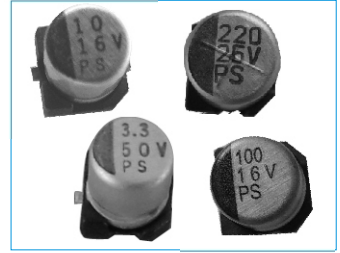
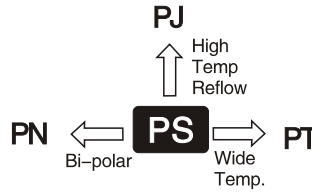


Chip Type Aluminum Electrolytic Capacitors

PS Chip Type Series



- Case diameter: $\Phi 4\text{mm} \sim \Phi 10\text{mm}$
- Reflow soldering is available
- Available for high density surface mounting
- Adapted to the RoHS directive (2002/95/EC).

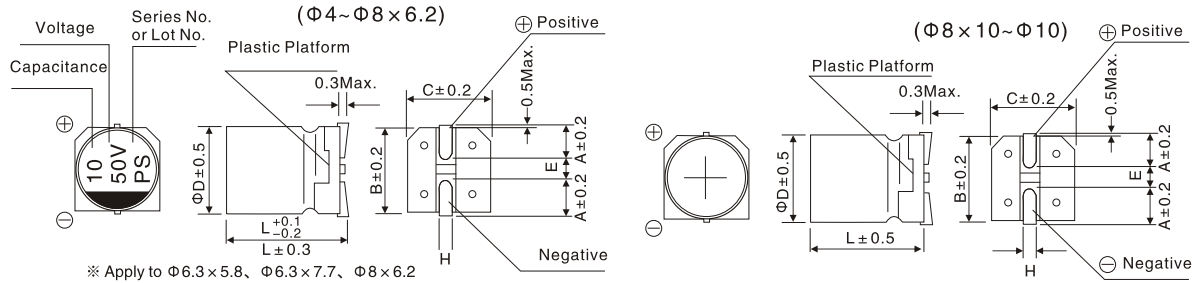
Specifications

| Item | Characteristics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--------------------|--|--------------------|--|-----------------|--|------------|------|------|------|------|-------------------|------------|---|---|---|---|---|---|---|---|---|---------------|---|---|---|---|---|---|---|---|---|-------------------|------------|----|---|---|---|---|---|---|---|---|---------------|----|----|---|---|---|---|---|---|---|
| Operating Temperature Range | $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Voltage Range | 4V ~ 100V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nominal Capacitance Range | 0.1 μF ~ 1500 μF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capacitance Tolerance | M ($\pm 20\%$) (20°C, 120Hz) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leakage Current | $I \leq 0.01CV$ or $3(\mu\text{A})$, whichever is greater. C:Nominal capacitance (μF) V:Rated voltage(V) (20°C, after 2 minutes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dissipation Factor (Max) | Refer to "Nominal capacitance, rated voltage, rated ripple current, $\tan \delta$ and case size table" (20°C, 120Hz) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Temperature Stability (Impedance Ratio) | <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th colspan="2">WV</th> <th>4</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Z(-25°C)/Z(+20°C)</td> <td>< $\Phi 8$</td> <td>7</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>$\geq \Phi 8$</td> <td>7</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td rowspan="2">Z(-40°C)/Z(+20°C)</td> <td>< $\Phi 8$</td> <td>15</td> <td>8</td> <td>8</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> <tr> <td>$\geq \Phi 8$</td> <td>15</td> <td>10</td> <td>8</td> <td>6</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> </tbody> </table> (120Hz) | WV | | 4 | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | Z(-25°C)/Z(+20°C) | < $\Phi 8$ | 7 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | $\geq \Phi 8$ | 7 | 5 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | Z(-40°C)/Z(+20°C) | < $\Phi 8$ | 15 | 8 | 8 | 4 | 4 | 3 | 3 | 3 | 3 | $\geq \Phi 8$ | 15 | 10 | 8 | 6 | 4 | 3 | 3 | 3 | 3 |
| WV | | 4 | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Z(-25°C)/Z(+20°C) | < $\Phi 8$ | 7 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | $\geq \Phi 8$ | 7 | 5 | 4 | 3 | 2 | 2 | 2 | 2 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Z(-40°C)/Z(+20°C) | < $\Phi 8$ | 15 | 8 | 8 | 4 | 4 | 3 | 3 | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | $\geq \Phi 8$ | 15 | 10 | 8 | 6 | 4 | 3 | 3 | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Load Life | <p>After 2000 hours' application of rated voltage at 85°C, the capacitors shall meet the following requirement:</p> <table border="1" style="width: 100%;"> <tbody> <tr> <td>Capacitance change</td> <td>Within $\pm 20\%$ of the initial value(4V:Within $\pm 25\%$ of the initial value).</td> </tr> <tr> <td>Dissipation factor</td> <td>Not more than 200% of the initial specified value.</td> </tr> <tr> <td>Leakage current</td> <td>Not more than the initial specified value.</td> </tr> </tbody> </table> | Capacitance change | Within $\pm 20\%$ of the initial value(4V:Within $\pm 25\%$ of the initial value). | Dissipation factor | Not more than 200% of the initial specified value. | Leakage current | Not more than the initial specified value. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capacitance change | Within $\pm 20\%$ of the initial value(4V:Within $\pm 25\%$ of the initial value). | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dissipation factor | Not more than 200% of the initial specified value. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leakage current | Not more than the initial specified value. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shelf Life | After storage for 1000 hours at $+85^{\circ}\text{C}$, the capacitors shall meet the requirement of load life above . | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Ripple Current & Frequency Multipliers | <table border="1" style="width: 100%; text-align: center;"> <tbody> <tr> <td>Frequency</td> <td>50Hz</td> <td>120Hz</td> <td>300Hz</td> <td>1kHz</td> <td>$\geq 10\text{kHz}$</td> </tr> <tr> <td>Multiplier</td> <td>0.70</td> <td>1.00</td> <td>1.17</td> <td>1.36</td> <td>1.50</td> </tr> </tbody> </table> | Frequency | 50Hz | 120Hz | 300Hz | 1kHz | $\geq 10\text{kHz}$ | Multiplier | 0.70 | 1.00 | 1.17 | 1.36 | 1.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Frequency | 50Hz | 120Hz | 300Hz | 1kHz | $\geq 10\text{kHz}$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Multiplier | 0.70 | 1.00 | 1.17 | 1.36 | 1.50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Chip Type Aluminum Electrolytic Capacitors

PS Chip Type Series

■ Dimensions



(mm)

| | 4×5.4 | 5×5.4 | 6.3×5.4 | 6.3×5.8 | 6.3×7.7 | 8×6.2 | 8×10 | 10×10 |
|---|-----------|-------|---------|---------|---------|-------|-----------|-------|
| A | 1.8 | 2.1 | 2.4 | 2.4 | 2.4 | 3.3 | 2.9 | 3.2 |
| B | 4.3 | 5.3 | 6.6 | 6.6 | 6.6 | 8.3 | 8.3 | 10.3 |
| C | 4.3 | 5.3 | 6.6 | 6.6 | 6.6 | 8.3 | 8.3 | 10.3 |
| E | 1.0 | 1.3 | 2.2 | 2.2 | 2.2 | 2.3 | 3.1 | 4.5 |
| L | 5.4 | 5.4 | 5.4 | 5.8 | 7.7 | 6.2 | 10 | 10 |
| H | 0.5 ~ 0.8 | | | | | | 0.8 ~ 1.1 | |

■ Nominal capacitance, rated voltage, rated ripple current and case size table

| WV Item μ F | 4 | | | 6.3 | | | 10 | | | 16 | | |
|-------------------|--------------------|--------------|-----------|-----------------------------|----------------------|-----------------|-----------------------------|----------------------|----------------|-----------------------------|----------------------|-----------------|
| | D×L mm | tan δ | I~ | D×L mm | tan δ | I~ | D×L mm | tan δ | I~ | D×L mm | tan δ | I~ |
| 10 | | | | | | | | | | 4×5.4 | 0.16 | 23 |
| 22 | | | | 4×5.4 | 0.26 | 28 | 4×5.4 5×5.4 | 0.30 0.20 | 30 33 | 4×5.4 5×5.4 | 0.26 0.16 | 30 37 |
| 33 | 4×5.4 | 0.35 | 28 | 4×5.4 5×5.4 | 0.35 0.26 | 34 37 | 4×5.4 5×5.4 | 0.30 0.20 | 34 41 | 5×5.4 6.3×5.4 | 0.26 0.16 | 44 49 |
| 47 | 4×5.4 | 0.35 | 33 | 4×5.4 5×5.4 | 0.35 0.26 | 40 45 | 5×5.4 6.3×5.4 | 0.30 0.26 | 47 52 | 5×5.4 6.3×5.4 | 0.26 0.16 | 52 58 |
| 56 | 5×5.4 | 0.35 | 42 | 5×5.4 6.3×5.4 | 0.35 0.26 | 46 52 | 5×5.4 6.3×5.4 | 0.30 0.26 | 50 57 | 5×5.4 6.3×5.4 | 0.26 0.20 | 57 63 |
| 100 | 5×5.4 | 0.35 | 56 | 5×5.4 6.3×5.4 | 0.35 0.26 | 47 70 | 5×5.4 6.3×5.4 6.3×5.8 | 0.30 0.26 0.26 | 54 76 78 | 6.3×5.4 6.3×5.8 8×6.2 | 0.26 0.26 0.20 | 86 89 125 |
| 150 | 6.3×5.4 | 0.35 | 79 | 6.3×5.4 | 0.35 | 71 | 6.3×7.7 | 0.26 | 76 | 6.3×7.7 | 0.26 | 135 |
| 220 | 6.3×5.4 6.3×5.8 | 0.35 0.35 | 96 99 | 6.3×5.4 6.3×5.8 8×6.2 | 0.35 0.35 0.35 | 86 89 103 | 6.3×7.7 8×6.2 | 0.26 0.26 | 119 121 | 6.3×7.7 8×10 | 0.26 0.20 | 162 215 |
| 330 | 6.3×5.4 6.3×7.7 | 0.50 0.35 | 98 140 | 6.3×7.7 8×6.2 | 0.35 0.35 | 125 127 | 8×10 | 0.26 | 240 | 8×10 10×10 | 0.20 0.20 | 270 380 |
| 470 | 6.3×7.7 | 0.35 | 200 | 8×10 | 0.35 | 265 | 8×10 10×10 | 0.26 0.26 | 290 327 | 8×10 10×10 | 0.20 0.20 | 307 330 |
| 680 | 8×10 | 0.35 | 284 | 8×10 | 0.35 | 318 | 10×10 | 0.26 | 393 | 10×10 | 0.20 | 396 |
| 1000 | 8×10 | 0.35 | 344 | 8×10 10×10 | 0.35 0.35 | 372 400 | 10×10 | 0.26 | 454 | | | |
| 1500 | 10×10 | 0.35 | 347 | 10×10 | 0.35 | 489 | | | | | | |

Rated ripple current (mA rms)
(85°C, 120Hz)

Chip Type Aluminum Electrolytic Capacitors

PS Chip Type Series

■ Nominal capacitance, rated voltage, rated ripple current and case size table

| WV Item μ F | 25 | | | 35 | | | 50 | | | 63 | | | 100 | | |
|-------------------|--------------------------|----------------------|-------------------|-----------------------------|----------------------|-------------------|-----------------------------|----------------------|-------------------|--------------------|--------------|----------|------------------|--------------|-----------|
| | D×L mm | tan δ | I~ | D×L mm | tan δ | I~ | D×L mm | tan δ | I~ | D×L mm | tan δ | I~ | D×L mm | tan δ | I~ |
| 0.1 | | | | | | | 4×5.4 | 0.12 | 1.0 | 4×5.4 | 0.18 | 1.0 | | | |
| 0.22 | | | | | | | 4×5.4 | 0.12 | 2.0 | 4×5.4 | 0.18 | 2.3 | | | |
| 0.33 | | | | | | | 4×5.4 | 0.12 | 2.8 | 4×5.4 | 0.18 | 3.5 | | | |
| 0.47 | | | | | | | 4×5.4 | 0.12 | 4.0 | 4×5.4 | 0.18 | 5.0 | | | |
| 1.0 | | | | | | | 4×5.4 | 0.12 | 8.4 | 4×5.4 | 0.18 | 10 | | | |
| 2.2 | | | | | | | 4×5.4 | 0.12 | 13 | 4×5.4 | 0.18 | 15 | | | |
| 3.3 | | | | | | | 4×5.4 | 0.12 | 17 | 4×5.4 | 0.18 | 20 | 6.3×7.7 8×6.2 | 0.18 0.18 | 28 31 |
| 4.7 | 4×5.4 | 0.14 | 16 | 4×5.4 | 0.12 | 18 | 4×5.4 5×5.4 | 0.14 0.12 | 18 20 | 4×5.4 | 0.18 | 23 | 6.3×7.7 8×10 | 0.18 0.18 | 35 51 |
| 10 | 4×5.4 5×5.4 | 0.14 0.12 | 24 27 | 4×5.4 5×5.4 | 0.16 0.12 | 24 29 | 5×5.4 6.3×5.4 | 0.14 0.12 | 30 33 | 6.3×5.4 6.3×5.8 | 0.18 0.18 | 34 35 | 6.3×7.7 8×10 | 0.18 0.18 | 50 85 |
| 22 | 5×5.4 6.3×5.4 | 0.20 0.14 | 38 42 | 5×5.4 6.3×5.4 | 0.16 0.12 | 39 46 | 6.3×5.4 6.3×5.8 8×6.2 | 0.14 0.14 0.12 | 43 44 56 | 6.3×7.7 8×10 | 0.18 0.18 | 70 78 | 8×10 10×10 | 0.18 0.18 | 90 120 |
| 33 | 5×5.4 6.3×5.4 | 0.20 0.14 | 46 52 | 6.3×5.4 6.3×5.8 8×6.2 | 0.16 0.16 0.14 | 53 54 67 | 6.3×7.7 8×6.2 8×10 | 0.14 0.12 0.12 | 94 95 110 | 8×10 | 0.18 | 160 | 10×10 | 0.18 | 190 |
| 47 | 6.3×5.4 6.3×5.8 | 0.20 0.20 | 60 62 | 6.3×5.4 6.3×7.7 8×6.2 | 0.16 0.16 0.14 | 69 70 76 | 6.3×7.7 8×10 10×10 | 0.14 0.12 0.12 | 105 132 146 | 8×10 | 0.18 | 170 | | | |
| 56 | 6.3×7.7 | 0.20 | 65 | 6.3×7.7 | 0.16 | 80 | 8×10 | 0.12 | 150 | 8×10 | 0.18 | 230 | | | |
| 100 | 6.3×7.7 8×6.2 8×10 | 0.20 0.16 0.16 | 143 145 180 | 6.3×7.7 8×10 10×10 | 0.16 0.14 0.14 | 132 175 210 | 8×10 10×10 | 0.12 0.12 | 181 195 | 10×10 | 0.18 | 280 | | | |
| 150 | 8×10 | 0.16 | 192 | 8×10 | 0.14 | 214 | 10×10 | 0.12 | 238 | | | | | | |
| 220 | 8×10 10×10 | 0.16 0.16 | 232 250 | 8×10 10×10 | 0.14 0.14 | 246 265 | 10×10 | 0.12 | 289 | | | | | | |
| 330 | 8×10 10×10 | 0.16 0.16 | 284 305 | 10×10 | 0.14 | 324 | | | | | | | | | |
| 470 | 10×10 | 0.16 | 393 | | | | | | | | | | | | |

Rated ripple current (mA rms)(85°C, 120Hz)