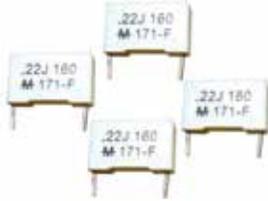


# Type 171 Radial Leaded Metallized Polypropylene

## Radial Box Metallized Polypropylene Capacitors



Type 171 radial leaded, box, metallized polypropylene capacitors are available in five pitch sizes and have a flame retardant case and epoxy encapsulant that meets UL94V-0. The Type 171 is an excellent choice for applications requiring low dielectric losses, high insulation resistance in an AC or DC environment. The polypropylene dielectric gives this capacitor excellent pulse rise time (dv/dt) performance.

### Highlights

- High dv/dt
- Low leakage
- Radial leaded (7.5, 10, 15, 22.5, 27.5 mm pitch)
- Flame retardant case and encapsulant meets UL94V-0
- Non-inductively wound

### Specifications

**Capacitance Range:** 0.0022 to 3.3  $\mu\text{F}$

**Voltage Range:** 160 to 630 Vdc (90 to 250 Vac, 60 Hz)

**Capacitance Tolerance:**  $\pm 5\%$ ,  $\pm 10\%$ ,  $\pm 20\%$

**Operating Temperature Range:**  $-55\text{ }^\circ\text{C}$  to  $+105\text{ }^\circ\text{C}$  (derate linearly to 50% rated voltage from  $85\text{ }^\circ\text{C}$  to  $105\text{ }^\circ\text{C}$ )

**Dielectric Withstand Voltage:** 1.6 x rated voltage for 2 s @  $+25\text{ }^\circ\text{C} \pm 5\text{ }^\circ\text{C}$

**Dissipation Factor (DF):**  $\text{tg}\delta \times 10^{-4}$  at  $+25\text{ }^\circ\text{C} \pm 5\text{ }^\circ\text{C}$



Complies with the EU Directive 2002/95/EC requirement restricting the use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr(VI)), PolyBrominated Biphenyls (PBB) and PolyBrominated Diphenyl Ethers (PBDE).

**Insulation Resistance:** 100,000  $\text{M}\Omega \times \mu\text{F}$ , 200,000  $\text{M}\Omega$  Min.

**Self Inductance:** 2 mm lead length - total self inductance

| Pitch (mm)       | 7.5 | 10 | 15 | 22.5 | 27.5 |
|------------------|-----|----|----|------|------|
| L (nH) $\approx$ | 8   | 9  | 10 | 18   | 18   |

**Life Test:** 2000 hrs @  $85\text{ }^\circ\text{C}$   $1.25 \times V_n$

**Damp Heat Test:** 95% RH @  $+40\text{ }^\circ\text{C}$  for 56 days

**Soldering:**  $260\text{ }^\circ\text{C} \pm 5\text{ }^\circ\text{C}$  for 10 s  $\pm 1$  s

**Long Term Storage Stability:**  $\Delta C/C \leq \pm 0.5\%$  after 2 years

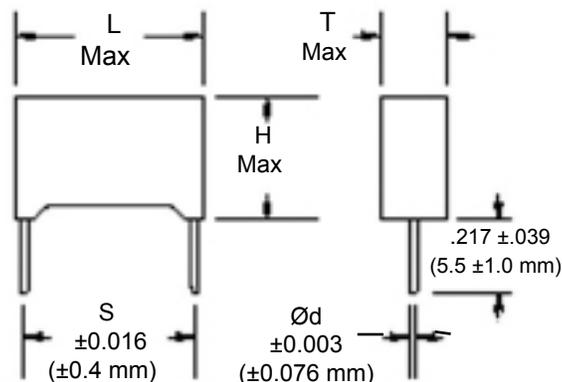
**Maximum Pulse Rise Time dv/dt ( $\text{V}/\mu$ ):**

| $V_n$ | Lead Spacing (Pitch) |    |    |      |      |
|-------|----------------------|----|----|------|------|
|       | 7.5                  | 10 | 15 | 22.5 | 27.5 |
| 160   | 5.5                  | 4  | 2  | 1.5  | 1    |
| 250   | 15                   | 11 | 7  | 4    | 3    |
| 400   | 35                   | 20 | 10 | 5.5  | 5    |
| 630   | 55                   | 30 | 15 | 8    | 7    |

If the working voltage (V) is less than the nominal voltage ( $V_n$ ), the capacitor can work at higher dv/dt. In this case, the maximum value allowed is obtained by multiplying the above value (See table dv/dt) with the ratio  $V_n/V$ .

# Type 171 Radial Leaded Metallized Polypropylene

## Outline Drawing



## Ratings

**RoHS Compliant**

| Cap (µF)                      | Catalog Part Number | Inches (mm)  |              |              |              |             | ESR (mΩ)<br>20 kHz to<br>100 kHz  | IRMS (Amps) |       |       |
|-------------------------------|---------------------|--------------|--------------|--------------|--------------|-------------|---|-------------|-------|-------|
|                               |                     | L Max        | T Max        | H Max        | S (Pitch)    | Ød          |   | 25 °C       | 45 °C | 85 °C |
| <b>160 Vdc / 90 Vac 60 Hz</b> |                     |              |              |              |              |             |   |             |       |       |
| 0.033                         | 171333*160B-F       | 0.413 (10.5) | 0.157 (4.0)  | 0.374 (9.5)  | 0.295 (7.5)  | 0.024 (0.6) | Not applicable. These capacitance values are not customarily used in switched-mode power supplies |             |       |       |
| 0.047                         | 171473*160B-F       | 0.413 (10.5) | 0.157 (4.0)  | 0.374 (9.5)  | 0.295 (7.5)  | 0.024 (0.6) |   |             |       |       |
| 0.047                         | 171473*160C-F       | 0.512 (13.0) | 0.157 (4.0)  | 0.374 (9.5)  | 0.394 (10)   | 0.024 (0.6) |   |             |       |       |
| 0.068                         | 171683*160C7-F      | 0.413 (10.5) | 0.197 (5.0)  | 0.433 (11.0) | 0.295 (7.5)  | 0.024 (0.6) |   |             |       |       |
| 0.068                         | 171683*160D-F       | 0.512 (13.0) | 0.197 (5.0)  | 0.433 (11.0) | 0.394 (10.0) | 0.024 (0.6) |   |             |       |       |
| 0.1                           | 171104*160C7-F      | 0.413 (10.5) | 0.197 (5.0)  | 0.433 (11.0) | 0.295 (7.5)  | 0.024 (0.6) |   |             |       |       |
| 0.1                           | 171104*160E-F       | 0.512 (13.0) | 0.236 (6.0)  | 0.472 (12.0) | 0.394 (10.0) | 0.024 (0.6) |   |             |       |       |
| 0.15                          | 171154*160D7-F      | 0.413 (10.5) | 0.236 (6.0)  | 0.472 (12.0) | 0.295 (7.5)  | 0.024 (0.6) |   |             |       |       |
| 0.15                          | 171154*160E-F       | 0.512 (13.0) | 0.236 (6.0)  | 0.472 (12.0) | 0.394 (10)   | 0.024 (0.6) |   |             |       |       |
| 0.22                          | 171224*160F-F       | 0.709 (18.0) | 0.197 (5.0)  | 0.433 (11.0) | 0.591 (15.0) | 0.031 (0.8) |   |             |       |       |
| 0.33                          | 171334*160G-F       | 0.709 (18.0) | 0.236 (6.0)  | 0.472 (12.0) | 0.591 (15.0) | 0.031 (0.8) | 37  | 3.7         | 3.1   | 1.4   |
| 0.47                          | 171474*160H-F       | 0.709 (18.0) | 0.295 (7.5)  | 0.531 (13.5) | 0.591 (15.0) | 0.031 (0.8) | 33  | 4.1         | 3.5   | 1.6   |
| 0.68                          | 171684*160L -F      | 1.043 (26.5) | 0.236 (6.0)  | 0.591 (15.0) | 0.886 (22.5) | 0.031 (0.8) | 26  | 5.5         | 4.7   | 2.6   |
| 1.0                           | 171105*160N-F       | 1.043 (26.5) | 0.335 (8.5)  | 0.669 (17.0) | 0.886 (22.5) | 0.031 (0.8) | 20  | 6.1         | 5.1   | 3.1   |
| 1.5                           | 171155*160O-F       | 1.043 (26.5) | 0.394 (10.0) | 0.748 (19.0) | 0.886 (22.5) | 0.031 (0.8) | 18  | 6.3         | 5.7   | 3.3   |
| 2.2                           | 171225*160P-F       | 1.26 (32.0)  | 0.433 (11.0) | 0.787 (20.0) | 1.083 (27.5) | 0.031 (0.8) | 16  | 7.4         | 6.4   | 3.6   |
| 3.3                           | 171335*160Q-F       | 1.26 (32.0)  | 0.512 (13.0) | 0.886 (22.5) | 1.083 (27.5) | 0.031 (0.8) |   |             |       |       |
| <b>250 Vdc / 90 Vac 60 Hz</b> |                     |              |              |              |              |             |   |             |       |       |
| 0.015                         | 171153*250B-F       | 0.413 (10.5) | 0.157 (4.0)  | 0.374 (9.5)  | 0.295 (7.5)  | 0.024 (0.6) | Not applicable. These capacitance values are not customarily used in switched-mode power supplies |             |       |       |
| 0.022                         | 171223*250B-F       | 0.413 (10.5) | 0.157 (4.0)  | 0.374 (9.5)  | 0.295 (7.5)  | 0.024 (0.6) |   |             |       |       |
| 0.022                         | 171223*250C-F       | 0.512 (13.0) | 0.157 (4.0)  | 0.374 (9.5)  | 0.394 (10)   | 0.024 (0.6) |   |             |       |       |
| 0.033                         | 171333*250C-F       | 0.512 (13.0) | 0.157 (4.0)  | 0.374 (9.5)  | 0.394 (10)   | 0.024 (0.6) |   |             |       |       |
| 0.047                         | 171473*250D-F       | 0.512 (13.0) | 0.197 (5.0)  | 0.433 (11.0) | 0.394 (10)   | 0.024 (0.6) |   |             |       |       |
| 0.068                         | 171683*250E-F       | 0.512 (13.0) | 0.236 (6.0)  | 0.472 (12.0) | 0.394 (10)   | 0.024 (0.6) |   |             |       |       |

\* indicates capacitance tolerance, J = ±5%, K = ±10%, M = ±20%

# Type 171 Radial Leaded Metallized Polypropylene

**RoHS Compliant**

## Ratings

| Cap<br>( $\mu$ F)              | Catalog<br>Part Number | Inches (mm)  |              |              |              |                 | ESR (m $\Omega$ )<br>20 kHz to<br>100 kHz   | IRMS (Amps) |       |       |    |     |     |     |
|--------------------------------|------------------------|--------------|--------------|--------------|--------------|-----------------|---|-------------|-------|-------|----|-----|-----|-----|
|                                |                        | L Max        | T Max        | H Max        | S (Pitch)    | $\varnothing$ d |   | 25 °C       | 45 °C | 85 °C |    |     |     |     |
| <b>250 Vdc / 90 Vac 60 Hz</b>  |                        |              |              |              |              |                 |   |             |       |       |    |     |     |     |
| 0.10                           | 171104*250F-F          | 0.709 (18.0) | 0.197 (5.0)  | 0.433 (11.0) | 0.591 (15.0) | 0.031 (0.8)     | Not applicable  |             |       |       |    |     |     |     |
| 0.15                           | 171154*250G-F          | 0.709 (18.0) | 0.236 (6.0)  | 0.472 (12.0) | 0.591 (15.0) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.22                           | 171224*250H-F          | 0.709 (18.0) | 0.295 (7.5)  | 0.531 (13.5) | 0.591 (15.0) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.33                           | 171334*250L-F          | 1.043 (26.5) | 0.236 (6.0)  | 0.591 (15.0) | 0.886 (22.5) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.47                           | 171474*250M-F          | 1.043 (26.5) | 0.276 (7.0)  | 0.650 (16.5) | 0.886 (22.5) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.68                           | 171684*250Q-F          | 1.26 (32.0)  | 0.512 (13.0) | 0.886 (22.5) | 1.083 (27.5) | 0.031 (0.8)     | 35  | 3.8         | 3.6   | 1.7   |    |     |     |     |
| 1.0                            | 171105*250P-F          | 1.26 (32.0)  | 0.433 (11.0) | 0.787 (20.0) | 1.083 (27.5) | 0.031 (0.8)     | 32  | 4           | 3.8   | 1.9   |    |     |     |     |
| 1.5                            | 171155*250Q-F          | 1.26 (32.0)  | 0.512 (13.0) | 0.886 (22.5) | 1.083 (27.5) | 0.031 (0.8)     | 28  | 4.4         | 4.4   | 3.2   |    |     |     |     |
|                                |                        |              |              |              |              |                 | 26  | 5.1         | 4.9   | 3.5   |    |     |     |     |
| <b>400 Vdc / 220 Vac 60 Hz</b> |                        |              |              |              |              |                 |   |             |       |       |    |     |     |     |
| 0.0068                         | 171682*400B-F          | 0.413 (10.5) | 0.157 (4.0)  | 0.374 (9.5)  | 0.295 (7.5)  | 0.024 (0.6)     | Not applicable.<br>These capacitance values<br>are not customarily used<br>in switched-mode power<br>supplies |             |       |       |    |     |     |     |
| 0.010                          | 171103*400B-F          | 0.413 (10.5) | 0.157 (4.0)  | 0.374 (9.5)  | 0.295 (7.5)  | 0.024 (0.6)     |   |             |       |       |    |     |     |     |
| 0.010                          | 171103*400C-F          | 0.512 (13.0) | 0.157 (4.0)  | 0.374 (9.5)  | 0.394 (10.0) | 0.024 (0.6)     |   |             |       |       |    |     |     |     |
| 0.015                          | 171153*400D-F          | 0.512 (13.0) | 0.197 (5.0)  | 0.433 (11.0) | 0.394 (10.0) | 0.024 (0.6)     |   |             |       |       |    |     |     |     |
| 0.022                          | 171223*400D-F          | 0.512 (13.0) | 0.197 (5.0)  | 0.433 (11.0) | 0.394 (10.0) | 0.024 (0.6)     |   |             |       |       |    |     |     |     |
| 0.033                          | 171333*400E-F          | 0.512 (13.0) | 0.236 (6.0)  | 0.472 (12.0) | 0.394 (10.0) | 0.024 (0.6)     |   |             |       |       |    |     |     |     |
| 0.047                          | 171473*400F-F          | 0.709 (18.0) | 0.197 (5.0)  | 0.433 (11.0) | 0.591 (15.0) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.068                          | 171683*400G-F          | 0.709 (18.0) | 0.236 (6.0)  | 0.472 (12.0) | 0.591 (15.0) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.10                           | 171104*400H-F          | 0.709 (18.0) | 0.295 (7.5)  | 0.531 (13.5) | 0.591 (15.0) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.15                           | 171154*400I-F          | 0.709 (18.0) | 0.335 (8.5)  | 0.571 (14.5) | 0.591 (15.0) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.22                           | 171224*400N-F          | 1.043 (26.5) | 0.335 (8.5)  | 0.669 (17.0) | 0.886 (22.5) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.33                           | 171334*400O-F          | 1.043 (26.5) | 0.394 (10.0) | 0.748 (19.0) | 0.886 (22.5) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.47                           | 171474*400P-F          | 1.26 (32.0)  | 0.433 (11.0) | 0.787 (20.0) | 1.083 (27.5) | 0.031 (0.8)     |   |             |       |       | 32 | 5.7 | 5   | 2.2 |
| 0.68                           | 171684*400Q-F          | 1.26 (32.0)  | 0.512 (13.0) | 0.886 (22.5) | 1.083 (27.5) | 0.031 (0.8)     |   |             |       |       | 30 | 5.7 | 5.5 | 2.4 |
| <b>630 Vdc / 250 Vac 60 Hz</b> |                        |              |              |              |              |                 |   |             |       |       |    |     |     |     |
| 0.0022                         | 171222*630B-F          | 0.413 (10.5) | 0.157 (4.0)  | 0.374 (9.5)  | 0.295 (7.5)  | 0.024 (0.6)     | Not applicable.<br>These capacitance values<br>are not customarily used<br>in switched-mode power<br>supplies |             |       |       |    |     |     |     |
| 0.0022                         | 171222*630C-F          | 0.512 (13.0) | 0.157 (4.0)  | 0.374 (9.5)  | 0.394 (10.0) | 0.024 (0.6)     |   |             |       |       |    |     |     |     |
| 0.0033                         | 171332*630B-F          | 0.413 (10.5) | 0.157 (4.0)  | 0.374 (9.5)  | 0.295 (7.5)  | 0.024 (0.6)     |   |             |       |       |    |     |     |     |
| 0.0033                         | 171332*630C-F          | 0.512 (13.0) | 0.157 (4.0)  | 0.374 (9.5)  | 0.394 (10.0) | 0.024 (0.6)     |   |             |       |       |    |     |     |     |
| 0.0047                         | 171472*630B-F          | 0.413 (10.5) | 0.157 (4.0)  | 0.374 (9.5)  | 0.295 (7.5)  | 0.024 (0.6)     |   |             |       |       |    |     |     |     |
| 0.0047                         | 171472*630C-F          | 0.512 (13.0) | 0.157 (4.0)  | 0.374 (9.5)  | 0.394 (10.0) | 0.024 (0.6)     |   |             |       |       |    |     |     |     |
| 0.0068                         | 171682*630D-F          | 0.512 (13.0) | 0.197 (5.0)  | 0.433 (11.0) | 0.394 (10.0) | 0.024 (0.6)     |   |             |       |       |    |     |     |     |
| 0.010                          | 171103*630D-F          | 0.512 (13.0) | 0.197 (5.0)  | 0.433 (11.0) | 0.394 (10.0) | 0.024 (0.6)     |   |             |       |       |    |     |     |     |
| 0.015                          | 171153*630E-F          | 0.512 (13.0) | 0.236 (6.0)  | 0.472 (12.0) | 0.394 (10.0) | 0.024 (0.6)     |   |             |       |       |    |     |     |     |
| 0.022                          | 171223*630F-F          | 0.709 (18.0) | 0.197 (5.0)  | 0.433 (11.0) | 0.591 (15.0) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.033                          | 171333*630G-F          | 0.709 (18.0) | 0.236 (6.0)  | 0.472 (12.0) | 0.591 (15.0) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.047                          | 171473*630H-F          | 0.709 (18.0) | 0.295 (7.5)  | 0.531 (13.5) | 0.591 (15.0) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.068                          | 171683*630I-F          | 0.709 (18.0) | 0.335 (8.5)  | 0.571 (14.5) | 0.591 (15.0) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.10                           | 171104*630N-F          | 1.043 (26.5) | 0.335 (8.5)  | 0.669 (17.0) | 0.886 (22.5) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.15                           | 171154*630O-F          | 1.043 (26.5) | 0.394 (10.0) | 0.748 (19.0) | 0.886 (22.5) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.22                           | 171224*630P-F          | 1.26 (32.0)  | 0.433 (11.0) | 0.787 (20.0) | 1.083 (27.5) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |
| 0.33                           | 171334*630Q-F          | 1.26 (32.0)  | 0.512 (13.0) | 0.886 (22.5) | 1.083 (27.5) | 0.031 (0.8)     |   |             |       |       |    |     |     |     |

\* indicates capacitance tolerance, J =  $\pm 5\%$ , K =  $\pm 10\%$ , M =  $\pm 20\%$

## Type 171 Radial Leaded Metallized Polypropylene

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[171104J250F-F](#) [171104K250F-F](#) [171154J250G-F](#) [171154J400I-F](#) [171154K400I-F](#) [171684J160L-F](#) [171684K160L-F](#)  
[171473J250D-F](#) [171333J630G-F](#) [171333K400E-F](#) [171333J400E-F](#) [171473K250D-F](#) [171154J630O-F](#)  
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[171335J160Q-F](#) [171334K630Q-F](#) [171334J630Q-F](#)