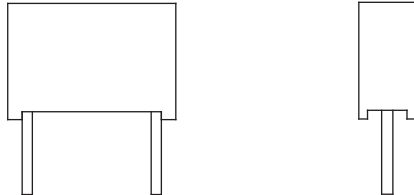




AC and Pulse Metallized Polypropylene Film Capacitors MKP Radial Potted Type



FEATURES

- Material categorization:
for definitions of compliance please see
www.vishay.com/doc?99912



APPLICATIONS

- Pulse operations
- SMPS and thyristor circuits
- Storage, filter, timing, sample and hold circuits



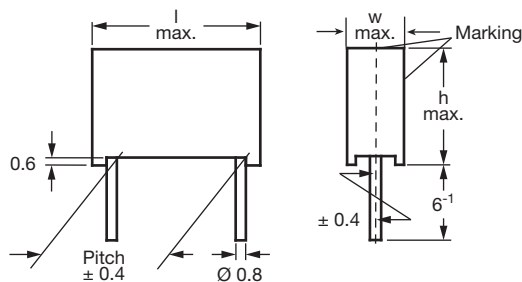
| QUICK REFERENCE DATA | |
|--|--|
| Capacitance range | 4700 pF to 10 μF |
| Capacitance tolerances | ± 20 % (M), ± 10 % (K), ± 5 % (J) |
| Climatic testing class according to IEC 60068 | 55/100/56 |
| Operating temperature range | -55 °C to +100 °C |
| Dielectric | Polypropylene film |
| Electrodes | Metallized |
| Construction | Extended metallized film (refer to general information following the link in note below table) |
| Coating | Flame retardant plastic case, epoxy resin sealed UL-class 94 V-0 |
| Leads | Tinned wire |
| Rated voltages (U _R) | 100 V _{DC} , 160 V _{DC} , 250 V _{DC} , 400 V _{DC} , 630 V _{DC} |
| Insulation resistance | Measured at 100 V _{DC} after one minute For C ≤ 0.33 μF: 25 000 MΩ (U _R 100 V _{DC}) |
| Permissible AC voltages (RMS) up to 60 Hz | 63 V _{AC} , 100 V _{AC} , 160 V _{AC} , 220 V _{AC} , 250 V _{AC} |
| Test voltage (electrode/electrode) | 1.6 x U _R for 2 s |
| Time constant | Measured at 100 V _{DC} after one minute For C > 0.33 μF: 30 000 s minimum value |
| Temperature coefficient | -250 x 10 ⁻⁶ /°C (typical value) |
| Capacitance drift | Up to +40 °C, < 0.5 % for a period of two years |
| Dielectric absorption | 0.05 % (typical value) according to IEC 60068-2-21 |
| 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 | ~ 6 nH measured with 2 mm long leads |
| Pull test on leads | ≥ 30 N in direction of leads according to IEC 60068-2-21 |

Note

- For further details, please refer to the general information available at www.vishay.com/doc?26033



DIMENSIONS in millimeters



| LEAD DIAMETER d_t | W | PITCH |
|------------------------|-----------|--------------|
| 0.5 ± 0.05 | - | 5 to 7.5 |
| 0.6 ± 0.06 | - | 10 |
| 0.6 ± 0.06 | ≤ 6 | 15 |
| 0.8 ± 0.08 | > 6 | 15 |
| 0.8 ± 0.08 | < 16 | 22.5 to 37.5 |
| 1.0 ± 0.1 | ≥ 16 | 22.5 to 37.5 |

MAXIMUM PULSE RISE TIME

| PCM (mm) | MAXIMUM PULSE RISE TIME dV/dt [V/ μ s] | | | | |
|-------------|--|---------------------|---------------------|---------------------|---------------------|
| | 100 V _{DC} | 160 V _{DC} | 250 V _{DC} | 400 V _{DC} | 630 V _{DC} |
| 5 | 390 | - | - | - | - |
| 7.5 | - | 240 | 300 | - | - |
| 10 | - | 175 | 220 | 380 | 510 |
| 15 | - | 100 | 125 | 200 | 280 |
| 22.5 | - | 60 | 75 | 120 | 160 |
| 27.5 | - | 45 | 60 | 95 | 120 |
| 37.5 | - | 30 | 40 | 65 | 85 |

Note

- If the maximum pulse voltage is less than the rated voltage higher dV/dt values can be permitted.

DISSIPATION FACTOR $\tan \delta$

| MEASURED AT | $C \leq 0.1 \mu F$ | $0.1 \mu F < C \leq 1.0 \mu F$ | $C > 1.0 \mu F$ |
|----------------|--------------------------|--------------------------------|--------------------------|
| 1 kHz | $\leq 10 \times 10^{-4}$ | $\leq 10 \times 10^{-4}$ | $\leq 40 \times 10^{-4}$ |
| 10 kHz | $\leq 10 \times 10^{-4}$ | $\leq 10 \times 10^{-4}$ | - |
| 100 kHz | $\leq 10 \times 10^{-4}$ | - | - |
| Maximum values | | | |



| ELECTRICAL DATA | | | | | | |
|--------------------------------------|----------------------------|-----------------------------------|-------------------------------|-----------------------|--|---------------------------|
| U_{RDC} (V) | CAP. (µF) | CAPACITANCE CODE | VOLTAGE CODE | V_{AC} | DIMENSIONS w x h x l (mm) | PCM (mm) |
| 100 | 0.0047 | -247 | 01 | 63 | 3.5 x 8.0 x 7.2 | 5.0 |
| | 0.0068 | -268 | | | 3.5 x 8.0 x 7.2 | 5.0 |
| | 0.010 | -310 | | | 3.5 x 8.0 x 7.2 | 5.0 |
| | 0.015 | -315 | | | 3.5 x 8.0 x 7.2 | 5.0 |
| | 0.022 | -322 | | | 3.5 x 8.0 x 7.2 | 5.0 |
| | 0.033 | -333 | | | 3.5 x 8.0 x 7.2 | 5.0 |
| | 0.047 | -347 | | | 4.5 x 9.0 x 7.2 | 5.0 |
| | 0.068 | -368 | | | 4.5 x 9.0 x 7.2 | 5.0 |
| | 0.100 | -410 | | | 6.0 x 11.0 x 7.2 | 5.0 |
| 160 | 0.033 | -333 | 16 | 100 | 3.0 x 8.0 x 10.0 | 7.5 |
| | 0.047 | -347 | | | 3.0 x 8.0 x 10.0 | 7.5 |
| | 0.068 | -368 | | | 4.0 x 10.0 x 12.5 | 10.0 |
| | 0.10 | -410 | | | 4.0 x 10.0 x 12.5 | 10.0 |
| | 0.15 | -415 | | | 5.0 x 11.0 x 12.5 | 10.0 |
| | 0.22 | -422 | | | 5.0 x 11.0 x 17.5 | 15.0 |
| | 0.33 | -433 | | | 6.0 x 12.0 x 17.5 | 15.0 |
| | 0.47 | -447 | | | 7.0 x 13.5 x 17.5 | 15.0 |
| | 0.68 | -468 | | | 8.5 x 15.0 x 17.5 | 15.0 |
| | 1.0 | -510 | | | 7.0 x 16.5 x 26.0 | 22.5 |
| | 1.5 | -515 | | | 8.5 x 18.0 x 26.0 | 22.5 |
| | 2.2 | -522 | | | 9.0 x 19.0 x 31.5 | 27.5 |
| | 3.3 | -533 | | | 11.0 x 21.0 x 31.0 | 27.5 |
| | 4.7 | -547 | | | 12.5 x 22.5 x 41.5 | 37.5 |
| | 6.8 | -568 | | | 14.5 x 24.5 x 41.5 | 37.5 |
| 10.0 | -610 | 16.0 x 28.5 x 41.5 | 37.5 | | | |
| 250 | 0.010 | -310 | 25 | 160 | 3.0 x 8.0 x 10.0 | 7.5 |
| | 0.015 | -315 | | | 3.0 x 8.0 x 10.0 | 7.5 |
| | 0.022 | -322 | | | 3.0 x 8.0 x 10.0 | 7.5 |
| | 0.033 | -333 | | | 4.0 x 10.0 x 12.5 | 10.0 |
| | 0.047 | -347 | | | 4.0 x 10.0 x 12.5 | 10.0 |
| | 0.068 | -368 | | | 4.0 x 10.0 x 12.5 | 10.0 |
| | 0.10 | -410 | | | 4.0 x 10.0 x 12.5 | 10.0 |
| | 0.15 | -415 | | | 5.0 x 11.0 x 17.5 | 15.0 |
| | 0.22 | -422 | | | 5.0 x 11.0 x 17.5 | 15.0 |
| | 0.33 | -433 | | | 6.0 x 12.0 x 17.5 | 15.0 |
| | 0.47 | -447 | | | 7.0 x 13.5 x 17.5 | 15.0 |
| | 0.68 | -468 | | | 6.0 x 15.5 x 26.0 | 22.5 |
| | 1.0 | -510 | | | 7.0 x 16.5 x 26.0 | 22.5 |
| | 1.5 | -515 | | | 9.0 x 19.0 x 31.5 | 27.5 |
| | 2.2 | -522 | | | 11.0 x 21.0 x 31.0 | 27.5 |
| | 3.3 | -533 | | | 13.0 x 23.0 x 31.0 | 27.5 |
| | 4.7 | -547 | | | 12.5 x 22.5 x 41.5 | 37.5 |
| | 6.8 | -568 | | | 14.5 x 24.5 x 41.5 | 37.5 |
| 10.0 | -610 | 16.0 x 28.5 x 41.5 | 37.5 | | | |



| ELECTRICAL DATA | | | | | | |
|-------------------------|--------------|---------------------|-----------------|--------------------|---------------------------------|-------------|
| U _{RDC} (V) | CAP. (µF) | CAPACITANCE CODE | VOLTAGE CODE | V _{AC} | DIMENSIONS w x h x l (mm) | PCM (mm) |
| 400 | 0.010 | -310 | 40 | 220 | 4.0 x 10.0 x 12.5 | 10.0 |
| | 0.015 | -315 | | | 4.0 x 10.0 x 12.5 | 10.0 |
| | 0.022 | -322 | | | 4.0 x 10.0 x 12.5 | 10.0 |
| | 0.033 | -333 | | | 4.0 x 10.0 x 12.5 | 10.0 |
| | 0.047 | -347 | | | 5.0 x 11.0 x 17.5 | 15.0 |
| | 0.068 | -368 | | | 5.0 x 11.0 x 17.5 | 15.0 |
| | 0.10 | -410 | | | 5.0 x 11.0 x 17.5 | 15.0 |
| | 0.15 | -415 | | | 6.0 x 12.0 x 17.5 | 15.0 |
| | 0.22 | -422 | | | 7.0 x 13.5 x 17.5 | 15.0 |
| | 0.33 | -433 | | | 6.0 x 15.5 x 26.0 | 22.5 |
| | 0.47 | -447 | | | 7.0 x 16.5 x 26.0 | 22.5 |
| | 0.68 | -468 | | | 9.0 x 19.0 x 31.5 | 27.5 |
| | 1.0 | -510 | | | 11.0 x 21.0 x 31.0 | 27.5 |
| | 1.5 | -515 | | | 13.0 x 23.0 x 31.0 | 27.5 |
| | 2.2 | -522 | | | 12.5 x 22.5 x 41.5 | 37.5 |
| | 3.3 | -533 | | | 14.5 x 24.5 x 41.5 | 37.5 |
| 4.7 | -547 | 18.0 x 32.5 x 41.5 | 37.5 | | | |
| 630 | 0.010 | -310 | 63 | 250 ⁽¹⁾ | 4.0 x 10.0 x 12.5 | 10.0 |
| | 0.015 | -315 | | | 4.0 x 10.0 x 12.5 | 10.0 |
| | 0.022 | -322 | | | 4.0 x 10.0 x 12.5 | 10.0 |
| | 0.033 | -333 | | | 5.0 x 11.0 x 17.5 | 15.0 |
| | 0.047 | -347 | | | 5.0 x 11.0 x 17.5 | 15.0 |
| | 0.068 | -368 | | | 5.0 x 11.0 x 17.5 | 15.0 |
| | 0.10 | -410 | | | 6.0 x 12.0 x 17.5 | 15.0 |
| | 0.15 | -415 | | | 6.0 x 15.5 x 26.0 | 22.5 |
| | 0.22 | -422 | | | 7.0 x 16.5 x 26.0 | 22.5 |
| | 0.33 | -433 | | | 8.5 x 18.0 x 26.0 | 22.5 |
| | 0.47 | -447 | | | 9.0 x 19.0 x 31.5 | 27.5 |
| | 0.68 | -468 | | | 11.0 x 21.0 x 31.0 | 27.5 |
| | 1.0 | -510 | | | 13.0 x 23.0 x 31.0 | 27.5 |
| | 1.5 | -515 | | | 14.5 x 24.5 x 41.5 | 37.5 |
| | 2.2 | -522 | | | 16.0 x 28.5 x 43.0 | 37.5 |

Notes

- Further C-values upon request.
- ⁽¹⁾ Not suitable for mains applications.
Please refer to X-capacitors in our catalog "RFI Suppression Components".

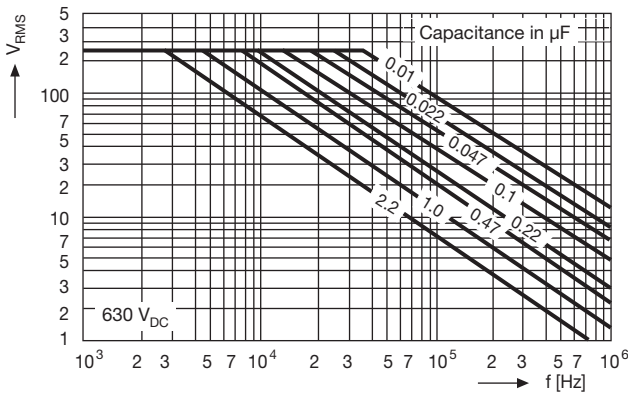
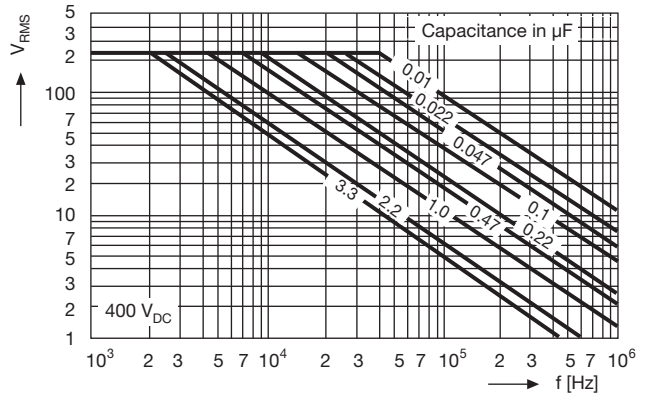
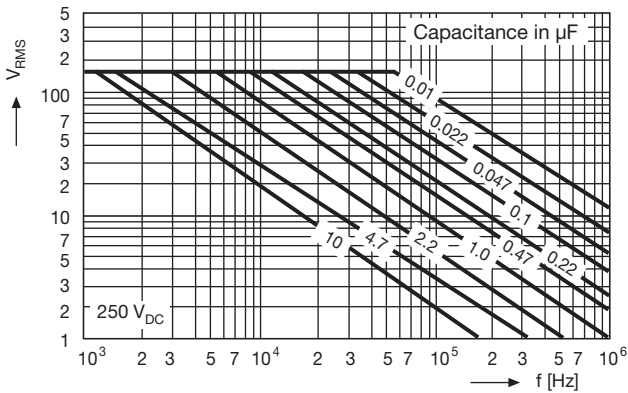
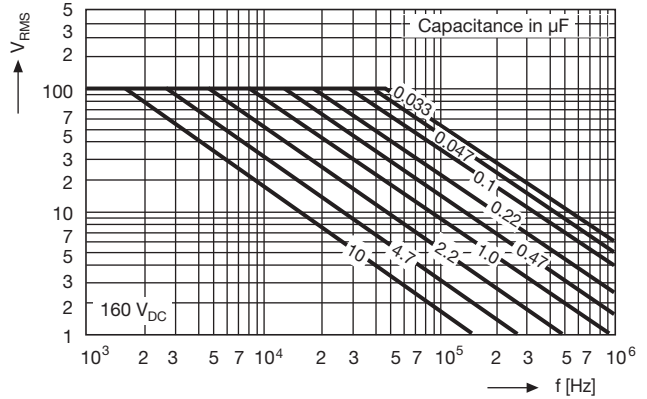
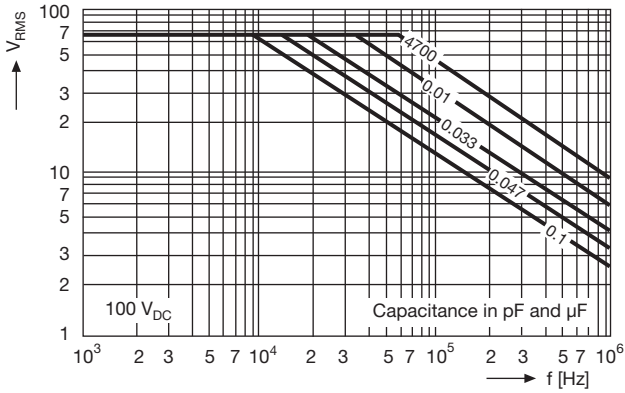
| RECOMMENDED PACKAGING | | | | | | | | |
|-----------------------|----------------------|--------------------|--------------------------|---------------------------|------------------|-----------|---------------------|-------------|
| LETTER CODE | TYPE OF PACKAGING | HEIGHT (H) (mm) | REEL DIAMETER (mm) | ORDERING CODE EXAMPLES | PCM 7.5 TO 10 | PCM 15 | PCM 22.5 TO 27.5 | PCM 37.5 |
| D | Ammo | 16.5 | S ⁽¹⁾ | MKP1840310405D | x | x | - | - |
| G | Ammo | 18.5 | S ⁽¹⁾ | MKP1840310405G | x | x | - | - |
| F | Reel | 16.5 | 350 | MKP1840310405F | x | x | - | - |
| W | Reel | 18.5 | 350 | MKP1840310405W | x | x | - | - |
| V | Reel | 18.5 | 500 | MKP1840522255V | - | x | x | - |
| G | Ammo | 18.5 | L ⁽²⁾ | MKP1840522255G | - | - | x | - |
| - | Bulk | - | - | MKP1840547255 | x | x | x | x |

Notes

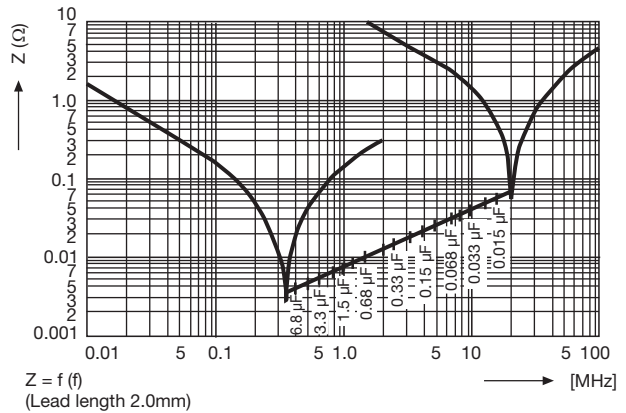
- ⁽¹⁾ S = box size 55 mm x 210 mm x 340 mm (w x h x l)
- ⁽²⁾ L = box size 60 mm x 360 mm x 510 mm (w x h x l)



PERMISSIBLE AC VOLTAGE VS. FREQUENCY



IMPEDANCE VS. FREQUENCY





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