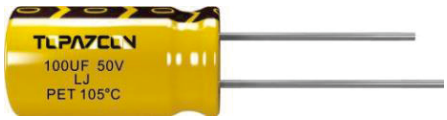
# LJ Series

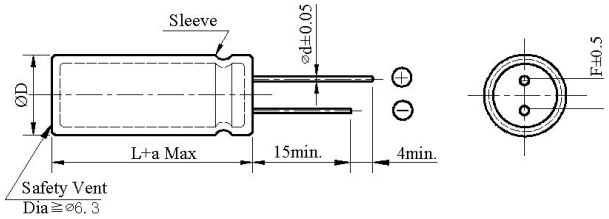
- **High performance, high reliability.**
- **Low impedance, high ripple current, long life**
- **Load life 4,000～7,000 hours at 105℃**
- **RoHS Compliant**




## ◆ SPECIFICATIONS

| Item | Performance Characteristics |
|---|---|
| Category Temperature Range | -40 ~ +105℃ |
| Working Voltage Range | 6.3 ~ 120Vdc |
| Capacitance Range | 10 ~ 10,000μF |
| Capacitance Tolerance | ±20% (at 20℃ and 120Hz) |
| Dissipation Factor (tanδ) (at 20℃, 120Hz) | Rated Voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 / 120<br>tanδ(Max): 0.22 / 0.19 / 0.16 / 0.14 / 0.12 / 0.10 / 0.09 / 0.08 / 0.08 / 0.12<br>The above values should be increased by 0.02 for every additional 1000μF |
| Leakage Current | I=0.01CV or 3μA whichever is greater<br>I : Leakage current (μA) C : Rated capacitance (μF) V : Rated voltage (V) Impress the rated voltage for 2 minutes |
| Low Temperature Characteristics Impedance Ratio(MAX) | Rated voltage (V): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 80 / 100 / 120<br>Z(-25℃)/Z(+20℃): 5 / 4 / 4 / 3 / 2 / 2 / 2 / 2 / 2 / 3<br>Z(-40℃)/Z(+20℃): 8 / 6 / 6 / 5 / 4 / 3 / 3 / 3 / 3 / 6<br>(at 120Hz) |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied for 4,000 to 7,000 hours at 105°C.<br>Capacitance change: ≦ ±25% of the initial value<br>Dissipation factor(tanδ): ≦ 200% of the specified value<br>Leakage current: ≦ specified value<br>Size: ≤6.3 Φ — Life time (hours) 6.3~10V: 4,000, 16~120V: 5,000; ≥8 Φ — 6,000, 7,000 |
| Shelf Life | The following requirements shall be satisfied when the capacitor are restored to 20℃ after the rated voltage applied for 1,000 hours at 105℃ without voltage applied.<br>Capacitance change: ≦ ±25% of the initial value<br>Dissipation factor(tanδ): ≦ 200% of the specified value<br>Leakage current: ≦ 200% of the specified value |

## ◆ DIMENSIONS (mm)




| ΦD | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 |
|---|---|---|---|---|---|---|---|
| ΦD | ΦD +0.5 Max | | | | | | |
| Φd | 0.5 | 0.5 | 0.5/0.6 | 0.6 | 0.6 | 0.8 | 0.8 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| a | L+2.0 Max | | | | | | |

## ◆ PART NUMBER SYSTEM( Example : 50V 100μF )

| E | L | J | 1 | H | 1 | 0 | 1 | M | 0 | 8 | 1 | 2 | 0 | 0 | Y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

- Sleeve code(Yellow)
- Lead length code
- Lead forming Type code
- Size code(0812 : 8×12)
- Capacitance tolerance code(M:±20%)
- Capacitance code (100μF)
- Voltage code(50V)
- Series code(LJ)
- Category code(E)

# LJ Series

◆ **Case size & Permissible rated ripple current**

| Nominal capacitance (μF) | 6.3V | | | | 10V | | | |
|---|---|---|---|---|---|---|---|---|
| | Case size ΦD×L (mm) | Impedance (Ωmax/100KHz) | | Max. Rated ripple current @105℃ 100KHz (mA rms) | Case size ΦD×L (mm) | Impedance (Ωmax/100KHz) | | Max. Rated ripple current @105℃ 100KHz (mA rms) |
| | | 20℃ | -10℃ | | | 20℃ | -10℃ | |
| 100 | 5×11 | 0.620 | 3.500 | 170 | 5×11 | 0.570 | 2.200 | 220 |
| 150 | 5×11 | 0.570 | 2.200 | 200 | 5×11 | 0.520 | 2.000 | 235 |
| 220 | 6.3×11 | 0.400 | 1.600 | 255 | 6.3×11 | 0.210 | 0.860 | 350 |
| 330 | 6.3×11 | 0.210 | 0.860 | 350 | 8×12 | 0.200 | 0.840 | 420 |
| 470 | 8×12 | 0.180 | 0.800 | 420 | 8×12 | 0.130 | 0.520 | 660 |
| 560 | 8×12 | 0.170 | 0.750 | 470 | 8×16 | 0.120 | 0.480 | 675 |
| 680 | 8×12 | 0.130 | 0.520 | 660 | 8×16 | 0.086 | 0.480 | 850 |
| 820 | 10×12 | 0.080 | 0.450 | 730 | 8×20 | 0.075 | 0.310 | 930 |
| 1000 | 8×16 | 0.086 | 0.480 | 850 | 10×20 | 0.069 | 0.290 | 1050 |
| 1200 | 8×20 | 0.069 | 0.270 | 1050 | 10×20 | 0.046 | 0.190 | 1400 |
| 1500 | 10×20 | 0.046 | 0.190 | 1450 | 10×25 | 0.042 | 0.180 | 1440 |
| 2200 | 10×20 | 0.042 | 0.180 | 1650 | 12.5×20 | 0.035 | 0.170 | 1910 |
| 2700 | 10×25 | 0.042 | 0.180 | 1750 | 12.5×20 | 0.030 | 0.120 | 1945 |
| 3300 | 12.5×20 | 0.040 | 0.160 | 1910 | 12.5×25 | 0.028 | 0.110 | 2230 |
| 3900 | 12.5×25 | 0.030 | 0.120 | 2230 | 12.5×30 | 0.024 | 0.100 | 2650 |
| 4700 | 12.5×30 | 0.028 | 0.110 | 2650 | 12.5×35 | 0.022 | 0.092 | 2880 |
| 5600 | 12.5×35 | 0.022 | 0.092 | 2880 | 12.5×40 | 0.020 | 0.084 | 2950 |
| 6800 | 12.5×40 | 0.020 | 0.084 | 3350 | 16×30 | 0.018 | 0.076 | 3450 |
| 8200 | 16×30 | 0.018 | 0.076 | 3450 | 16×35 | 0.016 | 0.074 | 3610 |
| 10000 | 16×35 | 0.016 | 0.074 | 3610 | 16×40 | 0.014 | 0.070 | 4100 |

| Nominal capacitance (μF) | 16V | | | | 25V | | | |
|---|---|---|---|---|---|---|---|---|
| | Case size ΦD×L (mm) | Impedance (Ωmax/100KHz) | | Max. Rated ripple current @105℃ 100KHz (mA rms) | Case size ΦD×L (mm) | Impedance (Ωmax/100KHz) | | Max. Rated ripple current @105℃ 100KHz (mA rms) |
| | | 20℃ | -10℃ | | | 20℃ | -10℃ | |
| 47 | 5×11 | 0.700 | 2.800 | 130 | 5×11 | 0.600 | 2.500 | 220 |
| 56 | 5×11 | 0.570 | 2.200 | 210 | 5×11 | 0.570 | 2.200 | 230 |
| 68 | 6.3×11 | 0.560 | 2.200 | 220 | 6.3×11 | 0.360 | 1.800 | 230 |
| 100 | 6.3×11 | 0.520 | 1.500 | 275 | 6.3×11 | 0.210 | 0.860 | 350 |
| 150 | 8×12 | 0.210 | 0.860 | 350 | 8×12 | 0.200 | 0.690 | 405 |
| 220 | 8×12 | 0.200 | 0.790 | 450 | 8×12 | 0.150 | 0.550 | 650 |
| 330 | 8×12 | 0.130 | 0.520 | 660 | 8×16 | 0.130 | 0.520 | 850 |
| 470 | 8×16 | 0.087 | 0.350 | 850 | 10×16 | 0.060 | 0.250 | 1250 |
| 560 | 8×20 | 0.085 | 0.340 | 865 | 10×16 | 0.078 | 0.330 | 1220 |
| 680 | 8×20 | 0.069 | 0.270 | 1050 | 10×20 | 0.046 | 0.1900 | 1400 |
| 820 | 10×16 | 0.058 | 0.230 | 1220 | 10×25 | 0.042 | 0.180 | 1650 |
| 1000 | 10×20 | 0.045 | 0.180 | 1400 | 12.5×20 | 0.038 | 0.160 | 1860 |
| 1200 | 10×25 | 0.042 | 0.170 | 1650 | 12.5×25 | 0.035 | 0.145 | 1936 |
| 1500 | 12.5×20 | 0.035 | 0.130 | 1950 | 12.5×25 | 0.033 | 0.120 | 2230 |
| 2200 | 12.5×25 | 0.027 | 0.089 | 2280 | 12.5×35 | 0.026 | 0.088 | 2880 |
| 2700 | 12.5×30 | 0.024 | 0.078 | 2650 | 12.5×35 | 0.020 | 0.065 | 2930 |
| 3300 | 12.5×35 | 0.020 | 0.065 | 2930 | 16×30 | 0.018 | 0.055 | 3450 |
| 3900 | 12.5×40 | 0.017 | 0.075 | 3350 | 16×35 | 0.016 | 0.074 | 3610 |
| 4700 | 16×30 | 0.018 | 0.050 | 3450 | 16×40 | 0.015 | 0.072 | 4080 |
| 5600 | 16×35 | 0.015 | 0.072 | 3610 | | | | |
| 6800 | 16×40 | 0.013 | 0.038 | 4080 | | | | |

# LJ Series

◆ **Case size & Permissible rated ripple current**

| Nominal capacitance (μF) | 35V | | | | 50V | | | |
|---|---|---|---|---|---|---|---|---|
| | Case size ΦD×L (mm) | Impedance (Ωmax/100KHz) | | Max. Rated ripple current @105℃ 100KHz (mA rms) | Case size ΦD×L (mm) | Impedance (Ωmax/100KHz) | | Max. Rated ripple current @105℃ 100KHz (mA rms) |
| | | 20℃ | -10℃ | | | 20℃ | -10℃ | |
| 10 | 5×11 | 1.600 | 6.500 | 100 | 5×11 | 1.450 | 5.600 | 105 |
| 22 | 5×11 | 0.750 | 3.200 | 160 | 5×11 | 0.850 | 3.600 | 190 |
| 33 | 5×11 | 0.580 | 2.300 | 210 | 6.3×11 | 0.480 | 1.700 | 220 |
| 47 | 6.3×11 | 0.480 | 1.800 | 250 | 6.3×11 | 0.400 | 1.500 | 260 |
| 68 | 8×12 | 0.210 | 0.870 | 350 | 8×12 | 0.280 | 1.100 | 360 |
| 100 | 8×12 | 0.200 | 0.850 | 405 | 8×12 | 0.220 | 0.880 | 560 |
| 150 | 8×12 | 0.130 | 0.520 | 660 | 8×16 | 0.200 | 0.850 | 730 |
| 220 | 8×16 | 0.117 | 0.440 | 850 | 10×16 | 0.150 | 0.650 | 1050 |
| 330 | 10×12 | 0.090 | 0.380 | 1250 | 10×20 | 0.120 | 0.520 | 1450 |
| 470 | 10×16 | 0.082 | 0.340 | 1450 | 12.5×20 | 0.100 | 0.420 | 1660 |
| 560 | 10×20 | 0.065 | 0.270 | 1650 | 12.5×25 | 0.086 | 0.360 | 1950 |
| 680 | 10×25 | 0.060 | 0.250 | 1910 | 12.5×30 | 0.070 | 0.290 | 2320 |
| 820 | 12.5×20 | 0.052 | 0.220 | 1990 | 12.5×35 | 0.055 | 0.230 | 2510 |
| 1000 | 12.5×20 | 0.035 | 0.150 | 2250 | 16×25 | 0.040 | 0.170 | 2560 |
| 1200 | 12.5×35 | 0.032 | 0.130 | 2650 | 16×30 | 0.038 | 0.150 | 3050 |
| 1500 | 12.5×30 | 0.030 | 0.120 | 2880 | 16×35 | 0.035 | 0.150 | 3150 |
| 2200 | 16×30 | 0.028 | 0.115 | 3450 | 18×35 | 0.030 | 0.120 | 3680 |
| 2700 | 16×35 | 0.026 | 0.110 | 3610 | 18×40 | 0.028 | 0.110 | 3800 |
| 3300 | 16×40 | 0.024 | 0.100 | 4080 | | | | |
| 3900 | 18×40 | 0.022 | 0.092 | 4300 | | | | |

| Nominal capacitance (μF) | 63V | | | | 80V | | | |
|---|---|---|---|---|---|---|---|---|
| | Case size ΦD×L (mm) | Impedance (Ωmax/100KHz) | | Max. Rated ripple current @105℃ 100KHz (mA rms) | Case size ΦD×L (mm) | Impedance (Ωmax/100KHz) | | Max. Rated ripple current @105℃ 100KHz (mA rms) |
| | | 20℃ | -10℃ | | | 20℃ | -10℃ | |
| 10 | 5×11 | 2.850 | 9.300 | 95 | 6.3×11 | 2.400 | 8.000 | 110 |
| 15 | 5×11 | 2.200 | 7.700 | 145 | 6.3×11 | 2.000 | 7.000 | 160 |
| 22 | 6.3×11 | 1.850 | 7.200 | 170 | 8×12 | 1.500 | 6.600 | 180 |
| 33 | 6.3×11 | 1.000 | 4.500 | 250 | 8×12 | 1.000 | 4.500 | 280 |
| 47 | 8×12 | 0.800 | 3.500 | 300 | 8×16 | 0.750 | 3.100 | 320 |
| 56 | 8×12 | 0.500 | 2.000 | 450 | 8×16 | 0.480 | 1.800 | 430 |
| 68 | 8×12 | 0.480 | 1.800 | 500 | 8×16 | 0.400 | 1.680 | 480 |
| 100 | 8×16 | 0.430 | 1.900 | 620 | 10×12 | 0.300 | 1.250 | 550 |
| 220 | 10×20 | 0.160 | 0.730 | 850 | 10×20 | 0.150 | 0.720 | 800 |
| 330 | 12.5×25 | 0.100 | 0.450 | 1320 | 12.5×20 | 0.095 | 0.400 | 1150 |
| 470 | 12.5×25 | 0.095 | 0.400 | 1610 | 12.5×25 | 0.083 | 0.350 | 1320 |
| 560 | 12.5×35 | 0.083 | 0.350 | 1720 | 12.5×40 | 0.078 | 0.330 | 1440 |
| 680 | 12.5×40 | 0.071 | 0.300 | 1900 | 16×30 | 0.070 | 0.290 | 1650 |
| 820 | 16×30 | 0.065 | 0.250 | 2300 | 16×35 | 0.060 | 0.220 | 1750 |
| 1000 | 16×35 | 0.048 | 0.160 | 2900 | 16×40 | 0.045 | 0.150 | 2200 |
| 1200 | 18×35 | 0.045 | 0.150 | 3180 | 18×40 | 0.042 | 0.140 | 2680 |
| 1500 | 18×40 | 0.036 | 0.130 | 3350 | 18×45 | 0.035 | 0.125 | 2890 |
| 1800 | 18×45 | 0.035 | 0.125 | 3500 | | | | |

# LJ Series

◆ **Case size & Permissible rated ripple current**

| Nominal capacitance (μF) | 100V | | | | 120V | | | |
|---|---|---|---|---|---|---|---|---|
| | Case size ΦD×L (mm) | Impedance (Ωmax/100KHz) | | Max. Rated ripple current @105℃ 100KHz (mA rms) | Case size ΦD×L (mm) | Impedance (Ωmax/100KHz) | | Max. Rated ripple current @105℃ 100KHz (mA rms) |
| | | 20℃ | -10℃ | | | 20℃ | -10℃ | |
| 10 | 6.3×11 | 2.200 | 9.300 | 100 | 6.3×11 | 6.000 | 25.30 | 80 |
| 15 | 6.3×11 | 1.800 | 7.70 | 105 | 6.3×11 | 5.000 | 21.20 | 100 |
| 22 | 6.3×11 | 1.100 | 5.000 | 150 | 8×12 | 4.000 | 17.20 | 130 |
| 33 | 8×12 | 0.620 | 2.800 | 242 | 8×16 | 3.500 | 15.10 | 250 |
| 47 | 8×16 | 0.430 | 1.800 | 300 | 8×20 | 2.800 | 12.00 | 280 |
| 56 | 10×12 | 0.400 | 1.700 | 420 | 10×16 | 2.500 | 10.80 | 300 |
| 68 | 10×12 | 0.310 | 1.500 | 500 | 10×16 | 2.200 | 9.500 | 330 |
| 82 | 10×16 | 0.230 | 0.960 | 470 | 10×20 | 2.000 | 8.500 | 370 |
| 100 | 10×20 | 0.200 | 0.840 | 531 | 10×25 | 1.800 | 7.700 | 420 |
| 120 | 12.5×16 | 0.180 | 0.770 | 650 | 12.5×20 | 1.200 | 5.100 | 530 |
| 150 | 12.5×20 | 0.160 | 0.680 | 700 | 12.5×25 | 1.100 | 4.700 | 590 |
| 220 | 12.5×30 | 0.110 | 0.440 | 905 | 16×20 | 0.820 | 3.500 | 680 |
| 270 | 16×20 | 0.100 | 0.420 | 1020 | 16×25 | 0.600 | 2.500 | 750 |
| 330 | 16×30 | 0.095 | 0.340 | 1180 | 18×25 | 0.450 | 1.900 | 850 |
| 470 | 16×35 | 0.065 | 0.250 | 1790 | 18×30 | 0.350 | 1.500 | 930 |
| 560 | 16×40 | 0.058 | 0.180 | 2020 | 18×35 | 0.300 | 1.300 | 1030 |
| 680 | 18×35 | 0.050 | 0.160 | 2180 | 18×40 | 0.250 | 1.000 | 1150 |
| 820 | 18×40 | 0.036 | 0.130 | 2330 | | | | |

◆ **RIPPLE CURRENT MULTIPLIERS**

**Frequency Multipliers**

| Vdc | Cap(uF) | Frequency (Hz) | | | |
|---|---|---|---|---|---|
| | | 120 | 1K | 10K | 100K |
| 6.3 ~ 120 | Cap＜220 | 0.40 | 0.75 | 0.90 | 1.00 |
| | 220≤Cap＜680 | 0.50 | 0.85 | 0.94 | 1.00 |
| | 680≤Cap＜2200 | 0.60 | 0.87 | 0.95 | 1.00 |
| | 2200≤Cap＜4700 | 0.75 | 0.90 | 0.95 | 1.00 |
| | Cap≥4700 | 0.85 | 0.95 | 0.98 | 1.00 |