## LF Series

+105℃,High Ripple Current (高纹波).Long Life Assurance(长寿命), Low Impedance(低阻抗品)

FEATURES

1. Low Impedance for high frequency.

2. Long life: 3000~6000 hours at 105℃

**SPECIFICATIONS**

| Item | Performance Characteristics |
|---|---|
| Operation Temperature Range | -40 to +105℃ |
| Rated Working Voltage Range | 6.3to 100V |
| Nominal Capacitance Range | 15 to 3900μF |
| Capacitance Tolerance | ±20%(120Hz,+20℃) |
| Leakage Current | L≤0.01CV or 3(μA) (after 2 minutes, whichever is greater)<br>L=Leakage Current(μA) C=Nominal Capacitance(μF ) V=Rated Voltage(V) |

**tan δ (120Hz,+20℃)**

| 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 120 HZ

| Working Voltage(V) | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
|---|---|---|---|---|---|---|---|---|
| Z-25℃/Z+20℃ | 4 | 3 | 2 | 2 | 2 | 2 | 2 | 2 |
| Z-40℃/Z+20℃ | 8 | 6 | 4 | 3 | 3 | 3 | 3 | 3 |

**High Temperature Loading**

Test conditions
Duration :

| ΦD | 5-6.3 | 8 | 10 | 12.5 |
|---|---|---|---|---|
| Load life | 2000h | 3000h | 5000h | 4000h |

Ambient temp. : +105℃
Applied voltage : Rated DC working voltage with rated ripple current

Post test requirements at +20℃
Leakage current :≤Initial specified value
Cap.change :within ±25% of initial measured value
Tan δ :≤150% of initial specified value

**Shelf Life**

Test conditions
Duration : 1000 hours
Ambient temp : +105℃
Applied voltage :(None)

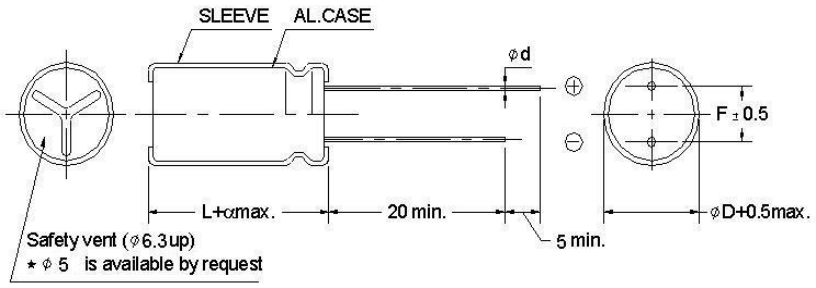
Post test requirements at +20℃
Same limits for high temperature loading.

**Other**

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<br>0.6 | | |
| α | (L<20) 1.5 | | | (L≥20) 2.0 | | |
| β | (D<20) 0.5 | | | (D≥20)1.0 | | |

## RIPPLE CURRENT MULTIPLIER

### Frequency coefficient

| Cap(μF) \ Freq(Hz) | 50 | 120 | 300 | 1k | 100K |
|---|---|---|---|---|---|
| 15~33 | 0.45 | 0.55 | 0.70 | 0.90 | 1.00 |
| 39~330 | 0.60 | 0.70 | 0.85 | 0.95 | 1.00 |
| 470~1000 | 0.65 | 0.75 | 0.90 | 0.98 | 1.00 |
| 1200~3900 | 0.75 | 0.80 | 0.95 | 1.00 | 1.00 |

## LF Series

**+105℃,High Ripple Current (高纹波).Long Life Assurance(长寿命)，Low Impedance(低阻抗品)**

**STANDARD RATINGS**

| Voltage(Code) | | 6.3V(0J) | | | 10V(1A) | | | 16V(1C) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cap.(μF) | Code | Case Size | Impedance | Ripple Current | Case Size | Impedance | Ripple Current | Case Size | Impedance | Ripple Current |
| 120 | 127 | | | | | | | 6.3*11 | 0.220 | 340 |
| 150 | 157 | | | | | | | | | |
| 220 | 227 | | | | 6.3*11 | 0.220 | 340 | | | |
| 330 | 337 | 6.3*11 | 0.220 | 340 | | | | 8*12 | 0.130 | 640 |
| 470 | 477 | | | | 8*12 | 0.130 | 640 | 8*16 | 0.087 | 840 |
| | | | | | | | | 10*12.5 | 0.080 | 865 |
| 680 | 687 | 8*12 | 0.130 | 640 | 8*16 | 0.087 | 840 | 8*20 | 0.069 | 1050 |
| | | | | | 10*12.5 | 0.080 | 865 | 10*16 | 0.060 | 1210 |
| 820 | 827 | 10*12.5 | 0.080 | 865 | | | | | | |
| 1000 | 108 | 8*16 | 0.087 | 840 | 8*20 | 0.069 | 1050 | 10*20 | 0.046 | 1400 |
| | | | | | 10*16 | 0.060 | 1210 | | | |
| 1200 | 128 | 8*20 | 0.069 | 1050 | 10*20 | 0.046 | 1400 | 10*25 | 0.042 | 1650 |
| | | 10*16 | 0.060 | 1210 | | | | | | |
| 1500 | 158 | 10*20 | 0.046 | 1400 | 10*25 | 0.042 | 1650 | 12.5*20 | 0.035 | 1900 |
| 2200 | 228 | 10*25 | 0.042 | 1650 | 12.5*20 | 0.035 | 1900 | 12.5*25 | 0.030 | 2124 |
| 3300 | 338 | 12.5*20 | 0.035 | 1900 | 12.5*25 | 0.030 | 2124 | | | |
| 3900 | 398 | 12.5*25 | 0.030 | 2124 | | | | | | |

**Maximum Allowable Ripple Current (mA rms) at 105℃ 100kHz** **Case Size ΦD xL(mm)**

**Maximum Impedance (Ω)at20℃ 100kHz**

| Voltage(Code) | | 25V（1E） | | | 35V（1V） | | | 50V（1H） | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cap.(μF) | Code | Case Size | Impedance | Ripple Current | Case Size | Impedance | Ripple Current | Case Size | Impedance | Ripple Current |
| 56 | 566 | | | | 6.3*11 | 0.220 | 340 | 6.3*11 | 0.300 | 295 |
| 100 | 107 | 6.3*11 | 0.220 | 340 | | | | 8*12 | 0.170 | 555 |
| 120 | 127 | | | | | | | 8*16 | 0.120 | 730 |
| 150 | 157 | | | | 8*12 | 0.130 | 640 | 10*12.5 | 0.120 | 760 |
| 220 | 227 | 8*12 | 0.130 | 640 | 8*16 | 0.087 | 840 | 10*16 | 0.084 | 1050 |
| | | | | | 10*12.5 | 0.080 | 865 | | | |
| 330 | 337 | 8*16 | 0.087 | 840 | 10*16 | 0.060 | 1210 | 10*25 | 0.055 | 1440 |
| | | 10*12.5 | 0.080 | 865 | | | | | | |
| 470 | 477 | 8*20 | 0.069 | 1050 | 10*20 | 0.046 | 1400 | 12.5*20 | 0.045 | 1660 |
| | | 10*16 | 0.060 | 1210 | | | | | | |
| 560 | 567 | | | | 10*25 | 0.042 | 1650 | 12.5*25 | 0.034 | 1950 |
| 680 | 687 | 10*20 | 0.046 | 1400 | 12.5*20 | 0.035 | 1900 | | | |
| 820 | 827 | 10*25 | 0.042 | 1650 | | | | | | |
| 1000 | 108 | 12.5*20 | 0.035 | 1900 | 12.5*25 | 0.030 | 2124 | | | |
| 1500 | 158 | 12.5*25 | 0.030 | 2124 | | | | | | |

**Maximum Allowable Ripple Current (mA rms) at 105℃ 100kHz** **Case Size ΦD xL(mm)**

**Maximum Impedance (Ω)at20℃ 100kHz**

| Voltage(Code) | | 63V（1J） | | | 100V（2A） | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cap.(μF) | Code | Case Size | Impedance | Ripple Current | Case Size | Impedance | Ripple Current | Case Size | Impedance | Ripple Current |
| 15 | 156 | | | | 6.3*11 | 0.960 | 115 | | | |
| 27 | 276 | | | | 8*12 | 0.504 | 232 | | | |
| 33 | 336 | 6.3*11 | 0.960 | 115 | | | | | | |
| 39 | 396 | | | | 8*16 | 0.360 | 300 | | | |
| 47 | 476 | | | | 10*12.5 | 0.344 | 314 | | | |
| 56 | 566 | 8*12 | 0.504 | 232 | 8*20 | 0.264 | 362 | | | |
| 68 | 686 | | | | 10*16 | 0.248 | 357 | | | |
| 82 | 826 | 8*16 | 0.360 | 300 | 10*20 | 0.168 | 466 | | | |
| | | 10*12.5 | 0.344 | 314 | | | | | | |
| 100 | 107 | | | | 10*25 | 0.160 | 531 | | | |
| 120 | 127 | 8*20 | 0.264 | 362 | 12.5*20 | 0.128 | 690 | | | |
| | | 10*16 | 0.248 | 357 | | | | | | |
| 180 | 187 | 10*20 | 0.168 | 466 | 12.5*25 | 0.096 | 922 | | | |
| 220 | 227 | 10*25 | 0.160 | 531 | | | | | | |
| 270 | 277 | 12.5*20 | 0.128 | 690 | | | | | | |
| 330 | 337 | 12.5*25 | 0.096 | 922 | | | | | | |

**Maximum Allowable Ripple Current (mA rms) at 105℃ 100kHz** **Case Size ΦD xL(mm)**

**Maximum Impedance (Ω)at20℃ 100kHz**