

## Metallized Polyester Film Capacitor Related Document: IEC 60384-2

### MAIN APPLICATIONS:

Blocking, bypassing, filtering, timing, coupling and decoupling, interference suppression in low voltage applications.

### MARKING:

Manufacturer's logo/type/C-value/rated voltage/tolerance/date of manufacture

### DIELECTRIC:

Polyester film

### ELECTRODES:

Vacuum deposited aluminum

### COATING:

Plastic-wrapped, epoxy resin sealed. Also available as flame retardant version.

### CONSTRUCTION:

Extended metallized film (refer to general information)

### LEADS:

Tinned wire

### IEC TEST CLASSIFICATION:

55/100/56, according to IEC 60068

### OPERATING TEMPERATURE RANGE:

- 55°C to + 100°C

### CAPACITANCE RANGE:

470pF to 22μF

### CAPACITANCE TOLERANCES:

± 20% (M), ± 10% (K), ± 5% (J)

### RATED VOLTAGES (U<sub>R</sub>):

63 VDC, 100 VDC, 250 VDC, 400 VDC, 630 VDC, 1000 VDC

### PERMISSIBLE AC VOLTAGES (RMS) UP TO 60Hz:

40 VAC, 63 VAC, 160 VAC, 200 VAC, 220 VAC, 220 VAC

### TEST VOLTAGE (ELECTRODE/ELECTRODE)

1.6 x U<sub>R</sub> for 2 s

### INSULATION RESISTANCE:

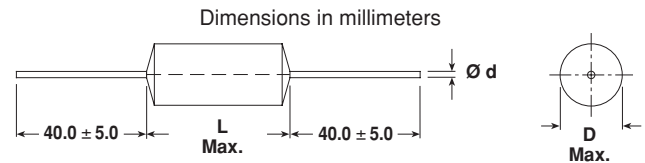
Measured at 100 VDC (63 VDC series measured at 50 VDC) after one minute

### For C ≤ 0.33μF and U<sub>R</sub> > 100 VDC

30,000 MΩ minimum value (60,000 MΩ typical value)

### For C ≤ 0.33μF and U<sub>R</sub> ≤ 100 VDC

15,000 MΩ minimum value (50,000 MΩ typical value)



d	D
0.6	≤ 5.0
0.7	> 5.0 ≤ 7.0
0.8	> 7.0 < 16.5
1.0	≥ 16.5

### TIME CONSTANT:

Measured at 100 VDC (63 VDC series measured at 50 VDC) after one minute

### For C > 0.33μF and U<sub>R</sub> > 100 VDC

10,000 s minimum value (20,000 s typical value)

### For C > 0.33μF and U<sub>R</sub> ≤ 100 VDC

5000 s minimum value (15,000 s typical value)

### CAPACITANCE DRIFT:

Up to + 40°C, ± 1.5% for a period of two years

### DERATING FOR DC AND AC.

### CATEGORY VOLTAGE U<sub>C</sub>:

At + 85°C: U<sub>C</sub> = 1.0 U<sub>R</sub>

At + 100°C: U<sub>C</sub> = 0.8 U<sub>R</sub>

### SELF INDUCTANCE:

~ 12nH measured with 6mm long leads

### PULL TEST ON LEADS:

≥ 20 N in direction of leads according to IEC 60068-2-21

### BEND TEST ON LEADS:

Two bends through 90°C with half of the force used in pull test

### RELIABILITY:

Operational life > 300,000 h

Failure rate < 2 FIT (40°C and 0.5 x U<sub>R</sub>)

For further details, please refer to the general information provided in this catalog.

### MAXIMUM PULSE RISE TIME

CAPACITOR LENGTH (mm)	MAXIMUM PULSE RISE TIME d <sub>v</sub> /d <sub>t</sub> [V/μs]					
	63 VDC	100 VDC	250 VDC	400 VDC	630 VDC	1000 VDC
11	12	18	32	56	84	—
14	11	13	22	37	66	175
19	7	8	13	21	33	65
26.5	4	5	8	13	19	34
31.5	3	4	6	10	15	25
41.5	2	3	5	7	10	17

If the maximum pulse voltage is less than the rated voltage higher d<sub>v</sub>/d<sub>t</sub> values can be permitted.



## DISSIPATION FACTOR TAN δ

MEASURED AT	$C \leq 0.1\mu\text{F}$	$0.1\mu\text{F} < C \leq 1.0\mu\text{F}$	$C > 1.0\mu\text{F}$
1kHz	$8 \times 10^{-3}$	$8 \times 10^{-3}$	$10 \times 10^{-3}$
10kHz	$15 \times 10^{-3}$	$15 \times 10^{-3}$	—
100kHz	$25 \times 10^{-3}$	—	—
Maximum Values			

CAPACITANCE	CAPACITANCE CODE	VOLTAGE CODE 06 63 VDC/ 40 VAC		VOLTAGE CODE 01 100 VDC/ 63 VAC		VOLTAGE CODE 25 250 VDC/ 160 VAC		VOLTAGE CODE 40 400 VDC/ 200 VAC		VOLTAGE CODE 63* 630 VDC/ 220 VAC		VOLTAGE CODE 10* 1000 VDC/ 220 VAC	
		D	L	D	L	D	L	D	L	D	L	D	L
470 pF	- 147	—	—	—	—	—	—	—	—	5.0	11.0	—	—
680 pF	- 168	—	—	—	—	—	—	—	—	5.0	11.0	—	—
1000 pF	- 210	—	—	—	—	—	—	—	—	5.0	11.0	5.5	14.0
1500 pF	- 215	—	—	—	—	—	—	—	—	5.0	11.0	6.0	14.0
2200 pF	- 222	—	—	—	—	—	—	—	—	5.0	11.0	6.0	14.0
3300 pF	- 233	—	—	—	—	—	—	—	—	5.0	11.0	7.0	14.0
4700 pF	- 247	—	—	—	—	—	—	—	—	5.0	11.0	6.0	19.0
6800 pF	- 268	—	—	—	—	—	—	5.0	11.0	6.0	14.0	6.0	19.0
0.01 μF	- 310	—	—	—	—	—	—	5.0	11.0	6.0	14.0	6.5	19.0
0.015 μF	- 315	—	—	—	—	5.0	11.0	6.0	14.0	6.5	14.0	7.5	19.0
0.022 μF	- 322	—	—	—	—	5.0	11.0	6.0	14.0	7.5	14.0	9.0	19.0
0.033 μF	- 333	—	—	—	—	5.0	11.0	6.0	14.0	6.5	19.0	10.5	19.0
0.047 μF	- 347	—	—	—	—	6.0	14.0	7.0	14.0	7.5	19.0	12.0	19.0
0.068 μF	- 368	—	—	5.0	11.0	6.0	14.0	8.0	14.0	8.5	19.0	11.0	26.5
0.1 μF	- 410	—	—	5.0	11.0	6.0	14.0	7.0	19.0	10.5	19.0	13.0	26.5
		—	—	—	—	—	—	—	—	9.5	19.0**	—	—
0.15 μF	- 415	5.0	11.0	5.5	11.0	7.0	14.0	8.5	19.0	10.0	26.5	13.5	31.5
0.22 μF	- 422	5.0	11.0	6.0	14.0	7.0	19.0	8.0	26.5	11.5	26.5	16.0	31.5
		—	—	—	—	—	—	8.0	19.0**	—	—	—	—
0.33 μF	- 433	6.0	14.0	6.0	19.0	8.0	19.0	9.5	26.5	13.5	26.5	16.0	41.5
		—	—	—	—	—	—	9.5	19.0**	—	—	—	—
0.47 μF	- 447	7.0	14.0	6.5	19.0	9.0	19.0	11.0	26.5	14.5	31.5	19.0	41.5
		—	—	—	—	—	—	—	—	14.0	26.5**	—	—
0.68 μF	- 468	6.5	19.0	7.0	19.0	8.5	26.5	11.5	31.5	14.5	41.5	—	—
		—	—	—	—	9.0	19.0**	—	—	—	—	—	—
1.0 μF	- 510	7.5	19.0	8.5	19.0	10.0	26.5	13.5	31.5	16.5	41.5	—	—

Further C-values upon request.

PCM = L + 3.5

\*Not suitable for mains applications. Please refer to X-capacitors in our catalog "RFI Suppression Capacitors".

\*\*For the smaller size please add - M at the end of the type designation (e.g. MKT 1813-510/255-M). Not CECC approved.



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		D	L	D	L	D	L	D	L	D	L	D	L
1.5 µF	- 515	8.5	19.0	8.0	26.5	11.0	31.5	14.0	41.5	—	—	—	—
		—	—	8.0	19.0**	—	—	13.0	31.5**	—	—	—	—
2.2 µF	- 522	8.5	26.5	9.5	26.5	13.0	31.5	16.5	41.5	—	—	—	—
		7.5	19.0**	9.5	19.0**	—	—	—	—	—	—	—	—
3.3 µF	- 533	10.0	26.5	11.5	26.5	15.5	31.5	—	—	—	—	—	—
		8.5	19.0**	—	—	14.0	26.5**	—	—	—	—	—	—
4.7 µF	- 547	11.5	26.5	12.0	31.5	15.5	41.5	—	—	—	—	—	—
		—	—	—	—	14.5	31.5**	—	—	—	—	—	—
6.8 µF	- 568	12.0	31.5	14.0	31.5	17.5	41.5	—	—	—	—	—	—
10.0 µF	- 610	14.5	31.5	16.5	31.5	21.0	41.5	—	—	—	—	—	—
		—	—	13.5	31.5**	—	—	—	—	—	—	—	—
15.0 µF	- 615	18.0	31.5	20.5	31.5	—	—	—	—	—	—	—	—
22.0 µF	- 622	17.5	41.5	—	—	—	—	—	—	—	—	—	—

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**RECOMMENDED PACKAGING**

LETTER CODE	TYPE OF PACKAGING	REEL DIAMETER (mm)	ORDERING CODE EXAMPLE	
G	AMMO	—	MKT 1813-422-014-G	X
R	REEL	350	MKT 1813-422-014-R	X
—	BULK for L > 31.5mm	—	MKT 1813-422-014	X

