

# Type SPA Solid Polymer Aluminum SMT Capacitors

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- Ultra-Low ESR – 5 m $\Omega$  to 9 m $\Omega$  @ 100 kHz
- High Ripple current – up to 4.0 Arms at 100 kHz
- Long Life – No dry out failure related mechanism
- Stable Impedance and ESR vs. Temperature
- Great for bulk storage and ripple filtering
- Ignition free

## Applications

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Motherboard By-Pass

Switching Supply Input/Output Filters

Power Supply Decoupling

High Frequency Noise Reduction

Laptop LCD Displays

Automotive Digital Equipment

Portable Electronic Equipment

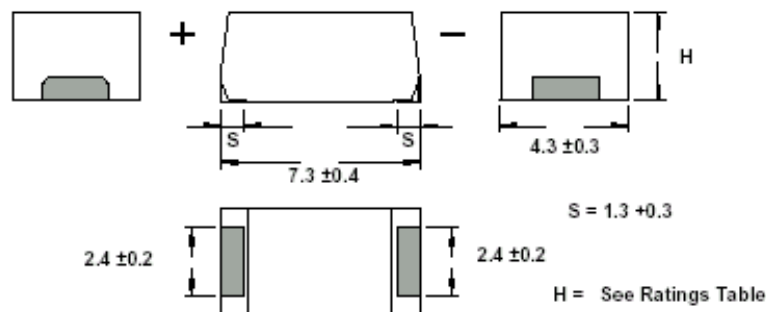
## Specifications

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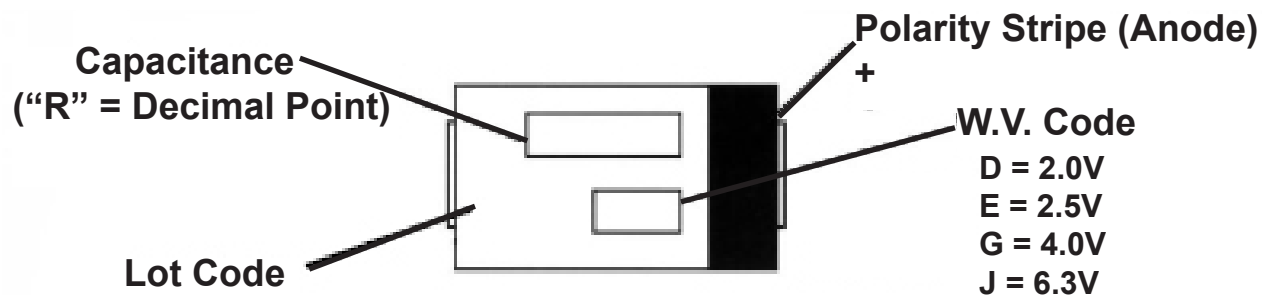
|                               |                                                                                                                                                                  |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Operating Temperature:</b> | -40 °C to +105 °C                                                                                                                                                |
| <b>Rated Voltage:</b>         | 2 Vdc to 6.3 Vdc                                                                                                                                                 |
| <b>Surge Voltage:</b>         | 1.25 x Rated Voltage                                                                                                                                             |
| <b>Capacitance Range:</b>     | 56 $\mu$ F to 470 $\mu$ F                                                                                                                                        |
| <b>Capacitance Tolerance:</b> | $\pm$ 20% @120 Hz, +20 °C                                                                                                                                        |
| <b>Dissipation Factor:</b>    | 0.06 max (1.8/1.9); 0.10 max (2.8/4.2)<br>(Case "H" mm; 120 Hz +20 °C)                                                                                           |
| <b>DC Leakage Current:</b>    | $I \leq 0.06$ CV after 2 minutes                                                                                                                                 |
| <b>Load Life:</b>             | 1000 h @ 105 °C<br>$\Delta$ Capacitance: $\pm$ 10% of the initial<br>measured value<br>D.F. $\leq$ Initial specified value<br>DCL $\leq$ Initial specified value |

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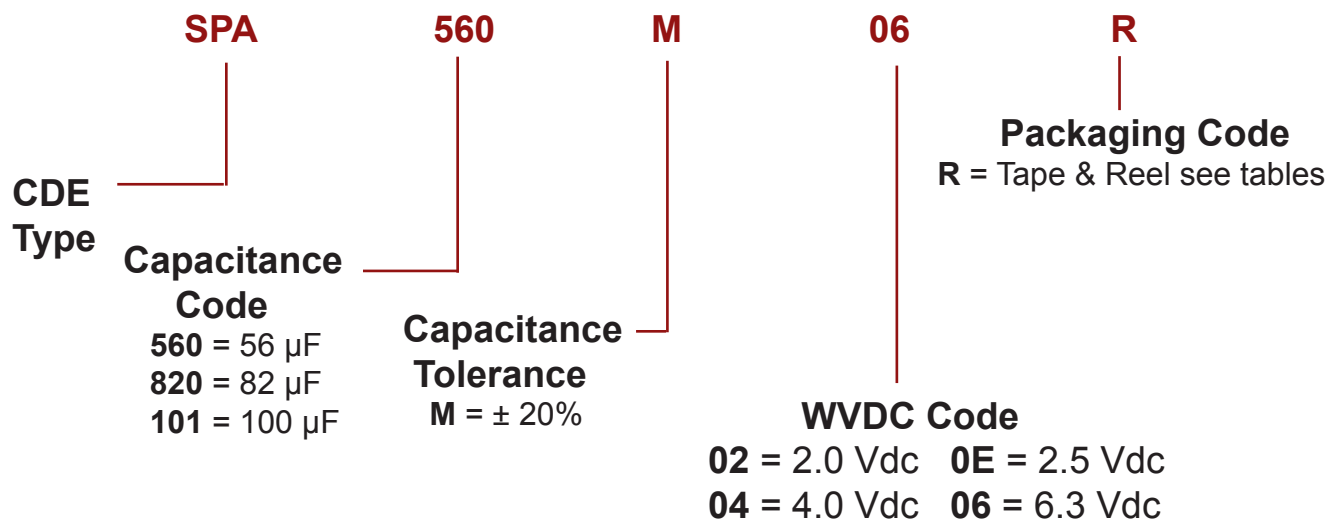
## Outline Drawing



## Markings



## Ordering Information



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## Ratings

| Capacitance<br>( $\mu$ F) | Catalog<br>Part Number<br>(Tape & Reel) | Maximum<br>E.S.R.<br>100 kHz/20 °C<br>( $\Omega$ ) | Maximum<br>Ripple Current<br>100 kHz/105 °C<br>(A <sub>rms</sub> ) | Case<br>Height<br>H<br>(mm) | Qty/Reel |
|---------------------------|-----------------------------------------|----------------------------------------------------|--------------------------------------------------------------------|-----------------------------|----------|
| <b>2.0 Vdc</b>            |                                         |                                                    |                                                                    |                             |          |
| 120                       | SPA121M02R                              | 0.009                                              | 3.0                                                                | 1.8 $\pm$ 1                 | 3500     |
| 150                       | SPA151M02R                              | 0.009                                              | 3.0                                                                | 1.8 $\pm$ 1                 | 3500     |
| 180                       | SPA181M02R                              | 0.009                                              | 3.0                                                                | 1.9 $\pm$ 2                 | 3500     |
| 270                       | SPA271M02R                              | 0.007                                              | 3.5                                                                | 2.8 $\pm$ 2                 | 2000     |
| 330                       | SPA331M02R                              | 0.007                                              | 3.5                                                                | 2.8 $\pm$ 2                 | 2000     |
| 390                       | SPA391M02R                              | 0.005                                              | 4.0                                                                | 4.2 $\pm$ 1                 | 2000     |
| 470                       | SPA471M02R**                            | 0.005                                              | 4.0                                                                | 4.2 $\pm$ 1                 | 2000     |
| <b>2.5 Vdc</b>            |                                         |                                                    |                                                                    |                             |          |
| 100                       | SPA101M0ER                              | 0.009                                              | 3.0                                                                | 1.8 $\pm$ 1                 | 3500     |
| 120                       | SPA121M0ER                              | 0.009                                              | 3.0                                                                | 1.8 $\pm$ 1                 | 3500     |
| 150                       | SPA151M0ER                              | 0.009                                              | 3.0                                                                | 1.9 $\pm$ 2                 | 3500     |
| 220                       | SPA221M0ER                              | 0.007                                              | 3.5                                                                | 2.8 $\pm$ 2                 | 2000     |
| 270                       | SPA271M0ER                              | 0.007                                              | 3.5                                                                | 2.8 $\pm$ 2                 | 2000     |
| 330                       | SPA331M0ER                              | 0.005                                              | 4.0                                                                | 4.2 $\pm$ 1                 | 2000     |
| 390                       | SPA391M0ER                              | 0.005                                              | 4.0                                                                | 4.2 $\pm$ 1                 | 2000     |
| <b>4.0 Vdc</b>            |                                         |                                                    |                                                                    |                             |          |
| 82                        | SPA820M04R                              | 0.009                                              | 3.0                                                                | 1.8 $\pm$ 1                 | 3500     |
| 100                       | SPA101M04R                              | 0.009                                              | 3.0                                                                | 1.9 $\pm$ 2                 | 3500     |
| 150                       | SPA151M04R                              | 0.007                                              | 3.5                                                                | 2.8 $\pm$ 2                 | 2000     |
| 220                       | SPA221M04R                              | 0.005                                              | 4.0                                                                | 4.2 $\pm$ 1                 | 2000     |
| <b>6.3 Vdc</b>            |                                         |                                                    |                                                                    |                             |          |
| 56                        | SPA560M06R                              | 0.009                                              | 3.0                                                                | 1.8 $\pm$ 1                 | 3500     |
| 68                        | SPA680M06R                              | 0.009                                              | 3.0                                                                | 1.9 $\pm$ 2                 | 3500     |
| 120                       | SPA121M06R                              | 0.007                                              | 3.5                                                                | 2.8 $\pm$ 2                 | 2000     |
| 180                       | SPA181M06R                              | 0.005                                              | 4.0                                                                | 4.2 $\pm$ 1                 | 2000     |

Highlighted part numbers no longer available

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