

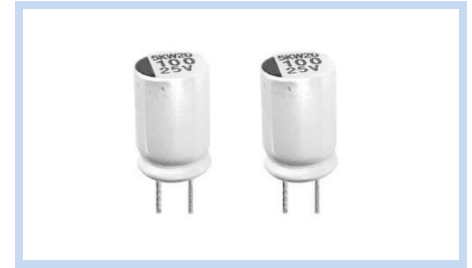
# Conductive Polymer Aluminum Solid Capacitor –Radial Type

PE Series

MERITEK

## FEATURE

- Rated voltage: 2.5 ~ 16VDC
- Endurance 2000hours at 105°C
- Super Low ESR, High ripple current capability
- Suitable for DC-DC converters, voltage regulators applications
- RoHS Compliant



## PART NUMBERING SYSTEM



PE   6R3   471   M   0809  
 (1)   (2)   (3)   (4)   (5)

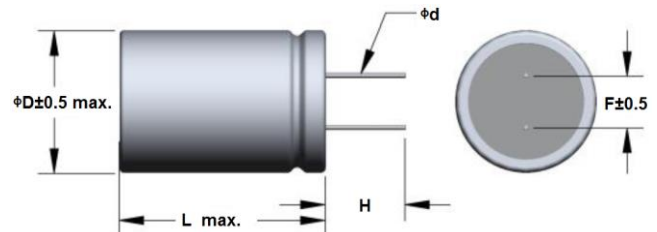
| No  | Item           | Digit | Description                           | Series Reference                                       |
|-----|----------------|-------|---------------------------------------|--|
| (1) | Meritek Series | PE    | Conductive Polymer Aluminum Solid Cap | Radial Type  |
| (2) | Rated Voltage  | 6R3   | 6R3: 6.3VDC                           | 2R5: 2.5VDC, 16V: 16VDC                                |
| (3) | Capacitance    | 471   | 471: 470 $\mu$ F                      | 561: 560 $\mu$ F, 152: 1500 $\mu$ F, 222: 2200 $\mu$ F |
| (4) | Tolerance      | M     | M: $\pm$ 20%                          | -20% ~ +20%  |
| (5) | Size Code      | 0809  | Diameter X Length: 8.0X9.0 mm         | 0609, 0812, 1012                                       |

## ELECTRICAL SPECIFICATIONS

| Item                                | Characteristics   |                   |             |
|-------------------------------------|---|-------------------|-------------|
| Operating Temperature Range         | -55°C ~ +105°C  |                   |             |
| Rated Working Voltage               | 2.5VDC ~ 16VDC  |                   |             |
| Capacitance                         | 270 $\mu$ F ~ 2200 $\mu$ F  |                   |             |
| Capacitance Tolerance               | -20% ~ +20% (M)   |                   |             |
| Leakage Current                     | Shall not exceed values shown in electrical characteristics.                                    |                   |             |
| Dissipation Factor (tan $\delta$ )  | $\leq$ 0.1 (Max.) at 20°C, 120Hz  |                   |             |
| Impedance at high & Low Temperature | Impedance at 100kHz at -55 $\pm$ 3°C or 105 $\pm$ 2°C shall meet the values listed on the right | Z(-55°C)/Z(+20°C) | $\leq$ 1.25 |
|                                     |   | Z(105°C)/Z(+20°C) | $\leq$ 1.25 |

## DIMENSION

| Size (mm) | $\phi$ D $\pm$ 0.5 | L max. | $\phi$ d $\pm$ 0.5 | F $\pm$ 0.4 | H $\pm$ 0.3 |
|-----------|--------------------|--------|--------------------|-------------|-------------|
| 0609      | 6.3                | 9.0    | 0.6                | 2.5         | 3.2         |
| 0809      | 8.0                | 9.0    | 0.6                | 3.5         | 3.2         |
| 0812      | 8.0                | 12.0   | 0.6                | 3.5         | 3.2         |
| 1012      | 10.0               | 12.0   | 0.6                | 5.0         | 3.2         |



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## ELECTRICAL CHARACTERISTICS

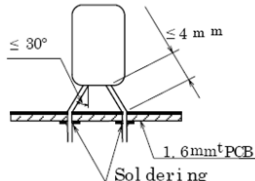
| WV/SV<br>(VDC) | Part No.      | Cap<br>( $\mu$ F)@120Hz | Case<br>Size Code | Leakage Current<br>Max. ( $\mu$ A) | ESR Max.<br>(m $\Omega$ ) @100kHz | Ripple Current<br>(A r.m.s)<br>@100kHz |
|----------------|---------------|-------------------------|-------------------|------------------------------------|-----------------------------------|--|
| 2.5/2.9        | PE2R5561M0609 | 560                     | 0609              | 500                                | 7                                 | 5,000                                  |
|                | PE2R5561M0809 | 560                     | 0809              | 500                                | 7                                 | 6,100                                  |
|                | PE2R5821M0609 | 820                     | 0609              | 500                                | 7                                 | 5,000                                  |
|                | PE2R5821M0809 | 820                     | 0809              | 500                                | 7                                 | 6,100                                  |
|                | PE2R5102M0809 | 1,000                   | 0809              | 500                                | 7                                 | 6,100                                  |
|                | PE2R5122M0809 | 1,200                   | 0809              | 600                                | 7                                 | 6,100                                  |
|                | PE2R5152M0812 | 1,500                   | 0812              | 750                                | 7                                 | 6,100                                  |
|                | PE2R5152M1012 | 1,500                   | 1012              | 750                                | 7                                 | 6,640                                  |
|                | PE2R5222M1012 | 2,200                   | 1012              | 1,100                              | 7                                 | 6,640                                  |
| 4/4.6          | PE4R0561M0809 | 560                     | 0809              | 500                                | 7                                 | 6,100                                  |
|                | PE4R0122M0809 | 1,200                   | 0809              | 960                                | 7                                 | 6,100                                  |
| 6.3/7.2        | PE6R3471M0609 | 470                     | 0609              | 592                                | 8                                 | 4,700                                  |
|                | PE6R3471M0809 | 470                     | 0809              | 592                                | 8                                 | 5,700                                  |
|                | PE6R3561M0609 | 560                     | 0609              | 705                                | 8                                 | 4,700                                  |
|                | PE6R3561M0809 | 560                     | 0809              | 705                                | 8                                 | 5,700                                  |
|                | PE6R3821M0609 | 820                     | 0609              | 1,033                              | 8                                 | 4,700                                  |
|                | PE6R3821M0809 | 820                     | 0809              | 1,033                              | 8                                 | 5,700                                  |
|                | PE6R3102M1012 | 1,000                   | 1012              | 1,260                              | 7                                 | 6,640                                  |
|                | PE6R3152M1012 | 1,500                   | 1012              | 1,890                              | 7                                 | 6,640                                  |
| 16/18.4        | PE16V271M0809 | 270                     | 0809              | 864                                | 10                                | 5,000                                  |
|                | PE16V271M0812 | 270                     | 0812              | 864                                | 10                                | 5,230                                  |
|                | PE16V331M0809 | 330                     | 0809              | 1,056                              | 10                                | 5,000                                  |
|                | PE16V471M0812 | 470                     | 0812              | 1,505                              | 10                                | 5,230                                  |
|                | PE16V681M1012 | 680                     | 1012              | 2,176                              | 10                                | 6,100                                  |
|                | PE16V821M1012 | 820                     | 1012              | 2,624                              | 10                                | 6,100                                  |
|                | PE16V102M1012 | 1000                    | 1012              | 3,200                              | 12                                | 5,400                                  |

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PE Series

MERITEK

## RELIABILITY

| Item                         | Characteristics   |   |                                |
|------------------------------|---|---|--------------------------------|
| Endurance                    | Appearance  | No significant damage                       |                                |
|                              | Capacitance Change  | $\leq \pm 20\%$ of the initial value        |                                |
|                              | Dissipation Factor  | $\leq 150\%$ of the initial specified value |                                |
|                              | ESR   | $\leq 150\%$ of the initial specified value |                                |
|                              | Leakage Current   | $\leq$ The initial specified value          |                                |
| Damp Heat, Steady State      | Appearance  | No significant damage                       |                                |
|                              | Capacitance Change  | $\leq \pm 20\%$ of the initial value        |                                |
|                              | Dissipation Factor  | $\leq 150\%$ of the initial specified value |                                |
|                              | ESR   | $\leq 150\%$ of the initial specified value |                                |
|                              | Leakage Current   | $\leq$ The initial specified value          |                                |
| Surge Voltage                | Appearance  | No significant damage                       |                                |
|                              | Capacitance Change  | $\leq \pm 20\%$ of the initial value        |                                |
|                              | Dissipation Factor  | $\leq 150\%$ of the initial specified value |                                |
|                              | ESR   | $\leq 150\%$ of the initial specified value |                                |
|                              | Leakage Current   | $\leq$ The initial specified value          |                                |
| Pull strength                | Gradually up to the specified value list below and held for $10 \pm 1$ s.   |   |                                |
|                              | Case Diameter (mm)  | Load Strength (N)                           | Load Strength (kg)             |
|                              | 4   | 2.5   | 0.255                          |
|                              | 6.3   | 5   | 0.51                           |
|                              | 8   | 10  | 1.0                            |
| Bending strength             | Bending strength load listed below will be hung at the end of the lead wire termination, and the body of a capacitor shall be bent $90^\circ$ and return to its original position. For 2 to 3 seconds.  |   |                                |
|                              | Case Diameter (mm)  | Load Strength (N)                           | Load Strength (kg)             |
|                              | 4   | 1.25  | 0.218                          |
|                              | 6.3   | 2.5   | 0.255                          |
|                              | 8   | 5   | 0.51                           |
| Vibration                    | Vibration cycle should vary from 10 to 55Hz with total amplitude of 1.5mm and return to 10Hz in about 1 minute. Vibration applied to a capacitor should be three directions, which each perpendicular to the other two as longitudinal axis of capacitor set as z axis, and last for 2 hours in each direction. |   |                                |
|                              |    |   |                                |
| Solderability                | Time: $2 \pm 0.5$ s, Temperature: $235 \pm 5^\circ\text{C}$ , Up to 1.5 to 2.0mm from body  |   | at least 95% should be covered |
| Resistance to soldering heat | Capacitance Change  | $\leq \pm 5\%$ of the initial value         |                                |
|                              | Dissipation Factor  | $\leq$ The initial specified value          |                                |
|                              | Leakage Current   | $\leq$ The initial specified value          |                                |
| Resistance to solvent        | A Capacitor will be immersed for $30 \pm 5$ seconds in isopropylalcohol at $20^\circ\text{C}$ to $25^\circ\text{C}$ and then pull it out.   |   | No significant damage          |

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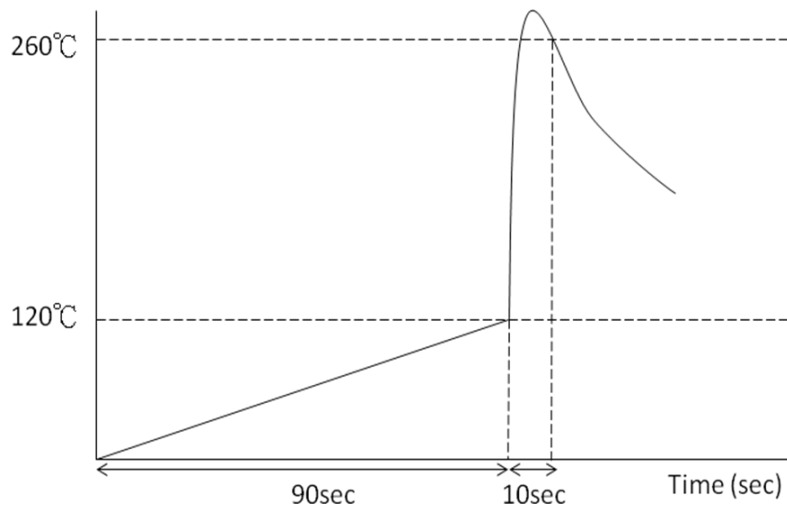
PE Series

MERITEK

## RELIABILITY (CONTINUED)

| Item                     | Characteristics    |                               |   |
|--------------------------|--------------------|-------------------------------|---|
| Rapid Temperature Change | Appearance         | No significant damage         | Temperature cycle:<br>-55°C: 30±5mins<br>-55°C to 105°C: ≤3mins<br>105°C:30±5mins<br>105°C to -55°C: ≤3mins<br>Cycles numbers: 5 cycles |
|                          | Capacitance Change | ≤ ±10% of the initial value   |   |
|                          | Dissipation Factor | ≤ The initial specified value |   |
|                          | ESR                | ≤ The initial specified value |   |
|                          | Leakage Current    | ≤ The initial specified value |   |

## SOLDERING RECOMMANDTION



Solder capacitors under the soldering conditions as follows.

- (a) Pre-heat condition: atmosphere temperature 120°C or less for up to 90 seconds
- (b) Soldering condition: solder temperature 260°C or less for up to 10 seconds.

## PACKAGING SPECIFICATION

| Case size | PE bag  | inner box             | outer box                     |
|-----------|---------|-----------------------|-------------------------------|
| 0609      | 500 PCS | 8 bags<br>(4,000 PCS) | 5 inner boxes<br>(20,000 PCS) |
| 0809      | 500 PCS | 6 bags<br>(3,000 PCS) | 5 inner boxes<br>(15,000 PCS) |
| 0812      | 500 PCS | 4 bags<br>(2,000 PCS) | 5 inner boxes<br>(10,000 PCS) |
| 1012      | 500 PCS | 4 bags<br>(2,000 PCS) | 5 inner boxes<br>(10,000 PCS) |