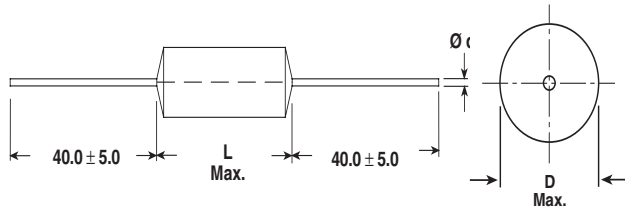


## Metallized Polypropylene Film Capacitor

### Related Document: IEC 60384-16

Dimensions in millimeters



D	$\varnothing d$
$\leq 7.0$	0.7
$< 16.0$	0.8
$\geq 16.0$	1.0

#### MAIN APPLICATIONS

High voltage, high current and high pulse operations, deflection circuits in TV sets (S-correction and fly-back tuning). Protection circuits in SMPS's. Snubber and electronic ballast circuits. Input and output filtering in SPS designs, storage, timing and integrating circuits.

#### MARKING

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

#### DIELECTRIC

Polypropylene film

#### ELECTRODES

Vacuum deposited aluminum

#### COATING

Metal-foil-wrapped, insulated, epoxy resin sealed, flame retardant

#### CONSTRUCTION

Extended double-sided metallized polyester film, internal series connection (630 to 2000 VDC), double-sided metallized polyester carrier 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

1000pF to 4.7 $\mu$ F

#### MAXIMUM PULSE RISE TIME

CAPACITOR LENGTH (MM)	Maximum Pulse Rise Time $d_v/d_t$ [V/ $\mu$ s]						
	160 VDC	250 VDC	400 VDC	630 VDC	1000 VDC	1600 VDC	2000 VDC
17	900	1140	1840	—	—	—	—
22	450	560	910	3430	—	—	—
29	260	320	520	2120	2800	3800	6200
34	202	240	400	1524	2000	2680	4200
44	140	170	280	980	1280	1690	2600

If the maximum pulse voltage is less than the rated voltage higher  $d_v/d_t$  values can be permitted.

#### FEATURES

Product is completely lead (Pb)-free.  
Product is RoHS compliant.



#### CAPACITANCE TOLERANCES

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



#### RATED VOLTAGES ( $U_R$ ):

160 VDC, 250 VDC, 400 VDC, 630 VDC,  
1000 VDC, 1600 VDC, 2000 VDC

**RoHS**  
COMPLIANT

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

100 VAC, 160 VAC, 220 VAC, 400 VAC, 600 VAC, 650 VAC,  
700 VAC

#### TEST VOLTAGE (ELECTRODE/ELECTRODE)

$1.6 \times U_R$  for 2 s

#### INSULATION RESISTANCE

Measured at 100 VDC after one minute

For  $C \leq 0.33\mu\text{F}$ :

100,000 M $\Omega$  minimum value (150,000 M $\Omega$  typical value)

#### TIME CONSTANT

Measured at 100 VDC after one minute

For  $C > 0.33\mu\text{F}$ :

30,000 s minimum value (50,000 s typical value)

#### TEMPERATURE COEFFICIENT

$-250 \times 10^{-6}/^\circ\text{C}$  (typical value)

#### CAPACITANCE DRIFT

Up to +40°C,  $\pm 0.5\%$  for a period of two years

#### DERATING FOR DC AND AC CATEGORY VOLTAGE $U_C$

At +85°C:  $U_C = 1.0 U_R$

At +100°C:  $U_C = 0.7 U_R$

#### SELF INDUCTANCE

~ 12 nH measured with 6mm long leads

#### PULL TEST ON LEADS

$\geq 20$  N in direction of leads according to IEC 60068-2-21

#### BEND TEST ON LEADS

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

#### RELIABILITY

Operational life > 300,000 h

Failure rate < 10 FIT (40°C and  $0.5 \times U_R$ )

For further details, please refer to the general information available at [www.vishay.com/?26033](http://www.vishay.com/?26033).



### DISSIPATION FACTOR TAN $\delta$

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	$0.3 \times 10^{-3}$	$0.3 \times 10^{-3}$	$0.3 \times 10^{-3}$
10kHz	$0.4 \times 10^{-3}$	$0.4 \times 10^{-3}$	—
100kHz	$1.5 \times 10^{-3}$	—	—
Maximum values			

CAPACITANCE	CAPACITANCE CODE	VOLTAGE CODE 16 160 VDC/100 VAC		VOLTAGE CODE 25 250 VDC/160 VAC		VOLTAGE CODE 40 400 VDC/220 VAC		VOLTAGE CODE 63 630 VDC/250 VAC	
		D	L	D	L	D	L	D	L
		1000pF	- 210	—	—	—	—	—	—
1500pF	- 215	—	—	—	—	—	—	—	—
2200pF	- 222	—	—	—	—	—	—	—	—
3300pF	- 233	—	—	—	—	—	—	—	—
4700pF	- 247	—	—	—	—	—	—	—	—
6800pF	- 268	—	—	—	—	—	—	—	—
0.01 $\mu\text{F}$	- 310	—	—	—	—	6.0	17.0	7.0	22.0
0.015 $\mu\text{F}$	- 315	—	—	—	—	6.5	17.0	8.0	22.0
0.022 $\mu\text{F}$	- 322	—	—	6.0	17.0	7.5	17.0	9.5	22.0
0.033 $\mu\text{F}$	- 333	6.0	17.0	7.0	17.0	7.0	22.0	9.0	29.0
0.047 $\mu\text{F}$	- 347	6.5	17.0	8.0	17.0	8.0	22.0	10.5	29.0
0.068 $\mu\text{F}$	- 368	7.5	17.0	7.0	22.0	9.0	22.0	12.5	29.0
0.1 $\mu\text{F}$	- 410	7.0	22.0	8.0	22.0	11.0	22.0	12.5	34.0
0.15 $\mu\text{F}$	- 415	8.0	22.0	9.5	22.0	10.0	29.0	15.0	34.0
0.22 $\mu\text{F}$	- 422	9.5	22.0	9.0	29.0	12.0	29.0	14.5	44.0
0.33 $\mu\text{F}$	- 433	9.0	29.0	10.5	29.0	13.5	29.0	17.5	44.0
0.47 $\mu\text{F}$	- 447	10.0	29.0	12.0	29.0	15.0	34.0	21.0	44.0
0.68 $\mu\text{F}$	- 468	12.0	29.0	13.0	34.0	17.5	34.0	25.0	44.0
1.0 $\mu\text{F}$	- 510	12.5	34.0	15.5	34.0	17.5	44.0	—	—
1.5 $\mu\text{F}$	- 515	15.5	34.0	15.5	44.0	21.5	44.0	—	—
2.2 $\mu\text{F}$	- 522	15.5	44.0	18.5	44.0	26.0	44.0	—	—
3.3 $\mu\text{F}$	- 533	18.5	44.0	22.5	44.0	—	—	—	—
4.7 $\mu\text{F}$	- 547	22.0	44.0	—	—	—	—	—	—

Further C-values on request

$$\text{pcm} = L + 3.5$$

### RECOMMENDED PACKAGING

LETTER CODE	TYPE OF PACKAGING	REEL DIAMETER (mm)	ORDERING CODE EXAMPLES	
G	AMMO	—	MKP 1845-310-135-G	X
R	REEL	350	MKP 1845-310-135-R	X
—	BULK for L > 31.5mm	—	MKP 1845-410-135	X



CAPACITANCE	CAPACITANCE CODE	VOLTAGE CODE 10 1000 VDC/600VAC		VOLTAGE CODE 13 1600 VDC/650 VAC		VOLTAGE CODE 20 2000 VDC/700 VAC	
		D	L	D	L	D	L
1000pF	- 210	—	—	—	—	6.5	29.0
1500pF	- 215	—	—	—	—	6.5	29.0
2200pF	- 222	—	—	—	—	6.5	29.0
3300pF	- 233	—	—	—	—	7.0	29.0
4700pF	- 247	—	—	—	—	8.0	29.0
6800pF	- 268	—	—	—	—	9.5	29.0
0.01μF	- 310	6.5	29.0	8.0	29.0	11.0	29.0
0.015μF	- 315	8.0	29.0	9.5	29.0	11.5	34.0
0.022μF	- 322	9.0	29.0	11.0	29.0	13.0	34.0
0.033μF	- 333	11.0	29.0	11.5	34.0	16.0	34.0
0.047μF	- 347	11.0	34.0	13.5	34.0	15.0	44.0
0.068μF	- 368	13.0	34.0	16.0	34.0	18.0	44.0
0.1μF	- 410	15.5	34.0	15.0	44.0	21.0	44.0
0.15μF	- 415	15.0	44.0	18.5	44.0	—	—
0.22μF	- 422	18.0	44.0	22.0	44.0	—	—
0.33μF	- 433	—	—	—	—	—	—
0.47μF	- 447	—	—	—	—	—	—
0.68μF	- 468	—	—	—	—	—	—
1.0μF	- 510	—	—	—	—	—	—
1.5μF	- 515	—	—	—	—	—	—
2.2μF	- 522	—	—	—	—	—	—
3.3μF	- 533	—	—	—	—	—	—
4.7μF	- 547	—	—	—	—	—	—

Further C-values on request

$pcm = L + 3.5$

**RECOMMENDED PACKAGING**

LETTER CODE	TYPE OF PACKAGING	REEL DIAMETER (mm)	ORDERING CODE EXAMPLES	
G	AMMO	—	MKP 1845-310-135-G	X
R	REEL	350	MKP 1845-310-135-R	X
—	BULK for L > 31.5mm	—	MKP 1845-410-135	X





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Related Document: IEC 60384-16

Vishay Roederstein

