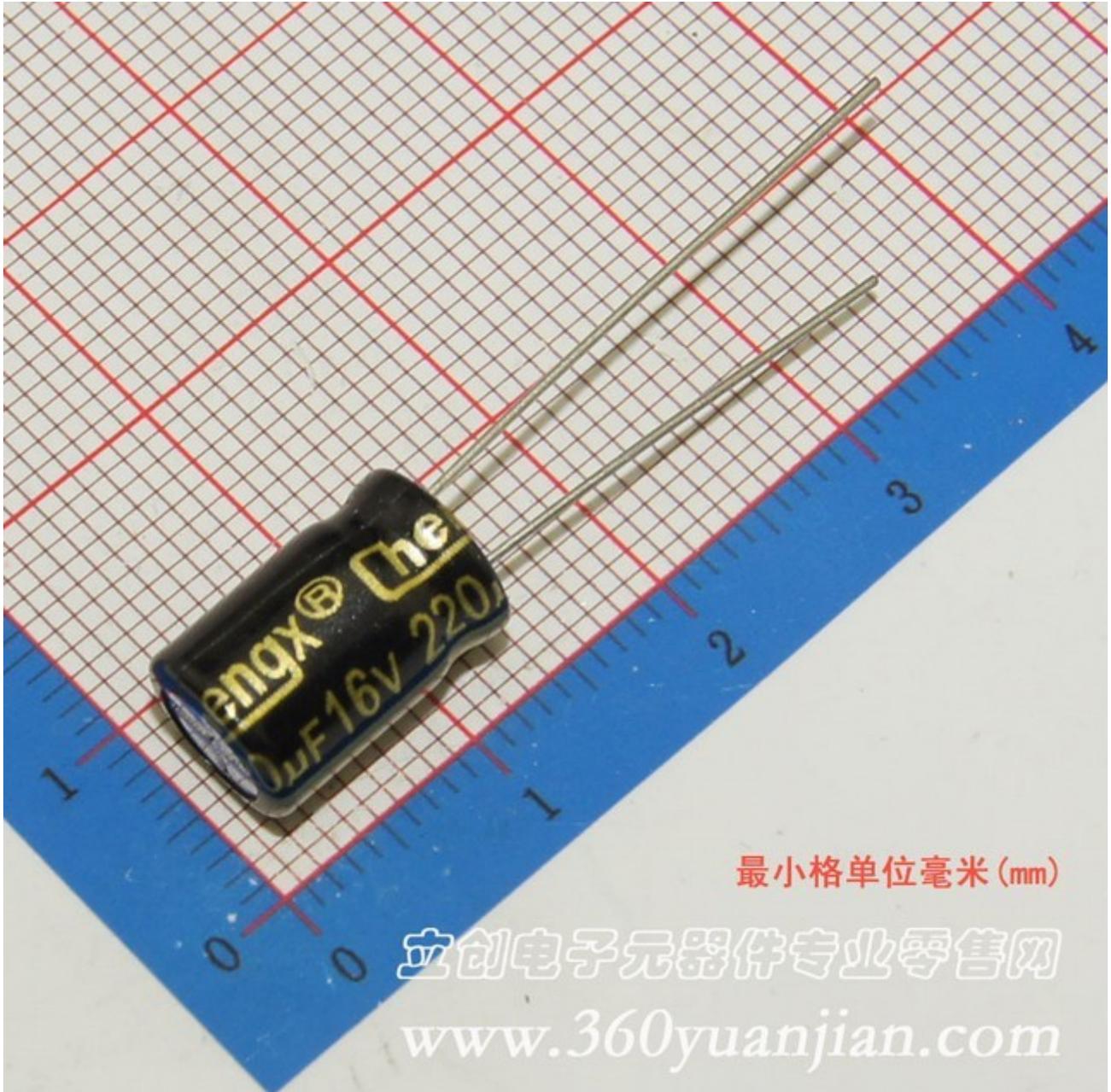


此商品编号对应的规格参数是： 220uF 16V 黑金 8*12

此商品的实物图片为：

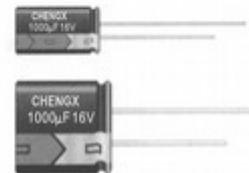


GR Series

+105°C, High Ripple Current(高纹波), Low Impedance(低阻抗品)

FEATURES

1. Low impedance for high frequency.
2. Life time: 2000~4000 hours at 105°C.



SPECIFICATIONS

| Item | Performance Characteristics | | | | | | | | |
|---------------------------------|--|--|-------|-------|---------------------------------|---|------|------|------|
| Operating Temperature Range | -40 to +105°C | | | | | | | | |
| Rated Working Voltage Range | 6.3 to 100V | | | | | | | | |
| Nominal Capacitance Range | 2.2 to 4700µF | | | | | | | | |
| Capacitance Tolerance | ±20% (120Hz, +20°C) | | | | | | | | |
| Leakage Current | I ≤ 0.01CV or 3(µA) whichever is greater measured after 2 minutes application of rated working voltage at 20°C | | | | | | | | |
| tan δ (120Hz, +20°C) | Working Voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
| | tan δ (max.) | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 |
| | For capacitance value > 1000µF, add 0.02 per another 1000µF | | | | | | | | |
| Low Temperature Characteristics | Impedance ratio max. at 120Hz | | | | | | | | |
| | Working Voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
| | Z-25°C / Z+20°C | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Z-40°C / Z+20°C | 8 | 6 | 4 | 3 | 3 | 3 | 3 | 3 |
| High Temperature Loading | Test conditions | | | | Post test requirements at +20°C | | | | |
| | Duration : | φD | 5~6.3 | 8~10 | 12.5 | Leakage current : ≤ Initial specified value | | | |
| | | Load life | 2000h | 3000h | 4000h | Cap. change : within ±25% of initial measured value | | | |
| | Ambient temp. : | +105°C | | | | tan δ : ≤ 150% of initial specified value | | | |
| Applied voltage : | | Rated DC working voltage with rated ripple current | | | | | | | |
| Shelf Life | Test conditions | | | | Post test requirements at +20°C | | | | |
| | Duration : | 1000 hours | | | | Same limits for high temperature loading. | | | |
| | Ambient temp. : | +105°C | | | | | | | |
| | Applied voltage : | (None) | | | | | | | |
| Others | JIS C - 5101 (IEC 60384) | | | | | | | | |

CASE SIZE TABLE



| φD | 5 | 6.3 | 8(L<20) | 8(L≥20) | 10 | 12.5 | | | |
|----|--------------|-----|---------|--------------|-----|------|--|--|--|
| F | 2.0 | 2.5 | 3.5 | | 5.0 | 5.0 | | | |
| φd | 0.5 | | 0.6 | | 0.6 | | | | |
| α | (L < 20) 1.5 | | | (L ≥ 20) 2.0 | | | | | |
| β | (D < 20) 0.5 | | | (D ≥ 20) 1.0 | | | | | |

GR Series

+105°C, High Ripple Current(高纹波), Low Impedance(低阻抗品)

STANDARD RATINGS

| Voltage (Code) | | 6.3V (0J) | | | 10V (1A) | | | 16V (1C) | | |
|----------------|------|-----------|-----------|----------------|-----------|-----------|----------------|-----------|-----------|----------------|
| Cap.(μ F) | Code | Case Size | Impedance | Ripple Current | Case Size | Impedance | Ripple Current | Case Size | Impedance | Ripple Current |
| 100 | 107 | | | | | | | 6.3x11 | 0.220 | 340 |
| 120 | 127 | | | | | | | 6.3x11 | 0.220 | 340 |
| 150 | 157 | | | | 6.3x11 | 0.220 | 340 | 6.3x11 | 0.220 | 340 |
| | | | | | | | | 8x12 | 0.130 | 640 |
| 180 | 187 | 6.3x11 | 0.220 | 340 | 6.3x11 | 0.220 | 340 | 6.3x11 | 0.220 | 340 |
| | | | | | | | | 8x12 | 0.130 | 640 |
| 220 | 227 | 6.3x11 | 0.220 | 340 | 6.3x11 | 0.220 | 340 | 6.3x11 | 0.220 | 340 |
| | | | | | | | | 8x12 | 0.130 | 640 |
| 270 | 277 | 6.3x11 | 0.220 | 340 | 6.3x11 | 0.220 | 340 | 8x12 | 0.130 | 640 |
| | | | | | 8x12 | 0.130 | 640 | | | |
| 330 | 337 | 6.3x11 | 0.220 | 340 | 6.3x11 | 0.220 | 340 | 8x12 | 0.130 | 640 |
| | | | | | 8x12 | 0.130 | 640 | | | |
| 390 | 397 | 8x12 | 0.130 | 640 | 8x12 | 0.130 | 640 | 8x12 | 0.130 | 640 |
| 470 | 477 | 8x12 | 0.130 | 640 | 8x12 | 0.130 | 640 | 8x12 | 0.130 | 640 |
| | | | | | | | | 10x12.5 | 0.080 | 865 |
| 560 | 567 | 8x12 | 0.130 | 640 | 8x12 | 0.130 | 640 | 10x12.5 | 0.080 | 865 |
| 680 | 687 | 8x12 | 0.130 | 640 | 8x12 | 0.130 | 640 | 8x16 | 0.087 | 640 |
| | | | | | | | | 10x12.5 | 0.080 | 865 |
| 820 | 827 | 8x12 | 0.130 | 640 | 10x12.5 | 0.080 | 865 | 10x16 | 0.060 | 1210 |
| | | 10x12.5 | 0.080 | 865 | | | | | | |
| 1000 | 108 | 8x12 | 0.130 | 640 | 8x16 | 0.087 | 640 | 10x16 | 0.060 | 1210 |
| | | 10x12.5 | 0.080 | 865 | 10x16 | 0.060 | 1210 | | | |
| 1200 | 128 | 8x16 | 0.087 | 840 | 10x20 | 0.046 | 1400 | 10x20 | 0.046 | 1400 |
| | | 10x12.5 | 0.080 | 865 | | | | | | |
| 1500 | 158 | 8x20 | 0.069 | 1050 | 10x20 | 0.046 | 1400 | 10x20 | 0.046 | 1400 |
| | | 10x16 | 0.060 | 1210 | | | | | | |
| 1800 | 188 | 10x20 | 0.046 | 1400 | 10x20 | 0.046 | 1400 | 10x25 | 0.042 | 1650 |
| | | | | | | | | 12.5x20 | 0.035 | 1900 |
| 2200 | 228 | 10x20 | 0.046 | 1400 | 10x20 | 0.046 | 1400 | 12.5x20 | 0.035 | 1900 |
| 2700 | 278 | 10x25 | 0.042 | 1650 | 10x25 | 0.042 | 1650 | 12.5x25 | 0.030 | 2124 |
| | | 12.5x20 | 0.035 | 1900 | 12.5x20 | 0.035 | 1900 | | | |
| 3300 | 338 | 10x25 | 0.042 | 1650 | 12.5x25 | 0.030 | 2124 | | | |
| | | 12.5x20 | 0.035 | 1900 | | | | | | |
| 3900 | 398 | 12.5x20 | 0.035 | 1900 | | | | | | |
| 4700 | 478 | 12.5x25 | 0.030 | 2124 | | | | | | |

Maximum Allowable Ripple Current (mA rms) at 105°C 100kHz

Case Size ϕ D x L(mm)

Maximum Impedance (Ω) at 20°C 100kHz

GR Series

+105°C, High Ripple Current(高纹波), Low Impedance(低阻抗品)

STANDARD RATINGS

| Voltage (Code) | | 25V (1E) | | | 35V (1V) | | | 50V (1H) | | |
|----------------|------|-----------|-----------|----------------|-----------|-----------|----------------|-----------|-----------|----------------|
| Cap.(μ F) | Code | Case Size | Impedance | Ripple Current | Case Size | Impedance | Ripple Current | Case Size | Impedance | Ripple Current |
| 33 | 336 | | | | | | | 6.3x11 | 0.300 | 295 |
| 39 | 396 | | | | | | | 6.3x11 | 0.300 | 295 |
| 47 | 476 | | | | 6.3x11 | 0.220 | 340 | 6.3x11 | 0.300 | 295 |
| 56 | 566 | | | | 6.3x11 | 0.220 | 340 | 8x12 | 0.170 | 555 |
| 68 | 686 | | | | 6.3x11 | 0.220 | 340 | 8x12 | 0.170 | 555 |
| 82 | 826 | 6.3x11 | 0.220 | 340 | 8x12 | 0.130 | 640 | 8x12 | 0.170 | 555 |
| 100 | 107 | 6.3x11 | 0.220 | 340 | 8x12 | 0.130 | 640 | 10x12.5 | 0.120 | 760 |
| 120 | 127 | 8x12 | 0.130 | 640 | 8x12 | 0.130 | 640 | 8x16 | 0.120 | 730 |
| | | | | | | | | 10x12.5 | 0.120 | 760 |
| 150 | 157 | 8x12 | 0.130 | 640 | 8x12 | 0.130 | 640 | 10x16 | 0.084 | 1050 |
| 180 | 187 | 8x12 | 0.130 | 640 | 10x12.5 | 0.080 | 865 | 8x20 | 0.091 | 910 |
| | | | | | | | | 10x16 | 0.084 | 1050 |
| 220 | 227 | 8x12 | 0.130 | 640 | 8x12 | 0.130 | 640 | 10x16 | 0.084 | 1050 |
| | | | | | 8x16 | 0.087 | 840 | | | |
| | | | | | 10x12.5 | 0.080 | 865 | | | |
| 270 | 277 | 8x12 | 0.130 | 640 | 10x16 | 0.060 | 1210 | 10x25 | 0.055 | 1440 |
| | | 10x12.5 | 0.080 | 865 | | | | | | |
| 330 | 337 | 8x12 | 0.130 | 640 | 8x20 | 0.069 | 1050 | 12.5x20 | 0.045 | 1660 |
| | | 10x12.5 | 0.080 | 865 | 10x12.5 | 0.080 | 865 | | | |
| | | | | | 10x16 | 0.060 | 1210 | | | |
| 390 | 397 | 10x12.5 | 0.080 | 865 | 10x16 | 0.060 | 1210 | 12.5x20 | 0.045 | 1660 |
| 470 | 477 | 8x16 | 0.087 | 840 | 10x16 | 0.060 | 1210 | 12.5x25 | 0.034 | 1950 |
| | | 10x12.5 | 0.080 | 865 | | | | | | |
| 560 | 567 | 10x16 | 0.060 | 1210 | 10x20 | 0.046 | 1400 | 12.5x25 | 0.034 | 1950 |
| 680 | 687 | 10x16 | 0.060 | 1210 | 10x20 | 0.046 | 1400 | | | |
| 820 | 827 | 10x20 | 0.046 | 1400 | 10x25 | 0.042 | 1650 | | | |
| | | | | | 12.5x20 | 0.035 | 1900 | | | |
| 1000 | 108 | 10x20 | 0.046 | 1400 | 12.5x20 | 0.035 | 1900 | | | |
| | | | | | 12.5x25 | 0.030 | 2124 | | | |
| 1200 | 128 | 10x20 | 0.046 | 1400 | | | | | | |
| 1500 | 158 | 10x25 | 0.042 | 1650 | | | | | | |
| | | 12.5x20 | 0.035 | 1900 | | | | | | |
| 1800 | 188 | 12.5x25 | 0.030 | 2124 | | | | | | |
| 2200 | 228 | 12.5x25 | 0.030 | 2124 | | | | | | |

Maximum Allowable Ripple Current (mA rms) at 105°C 100kHz

Case Size ϕ D x L(mm)

Maximum Impedance (Ω) at 20°C 100kHz

GR Series

+105°C, High Ripple Current(高纹波), Low Impedance(低阻抗品)

STANDARD RATINGS

| Voltage(Code) | | 63V(1J) | | | 100V(2A) | | | | | |
|---------------|------|-----------|-----------|----------------|-----------|-----------|----------------|--|--|--|
| Cap.(μF) | Code | Case Size | Impedance | Ripple Current | Case Size | Impedance | Ripple Current | | | |
| 15 | 156 | | | | 6.3x11 | 0.960 | 115 | | | |
| 22 | 226 | 6.3x11 | 0.960 | 115 | | | | | | |
| 27 | 276 | 6.3x11 | 0.960 | 115 | 8x12 | 0.504 | 232 | | | |
| 33 | 336 | 6.3x11 | 0.960 | 115 | | | | | | |
| 39 | 396 | 8x12 | 0.504 | 232 | 8x16 | 0.360 | 300 | | | |
| 47 | 476 | 8x12 | 0.504 | 232 | 10x12.5 | 0.344 | 314 | | | |
| 56 | 566 | 8x12 | 0.504 | 232 | 8x20 | 0.264 | 362 | | | |
| 68 | 686 | 8x12 | 0.504 | 232 | 10x16 | 0.248 | 357 | | | |
| 82 | 826 | 10x12.5 | 0.344 | 314 | 10x20 | 0.168 | 466 | | | |
| 100 | 107 | 8x16 | 0.360 | 300 | 10x20 | 0.168 | 466 | | | |
| | | 10x12.5 | 0.344 | 314 | | | | | | |
| 120 | 127 | 10x16 | 0.248 | 357 | 12.5x20 | 0.128 | 690 | | | |
| 150 | 157 | 8x20 | 0.264 | 362 | | | | | | |
| 180 | 187 | 10x20 | 0.168 | 466 | 12.5x25 | 0.096 | 922 | | | |
| 220 | 227 | 10x20 | 0.168 | 466 | 12.5x25 | 0.096 | 922 | | | |
| 270 | 277 | 12.5x20 | 0.128 | 690 | | | | | | |
| 330 | 337 | 12.5x20 | 0.128 | 690 | | | | | | |
| 390 | 397 | 12.5x25 | 0.096 | 922 | | | | | | |

Maximum Allowable Ripple Current (mA rms) at 105 °C 100kHz

Case Size φD x L(mm)

Maximum Impedance(Ω) at 20 °C 100kHz

RIPPLE CURRENT MULTIPLIER

| Frequency Coefficient | | | | | | |
|-----------------------|-------------|-----------|------|------|------|------|
| Cap(μF) | Coefficient | Freq.(Hz) | 120 | 1k | 10k | 100k |
| ~180 | | | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 ~ 560 | | | 0.50 | 0.85 | 0.94 | 1.00 |
| 680 ~ 1800 | | | 0.60 | 0.87 | 0.95 | 1.00 |
| 2200 ~ 3900 | | | 0.75 | 0.90 | 0.95 | 1.00 |
| 4700 | | | 0.85 | 0.95 | 0.98 | 1.00 |