

# HPE

导电性高分子固体铝电解电容器(标准品) -引线型

Conductive polymer solid aluminum electrolytic capacitor (Standard product)- Radial type

## 特点 Features

- 可适于无铅焊。Lead free-flow is supported.
- RoHS指令已对应完毕。Adapted to the RoHS directive.



## 主要技术性能 Specifications

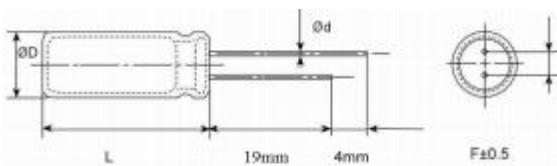
| 项目 Items                                                                | 特性 Characteristics                                                                                                                                                                                      |                                                                                          |                  |                   |                    |                |
|-------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------|-------------------|--------------------|----------------|
| 工作温度范围<br>Operating Temperature Range                                   | -55~+105°C                                                                                                                                                                                              |                                                                                          |                  |                   |                    |                |
| 额定电压范围<br>Rated Voltage Range                                           | 2.5~25V                                                                                                                                                                                                 |                                                                                          |                  |                   |                    |                |
| 标称电容量范围<br>Nominal Capacitance Range                                    | 6.8~3300μF                                                                                                                                                                                              |                                                                                          |                  |                   |                    |                |
| 标称电容量允许偏差<br>Nominal Capacitance Tolerance                              | ± 20%(20°C, 120Hz)                                                                                                                                                                                      |                                                                                          |                  |                   |                    |                |
| 漏电流<br>Leakage Current                                                  | 参照规格表 Reference parameter table<br>2分钟 at 20°C, after 2 minutes                                                                                                                                         |                                                                                          |                  |                   |                    |                |
| 损耗角正切(tgδ)<br>Dissipation Factor (Max)                                  | 20°C, 120Hz                                                                                                                                                                                             | 直径<br>tgδ                                                                                | Φ5~Φ5.45<br>0.10 | Φ6.3(L≤7)<br>0.10 | Φ6.3 (L>7)<br>0.08 | Φ8~Φ10<br>0.08 |
| 等效串联电阻 ESR                                                              | 参照规格表 Reference parameter table (mΩ at 100k~300kHz 20°C max)                                                                                                                                            |                                                                                          |                  |                   |                    |                |
| 高低温特性比<br>Characteristics of impedance ratio at high temp. and low temp | 要求在100KHZ 20°C<br>Based the value at 100KHZ +20°C<br>-55°C Z/Z20°C 5 to 1.25<br>+105°C Z/Z20°C 0.75 to 1.25                                                                                             |                                                                                          |                  |                   |                    |                |
| 耐久性<br>Load Life                                                        | + 105°C施加额定电压2000小时后, 待温度恢复到20°C后进行测试, 电容器应满足以下要求:<br>After 2000 hours' application of rated voltage at 105°C, and then being stabilized at +20°C, the capacitors shall meet the following requirement: |                                                                                          |                  |                   |                    |                |
|                                                                         | 电容量变化率<br>Capacitance Change                                                                                                                                                                            | ±20%初始值以内<br>Within ± 20% of the initial value (16V: within ±25% of the initial value)   |                  |                   |                    |                |
|                                                                         | 损耗角正切<br>Dissipation Factor                                                                                                                                                                             | ≤ 150%初始规定值<br>Not more than 150% of the initial specified value                         |                  |                   |                    |                |
|                                                                         | 阻抗<br>Equivalent Series Resistance                                                                                                                                                                      | ≤ 150%初始规定值<br>Not more than 150% of the initial specified value                         |                  |                   |                    |                |
|                                                                         | 漏电流<br>Leakage Current                                                                                                                                                                                  | ≤初始规定值<br>Not more than the initial specified value                                      |                  |                   |                    |                |
| 稳态湿热<br>Damp heat(Steady state)                                         | 60°C, 90~95% RH, 不加电压1000小时 60°C , 90~95% RH, 1000 hours, No-applied voltage.                                                                                                                           |                                                                                          |                  |                   |                    |                |
|                                                                         | 电容量变化率<br>Capacitance Change                                                                                                                                                                            | ±20%初始值以内<br>Within ± 20% of the initial value (16V: within ±25% of the initial value)   |                  |                   |                    |                |
|                                                                         | 损耗角正切<br>Dissipation Factor                                                                                                                                                                             | ≤ 150%初始规定值<br>Not more than 150% of the initial specified value                         |                  |                   |                    |                |
|                                                                         | 阻抗<br>Equivalent Series Resistance                                                                                                                                                                      | ≤ 150%初始规定值<br>Not more than 150% of the initial specified value                         |                  |                   |                    |                |
|                                                                         | 漏电流<br>Leakage Current                                                                                                                                                                                  | ≤初始规定值<br>Not more than the initial specified value                                      |                  |                   |                    |                |
| 耐焊接热<br>Resistance to Soldering Heat                                    | (VPS)(260°C X 10s)                                                                                                                                                                                      |                                                                                          |                  |                   |                    |                |
|                                                                         | 电容量变化率<br>Capacitance Change                                                                                                                                                                            | ±10%初始值以内<br>Within ± 10% of the initial value (16V以上: within ±15% of the initial value) |                  |                   |                    |                |
|                                                                         | 损耗角正切<br>Dissipation Factor                                                                                                                                                                             | ≤初始规定值<br>Not more than the initial specified value                                      |                  |                   |                    |                |
|                                                                         | 阻抗<br>Equivalent Series Resistance                                                                                                                                                                      | ≤初始规定值<br>Not more than the initial specified value                                      |                  |                   |                    |                |
|                                                                         | 漏电流<br>Leakage Current                                                                                                                                                                                  | ≤初始规定值<br>Not more than the initial specified value                                      |                  |                   |                    |                |

※ 当产生疑问的时候, 用以下电压处理后测定。

电压处理: 125°C下, 连续加载120分钟的电压。加载电压为额定电压。  
When in doubt, apply the following voltage treatment and measure.

Voltage processing: under the condition of 125 °C ambient temperature, continuous load voltage of 120 minutes. Load voltage is rated voltage.

## 尺寸图 Dimensions



## 尺寸表 Size List

单位 Unit: mm

|            |       |      |     |     |     |
|------------|-------|------|-----|-----|-----|
| D(+0.5max) | 5     | 5.45 | 6.3 | 8   | 10  |
| F(±0.5)    | 2.0   | 2.5  | 2.5 | 3.5 | 5   |
| d(±0.05)   | 0.5   | 0.5  | 0.5 | 0.6 | 0.6 |
| L          | +1max |      |     |     |     |

## 标称电容量、额定电压、额定纹波电流与尺寸对应表

## Nominal Capacitance, Rated Voltage, Rated Ripple Current and Case Size Table

| Rated Volt.<br>(V) | Capacitance<br>(μF) | Size<br>ΦD×L(mm) | Tanδ<br>(120Hz, 20°C) | LC<br>(μA) | ESR<br>(mΩ/at 100k~300kHz 20°C max) | Rated R. C.<br>(mA/rms at 100kHz, 105°C) |
|--------------------|---------------------|------------------|-----------------------|------------|-------------------------------------|------------------------------------------|
| 2.5                | 330                 | 5×7              | 0.1                   | 165        | 20                                  | 2900                                     |
|                    | 330                 | 5×8              | 0.1                   | 165        | 20                                  | 2900                                     |
|                    | 390                 | 5.45×7           | 0.1                   | 195        | 20                                  | 3100                                     |
|                    | 470                 | 5×8              | 0.1                   | 235        | 20                                  | 2900                                     |
|                    | 470                 | 5×9              | 0.1                   | 235        | 20                                  | 2900                                     |
|                    | 470                 | 6.3×6            | 0.1                   | 235        | 20                                  | 3100                                     |
|                    | 560                 | 5×9              | 0.1                   | 280        | 20                                  | 3100                                     |
|                    | 560                 | 5.45×9           | 0.1                   | 280        | 20                                  | 3100                                     |
|                    | 560                 | 6.3×8            | 0.08                  | 280        | 12                                  | 3100                                     |
|                    | 680                 | 5.45×9           | 0.1                   | 340        | 20                                  | 3100                                     |
|                    | 820                 | 6.3×8            | 0.08                  | 410        | 12                                  | 3900                                     |
|                    | 820                 | 8×8              | 0.08                  | 410        | 12                                  | 5400                                     |
|                    | 1000                | 6.3×9            | 0.08                  | 500        | 12                                  | 3900                                     |
|                    | 1000                | 8×8              | 0.08                  | 500        | 12                                  | 5400                                     |
|                    | 1000                | 8×11.5           | 0.08                  | 500        | 12                                  | 5400                                     |
|                    | 1500                | 8×8              | 0.08                  | 750        | 12                                  | 5400                                     |
|                    | 1500                | 8×11.5           | 0.08                  | 750        | 12                                  | 5400                                     |
|                    | 1500                | 10×12            | 0.08                  | 750        | 12                                  | 5400                                     |
|                    | 2200                | 10×12            | 0.08                  | 1100       | 12                                  | 5400                                     |
|                    | 3300                | 10×12            | 0.08                  | 1650       | 12                                  | 5400                                     |
| 4                  | 330                 | 5×7              | 0.1                   | 264        | 20                                  | 2900                                     |
|                    | 330                 | 5×8              | 0.1                   | 264        | 20                                  | 2900                                     |
|                    | 390                 | 5.45×7           | 0.1                   | 312        | 20                                  | 3100                                     |
|                    | 470                 | 5×8              | 0.1                   | 376        | 20                                  | 2900                                     |
|                    | 470                 | 5×9              | 0.1                   | 376        | 20                                  | 2900                                     |
|                    | 560                 | 5×9              | 0.1                   | 448        | 20                                  | 3100                                     |
|                    | 560                 | 5.45×9           | 0.1                   | 448        | 20                                  | 3100                                     |
|                    | 560                 | 6.3×8            | 0.08                  | 448        | 12                                  | 3900                                     |
|                    | 680                 | 5.45×9           | 0.1                   | 544        | 20                                  | 3100                                     |
|                    | 820                 | 6.3×8            | 0.08                  | 656        | 12                                  | 3900                                     |
|                    | 1000                | 6.3×9            | 0.08                  | 800        | 12                                  | 3900                                     |
|                    | 1200                | 8×8              | 0.08                  | 960        | 12                                  | 5400                                     |
|                    | 1500                | 8×8              | 0.08                  | 1200       | 12                                  | 5400                                     |
|                    | 1500                | 8×11.5           | 0.08                  | 1200       | 12                                  | 5400                                     |

| Rated Volt.<br>(V) | Capacitance<br>( $\mu$ F) | Size<br>$\Phi$ D×L(mm) | Tanδ<br>(120Hz, 20°C) | LC<br>( $\mu$ A) | ESR<br>(mΩ/at 100kHz~300kHz 20°C max) | Rated R. C.<br>(mA/rms at 100kHz, 105°C) |
|--------------------|---------------------------|------------------------|-----------------------|------------------|---------------------------------------|------------------------------------------|
| 6.3                | 100                       | 5×7                    | 0.1                   | 126              | 20                                    | 3100                                     |
|                    | 220                       | 5×7                    | 0.1                   | 277              | 20                                    | 3100                                     |
|                    | 220                       | 5.45×7                 | 0.1                   | 277              | 20                                    | 3100                                     |
|                    | 220                       | 6.3×5.4                | 0.1                   | 277              | 20                                    | 2700                                     |
|                    | 270                       | 5×7                    | 0.1                   | 340              | 20                                    | 3100                                     |
|                    | 270                       | 5.45×7                 | 0.1                   | 340              | 20                                    | 3100                                     |
|                    | 270                       | 6.3×5.4                | 0.1                   | 340              | 20                                    | 2700                                     |
|                    | 330                       | 5×8                    | 0.1                   | 415              | 20                                    | 3100                                     |
|                    | 330                       | 6.3×6                  | 0.1                   | 415              | 20                                    | 3100                                     |
|                    | 390                       | 5×8                    | 0.1                   | 491              | 20                                    | 3100                                     |
|                    | 470                       | 5×9                    | 0.1                   | 592              | 20                                    | 3100                                     |
|                    | 470                       | 5.45×9                 | 0.1                   | 592              | 20                                    | 3700                                     |
|                    | 470                       | 6.3×6                  | 0.1                   | 592              | 20                                    | 3100                                     |
|                    | 470                       | 6.3×8                  | 0.08                  | 592              | 12                                    | 3900                                     |
|                    | 470                       | 8×8                    | 0.08                  | 592              | 12                                    | 3900                                     |
|                    | 500                       | 5×9                    | 0.1                   | 630              | 20                                    | 3100                                     |
|                    | 560                       | 5.45×9                 | 0.1                   | 705              | 20                                    | 3700                                     |
|                    | 560                       | 6.3×8                  | 0.08                  | 705              | 12                                    | 3900                                     |
|                    | 560                       | 8×8                    | 0.08                  | 705              | 12                                    | 5100                                     |
|                    | 680                       | 6.3×8                  | 0.08                  | 856              | 12                                    | 3900                                     |
|                    | 680                       | 8×8                    | 0.08                  | 856              | 12                                    | 4700                                     |
|                    | 820                       | 6.3×8                  | 0.08                  | 1033             | 12                                    | 3900                                     |
|                    | 820                       | 6.3×9                  | 0.08                  | 1033             | 12                                    | 3900                                     |
|                    | 820                       | 8×8                    | 0.08                  | 1033             | 12                                    | 4700                                     |
|                    | 1000                      | 6.3×10                 | 0.08                  | 1260             | 12                                    | 3900                                     |
|                    | 1000                      | 8×8                    | 0.08                  | 1260             | 12                                    | 5100                                     |
|                    | 1000                      | 8×11.5                 | 0.08                  | 1260             | 12                                    | 5400                                     |
|                    | 1200                      | 8×8                    | 0.08                  | 1512             | 12                                    | 5400                                     |
|                    | 1200                      | 8×11.5                 | 0.08                  | 1512             | 12                                    | 5400                                     |
|                    | 1500                      | 8×11.5                 | 0.08                  | 1890             | 12                                    | 5400                                     |
|                    | 1500                      | 10×12                  | 0.08                  | 1890             | 12                                    | 5400                                     |
|                    | 2200                      | 10×12                  | 0.08                  | 2772             | 12                                    | 5400                                     |
|                    | 3300                      | 10×12                  | 0.08                  | 4158             | 12                                    | 5400                                     |
| 7.5                | 270                       | 5×7                    | 0.1                   | 405              | 20                                    | 3100                                     |
|                    | 330                       | 5×8                    | 0.1                   | 495              | 20                                    | 3100                                     |
|                    | 330                       | 5.45×7                 | 0.1                   | 495              | 20                                    | 3100                                     |
|                    | 390                       | 5×9                    | 0.1                   | 585              | 20                                    | 3300                                     |
|                    | 470                       | 5.45×9                 | 0.1                   | 705              | 20                                    | 3700                                     |
|                    | 470                       | 6.3×8                  | 0.08                  | 705              | 12                                    | 4100                                     |
|                    | 500                       | 5.45×9                 | 0.1                   | 750              | 20                                    | 3700                                     |
|                    | 560                       | 6.3×8                  | 0.08                  | 840              | 12                                    | 4300                                     |
|                    | 560                       | 8×8                    | 0.08                  | 840              | 12                                    | 4700                                     |
|                    | 680                       | 6.3×9                  | 0.08                  | 1020             | 12                                    | 4300                                     |

| Rated Volt.<br>(V) | Capacitance<br>(uF) | Size<br>ΦD×L(mm) | Tanδ<br>(120HZ,20°C) | LC<br>(μA) | ESR<br>(mΩ/at 100k~300kHz 20°C max) | Rated R. C.<br>(mA/rms at 100kHz, 105°C) |
|--------------------|---------------------|------------------|----------------------|------------|-------------------------------------|------------------------------------------|
| 7.5                | 820                 | 6.3×9            | 0.08                 | 1230       | 12                                  | 4300                                     |
|                    | 820                 | 8×8              | 0.08                 | 1230       | 12                                  | 5100                                     |
|                    | 1000                | 6.3×11           | 0.08                 | 1500       | 12                                  | 4300                                     |
|                    | 1000                | 8×8              | 0.08                 | 1500       | 12                                  | 5100                                     |
|                    | 1500                | 8×11.5           | 0.08                 | 2250       | 12                                  | 5100                                     |
| 10                 | 100                 | 5×7              | 0.1                  | 200        | 20                                  | 3100                                     |
|                    | 150                 | 5×7              | 0.1                  | 300        | 20                                  | 3100                                     |
|                    | 150                 | 6.3×5.4          | 0.1                  | 300        | 20                                  | 2100                                     |
|                    | 220                 | 5×8              | 0.1                  | 440        | 20                                  | 3100                                     |
|                    | 220                 | 5.45×7           | 0.1                  | 440        | 20                                  | 3100                                     |
|                    | 270                 | 6.3×6            | 0.1                  | 540        | 20                                  | 3100                                     |
|                    | 330                 | 5×9              | 0.1                  | 660        | 20                                  | 2700                                     |
|                    | 330                 | 5.45×9           | 0.1                  | 660        | 20                                  | 3700                                     |
|                    | 330                 | 6.3×8            | 0.08                 | 660        | 14                                  | 4100                                     |
|                    | 390                 | 5.45×9           | 0.1                  | 780        | 20                                  | 3700                                     |
|                    | 470                 | 6.3×9            | 0.08                 | 940        | 14                                  | 4100                                     |
|                    | 470                 | 8×8              | 0.08                 | 940        | 14                                  | 4300                                     |
|                    | 560                 | 6.3×9            | 0.08                 | 1120       | 14                                  | 4100                                     |
|                    | 560                 | 6.3×10           | 0.08                 | 1120       | 14                                  | 4100                                     |
|                    | 560                 | 8×8              | 0.08                 | 1120       | 14                                  | 4300                                     |
|                    | 680                 | 6.3×11           | 0.08                 | 1360       | 14                                  | 4100                                     |
|                    | 680                 | 8×8              | 0.08                 | 1360       | 14                                  | 4300                                     |
|                    | 820                 | 8×11.5           | 0.08                 | 1640       | 14                                  | 4700                                     |
|                    | 1000                | 8×11.5           | 0.08                 | 2000       | 14                                  | 4700                                     |
|                    | 1200                | 10×12            | 0.08                 | 2400       | 14                                  | 4700                                     |
|                    | 1500                | 10×12            | 0.08                 | 3000       | 14                                  | 4700                                     |
| 16                 | 47                  | 5×7              | 0.1                  | 150        | 24                                  | 2100                                     |
|                    | 68                  | 5×7              | 0.1                  | 217        | 24                                  | 2100                                     |
|                    | 82                  | 5×7              | 0.1                  | 262        | 24                                  | 2100                                     |
|                    | 100                 | 5×7              | 0.1                  | 320        | 24                                  | 2700                                     |
|                    | 100                 | 5×8              | 0.1                  | 320        | 24                                  | 2700                                     |
|                    | 100                 | 5.45×7           | 0.1                  | 320        | 24                                  | 2700                                     |
|                    | 100                 | 6.3×5.4          | 0.1                  | 320        | 24                                  | 2700                                     |
|                    | 100                 | 6.3×8            | 0.08                 | 320        | 14                                  | 3100                                     |
|                    | 150                 | 5×9              | 0.1                  | 480        | 20                                  | 3100                                     |
|                    | 180                 | 6.3×6            | 0.1                  | 576        | 24                                  | 3100                                     |
|                    | 220                 | 5.45×9           | 0.1                  | 704        | 20                                  | 3100                                     |
|                    | 220                 | 6.3×8            | 0.08                 | 704        | 14                                  | 3100                                     |
|                    | 270                 | 5.45×9           | 0.1                  | 864        | 20                                  | 3100                                     |
|                    | 270                 | 6.3×8            | 0.08                 | 864        | 14                                  | 3100                                     |
|                    | 330                 | 6.3×9            | 0.08                 | 1056       | 14                                  | 3900                                     |
|                    | 330                 | 8×8              | 0.08                 | 1056       | 14                                  | 4100                                     |
|                    | 390                 | 6.3×9            | 0.08                 | 1248       | 14                                  | 3900                                     |
|                    | 470                 | 6.3×10           | 0.08                 | 1504       | 14                                  | 3900                                     |
|                    | 470                 | 8×8              | 0.08                 | 1504       | 14                                  | 4100                                     |

| Rated Volt.<br>(V) | Capacitance<br>(uF) | Size<br>ΦD×L(mm) | Tanδ<br>(120HZ,20°C) | LC<br>(μA) | ESR<br>(mΩ/at 100k~300kHz 20°C max) | Rated R. C.<br>(mA/rms at 100kHz, 105°C) |
|--------------------|---------------------|------------------|----------------------|------------|-------------------------------------|------------------------------------------|
| 16                 | 470                 | 8×11.5           | 0.08                 | 1504       | 14                                  | 4700                                     |
|                    | 560                 | 8×8              | 0.08                 | 1792       | 14                                  | 4100                                     |
|                    | 560                 | 8×11.5           | 0.08                 | 1792       | 14                                  | 4700                                     |
|                    | 680                 | 8×11.5           | 0.08                 | 2176       | 14                                  | 4700                                     |
|                    | 820                 | 8×11.5           | 0.08                 | 2624       | 14                                  | 4700                                     |
|                    | 820                 | 10×12            | 0.08                 | 2624       | 14                                  | 4700                                     |
|                    | 1000                | 10×12            | 0.08                 | 3200       | 14                                  | 4700                                     |
|                    | 1200                | 10×12            | 0.08                 | 3840       | 14                                  | 4700                                     |
| 20                 | 47                  | 6.3×5.4          | 0.1                  | 188        | 30                                  | 2000                                     |
|                    | 68                  | 6.3×5.4          | 0.1                  | 272        | 30                                  | 2000                                     |
|                    | 82                  | 6.3×5.4          | 0.1                  | 328        | 30                                  | 2000                                     |
|                    | 100                 | 6.3×8            | 0.08                 | 400        | 25                                  | 2200                                     |
|                    | 220                 | 8×8              | 0.08                 | 880        | 24                                  | 2600                                     |
|                    | 330                 | 8×11.5           | 0.08                 | 1320       | 24                                  | 3100                                     |
|                    | 390                 | 8×11.5           | 0.08                 | 1560       | 24                                  | 3100                                     |
|                    | 470                 | 8×11.5           | 0.08                 | 1880       | 24                                  | 3100                                     |
|                    | 560                 | 8×11.5           | 0.08                 | 2240       | 24                                  | 3100                                     |
|                    | 680                 | 10×12            | 0.08                 | 2720       | 24                                  | 3100                                     |
|                    | 820                 | 10×12            | 0.08                 | 3280       | 24                                  | 3100                                     |
|                    | 1000                | 10×12            | 0.08                 | 4000       | 24                                  | 3100                                     |
| 25                 | 6.8                 | 6.3×5.4          | 0.1                  | 100        | 40                                  | 1800                                     |
|                    | 10                  | 6.3×5.4          | 0.1                  | 100        | 40                                  | 1800                                     |
|                    | 22                  | 6.3×5.4          | 0.1                  | 110        | 40                                  | 1800                                     |
|                    | 33                  | 6.3×5.4          | 0.1                  | 165        | 40                                  | 1800                                     |
|                    | 47                  | 6.3×6            | 0.1                  | 235        | 35                                  | 2000                                     |
|                    | 56                  | 6.3×6            | 0.1                  | 280        | 35                                  | 2000                                     |
|                    | 68                  | 6.3×8            | 0.08                 | 340        | 30                                  | 2100                                     |
|                    | 82                  | 6.3×8            | 0.08                 | 410        | 30                                  | 2100                                     |
|                    | 100                 | 8×11.5           | 0.08                 | 500        | 30                                  | 3100                                     |
|                    | 220                 | 8×11.5           | 0.08                 | 1100       | 30                                  | 3100                                     |
|                    | 270                 | 8×11.5           | 0.08                 | 1350       | 30                                  | 3100                                     |
|                    | 330                 | 8×11.5           | 0.08                 | 1650       | 30                                  | 3100                                     |
|                    | 390                 | 10×12            | 0.08                 | 1950       | 30                                  | 3100                                     |
|                    | 470                 | 10×12            | 0.08                 | 2350       | 30                                  | 3100                                     |