# VA 型片式铝电解电容
# VA Series Chip Type Aluminum Electrolytic Capacitors

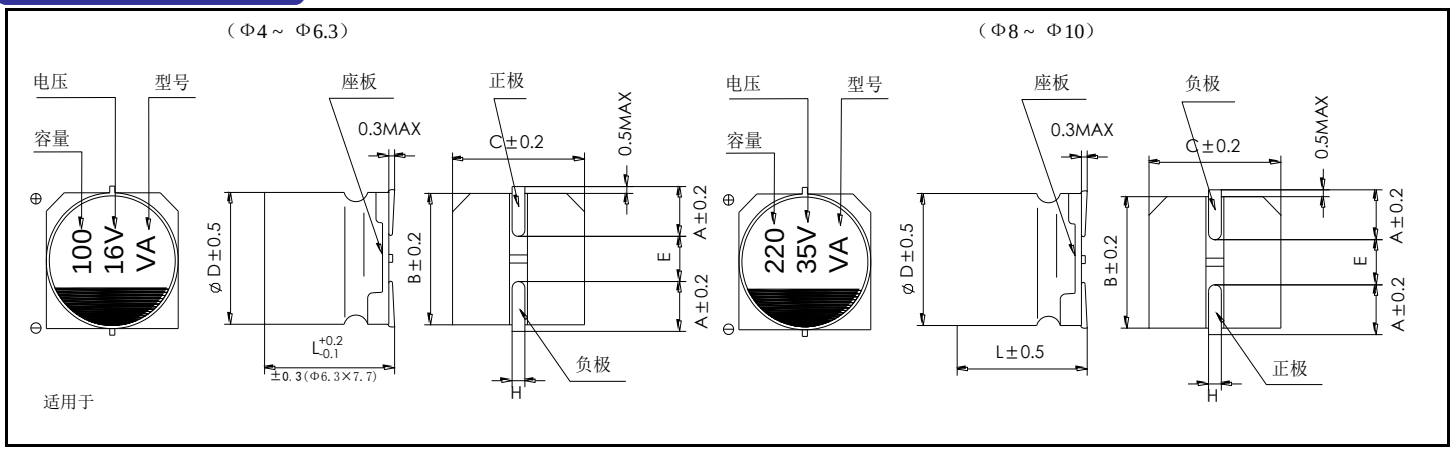
## 特点 Features

- 低阻抗。Low impedance.
- 适用于再流焊。Reflow soldering is available.
- 适用于高密度表面组装。vailable for high density surface mounting.
- 工作温度范围宽（-55℃ ~ +105℃）Operating over wide temperature range.
- ROHS 指令（2002/95/EC）已对应完毕。Adapted to the ROHS directive（2002/95/EC）。

## 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℃ | | | | | | |
| 额定电压范围<br>Rated Voltage Range | 6.3V ~ 50V | | | | | | |
| 标称电容量范围<br>Nominal Capacitance Range | 1 ~ 1000μF | | | | | | |
| 标称电容量允许偏差<br>Nominal Capacitance Tolerance | ±20%（20℃，120Hz） | | | | | | |
| 漏电流<br>Leakage Current | I≤0.01$C_R V_R$ or 3(μA)，取较大者（2 分钟） $C_R$：标称电容量（μF） $U_R$：额定电压（V）<br>I≤0.01$C_R V_R$ or 3(μA) Whichever is greater(at 20℃, after 2 minutes)<br>$C_R$: Nominal Capacitance (μF) $U_R$: Rated voltages (V) | | | | | | |
| 损耗角正切（tgδ）<br>Dissipation Factor (Max)<br>20℃, 120Hz | $U_R$ (V) | 6.3 | 10 | 16 | 25 | 35 | 50 |
| | tgδ | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.12 |
| 耐久性<br>Load Life | | | | | | | |
| | 电容量变化率<br>Capacitance Change | ±30%初始值以内<br>Within ±30% of the initial value | | | | | |
| | 损耗角正切<br>Dissipation Factor | ≤ 300%初始规定值<br>Not more than 300% of the initial specified value | | | | | |
| | 漏电流<br>Leakage Current | ≤ 初始规定值<br>Not more than the initial specified value | | | | | |
| 高温贮存<br>Shelf Life | +105℃ 贮存 1000 小时后，电容器应满足以上耐久性要求<br>After storage for 1000 hours at +105℃, the capacitors shall meet the requirement of load life above | | | | | | |
| 低温特性<br>Low Temperature Stability<br>阻抗比<br>Impedance Ratio (120Hz) | $U_R$ (V) | 6.3 | 10 | 16 | 25 | 35 | 50 |
| | Z(-25℃)/Z(+20℃) | 2 | 2 | 2 | 2 | 2 | 2 |
| | Z(-40℃)/Z(+20℃) | 4 | 4 | 3 | 3 | 3 | 3 |
| 耐焊接热<br>Resistance to Soldering Heat | | | | | | | |
| | 电容量变化率<br>Capacitance Change | ±10%初始值以内<br>Within ±10% of the initial value | | | | | |
| | 损耗角正切（tgδ）<br>Dissipation Factor | ≤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 | | | | | |

## 尺寸图 Dimensions




(mm)

| | 4 × 5.4 | 5 × 5.4 | 6.3 × 5.4 | 6.3 × 7.7 | 8 × 6.5 | 8 × 10.5 | 10 × 10.5 |
|---|---|---|---|---|---|---|---|
| A | 3.0 | 2.1 | 2.4 | 2.4 | 2.9 | 2.9 | 3.2 |
| B | 4.3 | 5.3 | 6.6 | 6.6 | 8.3 | 8.3 | 10.3 |
| C | 4.3 | 5.3 | 6.6 | 6.6 | 8.3 | 8.3 | 10.3 |
| E | 1.0 | 1.3 | 2.2 | 2.2 | 2.3 | 3.1 | 4.5 |
| L | 5.4 | 5.4 | 5.4 | 7.7 | 6.5 | 10.5 | 10.5 |
| H | 0.5 ~ 0.8 | | | | | 0.8 ~ 1.1 | |

■ 标称电容量、额定电压、额定纹波电流与外形尺寸对应表

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

| V | 6.3 | | | 10 | | | 16 | | | 25 | | | 35 | | | 50 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| μF | D×L mm | Impedance Ω | I~ mA | D×L mm | Impedance Ω | I~ mA | D×L mm | Impedance Ω | I~ mA | D×L mm | Impedance Ω | I~ mA | D×L mm | Impedance Ω | I~ mA | D×L mm | Impedance Ω | I~ mA |
| 1.0 | | | | | | | | | | | | | | | | 4×5.4 | 5.00 | 30 |
| 2.2 | | | | | | | | | | | | | | | | 4×5.4 | 5.00 | 30 |
| 3.3 | | | | | | | | | | | | | | | | 4×5.4 | 5.00 | 30 |
| 4.7 | | | | | | | | | | | | | 4×5.4 | 3.0 | 60 | 5×5.4 | 3.0 | 50 |
| 10 | | | | | | | | | | 4×5.4 | 3.00 | 60 | 5×5.4 | 1.8 | 95 | 6.3×5.4 | 2.0 | 70 |
| 22 | | | | 4×5.4 | 3.00 | 60 | 5×5.4 | 1.8 | 95 | 5×5.4 | 1.8 | 95 | 5×5.4 | 1.8 | 95 | 6.3×5.4 | 2.0 | 70 |
| 33 | 5×5.4 | 1.8 | 95 | 5×5.4 | 1.8 | 95 | 6.3×5.4 | 1.0 | 140 | 6.3×5.4 | 1.0 | 140 | 6.3×5.4 | 1.0 | 140 | 6.3×7.7 | 1.4 | 120 |
| 47 | 5×5.4 | 1.8 | 95 | 6.3×5.4 | 1.0 | 140 | 6.3×5.4 | 1.0 | 140 | 6.3×5.4 | 1.0 | 140 | 6.3×5.4 | 1.0 | 140 | 6.3×7.7 | 1.4 | 120 |
| 100 | 6.3×5.4 | 1.0 | 140 | 6.3×5.4 | 1.0 | 140 | 6.3×5.4 | 1.0 | 140 | 6.3×7.7 | 0.7 | 220 | 8x10.5 | 0.3 | 300 | 8x10.5 | 0.6 | 300 |
| 220 | 6.3×5.4 | 1.0 | 140 | 6.3×7.7 | 0.7 | 220 | 6.3×7.7 | 0.7 | 220 | 8x10.5 | 0.3 | 450 | 8x10.5 | 0.3 | 450 | 10x10.5 | 0.3 | 500 |
| 330 | 6.3×7.7 | 0.7 | 220 | 8x10.5 | 0.3 | 450 | 8x10.5 | 0.3 | 450 | 8x10.5 | 0.3 | 450 | 10x10.5 | 0.15 | 650 | | | |
| 470 | 8x10.5 | 0.3 | 450 | 8x10.5 | 0.3 | 450 | 8x10.5 | 0.3 | 450 | 10x10.5 | 0.15 | 650 | | | | | | |
| 1000 | 8x10.5 | 0.3 | 450 | 10x10.5 | 0.15 | 650 | | | | | | | | | | | | |

— I~=Rated ripple current (mA) (105℃, 100kHz) I~=额定纹波电流（mA）（105℃，100kHz）

——20℃ 100 KHz 时的电阻（Ω）MAX

■ 额定纹波电流的频率系数

Frequency coefficient of ripple current

| Frequency 频率 | 50Hz | 120Hz | 300Hz | 1KHz | ≥ 10KHz |
|---|---|---|---|---|---|
| Coefficient 系数 | 0.64 | 0.50 | 0.64 | 0.83 | 1.00 |