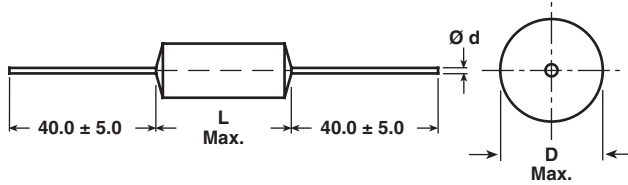


## Metallized Polypropylene Film Capacitor

### Related Document: IEC 60384-16

Dimensions in millimeters



D	Ø d
≤ 7.0	0.7
< 16.0	0.8
≥ 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

#### MAXIMUM PULSE RISE TIME

CAPACITOR LENGTH (MM)	Maximum Pulse Rise Time $d_v/d_t$ [V/μs]						
	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.

#### CAPACITANCE RANGE

1000 pF to 4.7 μF

#### FEATURES

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



**RoHS**  
COMPLIANT

#### CAPACITANCE TOLERANCES

± 20 % (M), ± 10 % (K), ± 5 % (J)

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

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

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

#### INSULATION RESISTANCE

Measured at 100 VDC after one minute

For C ≤ 0.33 μF:

100000 MΩ minimum value (150000 MΩ typical value)

#### TIME CONSTANT

Measured at 100 VDC after one minute

For C > 0.33 μF:

30000 s minimum value (50000 s typical value)

#### TEMPERATURE COEFFICIENT

- 250 x 10<sup>-6</sup>/°C (typical value)

#### CAPACITANCE DRIFT

Up to + 40 °C, ± 0.5 % 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> = 0.7 U<sub>R</sub>

#### SELF INDUCTANCE

~ 12 nH 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

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

#### RELIABILITY

Operational life > 300000 h

Failure rate < 10 FIT (40 °C and 0.5 x U<sub>R</sub>)

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	$C \leq 0.1 \mu\text{F}$	$0.1 \mu\text{F} < C \leq 1.0 \mu\text{F}$	$C > 1.0 \mu\text{F}$
1 kHz	$0.3 \times 10^{-3}$	$0.3 \times 10^{-3}$	$0.3 \times 10^{-3}$
10 kHz	$0.4 \times 10^{-3}$	$0.4 \times 10^{-3}$	-
100 kHz	$1.5 \times 10^{-3}$	-	-
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
1000 pF	- 210	-	-	-	-	-	-	-	-
1500 pF	- 215	-	-	-	-	-	-	-	-
2200 pF	- 222	-	-	-	-	-	-	-	-
3300 pF	- 233	-	-	-	-	-	-	-	-
4700 pF	- 247	-	-	-	-	-	-	-	-
6800 pF	- 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.

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 > 31.5 mm	-	MKP 1845-410-135	X

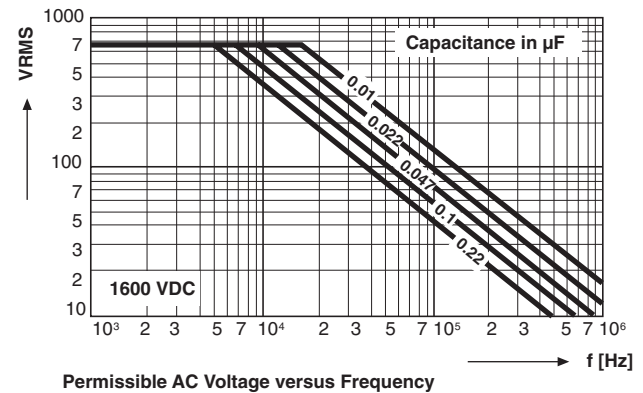
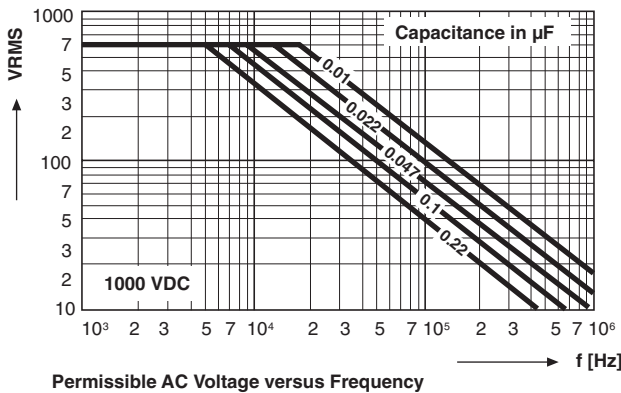
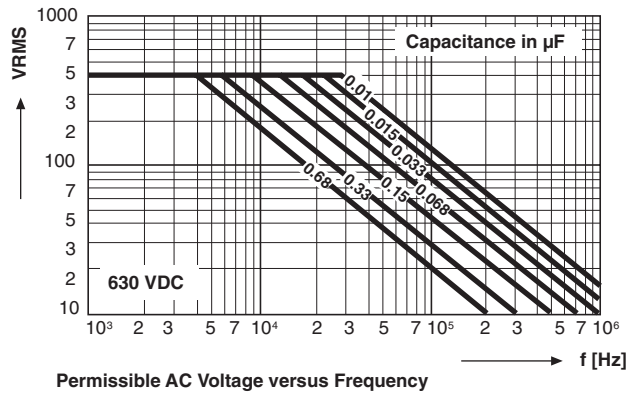
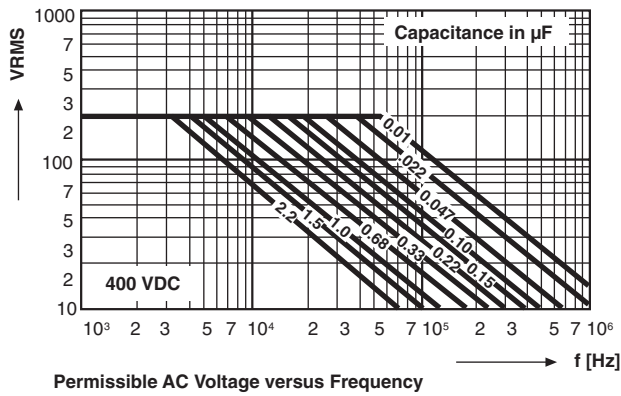
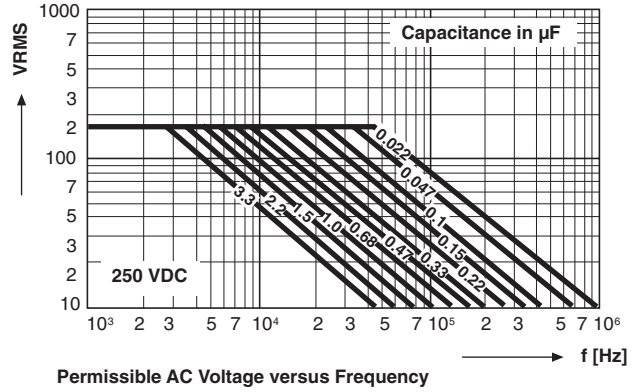
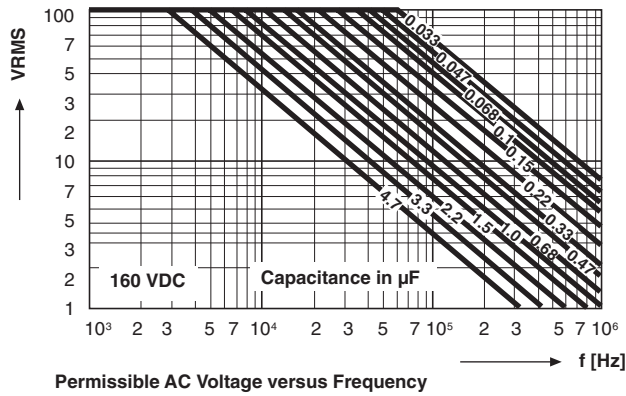


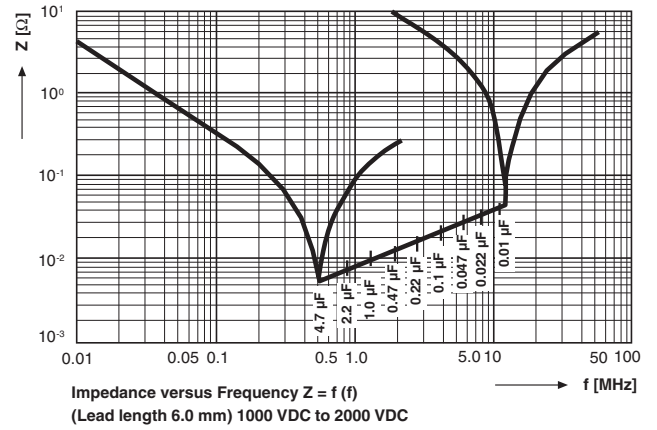
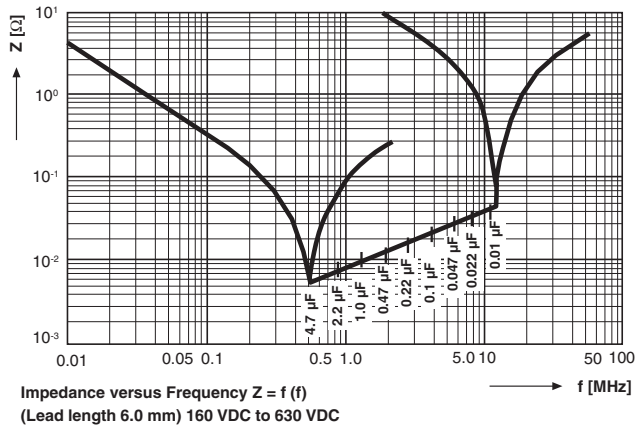
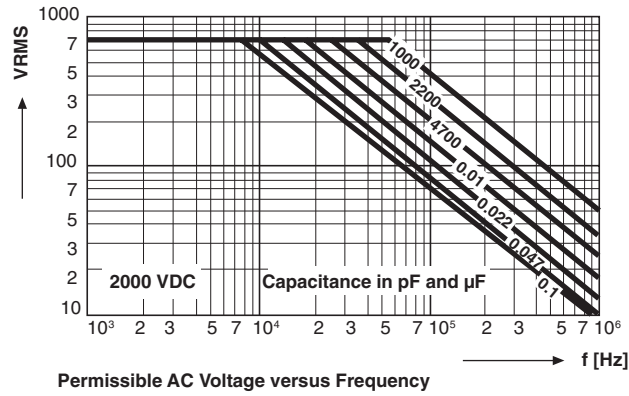
CAPACITANCE	CAPACITANCE CODE	VOLTAGE CODE 10 1000 VDC/600VAC		VOLTAGE CODE 13 1600 VDC/650 VAC		VOLTAGE CODE 20 2000 VDC/700 VAC	
		D	L	D	L	D	L
1000 pF	- 210	-	-	-	-	6.5	29.0
1500 pF	- 215	-	-	-	-	6.5	29.0
2200 pF	- 222	-	-	-	-	6.5	29.0
3300 pF	- 233	-	-	-	-	7.0	29.0
4700 pF	- 247	-	-	-	-	8.0	29.0
6800 pF	- 268	-	-	-	-	9.5	29.0
0.01 μF	- 310	6.5	29.0	8.0	29.0	11.0	29.0
0.015 μF	- 315	8.0	29.0	9.5	29.0	11.5	34.0
0.022 μF	- 322	9.0	29.0	11.0	29.0	13.0	34.0
0.033 μF	- 333	11.0	29.0	11.5	34.0	16.0	34.0
0.047 μF	- 347	11.0	34.0	13.5	34.0	15.0	44.0
0.068 μF	- 368	13.0	34.0	16.0	34.0	18.0	44.0
0.1 μF	- 410	15.5	34.0	15.0	44.0	21.0	44.0
0.15 μF	- 415	15.0	44.0	18.5	44.0	-	-
0.22 μF	- 422	18.0	44.0	22.0	44.0	-	-
0.33 μF	- 433	-	-	-	-	-	-
0.47 μF	- 447	-	-	-	-	-	-
0.68 μF	- 468	-	-	-	-	-	-
1.0 μF	- 510	-	-	-	-	-	-
1.5 μF	- 515	-	-	-	-	-	-
2.2 μF	- 522	-	-	-	-	-	-
3.3 μF	- 533	-	-	-	-	-	-
4.7 μF	- 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 > 31.5 mm	-	MKP 1845-410-135	X







## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.