

VB Chip Type Aluminum Electrolytic Capacitors

Features

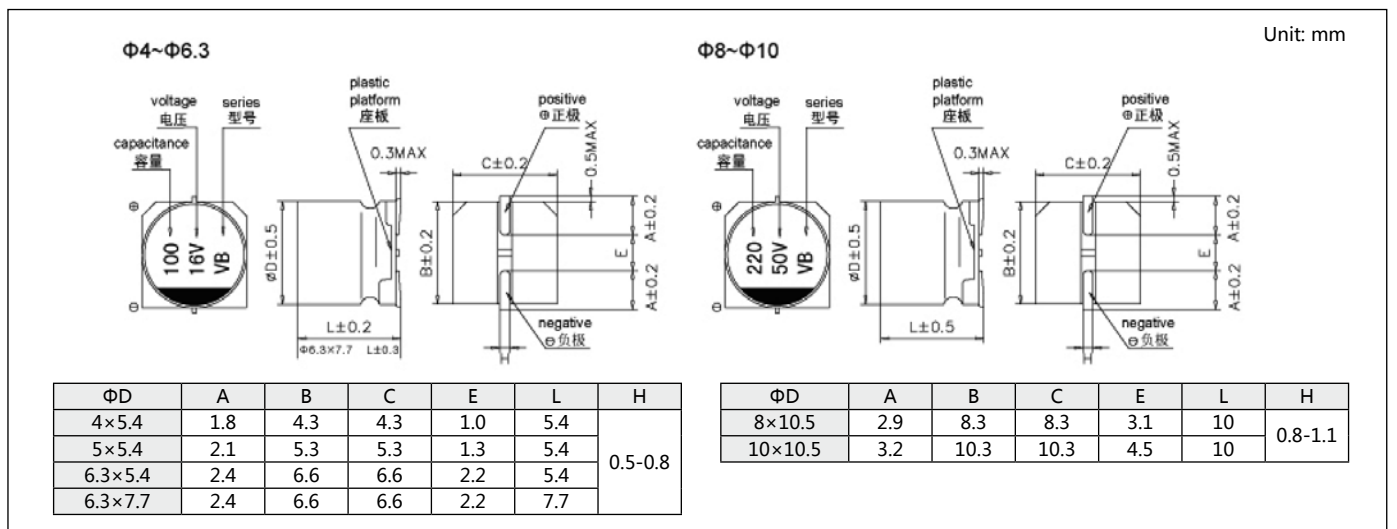
- Low impedance.
- Reflow soldering is available.
- Available for high density surface mounting.
- Operating over wide temperature range (-55°C ~ +105°C).
- Adapted to the RoHS directive.



Specifications

| Item | Performance Characteristics | | | | | | | | | | | | | | | | | | | | | |
|---|---|--------------------|----------------------------------|--------------------|---|-----------------|---|----|----------------|------------|------------|------------|------------|------------|------------|----------------|---|---|---|---|---|---|
| Operating Temperature Range | -55°C ~ +105°C | | | | | | | | | | | | | | | | | | | | | |
| Rated Voltage Range | 6.3~50V | | | | | | | | | | | | | | | | | | | | | |
| Nominal Capacitance Range | 1~1500μF | | | | | | | | | | | | | | | | | | | | | |
| Nominal Capacitance Tolerance | ±20%(+20°C, 120Hz) | | | | | | | | | | | | | | | | | | | | | |
| Leakage Current | $I \leq 0.01C_R U_R$ or 3(μA), Whichever is greater (at 20°C, after 2 minutes) C _R : Nominal capacitance(μF), U _R : Rated voltage(V) | | | | | | | | | | | | | | | | | | | | | |
| Dissipation Factor(Max) (tgδ, +20°C, 120Hz) | <table border="1"> <thead> <tr> <th>U_R(V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>tgδ</td> <td>0.26(0.28)</td> <td>0.20(0.24)</td> <td>0.16(0.20)</td> <td>0.14(0.16)</td> <td>0.12(0.14)</td> <td>0.12(0.14)</td> </tr> </tbody> </table> <p>注: () 为 ΦD>8 products</p> | U _R (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | tgδ | 0.26(0.28) | 0.20(0.24) | 0.16(0.20) | 0.14(0.16) | 0.12(0.14) | 0.12(0.14) | | | | | | | |
| U _R (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | | | | | | | | | | | | | | | | |
| tgδ | 0.26(0.28) | 0.20(0.24) | 0.16(0.20) | 0.14(0.16) | 0.12(0.14) | 0.12(0.14) | | | | | | | | | | | | | | | | |
| Load Life | After 2000 hours' application of rated voltage at 105°C, the capacitor shall meet the following requirement: <table border="1"> <tbody> <tr> <td>Capacitance change</td> <td>Within ±30% 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 ±30% 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 ±30% 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 105°C, the capacitors shall meet the requirement of load life above. | | | | | | | | | | | | | | | | | | | | | |
| Low Temperature Stability Impedance Ratio(120Hz) | <table border="1"> <thead> <tr> <th>U_R(V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>Z-25°C / +20°C</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-40°C / +20°C</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> </tbody> </table> | U _R (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | Z-25°C / +20°C | 2 | 2 | 2 | 2 | 2 | 2 | Z-40°C / +20°C | 4 | 4 | 3 | 3 | 3 | 3 |
| U _R (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | | | | | | | | | | | | | | | | |
| Z-25°C / +20°C | 2 | 2 | 2 | 2 | 2 | 2 | | | | | | | | | | | | | | | | |
| Z-40°C / +20°C | 4 | 4 | 3 | 3 | 3 | 3 | | | | | | | | | | | | | | | | |
| Resistance to Soldering Heat | The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, they meet the following requirement: <table border="1"> <tbody> <tr> <td>Capacitance change</td> <td>Within ±10% of the initial value</td> </tr> <tr> <td>Dissipation factor</td> <td>Not more than 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 ±10% of the initial value | Dissipation factor | Not more than the initial specified value | Leakage current | Not more than the initial specified value | | | | | | | | | | | | | | | |
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| Dissipation factor | Not more than the initial specified value | | | | | | | | | | | | | | | | | | | | | |
| Leakage current | Not more than the initial specified value | | | | | | | | | | | | | | | | | | | | | |

Diagram of Dimensions



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

| V | 6.3 | | | 10 | | | 16 | | | 25 | | | 35 | | | 50 | | |
|------------|--------------|----------------|------------|--------------|----------------|------------|--------------|----------------|------------|--------------|----------------|------------|--------------|----------------|------------|--------------|----------------|------------|
| Item μF | ΦD×L (mm) | Impedance Ω | I~ (mA) | ΦD×L (mm) | Impedance Ω | I~ (mA) | ΦD×L (mm) | Impedance Ω | I~ (mA) | ΦD×L (mm) | Impedance Ω | I~ (mA) | ΦD×L (mm) | Impedance Ω | I~ (mA) | ΦD×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 | 1.80 | 80 | 5×5.4 | 1.52 | 85 |
| 10 | | | | | | | | | | 4×5.4 | 1.80 | 80 | 5×5.4 | 0.76 | 150 | 6.3×5.4 | 0.88 | 165 |
| 15 | | | | | | | 4×5.4 | 1.80 | 80 | 5×5.4 | 0.76 | 150 | 5×5.4 | 0.76 | 150 | 6.3×5.4 | 0.88 | 165 |
| 22 | | | | 4×5.4 | 1.80 | 80 | 5×5.4 | 0.76 | 80 | 5×5.4 | 0.76 | 80 | 5×5.4 | 0.76 | 150 | 6.3×5.4 | 0.88 | 165 |
| 27 | 4×5.4 | 1.80 | 80 | 5×5.4 | 0.76 | 150 | 5×5.4 | 0.76 | 150 | 6.3×5.4 | 0.44 | 230 | 6.3×5.4 | 0.44 | 230 | 6.3×7.7 | 0.68 | 185 |
| 33 | 5×5.4 | 0.76 | 150 | 5×5.4 | 0.76 | 150 | 6.3×5.4 | 0.44 | 230 | 6.3×5.4 | 0.44 | 230 | 6.3×5.4 | 0.44 | 230 | 6.3×7.7 | 0.68 | 185 |
| 47 | 5×5.4 | 0.76 | 150 | 6.3×5.4 | 0.44 | 230 | 6.3×5.4 | 0.44 | 230 | 6.3×5.4 | 0.44 | 230 | 6.3×5.4 | 0.44 | 230 | 6.3×7.7 | 0.68 | 185 |
| 56 | 5×5.4 | 0.76 | 150 | 6.3×5.4 | 0.44 | 230 | 6.3×5.4 | 0.44 | 230 | 6.3×5.4 | 0.44 | 230 | 6.3×7.7 | 0.34 | 280 | 8×10.5 | 0.34 | 350 |
| 68 | 6.3×5.4 | 0.44 | 230 | 6.3×5.4 | 0.44 | 230 | 6.3×5.4 | 0.44 | 230 | 6.3×5.4 | 0.44 | 230 | 6.3×7.7 | 0.34 | 280 | 8×10.5 | 0.34 | 350 |
| 100 | 6.3×5.4 | 0.44 | 230 | 6.3×5.4 | 0.44 | 230 | 6.3×5.4 | 0.44 | 230 | 6.3×7.7 | 0.34 | 280 | 8×10.5 | 0.17 | 600 | 8×10.5 | 0.18 | 300 |
| 150 | 6.3×5.4 | 0.44 | 230 | 6.3×5.4 | 0.44 | 230 | 6.3×7.7 | 0.34 | 280 | 8×10.5 | 0.17 | 600 | 8×10.5 | 0.17 | 600 | 8×10.5 | 0.18 | 670 |
| 220 | 6.3×5.4 | 0.44 | 230 | 6.3×7.7 | 0.34 | 280 | 6.3×7.7 | 0.34 | 280 | 8×10.5 | 0.17 | 600 | 8×10.5 | 0.17 | 600 | 10×10.5 | 0.18 | 670 |
| 330 | 6.3×7.7 | 0.34 | 280 | 8×10.5 | 0.17 | 600 | 8×10.5 | 0.17 | 600 | 8×10.5 | 0.17 | 600 | 10×10.5 | 0.09 | 850 | | | |
| 470 | 8×10.5 | 0.17 | 600 | 8×10.5 | 0.17 | 600 | 8×10.5 | 0.17 | 600 | 10×10.5 | 0.09 | 850 | | | | | | |
| 680 | 8×10.5 | 0.17 | 600 | 10×10.5 | 0.09 | 670 | 10×10.5 | 0.09 | 850 | | | | | | | | | |
| 1000 | 8×10.5 | 0.17 | 600 | 10×10.5 | 0.09 | 850 | | | | | | | | | | | | |
| 1500 | 10×10.5 | 0.09 | 850 | | | | | | | | | | | | | | | |

I~ =Rated ripple current (mA) (105° C , 100KHz)
 Ω Max (20° C , 100KHz)

Frequency coefficient of ripple current

| Frequency | 50Hz | 120Hz | 300Hz | 1kHz | ≥ 10KHz |
|-------------|------|-------|-------|------|---------|
| Coefficient | 0.35 | 0.50 | 0.64 | 0.83 | 1.00 |