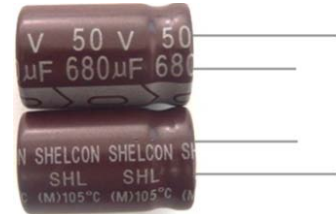


SHELCON SHL

引线型铝电解电容器

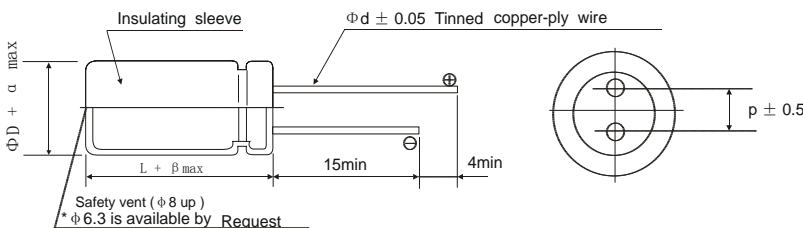
- Wide operating temperature range of -55 ~ +105°C 工作温度范围: -55 ~ +105°C
- 105°C, High Frequency, Low Impedance. 105°C 高纹波, 低阻抗品
- Voltage range of 6.3 ~ 450V 工作电压: 6.3V-450V
- Load life of 8000 hours at 105°C 使用寿命: 105°C 8000小时



■ SPECIFICATIONS 技术参数

| Item (项目) | Characteristics (特征) | | | | | | | | | | |
|---|---|--|---|------|-------|--------|------|---------|------|---------|--|
| Operating Temperature Range | -55 ~ +105°C | -40 ~ +105°C | -25 ~ +105°C | | | | | | | | |
| Voltage Range (额定电压) | 6.3 - 100 V.DC | 160 - 400 V.DC | 450 V.DC | | | | | | | | |
| Nominal Cap. Range (容量范围) | 10~ 10000 μF | 3.3 ~ 220μF | 2.2 ~ 68 μF | | | | | | | | |
| Capacitance Tolerance | -20% ~ +20% (at 20°C, 120Hz) | | | | | | | | | | |
| Leakage Current 漏电流 | WV | 6.3 V ~ 100 V | 160 V ~ 450 V | | | | | | | | |
| | L.C. | I = 0.01CV or 3(μA) whichever is greater(after 2min) | I = 0.02CV + 15(μA) (after 5 min.) 施加额定电压5分钟测试 | | | | | | | | |
| | | 施加额定电压2分钟测试 | | | | | | | | | |
| | | I = 0.03CV or 4(μA) whichever is greater(after 1min) | | | | | | | | | |
| 施加额定电压1分钟测试 | | | | | | | | | | | |
| where: I: Max Leakage Current (μA); C: Nominal Capacitance (μF). V: Rated Voltage(V) (at 20°C) 注解: I: 漏电流μA C: 容量(μF), V: 额定电压(V) (在 20°C) | | | | | | | | | | | |
| Dissipation Factor (tanδ) (at 120Hz, +20°C) (损失角正切) | WV | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | 160-250 | 400-450 |
| | tanδ | 0.28 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.10 | 0.08 | 0.20 | 0.24 |
| Add 0.02 per 1,000 μF for more than 1,000μF items. 容量超过1000 μF; 每超过1000 μF, 损失角增加0.02 | | | | | | | | | | | |
| Low Temp. Impedance Stability at 120Hz (温度特性) | W.V. | 6.3 | 10 | 16 | 25-35 | 50-100 | 160 | 200-350 | 400 | 450 | |
| | Z-25°C/Z+20°C | 4 | 4 | 3 | 2 | 2 | 3 | 4 | 6 | 10 | |
| | Z-40°C/Z+20°C | 8 | 6 | 4 | 3 | 3 | 4 | 8 | - | - | |
| High Temp. Load Test (高温负荷特性) | After 8000 hours, application of DC rated working voltage at +105°C, the capacitor shall meet the following 105°C 施加额定电压8000小时后满足下列条件 Capacitance change ≤ ±20% of the initial measured value 容量在±20%范围内 Tanδ ≤ 200% of the initial specified value 损失角在初始规定值200% DC leakage current ≤ the initial specified value 漏电流小于或等于规格值 | | | | | | | | | | |
| High Temp. Non-Load Test (高温无负荷特性) | After storage for 1000 hours at 105°C with no voltage applied, voltage treatment of JIS-C-5102 article 4-4 is to be given and then measurement shall be made, at which time requirements specified in the table "High Temperature Loading" can be met. | | | | | | | | | | 在105°C的条件下不加电压放置1000个小时, 按照JIS-C-5102中4-4的标准进行处理, 特性满足高温负荷特性 |

● DIMENSIONS(mm) 尺寸



Unit:(mm)

| | | | | | | | |
|----|-----|-----|-----|-----|-----|-----|-----|
| φD | 5 | 6.3 | 8 | 10 | 13 | 16 | 18 |
| P | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| φd | 0.5 | | 0.6 | | 0.8 | | |
| β | 1.0 | | | 2.0 | | | |
| α | 0.5 | | | | | | |

▼ MULTIPLIER FOR RIPPLE CURRENT 纹波电流补

(1) Frequency coefficient 频率系数

| Cap(μF) | Freq.(Hz) | | | | |
|--------------|-----------|------|------|------|------|
| | 60(50) | 120 | 300 | 1K | 10K |
| 0.47 ~ 47 | 0.40 | 0.50 | 0.70 | 0.85 | 1.00 |
| 100 ~ 470 | 0.60 | 0.65 | 0.80 | 0.90 | 1.00 |
| 1000 ~ 10000 | 0.65 | 0.70 | 0.90 | 0.95 | 1.00 |

(2) Temperature coefficient 温度系数

| Ambient | 40 | 60 | 70 | 85 | 105 |
|-----------------|------|------|------|------|------|
| Temperature(°C) | | | | | |
| Coefficient | 2.20 | 2.00 | 1.78 | 1.65 | 1.00 |

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| WV (VDC) | Cap (μ F)/120Hz | Case size | Ripple (mArms 105°C 100KHz) | Impedance (Ω)100KHZ 阻抗值 | | WV (VDC) | Case size | Cap (μ F)/120Hz | Ripple (mArms 105°C 1200KHz) | Impedance (Ω)100KHZ 阻抗值 | | |
|-------------|-------------------------|----------------|-----------------------------------|-------------------------------------|-------|-------------|-----------|-------------------------|------------------------------------|-------------------------------------|-------|-----|
| | | | | 20°C | -10°C | | | | | 20°C | -10°C | |
| 额定电压 | 静电容量 | 尺寸D \times L | 纹波电流 | 20°C | -10°C | 额定电压 | 静电容量 | 尺寸D \times L | 纹波电流 | 20°C | -10°C | |
| 6.3 | 33 | 5x11 | 65 | 1.3 | 3.9 | 35 | 10 | 5x11 | 124 | 2.0 | 6.0 | |
| | 47 | 5x11 | 80 | 1.3 | 3.9 | | 22 | 5x11 | 135 | 1.3 | 3.9 | |
| | 100 | 5x11 | 154 | 1.3 | 3.9 | | 33 | 5x11 | 154 | 1.3 | 3.9 | |
| | 220 | 6.3x11 | 260 | 0.60 | 1.8 | | 47 | 6.3x11 | 260 | 0.60 | 1.8 | |
| | 330 | 6.3x11 | 260 | 0.60 | 1.8 | | 100 | 8x11.5 | 400 | 0.33 | 0.99 | |
| | 470 | 8x11.5 | 400 | 0.33 | 0.99 | | 220 | 10x12.5 | 510 | 0.25 | 0.75 | |
| | 1000 | 10x12.5 | 510 | 0.25 | 0.75 | | 330 | 10x16 | 635 | 0.19 | 0.57 | |
| | 2200 | 13x20 | 1120 | 0.085 | 0.26 | | 470 | 10x20 | 860 | 0.14 | 0.42 | |
| | 3300 | 13x20 | 1120 | 0.085 | 0.26 | | 1000 | 13x25 | 1320 | 0.070 | 0.21 | |
| | 4700 | 16x25 | 1570 | 0.060 | 0.18 | | 2200 | 16x31.5 | 1810 | 0.048 | 0.14 | |
| | 6800 | 16x25 | 1570 | 0.060 | 0.18 | | 3300 | 18x35.5 | 2240 | 0.037 | 0.11 | |
| | 10000 | 16x31.5 | 1810 | 0.048 | 0.14 | | 4700 | 18x40 | 2460 | 0.034 | 0.10 | |
| 10 | 22 | 5x11 | 80 | 1.3 | 3.9 | 50 | 10 | 5x11 | 124 | 2.0 | 6.0 | |
| | 33 | 5x11 | 95 | 1.3 | 3.9 | | 22 | 5x11 | 154 | 2.0 | 3.9 | |
| | 47 | 5x11 | 130 | 1.3 | 3.9 | | 33 | 6.3x11 | 260 | 1.5 | 1.8 | |
| | 100 | 5x11 | 154 | 1.3 | 3.9 | | 47 | 6.3x11 | 260 | 1.2 | 1.8 | |
| | 220 | 6.3x11 | 260 | 0.6 | 1.8 | | 100 | 8x11.5 | 400 | 1.1 | 0.99 | |
| | 330 | 8x11.5 | 400 | 0.33 | 0.99 | | 220 | 10x16 | 635 | 0.7 | 0.57 | |
| | 470 | 8x11.5 | 400 | 0.33 | 0.99 | | 330 | 10x20 | 860 | 0.5 | 0.42 | |
| | 1000 | 10x16 | 635 | 0.19 | 0.57 | | 470 | 13x20 | 1120 | 0.085 | 0.26 | |
| | 2200 | 13x20 | 1120 | 0.085 | 0.26 | | 1000 | 16x25 | 1570 | 0.060 | 0.18 | |
| | 3300 | 13x25 | 1320 | 0.070 | 0.21 | | 2200 | 18x35.5 | 2240 | 0.037 | 0.11 | |
| | 4700 | 16x25 | 1570 | 0.060 | 0.18 | | | | | | | |
| | 6800 | 16x31.5 | 1810 | 0.048 | 0.14 | | | | | | | |
| 10000 | 18x35.5 | 2240 | 0.037 | 0.11 | | | | | | | | |
| 16 | 10 | 5x11 | 124 | 2.0 | 6.0 | 63 | 10 | 5x11 | 124 | 2.5 | 8.8 | |
| | 22 | 5x11 | 133 | 1.3 | 3.9 | | 22 | 6.3x11 | 180 | 1.2 | 4.2 | |
| | 33 | 5x11 | 142 | 1.3 | 3.9 | | 33 | 6.3x11 | 180 | 1.2 | 4.2 | |
| | 47 | 5x11 | 154 | 1.3 | 3.9 | | 47 | 8x11.5 | 305 | 0.56 | 2.0 | |
| | 100 | 6.3x11 | 260 | 0.6 | 1.8 | | 100 | 10x12.5 | 380 | 0.50 | 1.8 | |
| | 220 | 8x11.5 | 400 | 0.33 | 0.99 | | 220 | 10x20 | 620 | 0.27 | 0.95 | |
| | 330 | 8x11.5 | 400 | 0.33 | 0.99 | | 330 | 13x20 | 890 | 0.16 | 0.56 | |
| | 470 | 10x12.5 | 510 | 0.25 | 0.75 | | 470 | 13x25 | 1040 | 0.14 | 0.49 | |
| | 1000 | 10x20 | 860 | 0.14 | 0.42 | | 1000 | 16x31.5 | 1790 | 0.060 | 0.21 | |
| | 2200 | 13x25 | 1320 | 0.070 | 0.21 | | | | | | | |
| | 3300 | 16x25 | 1570 | 0.060 | 0.18 | | 100 | 10 | 6.3x11 | 180 | 1.2 | 4.2 |
| | 4700 | 16x31.5 | 1810 | 0.048 | 0.14 | | | 22 | 8x11.5 | 282 | 0.66 | 2.3 |
| 6800 | 18x35.5 | 2240 | 0.037 | 0.11 | 33 | 10x12.5 | | 380 | 0.50 | 1.8 | | |
| 10000 | 18x40 | 2460 | 0.034 | 0.10 | 47 | 10x16 | | 500 | 0.32 | 1.1 | | |
| | | | | | 100 | 13x20 | | 890 | 0.16 | 0.56 | | |
| | | | | | 220 | 16x25 | | 1440 | 0.090 | 0.32 | | |
| | | | | | 330 | 16x25 | | 1440 | 0.090 | 0.32 | | |
| | | | | | 470 | 16x31.5 | | 1790 | 0.060 | 0.21 | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 25 | 10 | 5x11 | 124 | 2.0 | 6.0 | | | | | | | |
| | 22 | 5x11 | 135 | 1.3 | 3.9 | | | | | | | |
| | 33 | 5x11 | 142 | 1.3 | 3.9 | | | | | | | |
| | 47 | 5x11 | 154 | 1.3 | 3.9 | | | | | | | |
| | 100 | 6.3x11 | 260 | 0.60 | 1.8 | | | | | | | |
| | 220 | 8x11.5 | 400 | 0.33 | 0.99 | | | | | | | |
| | 330 | 10x12.5 | 510 | 0.25 | 0.75 | | | | | | | |
| | 470 | 10x16 | 635 | 0.19 | 0.57 | | | | | | | |
| | 1000 | 13x20 | 1120 | 0.085 | 0.26 | | | | | | | |
| | 2200 | 16x25 | 1570 | 0.60 | 0.18 | | | | | | | |
| | 3300 | 16x31.5 | 1810 | 0.048 | 0.14 | | | | | | | |
| | 4700 | 18x35.5 | 2240 | 0.037 | 0.11 | | | | | | | |
| 6800 | 18x40 | 2460 | 0.034 | 0.10 | | | | | | | | |

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| WV (VDC) | Cap (μ F)/120Hz | Case size | Ripple (mArms 105°C 100KHz) | Impedance (Ω)100KHZ 阻抗值 | | WV (VDC) | Case size | Cap (μ F)/120Hz | Ripple (mArms 105°C 1200KHz) | Impedance (Ω)100KHZ 阻抗值 | |
|-------------|----------------------------|-----------|-----------------------------------|-------------------------------------|-------|-------------|-----------|----------------------------|------------------------------------|-------------------------------------|-------|
| | | | | 20°C | -10°C | | | | | 20°C | -10°C |
| 额定电压 | 静电容量 | 尺寸DxL | 纹波电流 | 20°C | -10°C | 额定电压 | 静电容量 | 尺寸DxL | 纹波电流 | 20°C | -10°C |
| 160 | 4.7 | 10x13 | 125 | 2.8 | 4.5 | 400 | 3.3 | 10x13 | 195 | 1.5 | 3.9 |
| | 10 | 10x16 | 250 | 2.2 | 3.9 | | 4.7 | 10x13 | 220 | 1.10 | 3.3 |
| | 22 | 10x20 | 350 | 1.5 | 3.9 | | 10 | 10x20 | 360 | 0.70 | 3.1 |
| | 33 | 13x20 | 440 | 1.10 | 3.3 | | 22 | 13x25 | 570 | 0.60 | 2.90 |
| | 47 | 13x25 | 600 | 0.70 | 3.1 | | 33 | 16x25 | 700 | 0.45 | 2.20 |
| | 100 | 16x25 | 910 | 0.60 | 2.90 | | 47 | 16x25 | 860 | 0.40 | 1.75 |
| | 220 | 18x35.5 | 1370 | 0.45 | 2.20 | | 68 | 18x25 | 900 | 0.35 | 1.55 |
| 200 | 4.7 | 10x13 | 155 | 2.2 | 3.9 | 450 | 3.3 | 10x13 | 135 | 1.10 | 3.3 |
| | 10 | 10x16 | 250 | 1.5 | 3.9 | | 4.7 | 10x13 | 190 | 0.70 | 3.1 |
| | 22 | 10x20 | 350 | 1.10 | 3.3 | | 10 | 10x20 | 250 | 0.60 | 2.90 |
| | 33 | 13x20 | 440 | 0.70 | 3.1 | | 22 | 16x25 | 480 | 0.45 | 2.20 |
| | 47 | 13x25 | 600 | 0.60 | 2.90 | | 33 | 18x25 | 650 | 0.40 | 1.75 |
| | 100 | 16x31.5 | 1160 | 0.45 | 2.20 | | 47 | 18x25 | 800 | 0.4 | 1.50 |
| | 220 | 18x35.5 | 1370 | 0.40 | 1.75 | | 68 | 18x36 | 980 | 0.4 | 1.40 |
| 250 | 4.7 | 10x13 | 165 | 1.5 | 3.9 | | | | | | |
| | 10 | 10x13 | 230 | 1.10 | 3.3 | | | | | | |
| | 22 | 13x25 | 360 | 0.70 | 3.1 | | | | | | |
| | 33 | 13x25 | 360 | 0.60 | 2.90 | | | | | | |
| | 47 | 16x25 | 570 | 0.45 | 2.20 | | | | | | |
| | 100 | 18x32 | 935 | 0.40 | 1.75 | | | | | | |
| | 220 | 18x40 | 1000 | 0.35 | 1.55 | | | | | | |