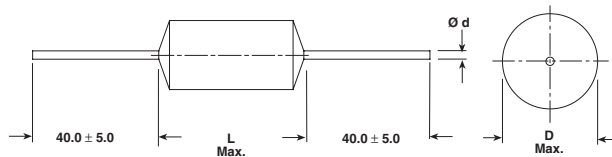


## Metallized Polycarbonate Film Capacitor

### Related Document: IEC 60384-6

Dimensions in millimeters



| D      | Ø D |
|--------|-----|
| ≤ 7.0  | 0.7 |
| < 16.0 | 0.8 |
| ≥ 16.5 | 1.0 |

**MAIN APPLICATIONS**

Storage, filter, timing and integrating circuits.

**MARKING**

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

**DIELECTRIC**

Polycarbonate film

**ELECTRODES**

Vacuum deposited aluminum

**COATING**

Plastic-wrapping, epoxy resin sealed

**CONSTRUCTION**

Extended metallized film (refer to general information)

**LEADS**

Tinned wire

**IEC TEST CLASSIFICATION**

55/100/21, according to IEC 60068

**OPERATING TEMPERATURE RANGE**

-55°C to +100°C

**CAPACITANCE RANGE**

0.01µF to 10µF

**CAPACITANCE TOLERANCES**

± 10% (K), ± 5% (J)

**FEATURES**

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

**RATED VOLTAGES (U<sub>R</sub>)**

63 VDC, 100 VDC, 250 VDC, 400 VDC

**PERMISSIBLE AC VOLTAGES (RMS) UP TO 60HZ**

40 VAC, 63 VAC, 160 VAC, 200 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 (100,000 MΩ typical value)

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

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

**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 (40,000 s typical value)

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

5,000 s minimum value (15,000 s typical value)

**CAPACITANCE DRIFT**

Up to +40°C, ±2% 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**

~ 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° with half of the force used in pull test

**RELIABILITY**

Operational life &gt; 300,000 h

 Failure rate < 1 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/doc?26033](http://www.vishay.com/doc?26033).

**RoHS**  
 COMPLIANT

**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 |
| 14                    | 17  | 23      | 38      | 61      |
| 19                    | 9   | 13      | 21      | 33      |
| 26.5                  | 6   | 8       | 13      | 20      |
| 31.5                  | 5   | 6       | 10      | 16      |

 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 $\delta$

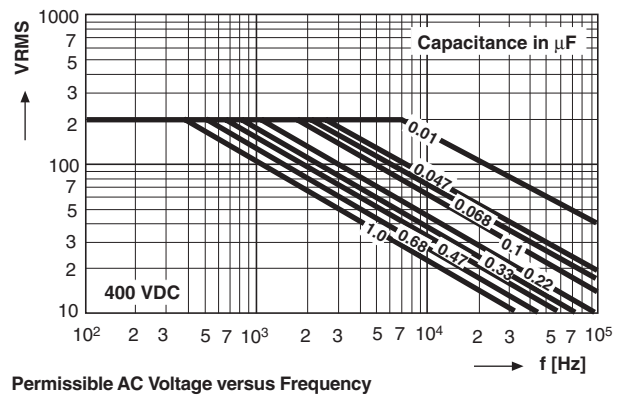
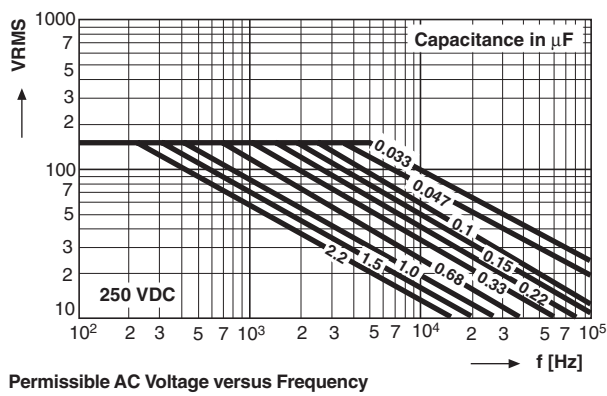
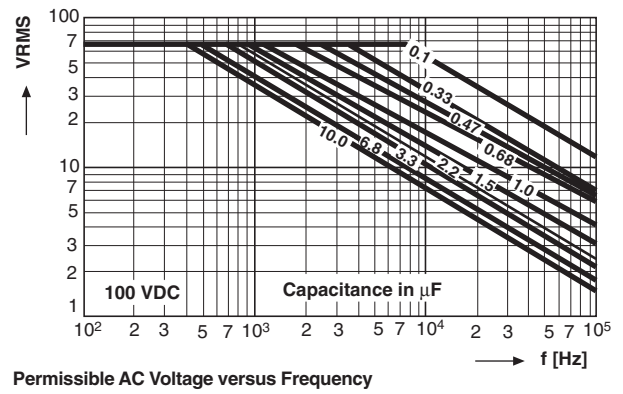
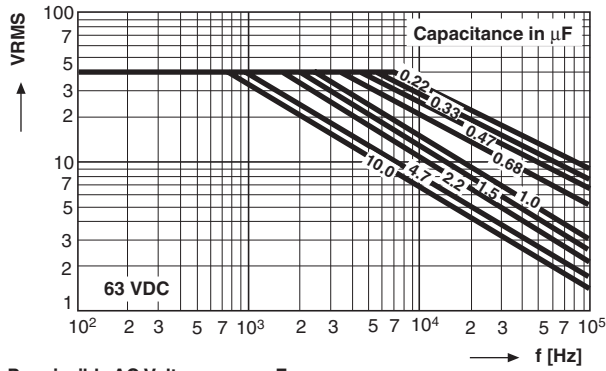
| MEASURED AT    | $C \leq 0.1\mu\text{F}$ | $0.1\mu\text{F} < C \leq 1.0\mu\text{F}$ | $C > 1.0\mu\text{F}$ |
|----------------|-------------------------|--|----------------------|
| 1kHz           | $3 \times 10^{-3}$      | $3 \times 10^{-3}$                       | $3 \times 10^{-3}$   |
| 10kHz          | $4 \times 10^{-3}$      | $4 \times 10^{-3}$                       | —                    |
| 100kHz         | $10 \times 10^{-3}$     | —  | —                    |
| Maximum values |                         |  |                      |

| CAPACITANCE         | CAPACITANCE CODE | VOLTAGE CODE 06<br>63 VDC/<br>40 VAC |      | VOLTAGE CODE 01<br>100 VDC/<br>63 VAC |      | VOLTAGE CODE 25<br>250 VDC/<br>160 VAC |      | VOLTAGE CODE 40<br>400 VDC/<br>200 VAC |      |
|---------------------|------------------|--------------------------------------|------|---------------------------------------|------|--|------|--|------|
|                     |                  | D                                    | L    | D                                     | L    | D                                      | L    | D                                      | L    |
| 0.01 $\mu\text{F}$  | - 310            | —                                    | —    | —                                     | —    | —                                      | —    | 6.0                                    | 14.0 |
| 0.015 $\mu\text{F}$ | - 315            | —                                    | —    | —                                     | —    | —                                      | —    | 6.0                                    | 14.0 |
| 0.022 $\mu\text{F}$ | - 322            | —                                    | —    | —                                     | —    | —                                      | —    | 6.0                                    | 14.0 |
| 0.033 $\mu\text{F}$ | - 333            | —                                    | —    | —                                     | —    | 6.0                                    | 14.0 | 6.0                                    | 14.0 |
| 0.047 $\mu\text{F}$ | - 347            | —                                    | —    | —                                     | —    | 6.0                                    | 14.0 | 7.0                                    | 14.0 |
| 0.068 $\mu\text{F}$ | - 368            | —                                    | —    | —                                     | —    | 6.0                                    | 14.0 | 8.0                                    | 14.0 |
| 0.10 $\mu\text{F}$  | - 410            | —                                    | —    | 6.0                                   | 14.0 | 7.0                                    | 14.0 | 7.5                                    | 19.0 |
| 0.15 $\mu\text{F}$  | - 415            | —                                    | —    | 6.0                                   | 14.0 | 7.5                                    | 14.0 | 8.5                                    | 19.0 |
| 0.22 $\mu\text{F}$  | - 422            | 6.0                                  | 14.0 | 6.0                                   | 14.0 | 7.0                                    | 19.0 | 8.5                                    | 26.5 |
| 0.33 $\mu\text{F}$  | - 433            | 6.0                                  | 14.0 | 6.0                                   | 19.0 | 8.0                                    | 19.0 | 10.0                                   | 26.5 |
| 0.47 $\mu\text{F}$  | - 447            | 7.0                                  | 14.0 | 7.0                                   | 19.0 | 9.5                                    | 19.0 | 11.5                                   | 26.5 |
| 0.68 $\mu\text{F}$  | - 468            | 6.5                                  | 19.0 | 8.0                                   | 19.0 | 9.0                                    | 26.5 | 12.0                                   | 31.5 |
| 1.0 $\mu\text{F}$   | - 510            | 7.5                                  | 19.0 | 9.0                                   | 19.0 | 10.5                                   | 26.5 | 14.5                                   | 31.5 |
| 1.5 $\mu\text{F}$   | - 515            | 8.5                                  | 19.0 | 9.0                                   | 26.5 | 11.5                                   | 31.5 | —                                      | —    |
| 2.2 $\mu\text{F}$   | - 522            | 9.0                                  | 19.0 | 10.5                                  | 26.5 | 13.5                                   | 31.5 | —                                      | —    |
| 3.3 $\mu\text{F}$   | - 533            | 9.5                                  | 26.5 | 12.5                                  | 26.5 | —                                      | —    | —                                      | —    |
| 4.7 $\mu\text{F}$   | - 547            | 11.0                                 | 26.5 | 13.0                                  | 31.5 | —                                      | —    | —                                      | —    |
| 6.8 $\mu\text{F}$   | - 568            | 12.0                                 | 31.5 | 15.5                                  | 31.5 | —                                      | —    | —                                      | —    |
| 10 $\mu\text{F}$    | - 610            | 14.0                                 | 31.5 | 17.5                                  | 31.5 | —                                      | —    | —                                      | —    |

Further C-values upon request  
pcm = L + 3.5

## RECOMMENDED PACKAGING

| LETTER CODE | TYPE OF PACKAGING | REEL DIAMETER (mm) | ORDERING CODE EXAMPLE |   |
|-------------|-------------------|--------------------|-----------------------|---|
| G           | AMMO              | —                  | MKC 1860-422/404-G    | X |
| R           | REEL              | 350                | MKC 1860-422/404-R    | X |
| —           | BULK              | —                  | MKC 1860-422/404      | X |





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