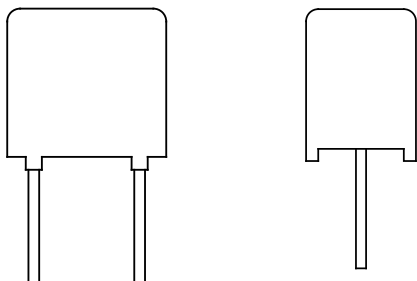




## Metallized Polypropylene Film Capacitor Radial AC and Pulse Capacitor



### FEATURES

- Mounting: radial
- Material categorization:  
for definitions of compliance please see  
[www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

### APPLICATIONS

Oscillator, timing, and LC/RC filter circuits, high frequency coupling / decoupling, sample and hold circuits.



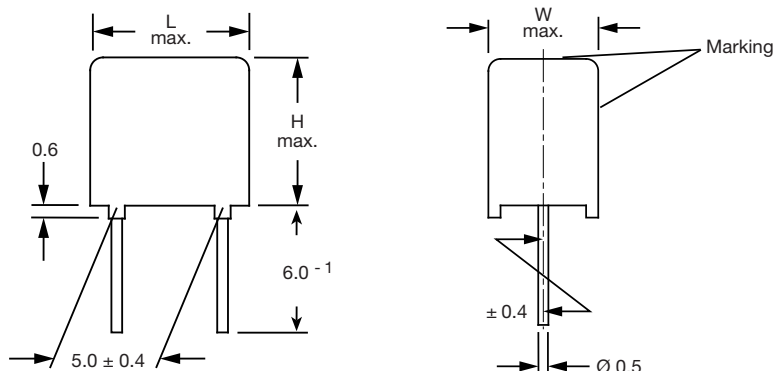
**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

### QUICK REFERENCE DATA

|                                               |                                                                                                                                               |                                                   |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| Capacitance range                             | 0.01 $\mu$ F to 0.1 $\mu$ F                                                                                                                   |                                                   |
| Capacitance tolerance                         | $\pm 10\%$ (K); $\pm 5\%$ (J); $\pm 2.5\%$ (H); $\pm 1\%$ (F)                                                                                 |                                                   |
| Climatic testing class according to IEC 60068 | 55/100/56                                                                                                                                     |                                                   |
| Dielectric                                    | Polypropylene film                                                                                                                            |                                                   |
| Electrodes                                    | Vacuum deposited aluminum                                                                                                                     |                                                   |
| Construction                                  | Extended metallized film (refer to general information)                                                                                       |                                                   |
| Coating                                       | Flame retardant plastic case (UL-class 94 V-0), epoxy resin sealed                                                                            |                                                   |
| Leads                                         | Tinned wire                                                                                                                                   |                                                   |
| Marking                                       | Manufacturer's logo, type, C-value, rated voltage, tolerance, date of manufacture                                                             |                                                   |
| Operating temperature range                   | $-55\text{ }^{\circ}\text{C}$ to $+100\text{ }^{\circ}\text{C}$                                                                               |                                                   |
| Capacitance drift                             | Up to $+40\text{ }^{\circ}\text{C}$ , $< 0.5\%$ for a period of two years                                                                     |                                                   |
| Rated DC voltages ( $U_R$ )                   | 160 $V_{DC}$                                                                                                                                  |                                                   |
| Permissible AC voltages (RMS) up to 60 Hz     | 100 $V_{AC}$                                                                                                                                  |                                                   |
| Test voltage (electrode/electrode)            | $1.6 \times U_R$ for 2 s                                                                                                                      |                                                   |
| Insulation resistance                         | Measured at 100 $V_{DC}$ after one minute<br>100 000 $M\Omega$ minimum value                                                                  |                                                   |
| Temperature coefficient                       | $-250\text{ }^{\circ}\text{C} \times 10^{-6}/^{\circ}\text{C}$ (typical value)                                                                |                                                   |
| Maximum pulse rise time                       | $dV/dt = 390\text{ V}/\mu\text{s}$<br>If the maximum pulse voltage is less than the rated voltage,<br>higher $dV/dt$ values can be permitted. |                                                   |
| Derating for DC and AC category voltage $U_C$ | At $+85\text{ }^{\circ}\text{C}$ : $U_C = 1.0 U_R$<br>At $+100\text{ }^{\circ}\text{C}$ : $U_C = 0.7 U_R$                                     |                                                   |
| Self inductance                               | $\sim 6\text{ nH}$ measured with 2 mm long leads                                                                                              |                                                   |
| Pull test on leads                            | $\geq 30\text{ N}$ in direction of leads according to IEC 60068-2-21                                                                          |                                                   |
| Dielectric absorption                         | 0.05 % (typical value) according to IEC 60384-1                                                                                               |                                                   |
| Reliability                                   | Operational life $> 300\text{ 000 h}$<br>Failure rate $< 5\text{ FIT}$ ( $40\text{ }^{\circ}\text{C}$ and $0.5 \times U_R$ )                  |                                                   |
| Dissipation factor $\tan \delta$              | <b>MEASURED AT</b>                                                                                                                            | <b><math>C \leq 0.1\text{ }\mu\text{F}</math></b> |
|                                               | 1 kHz                                                                                                                                         | $0.4 \times 10^{-3}$                              |
|                                               | 10 kHz                                                                                                                                        | $0.6 \times 10^{-3}$                              |
|                                               | 100 kHz                                                                                                                                       | $4 \times 10^{-3}$                                |
| Maximum values                                |                                                                                                                                               |                                                   |

### Note

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

**DIMENSIONS** in millimeters**ELECTRICAL DATA**

| $U_{RDC}$ | VOLTAGE CODE | CAP. ( $\mu F$ ) | CAPACITANCE CODE | $V_{AC}$ | DIMENSIONS $W \times H \times L$ (mm) |
|-----------|--------------|------------------|------------------|----------|---------------------------------------|
| 160       | 16           | 0.010            | -310             | 100      | 5.5 x 7.0 x 7.5                       |
|           |              | 0.015            | -315             |          | 5.5 x 7.0 x 7.5                       |
|           |              | 0.022            | -322             |          | 5.5 x 7.0 x 7.5                       |
|           |              | 0.033            | -333             |          | 7.5 x 9.0 x 7.5                       |
|           |              | 0.047            | -347             |          | 7.5 x 9.0 x 7.5                       |
|           |              | 0.068            | -368             |          | 7.5 x 9.0 x 7.5                       |
|           |              | 0.1              | -410             |          | 9.0 x 11.0 x 7.5                      |

**Note**

- Further C-values upon request

**RECOMMENDED PACKAGING**

| LETTER CODE | TYPE OF PACKAGING | HEIGHT (H) (mm) | REEL DIAMETER / BOX SIZE (mm) | ORDERING CODE EXAMPLES | PCM 5 |
|-------------|-------------------|-----------------|-------------------------------|------------------------|-------|
| D           | Ammo              | 16.5            | 55 x 210 x 340                | MKP1837-322-162-D      | X     |
| G           | Ammo              | 18.5            | 55 x 210 x 340                | MKP1837-322-162-G      | X     |
| F           | Reel              | 16.5            | 350                           | MKP1837-322-162-F      | X     |
| W           | Reel              | 18.5            | 350                           | MKP1837-322-162-W      | X     |
| -           | Bulk              | -               | -                             | MKP1837-322-162        | X     |

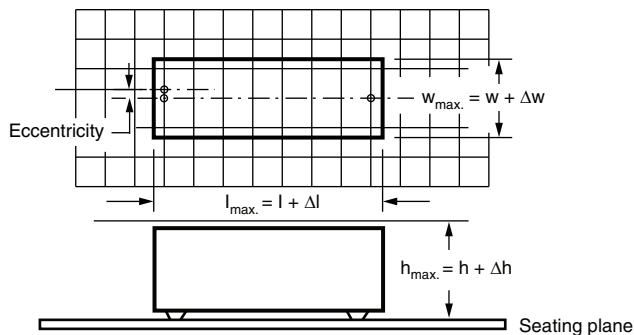
**SPACE REQUIREMENTS FOR PRINTED-CIRCUIT BOARD APPLICATIONS AND DIMENSION TOLERANCES**

For the maximum product dimensions and maximum space requirements for length ( $l_{max.}$ ), width ( $w_{max.}$ ) and height ( $h_{max.}$ ) following tolerances must be taken in account in the envelopment of the components as shown in the drawings below:

- For products with pitch  $\leq 15$  mm,  $\Delta w = \Delta l = 0.3$  mm and  $\Delta h = 0.1$  mm
- For products with  $15 \text{ mm} < \text{pitch} \leq 27.5$  mm,  $\Delta w = \Delta l = 0.5$  mm and  $\Delta h = 0.1$  mm
- For products with pitch = 37.5 mm,  $\Delta w = \Delta l = 0.7$  mm and  $\Delta h = 0.5$  mm
- For products with pitch = 52.5 mm,  $\Delta w = \Delta l = 1.0$  mm and  $\Delta h = 0.5$  mm



Eccentricity defined as in drawing. The maximum eccentricity is smaller than or equal to the lead diameter of the product concerned.

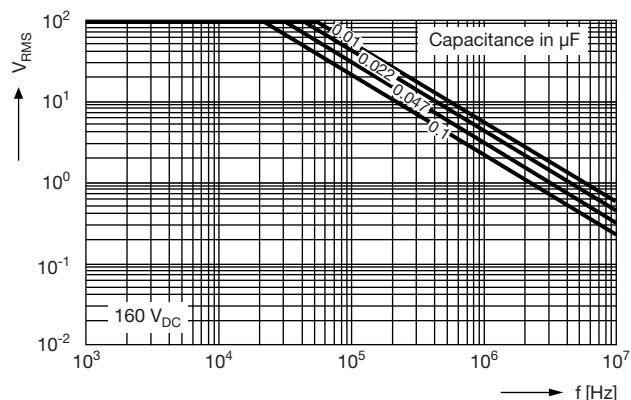


For the minimum product dimensions for length ( $l_{min.}$ ), width ( $w_{min.}$ ), and height ( $h_{min.}$ ) following tolerances of the components are valid:

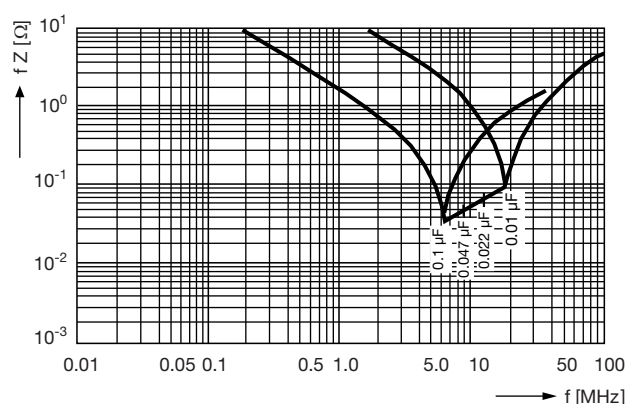
$l_{min.} = l - \Delta l$ ,  $w_{min.} = w - \Delta w$  and  $h_{min.} = h - \Delta h$  following

- For products with pitch  $\leq 10$  mm,  $\Delta l = 0.3$  mm and  $\Delta w = \Delta h = 0.3$  mm
- For products with pitch = 15 mm,  $\Delta l = 0.5$  mm and  $\Delta w = \Delta h = 0.5$  mm
- For products with  $15 \text{ mm} < \text{pitch} \leq 27.5$  mm,  $\Delta l = 1.0$  mm and  $\Delta w = \Delta h = 0.5$  mm
- For products with pitch = 37.5 mm,  $\Delta l = 1.0$  mm and  $\Delta w = \Delta h = 1.0$  mm
- For products with pitch = 52.5 mm,  $\Delta l = 1.5$  mm and  $\Delta w = \Delta h = 1.0$  mm

## CHARACTERISTICS



Permissible AC Voltage vs. Frequency



Impedance vs. Frequency  $Z = f(f)$   
(Lead Length 2.0 mm)



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