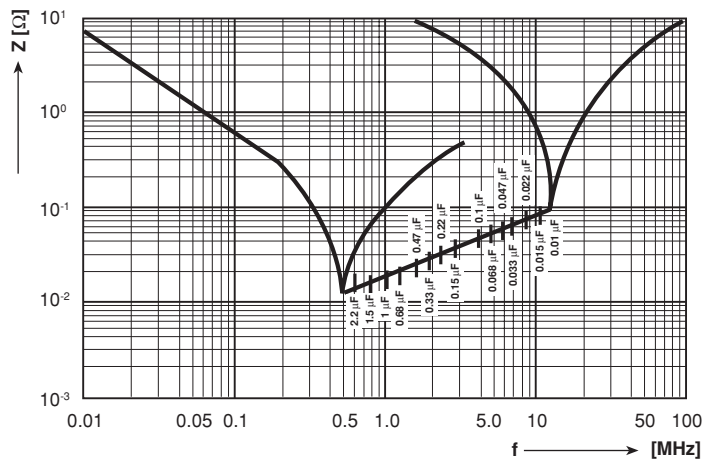
**TIME CONSTANT FOR C > 0.33μF:**

10 000 sec. average value  
5 000 sec. minimum value

**TEST VOLTAGE:**

(Electrode/electrode): DC 2150V/2 sec.

Between interconnected terminations and case (foil method):  
AC 2500V for 2 sec. at 25°C.



Impedance (Z) as a function of frequency (f)  
at T<sub>a</sub> = 20°C (average).  
Measurement with lead length 6mm.

**FURTHER TECHNICAL DATA:**

See page 21 (Document No 26504)



## APPROVALS

COUNTRY	SPECIFICATION	ELECTRICAL VALUES	APPROVAL REFERENCE	APPROVAL MARK
U.S.A. (for AC 250V)	UL 1283 UL 1414	0.01 - 2.2 $\mu$ FX 0.01 - 1.0 $\mu$ FX	E 76297 E 100682	
Canada (for AC 250V)	C 22.2 No. 8-M 1986 C 22.2 No. 1-M 1994	0.01 - 2.2 $\mu$ FX 0.01 - 0.82 $\mu$ FX	LR 64546 LR 64546-8	
<b>CB TEST-CERTIFICATE (for AC 275V)</b>		0.01 - 2.2 $\mu$ FX2	DE 1-8790	
Germany	EN 132 400, 1999-06 IEC 60384-14, 2nd edition; 1993-07, Table II + A1: 1995-06	0.01 - 2.2 $\mu$ FX2	83658	
This approval mark together with the CB-Certificate replace all national approval marks of the following countries (they have already signed the CB-Agreement):				
Austria	Belgium	Denmark	Finland	Sweden
France	Germany	Ireland	Italy	Switzerland
Netherlands	Israel	Portugal	Spain	Great Britain
Japan	Norway	China	Poland	Czech. Republic
Singapore	Rep. of Korea	Hungary	Iceland	Slovenia

CAPACITANCE	TOL. (%)	PITCH (mm)	BOX NO.	DIMENSIONS W x H x L (mm) (+ 0.2/- 0.4mm)	WEIGHT	QUANTITY	ORDERING CODE***
					LEAD LENGTH 6-1mm (g)	PACKAGE LEAD LENGTH < = 6-1mm (pcs)**	
<b>0.01</b> $\mu$ FX2	$\pm 10$	<b>15.0</b>	<b>05</b>	<b>5.3 x 10.3 x 17.8</b>	<b>1.4</b>	<b>750</b>	<b>F1772-310-20 ..</b>
0.012 $\mu$ FX2	$\pm 10$	15.0	05	5.3 x 10.3 x 17.8	1.4	750	F1772-312-20 ..
<b>0.015</b> $\mu$ FX2	$\pm 10$	<b>15.0</b>	<b>05</b>	<b>5.3 x 10.3 x 17.8</b>	<b>1.4</b>	<b>750</b>	<b>F1772-315-20 ..</b>
0.018 $\mu$ FX2	$\pm 10$	15.0	05	5.3 x 10.3 x 17.8	1.4	750	F1772-318-20 ..
<b>0.022</b> $\mu$ FX2	$\pm 10$	<b>15.0</b>	<b>05</b>	<b>5.3 x 10.3 x 17.8</b>	<b>1.4</b>	<b>750</b>	<b>F1772-322-20 ..</b>
0.027 $\mu$ FX2	$\pm 10$	15.0	05	5.3 x 10.3 x 17.8	1.4	750	F1772-327-20 ..
<b>0.033</b> $\mu$ FX2	$\pm 10$	<b>15.0</b>	<b>05</b>	<b>5.3 x 10.3 x 17.8</b>	<b>1.4</b>	<b>750</b>	<b>F1772-333-20 ..</b>
0.039 $\mu$ FX2	$\pm 10$	15.0	06	6.3 x 12.3 x 17.8	2.0	500	F1772-339-20 ..
<b>0.047</b> $\mu$ FX2	$\pm 10$	<b>15.0</b>	<b>06</b>	<b>6.3 x 12.3 x 17.8</b>	<b>2.0</b>	<b>500</b>	<b>F1772-347-20 ..</b>
0.056 $\mu$ FX2	$\pm 10$	15.0	06	6.3 x 12.3 x 17.8	2.0	500	F1772-356-20 ..
<b>0.068</b> $\mu$ FX2	$\pm 10$	<b>15.0</b>	<b>07</b>	<b>7.3 x 13.3 x 17.8</b>	<b>2.4</b>	<b>450</b>	<b>F1772-368-20 ..</b>
0.082 $\mu$ FX2	$\pm 10$	15.0	08	8.3 x 14.3 x 17.8	2.7	325	F1772-382-20 ..
<b>0.1</b> $\mu$ FX2	$\pm 10$	<b>15.0*</b>	<b>08</b>	<b>8.3 x 14.3 x 17.8</b>	<b>2.7</b>	<b>325</b>	<b>F1772-410-20 ..</b>
0.12 $\mu$ FX2	$\pm 10$	15.0*	08	8.3 x 14.3 x 17.8	2.7	325	F1772-412-20 ..
<b>0.15</b> $\mu$ FX2	$\pm 10$	<b>22.5*</b>	<b>11</b>	<b>7.3 x 15.3 x 26.3</b>	<b>4.1</b>	<b>235</b>	<b>F1772-415-20 ..</b>
0.18 $\mu$ FX2	$\pm 10$	22.5*	11	7.3 x 15.3 x 26.3	4.1	235	F1772-418-20 ..
<b>0.22</b> $\mu$ FX2	$\pm 10$	<b>22.5*</b>	<b>12</b>	<b>8.3 x 16.3 x 26.3</b>	<b>4.6</b>	<b>200</b>	<b>F1772-422-20 ..</b>
0.27 $\mu$ FX2	$\pm 10$	22.5*	13	10.3 x 18.3 x 26.3	6.7	170	F1772-427-20 ..
<b>0.33</b> $\mu$ FX2	$\pm 10$	<b>22.5*</b>	<b>13</b>	<b>10.3 x 18.3 x 26.3</b>	<b>6.7</b>	<b>170</b>	<b>F1772-433-20 ..</b>
0.39 $\mu$ FX2	$\pm 10$	27.5*	14	11.0 x 20.3 x 31.3	9.1	125	F1772-439-20 ..
<b>0.47</b> $\mu$ FX2	$\pm 10$	<b>27.5*</b>	<b>14</b>	<b>11.0 x 20.3 x 31.3</b>	<b>9.1</b>	<b>125</b>	<b>F1772-447-20 ..</b>
0.56 $\mu$ FX2	$\pm 10$	27.5*	14	11.0 x 20.3 x 31.3	9.1	125	F1772-456-20 ..
<b>0.68</b> $\mu$ FX2	$\pm 10$	<b>27.5*</b>	<b>15</b>	<b>13.0 x 23.3 x 31.3</b>	<b>12.9</b>	<b>110</b>	<b>F1772-468-20 ..</b>
0.82 $\mu$ FX2	$\pm 10$	27.5*	15	13.0 x 23.3 x 31.3	15.0	100	F1772-482-20 ..
<b>1.0</b> $\mu$ FX2	$\pm 10$	<b>27.5*</b>	<b>18</b>	<b>14.5 x 24.3 x 31.3</b>	<b>15.0</b>	<b>100</b>	<b>F1772-510-20 ..</b>
1.2 $\mu$ FX2	$\pm 10$	37.5*	16	14.0 x 24.3 x 41.3	18.9	80	F1772-512-20 ..
<b>1.5</b> $\mu$ FX2	$\pm 10$	<b>37.5*</b>	<b>19</b>	<b>15.5 x 28.3 x 41.3</b>	<b>18.9</b>	<b>80</b>	<b>F1772-515-20 ..</b>
1.8 $\mu$ FX2	$\pm 10$	37.5*	19	15.5 x 28.3 x 41.3	24.0	70	F1772-518-20 ..
<b>2.2</b> $\mu$ FX2	$\pm 10$	<b>37.5*</b>	<b>20</b>	<b>17.8 x 32.3 x 41.3</b>	<b>31.6</b>	<b>60</b>	<b>F1772-522-20 ..</b>

**Preferred values in bold print.**

Inbuilt discharging resistor on request (with larger case dimensions).

\* Different pitch on request.

\*\* Further information about packaging quantities with different lead length and/or taped versions.

See page 16 (Document No 27608 Packing Quantities). Use Box No. as reference

\*\*\* These capacitors can be delivered on continuous tape and reel - see page 14/15 (Document Number 26535).

The ordering code is F1772- . . . - 2900 at H = 16.5mm, F1772- . . . - 2901 at H = 18.5mm.