

# 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  $+25\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$

kHz	C $\leq 0.1\text{ }\mu\text{F}$	$0.1\text{ }\mu\text{F} < \text{C} \leq 1\text{ }\mu\text{F}$	C $> 1\text{ }\mu\text{F}$
1	$\leq 6$	$\leq 6$	$\leq 6$
10	$\leq 10$	$\leq 20$	—
100	$\leq 30$	—	—



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).

**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  $+25\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$

**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:**  $\Delta\text{C}/\text{C} \leq \pm 0.5\%$  after 2 years

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

Vn	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) 20 kHz to 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)					
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)		37	3.7	3.1	1.4
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)		33	4.1	3.5	1.6
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)		26	5.5	4.7	2.6
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)		20	6.1	5.1	3.1
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)	18	6.3	5.7	3.3	
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)	16	7.4	6.4	3.6	
<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%

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**RoHS Compliant**

## Ratings

Cap ( $\mu$ F)	Catalog Part Number	Inches (mm)					ESR (m $\Omega$ ) 20 kHz to 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)								
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)	35	3.8	3.6	1.7				
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)	32	4	3.8	1.9				
<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. These capacitance values are not customarily used in switched-mode power 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. These capacitance values are not customarily used in switched-mode power 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%

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