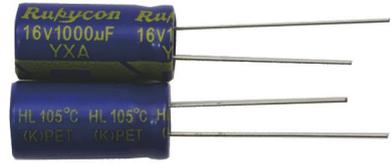


HL 高可靠性、照明应用

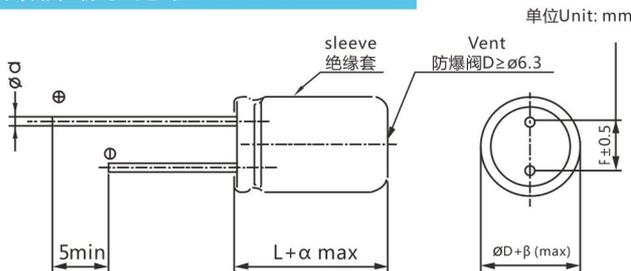
- 耐高纹波，耐高温，长寿命，105°C 6000小时。
High Ripple Current High Temperature, Long Life, Life time 105°C 6000hours
- 专为LED驱动电源设计制造
Specially designed for light emitting diode lamp (LED) drive source
- RoHS指令已对应完毕。
Adapted to the RoHS directive.



主要技术性能 Specifications

| 项目 Items | 特性 Characteristics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------|------|------|------|-----|-----|-----|-----|------|------|------|------|------|-----------------|--------------------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| 使用温度范围 Operating Temperature Range | -40°C ~ +105°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 额定电压范围 Rated Voltage Range | 16V~ 100V | 160V ~ 450V | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 标称容量范围 Nominal Capacitance Range | 0.47μF ~ 4700μF | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 标称容量允许偏差 Capacitance Tolerance | ±10% (120Hz, +20°C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 漏电流 Leakage Current (+20°C) | I≤0.01CV 或 3(μA) 2分钟 取较大者 (at 20°C, after 2 minutes) (whichever is greater) | I≤0.02 CV+10μA(2分钟, 20°C) 0.02CV+10μA(at 20°C, after 2 minutes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C: 标称容量Capacitance (μF) ; V: 额定电压Rated voltage range (V) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 损耗角正切值 (tgδ) Dissipation Factor (+20°C, 120Hz) | <table border="1"> <tr> <td>U_R (V)</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> </tr> <tr> <td>tgδ</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.09</td> </tr> <tr> <td>U_R (V)</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>tgδ</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.20</td> <td>0.20</td> <td>0.20</td> </tr> </table> <p>容量大于1000μF者，每增加1000μF，其损耗角正切值增加0.02。 When nominal capacitance exceeds 1000μF, add 0.02 to the value above for each 1000μF increase.</p> | | U _R (V) | 16 | 25 | 35 | 50 | 63 | 100 | tgδ | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 | 0.09 | U _R (V) | 160 | 200 | 250 | 350 | 400 | 450 | tgδ | 0.15 | 0.15 | 0.15 | 0.20 | 0.20 | 0.20 |
| U _R (V) | 16 | 25 | 35 | 50 | 63 | 100 | | | | | | | | | | | | | | | | | | | | | | | | |
| tgδ | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 | 0.09 | | | | | | | | | | | | | | | | | | | | | | | | |
| U _R (V) | 160 | 200 | 250 | 350 | 400 | 450 | | | | | | | | | | | | | | | | | | | | | | | | |
| tgδ | 0.15 | 0.15 | 0.15 | 0.20 | 0.20 | 0.20 | | | | | | | | | | | | | | | | | | | | | | | | |
| 温度特性 Temperature Characteristics (Impedance ratio at 120Hz) | <table border="1"> <tr> <td>U_R (V)</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> <td>100</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>Z-40°C / Z+20°C</td> <td>8</td> <td>6</td> <td>6</td> <td>6</td> <td>4</td> <td>4</td> <td>6</td> <td>6</td> <td>6</td> <td>7</td> <td>7</td> <td>9</td> </tr> </table> | | U _R (V) | 16 | 25 | 35 | 50 | 63 | 100 | 160 | 200 | 250 | 350 | 400 | 450 | Z-40°C / Z+20°C | 8 | 6 | 6 | 6 | 4 | 4 | 6 | 6 | 6 | 7 | 7 | 9 | | |
| U _R (V) | 16 | 25 | 35 | 50 | 63 | 100 | 160 | 200 | 250 | 350 | 400 | 450 | | | | | | | | | | | | | | | | | | |
| Z-40°C / Z+20°C | 8 | 6 | 6 | 6 | 4 | 4 | 6 | 6 | 6 | 7 | 7 | 9 | | | | | | | | | | | | | | | | | | |
| 耐久性 Load Life | <p>在+105°C条件下，施加含额定纹波电流的额定电压，持续规定时间，并在+20°C下恢复16小时后，电容器应符合下列要求 The following specifications shall be met when the capacitors are restored to +20°C for 16 hours after D.C. bias rated ripple current is applied at +105°C, the peak voltage shall not exceed the voltage</p> <p>Time : 6000hours 电容量变化率 Capacitance change : ±20%初始测量值以内 ±20% of the initial measured value 漏电流 Leakage current : ≤初始规定值≤Initial specified value 损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤ 2 times of the initial specified value</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 高温贮存 Shelf Life | <p>+105°C 1000小时贮存后，恢复16小时后 After storage for 1000 hours at +105°C and then resumed for 16 hours:</p> <p>电容量变化率 Capacitance change : ±20%初始测量值以内 ±20% of the initial measured value 漏电流 Leakage current : ≤2倍初始规定值 ≤ 2 times of the initial specified value 损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤ 2 times of the initial specified value</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

外形图及尺寸表 Case Size Table



| | | | | | | | |
|------|----------------|-----|----------|-----|------|-----|-----|
| D | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| d | 0.5 | 0.5 | 0.5, 0.6 | 0.6 | 0.6 | 0.8 | 0.8 |
| αMAX | 〈 L < 20 〉 1.5 | | | | | | |
| | 〈 L ≥ 20 〉 2.0 | | | | | | |
| βMAX | 0.5 | | | | | | |

尺寸 Dimensions

| 额定容量 CAP(μF) | 额定电压 VV | 63V(1J) | | | 100V(2A) | | | 160V(2C) | | | 200V(2D) | | |
|-----------------|------------|------------|-------|--------------|------------|-------|--------------|------------|------|--------------|------------|------|--------------|
| | | 尺寸 Size | ESR | 纹波 Ripple | 尺寸 Size | ESR | 纹波 Ripple | 尺寸 Size | ESR | 纹波 Ripple | 尺寸 Size | ESR | 纹波 Ripple |
| 0.47 | R47 | 5×11 | 3.50 | 55 | 5×11 | 3.50 | 58 | | | | | | |
| 1.0 | O10 | 5×11 | 3.00 | 60 | 5×11 | 3.00 | 60 | | | | | | |
| 1.8 | 1R8 | 5×11 | 2.80 | 62 | 5×11 | 2.80 | 65 | 6.3×11 | 21.0 | 55 | | | |
| 2.2 | 2R2 | 5×11 | 2.80 | 66 | 5×11 | 2.80 | 70 | 6.3×11 | 21.0 | 60 | 6.3×11 | 15.1 | 65 |
| 2.7 | 2R7 | 5×11 | 2.50 | 68 | 5×11 | 2.50 | 75 | 6.3×11 | 17.0 | 65 | 6.3×11 | 15.1 | 70 |
| 3.3 | 3R3 | 5×11 | 2.50 | 70 | 5×11 | 2.50 | 80 | 6.3×11 | 17.0 | 70 | 6.3×11 | 15.1 | 75 |
| 3.9 | 3R9 | 5×11 | 2.20 | 72 | 5×11 | 2.20 | 85 | 6.3×11 | 17.0 | 70 | 6.3×11 | 15.1 | 80 |
| 4.7 | 4R7 | 5×11 | 1.80 | 76 | 5×11 | 1.80 | 90 | 6.3×11 | 17.0 | 72 | 6.3×11 | 7.35 | 85 |
| 5.6 | 5R6 | 5×11 | 1.81 | 80 | 5×11 | 1.80 | 95 | 6.3×11 | 12.8 | 75 | 8×11.5 | 6.80 | 95 |
| 6.8 | 6R8 | 5×11 | 1.60 | 84 | 5×11 | 1.60 | 98 | 6.3×11 | 12.8 | 85 | 8×11.5 | 6.80 | 105 |
| 8.2 | 8R2 | 5×11 | 1.50 | 88 | 5×11 | 1.50 | 105 | 8×11.5 | 9.15 | 100 | 8×11.5 | 6.80 | 150 |
| 10 | 100 | 5×11 | 1.50 | 110 | 6.3×11 | 1.50 | 205 | 8×11.5 | 5.12 | 135 | 8×11.5 | 4.92 | 185 |
| 12 | 120 | 5×11 | 1.50 | 115 | 6.3×11 | 1.20 | 225 | 8×11.5 | 5.12 | 140 | 8×16 | 4.92 | 190 |
| 15 | 150 | 5×11 | 1.50 | 125 | 6.3×11 | 1.20 | 245 | 8×16 | 4.65 | 225 | 8×20 | 4.92 | 225 |
| 18 | 180 | 5×11 | 1.00 | 135 | 6.3×11 | 1.00 | 255 | 8×16 | 4.65 | 240 | 8×20 | 4.43 | 270 |
| 22 | 220 | 6.3×11 | 0.65 | 280 | 8×11.5 | 0.80 | 265 | 8×16 | 4.65 | 250 | 10×16 | 3.98 | 380 |
| | | | | | | | | 10×12.5 | 4.65 | 250 | | | |
| 27 | 270 | 6.3×11 | 0.60 | 290 | 8×11.5 | 0.65 | 385 | 10×16 | 4.18 | 325 | 10×20 | 3.98 | 405 |
| 33 | 330 | 6.3×11 | 0.40 | 305 | 8×11.5 | 0.45 | 390 | 8×20 | 1.95 | 350 | 10×20 | 3.58 | 415 |
| | | | | | | | | 10×16 | 1.95 | 350 | | | |
| 39 | 390 | 6.3×11 | 0.4 | 315 | 8×11.5 | 0.41 | 395 | 10×20 | 1.95 | 390 | 12.5×20 | 3.22 | 550 |
| | | | | | 8×16 | 0.29 | 425 | | | | | | |
| 47 | 470 | 6.3×11 | 0.4 | 345 | 8×16 | 0.29 | 435 | 10×20 | 1.75 | 440 | 12.5×20 | 1.44 | 580 |
| | | | | | 10×12.5 | 0.26 | 425 | 12.5×15 | 1.75 | 440 | 8×50 | 1.44 | 620 |
| 56 | 560 | 8×11.5 | 0.25 | 405 | 8×16 | 0.29 | 445 | 10×25 | 1.57 | 470 | 12.5×25 | 1.44 | 630 |
| | | | | | 10×12.5 | 0.26 | 435 | | | | | | |
| 68 | 680 | 8×11.5 | 0.25 | 415 | 8×20 | 0.22 | 620 | 10×25 | 1.57 | 550 | 12.5×25 | 1.29 | 670 |
| | | | | | 10×6 | 0.20 | 605 | 8×40 | 1.57 | 600 | 16×20 | 1.29 | 670 |
| 82 | 820 | 8×11.5 | 0.25 | 425 | 8×20 | 0.22 | 630 | 12.5×20 | 1.42 | 670 | 12.5×30 | 1.29 | 690 |
| | | | | | 10×16 | 0.20 | 610 | | | | | | |
| 100 | 101 | 8×16 | 0.19 | 540 | 10×20 | 0.14 | 820 | 12.5×25 | 1.27 | 730 | 12.5×30 | 1.16 | 770 |
| | | 10×12.5 | 0.18 | 550 | 12.5×15 | 0.15 | 780 | | | | | | |
| 120 | 121 | 8×16 | 0.19 | 560 | 10×20 | 0.14 | 840 | 16×25 | 1.27 | 760 | 16×30 | 1.16 | 800 |
| | | 10×12.5 | 0.18 | 570 | 12.5×15 | 0.15 | 885 | | | | | | |
| 150 | 151 | 8×20 | 0.15 | 630 | 10×25 | 0.13 | 965 | 12.5×30 | 1.14 | 800 | 16×30 | 1.04 | 900 |
| | | 10×16 | 0.15 | 645 | 12.5×15 | 0.15 | 925 | 16×25 | 1.14 | 800 | | | |
| 180 | 181 | 8×0 | 0.14 | 635 | 12.5×20 | 0.096 | 1020 | 16×30 | 1.02 | 960 | 16×35 | 0.94 | 1055 |
| | | 10×16 | 0.20 | 655 | | | | | | | | | |
| 220 | 221 | 10×20 | 0.087 | 980 | 12.5×20 | 0.096 | 1080 | 16×30 | 0.92 | 1040 | 18×35 | 0.84 | 1245 |
| | | 12.5×15 | 0.092 | 960 | 10×30 | 0.090 | 1300 | | | | | | |
| 270 | 271 | 10×20 | 0.087 | 1020 | 12.5×25 | 0.067 | 1320 | 16×35 | 0.83 | 1230 | | | |
| | | 12.5×15 | 0.092 | 990 | | | | | | | | | |
| 330 | 331 | 10×25 | 0.092 | 1150 | 12.5×30 | 0.057 | 1520 | 18×35 | 0.75 | 1450 | | | |
| | | 12.5×15 | 0.092 | 1090 | 16×20 | 0.065 | 1490 | | | | | | |
| 390 | 391 | 12.5×20 | 0.067 | 1425 | 12.5×35 | 0.052 | 1820 | 18×40 | 0.75 | 1670 | | | |
| | | | | | 16×25 | 0.048 | 1800 | | | | | | |
| 470 | 471 | 12.5×20 | 0.067 | 1410 | 16×25 | 0.048 | 1920 | | | | | | |
| | | | | | 18×20 | 0.046 | 1900 | | | | | | |
| 560 | 561 | 12.5×25 | 0.047 | 1810 | 16×30 | 0.036 | 2150 | | | | | | |
| | | | | | 18×25 | 0.042 | 2120 | | | | | | |
| 680 | 681 | 12.5×30 | 0.040 | 1960 | 16×35 | 0.032 | 2350 | | | | | | |
| | | 16×20 | 0.048 | 1940 | 18×30 | 0.034 | 2240 | | | | | | |
| 820 | 821 | 12.5×35 | 0.036 | 2150 | 16×40 | 0.030 | 2590 | | | | | | |
| | | 16×25 | 0.038 | 2120 | 18×35 | 0.022 | 3170 | | | | | | |
| 1000 | 102 | 16×25 | 0.038 | 2180 | 18×40 | 0.020 | 3170 | | | | | | |
| | | 18×20 | 0.042 | 2250 | | | | | | | | | |
| 1200 | 122 | 16×30 | 0.026 | 2430 | | | | | | | | | |
| | | 18×25 | 0.034 | 2380 | | | | | | | | | |
| 1500 | 152 | 16×35 | 0.026 | 2560 | | | | | | | | | |
| | | 18×30 | 0.028 | 2640 | | | | | | | | | |
| 1800 | 182 | 16×40 | 0.025 | 3050 | | | | | | | | | |
| | | 18×35 | 0.022 | 3100 | | | | | | | | | |
| 2200 | 222 | 18×40 | 0.020 | 3430 | | | | | | | | | |

尺寸Size φD×L(mm)
 最大允许纹波电流Maximum Allowable Ripple Current (mA rms) at 105°C 100KHz
 Maximum ESR (Ω) at 20°C 100KHz

SOLID
HYBRID
CHIP
ULTRA MINI
MINIATURE
STANDARD
HIGH FREQUENCY
ULTRA LOW IMPEDANCE
SWITCH POWER
LIGHTING
ELECTRONIC BALLAST
HIGH TEMPERATURE
LOW LEAKAGE
BI-POLAR
SPECIAL
SNAP-IN
SCREW

尺寸 Dimensions

| 额定电压 WV | | 250V(2E) | | | 350V(2E) | | | 400V(2G) | | | 450V(2W) | | |
|------------|-----|------------|-------|--------------|------------|-------|--------------|------------|------|--------------|------------|-------|--------------|
| | | 尺寸 Size | ESR | 纹波 Ripple | 尺寸 Size | ESR | 纹波 Ripple | 尺寸 Size | ESR | 纹波 Ripple | 尺寸 Size | ESR | 纹波 Ripple |
| 1 | 010 | | | | 6.3×11 | 33.00 | 45 | 6.3×11 | 33.0 | 60 | 8×11.5 | 33.0 | 60 |
| 1.2 | 1R2 | | | | 6.3×11 | 33.00 | 48 | 6.3×11 | 33.0 | 65 | 8×11.5 | 33.0 | 65 |
| 1.5 | 1R5 | | | | 6.3×11 | 33.00 | 50 | 6.3×11 | 33.0 | 70 | 8×11.5 | 33.0 | 70 |
| 1.8 | 1R8 | | | | 6.3×11 | 33.00 | 55 | 6.3×11 | 33.0 | 75 | 8×11.5 | 33.0 | 72 |
| 2.2 | 2R2 | 6.3×11 | 15.1 | 75 | 6.3×11 | 33.00 | 55 | 6.3×11 | 33.0 | 80 | 8×11.5 | 18.42 | 75 |
| 2.7 | 2R7 | 6.3×11 | 15.1 | 80 | 6.3×11 | 33.00 | 65 | 8×11.5 | 33.0 | 85 | 8×11.5 | 18.42 | 80 |
| 3.3 | 3R3 | 6.3×11 | 15.1 | 85 | 8×11.5 | 21.00 | 75 | 8×11.5 | 21.0 | 95 | 8×11.5 | 18.42 | 85 |
| 3.9 | 3R9 | 6.3×11 | 11.8 | 90 | 8×11.5 | 21.00 | 80 | 8×11.5 | 21.0 | 100 | 8×16 | 18.42 | 90 |
| 4.7 | 4R7 | 8×11.5 | 11.8 | 105 | 8×11.5 | 21.00 | 85 | 8×11.5 | 14.0 | 105 | 8×16 | 13.5 | 100 |
| | | | | | | | | 8×16 | 14.0 | 115 | | | |
| 5.6 | 5R6 | 8×11.5 | 10.96 | 110 | 8×16 | 21.00 | 105 | 8×16 | 13.5 | 130 | 10×16 | 13.5 | 115 |
| | | | | | | | | 10×12.5 | 13.5 | 130 | | | |
| 6.8 | 6R8 | 8×11.5 | 10.96 | 120 | 8×16 | 16.20 | 130 | 8×16 | 10.2 | 135 | 10×16 | 12.0 | 150 |
| | | | | | | | | 10×12.5 | 10.2 | 140 | | | |
| 8.2 | 8R2 | 8×11.5 | 10.96 | 125 | 8×20 | 13.5 | 145 | 10×16 | 10.2 | 220 | 10×16 | 12.0 | 200 |
| | | | | | 10×16 | 13.50 | 150 | | | | | | |
| 10 | 100 | 8×16 | 10.96 | 180 | 8×20 | 13.50 | 210 | 10×16 | 4.50 | 240 | 10×20 | 8.15 | 225 |
| | | 10×12.5 | 9.89 | 200 | 10×16 | 13.50 | 215 | | | | 12.5×15 | 6.50 | 230 |
| 15 | 150 | 10×12.5 | 6.80 | 320 | 10×20 | 9.50 | 285 | 10×25 | 4.30 | 300 | 12.5×20 | 6.50 | 330 |
| | | | | | | | | 12.5×20 | 4.30 | 300 | | | |
| 18 | 180 | | | | 10×25 | 8.15 | 330 | 12.5×20 | 4.30 | 350 | 12.5×20 | 6.50 | 350 |
| | | 10×16 | 6.80 | 350 | 12.5×20 | 8.15 | 378 | | | | | | |
| 22 | 220 | 10×16 | 4.65 | 390 | 12.5×20 | 8.15 | 410 | 12.5×20 | 4.14 | 380 | 12.5×25 | 2.30 | 430 |
| | | | | | | | | 8×50 | 4.14 | 380 | | | |
| 33 | 330 | 12.5×20 | 4.65 | 530 | 12.5×25 | 7.33 | 475 | 16×20 | 4.14 | 540 | 16×25 | 2.30 | 530 |
| | | | | | | | | | | | 10×50 | 2.30 | 530 |
| 47 | 470 | 12.5×20 | 4.65 | 625 | 16×25 | 4.14 | 540 | 16×25 | 4.14 | 630 | 16×30 | 1.36 | 700 |
| | | | | | 10×50 | 4.14 | 600 | | | | | | |
| 56 | 560 | 12.5×25 | 2.95 | 660 | 16×25 | 4.14 | 610 | 16×30 | 4.14 | 680 | 16×35 | 1.36 | 720 |
| 68 | 680 | 16×25 | 2.95 | 720 | 16×30 | 3.50 | 700 | 18×30 | 3.50 | 760 | 18×30 | 1.09 | 770 |
| | | | | | | | | 12.5×50 | 3.50 | 760 | | | |
| 82 | 820 | 16×25 | 1.41 | 745 | 16×30 | 3.50 | 790 | 18×30 | 3.05 | 910 | 18×35 | 1.09 | 880 |
| | | | | | 12.5×50 | 3.50 | 790 | | | | | | |
| 100 | 101 | 16×30 | 1.41 | 835 | 16×35 | 3.05 | 900 | 18×35 | 2.75 | 1020 | 18×40 | 0.85 | 950 |
| 120 | 121 | 18×25 | 1.41 | 850 | 18×35 | 3.05 | 980 | | | | | | |
| 150 | 151 | 16×35 | 0.92 | 970 | 18×40 | 2.05 | 1070 | | | | | | |
| 180 | 181 | 18×35 | 0.92 | 1050 | | | | | | | | | |
| 220 | 221 | 18×40 | 0.77 | 1250 | | | | | | | | | |

尺寸Size φD×L(mm)
 最大允许纹波电流Maximum Allowable Ripple Current (mA rms) at 105°C 100KHz
 Maximum ESR (Ω) at 20°C 100KHz