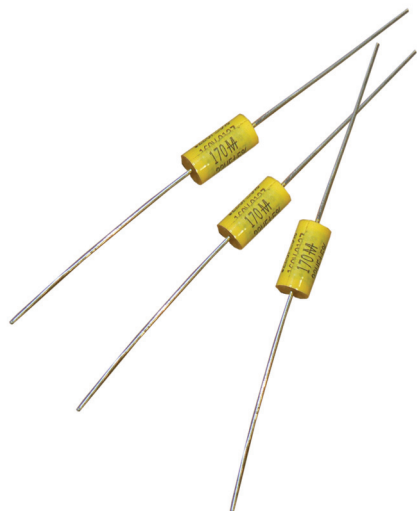


# Type 170 Axial Leaded Metallized Polypropylene

## High Current / Low ESR, Wrap and Fill Axial Leaded Capacitors



The Type 170 series axial lead metallized polypropylene capacitors are available in bulk or on tape and reel for automatic insertion. The tape wrap and epoxy end fill construction meets UL510 (outer wrap) and UL94V0 (epoxy). Type 170 is non-inductive with low ESR and high current capability for switch-mode power supply applications

### Highlights

- Low ESR
- High current
- Available on tape and reel or bulk
- Epoxy end fill meets UL94V-0
- Non inductively wound
- Flame retardant outer wrap meets UL510

### Specifications

|                                      |                                                                                                                  |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>Capacitance Range:</b>            | 0.001 $\mu$ F to 4.7 $\mu$ F                                                                                     |
| <b>Voltage Range:</b>                | 160 to 630 Vdc (90 to 250 Vac, 60 Hz)                                                                            |
| <b>Capacitance Tolerance:</b>        | $\pm 5\%$ , $\pm 10\%$ , $\pm 20\%$                                                                              |
| <b>Operating Temperature Range:</b>  | $-55^{\circ}\text{C}$ to $+105^{\circ}\text{C}$ (derate linearly to 50% rated voltage at $105^{\circ}\text{C}$ ) |
| <b>Dielectric Withstand Voltage:</b> | 1.6 x rated voltage for 2 s @ $+25^{\circ}\text{C} \pm 5^{\circ}\text{C}$                                        |
| <b>Dissipation Factor (DF):</b>      | $\text{tg}\delta \times 10^{-4}$ at $+25^{\circ}\text{C} \pm 5^{\circ}\text{C}$                                  |

| kHz | C $\leq 0.1 \mu$ F | 0.1 $\mu$ F < C $\leq 1 \mu$ F | C > 1 $\mu$ F |
|-----|--------------------|--------------------------------|---------------|
| 1   | $\leq 6$           | $\leq 6$                       | $\leq 6$      |
| 10  | $\leq 10$          | $\leq 20$                      | —             |
| 100 | $\leq 30$          | —                              | —             |

|                                                                     |                                                                |
|---------------------------------------------------------------------|----------------------------------------------------------------|
| <b>Insulation Resistance:</b>                                       | 100,000 M $\Omega$ x $\mu$ F, 200,000 M $\Omega$ Min.          |
| <b>Self Inductance:</b>                                             | 1 nH max. per 1 mm lead and body length                        |
| <b>Life Test:</b>                                                   | 1000 hrs @ $85^{\circ}\text{C}$ 1.25 x Vn                      |
| <b>Damp Heat Test:</b>                                              | 95% RH @ $+40^{\circ}\text{C}$ for 21 days                     |
| <b>Soldering:</b>                                                   | $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 10 s $\pm 1$ s |
| <b>Long Term Storage Stability:</b>                                 | $\Delta C/C \leq \pm 0.5\%$ after 2 years                      |
| <b>Maximum Pulse Rise Time dv/dt and Pulse Characteristic (Wo):</b> |                                                                |

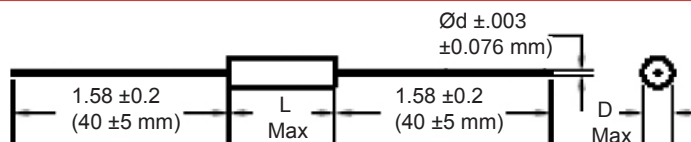
| Vn  | L Max |      |      |     |     |
|-----|-------|------|------|-----|-----|
|     | 11    | 16.5 | 20.5 | 28  | 33  |
| 160 | 5     | 5    | 3    | 2   | 1   |
| 250 | 11    | 10   | 7    | 4   | 2.5 |
| 400 | —     | 13.5 | 10   | 6.5 | 4   |
| 630 | —     | 20   | 15   | 10  | 6   |



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).

If the working voltage (V) is less than the nominal voltage (Vn), 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 Vn/V

### Outline Drawing



Lead Material: tinned copper wire

# Type 170 Axial Leaded Metallized Polypropylene

## Tape and Reel Specifications

| L Max<br>(Body Length) |           | Lead Spacing |      | Distance Between<br>Reel Flanges |    | Class |
|------------------------|-----------|--------------|------|----------------------------------|----|-------|
| Inches                 | mm        | Inches       | mm   | Inches                           | mm |       |
| ≤.433                  | ≤11       | 2.06         | 52.4 | 3.0                              | 75 | 1     |
| .551 - .808            | 14 - 20.5 | 2.50         | 63.6 | 3.4                              | 86 | 2     |
| ≥1.03                  | ≥26       | 2.87         | 73.0 | 3.7                              | 95 | 3     |

^Add class number (1, 2 or 3) to Catalog Part Number to indicate tape and reel

| Diameter       |              | Quantity per Reel |
|----------------|--------------|-------------------|
| Inches         | mm           |                   |
| 0.197          | 5            | 3,000             |
| .236 thru .256 | 6.0 thru 6.5 | 1,200             |
| 0.276          | 7            | 1,100             |
| .315 thru .346 | 8 thru 8.5   | 800               |
| .354 thru .413 | 9 thru 10.5  | 500               |
| .433 thru .512 | 11 thru 13   | 300               |
| .551 thru .571 | 14 thru 14.5 | 200               |
| >0.571         | 14.5         | Not available     |

## Ratings

| Cap                    | Catalog       | Inches (mm)  |              |             | ESR<br>(mΩ)<br>20 kHz<br>to<br>100<br>kHz                                                          | IRMS (Amps) |       |       |    |     |     |     |
|------------------------|---------------|--------------|--------------|-------------|----------------------------------------------------------------------------------------------------|-------------|-------|-------|----|-----|-----|-----|
|                        |               | D Max        | L Max        | Ød          |                                                                                                    | 25 °C       | 45 °C | 85 °C |    |     |     |     |
| (µF)                   | Part Number   |              |              |             |                                                                                                    |             |       |       |    |     |     |     |
| 160 Vdc / 90 Vac 60 Hz |               |              |              |             |                                                                                                    |             |       |       |    |     |     |     |
| 0.022                  | 170223*160AA^ | 0.197 (5.0)  | 0.433 (11.0) | 0.02 (0.5)  | Not applicable. These capacitance values are not customarily used in switched-mode power supplies. |             |       |       |    |     |     |     |
| 0.022                  | 170223*160BB^ | 0.236 (6.0)  | 0.65 (16.5)  | 0.02 (0.5)  |                                                                                                    |             |       |       |    |     |     |     |
| 0.027                  | 170273*160AA^ | 0.197 (5.0)  | 0.433 (11.0) | 0.02 (0.5)  |                                                                                                    |             |       |       |    |     |     |     |
| 0.027                  | 170273*160BB^ | 0.236 (6.0)  | 0.65 (16.5)  | 0.02 (0.5)  |                                                                                                    |             |       |       |    |     |     |     |
| 0.033                  | 170333*160AA^ | 0.197 (5.0)  | 0.433 (11.0) | 0.02 (0.5)  |                                                                                                    |             |       |       |    |     |     |     |
| 0.033                  | 170333*160BB^ | 0.236 (6.0)  | 0.65 (16.5)  | 0.02 (0.5)  |                                                                                                    |             |       |       |    |     |     |     |
| 0.039                  | 170393*160AA^ | 0.197 (5.0)  | 0.433 (11.0) | 0.02 (0.5)  |                                                                                                    |             |       |       |    |     |     |     |
| 0.039                  | 170393*160BB^ | 0.236 (6.0)  | 0.65 (16.5)  | 0.02 (0.5)  |                                                                                                    |             |       |       |    |     |     |     |
| 0.047                  | 170473*160AA^ | 0.197 (5.0)  | 0.433 (11.0) | 0.02 (0.5)  |                                                                                                    |             |       |       |    |     |     |     |
| 0.047                  | 170473*160BB^ | 0.236 (6.0)  | 0.65 (16.5)  | 0.02 (0.5)  |                                                                                                    |             |       |       |    |     |     |     |
| 0.056                  | 170563*160BB^ | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                    |             |       |       |    |     |     |     |
| 0.068                  | 170683*160BB^ | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                    |             |       |       |    |     |     |     |
| 0.082                  | 170823*160BB^ | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                    |             |       |       |    |     |     |     |
| 0.1                    | 170104*160BB^ | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                    |             |       |       |    |     |     |     |
| 0.12                   | 170124*160DB^ | 0.276 (7.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                    |             |       |       |    |     |     |     |
| 0.15                   | 170154*160DB^ | 0.276 (7.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                    |             |       |       |    |     |     |     |
| 0.18                   | 170184*160EB^ | 0.315 (8.0)  | 0.65 (16.5)  | 0.031 (0.8) |                                                                                                    |             |       |       |    |     |     |     |
| 0.22                   | 170224*160EB^ | 0.315 (8.0)  | 0.65 (16.5)  | 0.031 (0.8) |                                                                                                    |             |       |       |    |     |     |     |
| 0.27                   | 170274*160EC^ | 0.315 (8.0)  | 0.807 (20.5) | 0.031 (0.8) |                                                                                                    |             |       |       |    |     |     |     |
| 0.33                   | 170334*160EC^ | 0.315 (8.0)  | 0.807 (20.5) | 0.031 (0.8) |                                                                                                    |             |       |       |    |     |     |     |
| 0.39                   | 170394*160HC^ | 0.374 (9.5)  | 0.807 (20.5) | 0.031 (0.8) |                                                                                                    |             |       |       | 37 | 8.7 | 3.1 | 1.4 |
| 0.47                   | 170474*160HC^ | 0.374 (9.5)  | 0.807 (20.5) | 0.031 (0.8) |                                                                                                    |             |       |       |    |     |     |     |
| 0.56                   | 170564*160GE^ | 0.354 (9.0)  | 1.102 (28)   | 0.031 (0.8) | 35                                                                                                 | 3.9         | 3.3   | 1.5   |    |     |     |     |
| 0.68                   | 170684*160GE^ | 0.354 (9.0)  | 1.102 (28)   | 0.031 (0.8) |                                                                                                    |             |       |       |    |     |     |     |
| 0.82                   | 170824*160JE^ | 0.413 (10.5) | 1.102 (28)   | 0.031 (0.8) |                                                                                                    |             |       |       |    |     |     |     |
| 1                      | 170105*160JE^ | 0.413 (10.5) | 1.102 (28)   | 0.031 (0.8) | 31                                                                                                 | 4.3         | 3.6   | 1.7   |    |     |     |     |
| 1.5                    | 170155*160ME^ | 0.472 (12.0) | 1.102 (28)   | 0.031 (0.8) |                                                                                                    |             |       |       |    |     |     |     |
| 2.2                    | 170225*160PF^ | 0.531 (13.5) | 1.299 (33)   | 0.031 (0.8) |                                                                                                    |             |       |       |    |     |     |     |
| 3.3                    | 170335*160TF^ | 0.610 (15.5) | 1.299 (33)   | 0.039 (1.0) |                                                                                                    |             |       |       |    |     |     |     |
| 4.7                    | 170475*160XF^ | 0.709 (18.0) | 1.299 (33)   | 0.039 (1.0) |                                                                                                    |             |       |       |    |     |     |     |

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

^If ordering tape and reel, insert 1, 2, or 3.

See tape & reel specifications to determine which class applies.

| Cap                     | Catalog       | Inches (mm)  |              |             | ESR<br>(mΩ)<br>20 kHz<br>to<br>100<br>kHz                                                          | IRMS (Amps) |       |       |
|-------------------------|---------------|--------------|--------------|-------------|----------------------------------------------------------------------------------------------------|-------------|-------|-------|
|                         |               | D Max        | L Max        | Ød          |                                                                                                    | 25 °C       | 45 °C | 85 °C |
| (μF)                    | Part Number   |              |              |             |                                                                                                    |             |       |       |
| 250 Vdc / 200 Vac 60 Hz |               |              |              |             |                                                                                                    |             |       |       |
| 0.01                    | 170103*250AA^ | 0.197 (5.0)  | 0.433 (11.0) | 0.02 (0.5)  | Not applicable. These capacitance values are not customarily used in switched-mode power supplies. |             |       |       |
| 0.01                    | 170103*250BB^ | 0.236 (6.0)  | 0.65 (16.5)  | 0.02 (0.5)  |                                                                                                    |             |       |       |
| 0.012                   | 170123*250AA^ | 0.197 (5.0)  | 0.433 (11.0) | 0.02 (0.5)  |                                                                                                    |             |       |       |
| 0.012                   | 170123*250BB^ | 0.236 (6.0)  | 0.65 (16.5)  | 0.02 (0.5)  |                                                                                                    |             |       |       |
| 0.015                   | 170153*250AA^ | 0.197 (5.0)  | 0.433 (11.0) | 0.02 (0.5)  |                                                                                                    |             |       |       |
| 0.015                   | 170153*250BB^ | 0.236 (6.0)  | 0.65 (16.5)  | 0.02 (0.5)  |                                                                                                    |             |       |       |
| 0.018                   | 170183*250BB^ | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                    |             |       |       |
| 0.022                   | 170223*250BB^ | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                    |             |       |       |
| 0.027                   | 170273*250BB^ | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                    |             |       |       |
| 0.033                   | 170333*250BB^ | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                    |             |       |       |
| 0.039                   | 170393*250CB^ | 0.256 (6.5)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                    |             |       |       |
| 0.047                   | 170473*250CB^ | 0.256 (6.5)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                    |             |       |       |
| 0.056                   | 170563*250EB^ | 0.315 (8.0)  | 0.65 (16.5)  | 0.031 (0.8) |                                                                                                    |             |       |       |
| 0.068                   | 170683*250EB^ | 0.315 (8.0)  | 0.65 (16.5)  | 0.031 (0.8) |                                                                                                    |             |       |       |
| 0.082                   | 170823*250FB^ | 0.335 (8.5)  | 0.65 (16.5)  | 0.031 (0.8) |                                                                                                    |             |       |       |
| 0.1                     | 170104*250FB^ | 0.335 (8.5)  | 0.65 (16.5)  | 0.031 (0.8) |                                                                                                    |             |       |       |
| 0.12                    | 170124*250FC^ | 0.335 (8.5)  | 0.807 (20.5) | 0.031 (0.8) |                                                                                                    |             |       |       |
| 0.15                    | 170154*250FC^ | 0.335 (8.5)  | 0.807 (20.5) | 0.031 (0.8) |                                                                                                    |             |       |       |
| 0.18                    | 170184*250HC^ | 0.374 (9.5)  | 0.807 (20.5) | 0.031 (0.8) |                                                                                                    |             |       |       |
| 0.22                    | 170224*250HC^ | 0.374 (9.5)  | 0.807 (20.5) | 0.031 (0.8) |                                                                                                    |             |       |       |
| 0.27                    | 170274*250GE^ | 0.354 (9.0)  | 1.102 (28)   | 0.031 (0.8) |                                                                                                    |             |       |       |
| 0.33                    | 170334*250GE^ | 0.354 (9.0)  | 1.102 (28)   | 0.031 (0.8) |                                                                                                    |             |       |       |
| 0.39                    | 170394*250JE^ | 0.413 (10.5) | 1.102 (28)   | 0.031 (0.8) |                                                                                                    |             |       |       |
| 0.47                    | 170474*250JE^ | 0.413 (10.5) | 1.102 (28)   | 0.031 (0.8) |                                                                                                    |             |       |       |
| 0.56                    | 170564*250ME^ | 0.472 (12.0) | 1.102 (28)   | 0.031 (0.8) | 35                                                                                                 | 3.8         | 3.6   | 1.7   |
|                         |               |              |              |             | 33                                                                                                 | 3.9         | 3.7   | 1.8   |
| 0.68                    | 170684*250ME^ | 0.472 (12.0) | 1.102 (28)   | 0.031 (0.8) | 32                                                                                                 | 4           | 3.8   | 1.9   |
| 0.82                    | 170824*250NF^ | 0.512 (13.0) | 1.299 (33)   | 0.031 (0.8) | 31                                                                                                 | 4.2         | 4     | 2     |
| 1                       | 170105*250NF^ | 0.512 (13.0) | 1.299 (33)   | 0.031 (0.8) | 28                                                                                                 | 4.4         | 4.4   | 3.2   |
| 1.5                     | 170155*250TF^ | 0.610 (15.5) | 1.299 (33)   | 0.031 (0.8) | 26                                                                                                 | 5.1         | 4.9   | 3.5   |
| 2.2                     | 170225*250XF^ | 0.709 (18.0) | 1.299 (33)   | 0.039 (1.0) | 20                                                                                                 | 8.4         | 7     | 4.1   |
| 3.3                     | 170335*250ZF^ | 0.827 (21.0) | 1.299 (33)   | 0.039 (1.0) | 18                                                                                                 | 9           | 7.8   | 4.5   |

Replacement Part No. with "BB" case size.

# Type 170 Axial Leaded Metallized Polypropylene

| Cap<br>(µF)             | Catalog<br>Part Number    | Inches (mm)  |              |             | ESR (mΩ)                                                                                                   | IRMS (Amps) |       |       |  |
|-------------------------|---------------------------|--------------|--------------|-------------|------------------------------------------------------------------------------------------------------------|-------------|-------|-------|--|
|                         |                           | D Max        | L Max        | Ød          | 20 kHz to                                                                                                  | 25 °C       | 45 °C | 85 °C |  |
| 100 kHz                 |                           |              |              |             |                                                                                                            |             |       |       |  |
| 400 Vdc / 220 Vac 60 Hz |                           |              |              |             |                                                                                                            |             |       |       |  |
| 0.015                   | 170153*400BB <sup>A</sup> | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) | Not applicable.<br>These capacitance values<br>are not customarily used in<br>switched-mode power supplies |             |       |       |  |
| 0.018                   | 170183*400CB <sup>A</sup> | 0.256 (6.5)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                            |             |       |       |  |
| 0.022                   | 170223*400CB <sup>A</sup> | 0.256 (6.5)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                            |             |       |       |  |
| 0.027                   | 170273*400DB <sup>A</sup> | 0.276 (7.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                            |             |       |       |  |
| 0.033                   | 170333*400DB <sup>A</sup> | 0.276 (7.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                            |             |       |       |  |
| 0.039                   | 170393*400EB <sup>A</sup> | 0.315 (8.0)  | 0.65 (16.5)  | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.047                   | 170473*400EB <sup>A</sup> | 0.315 (8.0)  | 0.65 (16.5)  | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.056                   | 170563*400EC <sup>A</sup> | 0.315 (8.0)  | 0.807 (20.5) | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.068                   | 170683*400EC <sup>A</sup> | 0.315 (8.0)  | 0.807 (20.5) | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.082                   | 170823*400GC <sup>A</sup> | 0.354 (9.0)  | 0.807 (20.5) | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.10                    | 170104*400GC <sup>A</sup> | 0.354 (9.0)  | 0.807 (20.5) | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.12                    | 170124*400FE <sup>A</sup> | 0.335 (8.5)  | 1.102 (28)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.15                    | 170154*400FE <sup>A</sup> | 0.335 (8.5)  | 1.102 (28)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.18                    | 170184*400IE <sup>A</sup> | 0.394 (10)   | 1.102 (28)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.22                    | 170224*400IE <sup>A</sup> | 0.394 (10)   | 1.102 (28)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.27                    | 170274*400LE <sup>A</sup> | 0.453 (11.5) | 1.102 (28)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.33                    | 170334*400LE <sup>A</sup> | 0.453 (11.5) | 1.102 (28)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.39                    | 170394*400NE <sup>A</sup> | 0.512 (13.0) | 1.102 (28)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.47                    | 170474*400NE <sup>A</sup> | 0.512 (13.0) | 1.102 (28)   | 0.031 (0.8) | 32                                                                                                         | 5.7         | 5     | 2.2   |  |
| 0.56                    | 170564*400QF <sup>A</sup> | 0.571 (14.5) | 1.299 (33)   | 0.031 (0.8) | 31                                                                                                         | 5.7         | 5.3   | 2.3   |  |
| 0.68                    | 170684*400QF <sup>A</sup> | 0.571 (14.5) | 1.299 (33)   | 0.031 (0.8) | 30                                                                                                         | 5.7         | 5.5   | 2.4   |  |
| 0.82                    | 170824*400VF <sup>A</sup> | 0.669 (17)   | 1.299 (33)   | 0.039 (1.0) | 28                                                                                                         | 5.7         | 5.6   | 2.6   |  |
| 1.0                     | 170105*400VF <sup>A</sup> | 0.669 (17)   | 1.299 (33)   | 0.039 (1.0) | 27                                                                                                         | 5.7         | 5.7   | 4.3   |  |
| 1.5                     | 170155*400YF <sup>A</sup> | 0.807 (20.5) | 1.299 (33)   | 0.039 (1.0) | 25                                                                                                         | 7           | 6.7   | 4.7   |  |

\* Indicates Tolerance J = ±5%, K = ±10%, M = ±20%

<sup>A</sup>If ordering Tape & Reel, see specification to determine which class (1, 2, or 3) applies

| Cap<br>(µF)             | Catalog<br>Part Number    | Inches (mm)  |              |             | ESR (mΩ)<br>20 kHz to                                                                                      | IRMS (Amps) |       |       |  |
|-------------------------|---------------------------|--------------|--------------|-------------|------------------------------------------------------------------------------------------------------------|-------------|-------|-------|--|
|                         |                           | D Max        | L Max        | Ød          | 100 kHz                                                                                                    | 25 °C       | 45 °C | 85 °C |  |
| 630 Vdc / 250 Vac 60 Hz |                           |              |              |             |                                                                                                            |             |       |       |  |
| 0.001                   | 170102*630BB <sup>A</sup> | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) | Not Applicable.<br>These capacitance values<br>are not customarily used in<br>switched-mode power supplies |             |       |       |  |
| 0.0012                  | 170122*630BB <sup>A</sup> | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                            |             |       |       |  |
| 0.0015                  | 170152*630BB <sup>A</sup> | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                            |             |       |       |  |
| 0.0018                  | 170182*630BB <sup>A</sup> | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                            |             |       |       |  |
| 0.0022                  | 170222*630BB <sup>A</sup> | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                            |             |       |       |  |
| 0.0027                  | 170272*630BB <sup>A</sup> | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                            |             |       |       |  |
| 0.0033                  | 170332*630BB <sup>A</sup> | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                            |             |       |       |  |
| 0.0039                  | 170392*630BB <sup>A</sup> | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                            |             |       |       |  |
| 0.0047                  | 170472*630BB <sup>A</sup> | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                            |             |       |       |  |
| 0.0056                  | 170562*630BB <sup>A</sup> | 0.236 (6.0)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                            |             |       |       |  |
| 0.0068                  | 170682*630CB <sup>A</sup> | 0.256 (6.5)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                            |             |       |       |  |
| 0.0082                  | 170822*630CB <sup>A</sup> | 0.256 (6.5)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                            |             |       |       |  |
| 0.010                   | 170103*630CB <sup>A</sup> | 0.256 (6.5)  | 0.65 (16.5)  | 0.024 (0.6) |                                                                                                            |             |       |       |  |
| 0.012                   | 170123*630EB <sup>A</sup> | 0.315 (8.0)  | 0.65 (16.5)  | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.015                   | 170153*630EB <sup>A</sup> | 0.315 (8.0)  | 0.65 (16.5)  | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.018                   | 170183*630FB <sup>A</sup> | 0.335 (8.5)  | 0.65 (16.5)  | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.022                   | 170223*630FB <sup>A</sup> | 0.335 (8.5)  | 0.65 (16.5)  | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.027                   | 170273*630FC <sup>A</sup> | 0.315 (8.0)  | 0.807 (20.5) | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.033                   | 170333*630FC <sup>A</sup> | 0.315 (8.0)  | 0.807 (20.5) | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.039                   | 170393*630HC <sup>A</sup> | 0.374 (9.5)  | 0.807 (20.5) | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.047                   | 170473*630HC <sup>A</sup> | 0.374 (9.5)  | 0.807 (20.5) | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.056                   | 170563*630GE <sup>A</sup> | 0.354 (9.0)  | 1.102 (28)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.068                   | 170683*630GE <sup>A</sup> | 0.354 (9.0)  | 1.102 (28)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.082                   | 170823*630IE <sup>A</sup> | 0.394 (10)   | 1.102 (28)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.100                   | 170104*630IE <sup>A</sup> | 0.394 (10)   | 1.102 (28)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.120                   | 170124*630ME <sup>A</sup> | 0.472 (12.0) | 1.102 (28)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.150                   | 170154*630ME <sup>A</sup> | 0.472 (12.0) | 1.102 (28)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.180                   | 170184*630NF <sup>A</sup> | 0.512 (13.0) | 1.299 (33)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.220                   | 170224*630NF <sup>A</sup> | 0.512 (13.0) | 1.299 (33)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.270                   | 170274*630TF <sup>A</sup> | 0.610 (15.5) | 1.299 (33)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.330                   | 170334*630TF <sup>A</sup> | 0.610 (15.5) | 1.299 (33)   | 0.031 (0.8) |                                                                                                            |             |       |       |  |
| 0.390                   | 170394*630XF <sup>A</sup> | 0.709 (18.0) | 1.299 (33)   | 0.039 (1.0) |                                                                                                            |             |       |       |  |
| 0.470                   | 170474*630XF <sup>A</sup> | 0.709 (18.0) | 1.299 (33)   | 0.039 (1.0) | 28                                                                                                         | 6.8         | 5.8   | 2.6   |  |
| 0.560                   | 170564*630ZF <sup>A</sup> | 0.827 (21.0) | 1.299 (33)   | 0.039 (1.0) | 26                                                                                                         | 7.4         | 6.3   | 2.8   |  |
| 0.680                   | 170684*630ZF <sup>A</sup> | 0.827 (21.0) | 1.299 (33)   | 0.039 (1.0) | 25                                                                                                         | 7.8         | 6.8   | 2.9   |  |