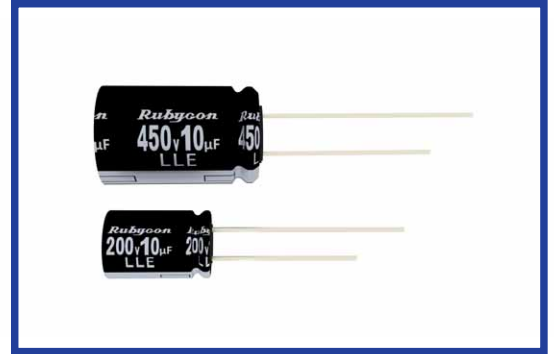


LLE SERIES
Load Life: 105°C 12000~20000 hours

*For LED Lighting.


◆ SPECIFICATIONS

| Items | Characteristics | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--------------------|-----------------------------------|-----------------------------|--|-------------------------------|------------------------------------|--|---------------|------------------|-------------------|-------|-----------------|-------|---------------------------|-------|------------------|---|---|---|----|---|--|
| Category Temperature Range | -40~+105°C | -25~+105°C | | | | | | | | | | | | | | | | | | | | | |
| Rated Voltage Range | 160~400Vdc | 450Vdc | | | | | | | | | | | | | | | | | | | | | |
| Capacitance Tolerance | ±20% (20°C, 120Hz) | | | | | | | | | | | | | | | | | | | | | | |
| Leakage Current(MAX) | <table border="1"> <thead> <tr> <th>CV ≤ 1000</th> <th>CV > 1000</th> </tr> </thead> <tbody> <tr> <td>I = 0.1CV + 40µA (1 minute)</td> <td>I = 0.04CV + 100µA (1 minute)</td> </tr> <tr> <td>I = 0.03CV + 15µA (5 minutes)</td> <td>I = 0.02CV + 25µA (5 minutes)</td> </tr> </tbody> </table> | CV ≤ 1000 | CV > 1000 | I = 0.1CV + 40µA (1 minute) | I = 0.04CV + 100µA (1 minute) | I = 0.03CV + 15µA (5 minutes) | I = 0.02CV + 25µA (5 minutes) | I = Leakage Current (µA) C = Capacitance (µF) V = Rated Voltage (Vdc) | | | | | | | | | | | | | | | |
| CV ≤ 1000 | CV > 1000 | | | | | | | | | | | | | | | | | | | | | | |
| I = 0.1CV + 40µA (1 minute) | I = 0.04CV + 100µA (1 minute) | | | | | | | | | | | | | | | | | | | | | | |
| I = 0.03CV + 15µA (5 minutes) | I = 0.02CV + 25µA (5 minutes) | | | | | | | | | | | | | | | | | | | | | | |
| Dissipation Factor(MAX) (tanδ) | <table border="1"> <thead> <tr> <th>Rated Voltage (Vdc)</th> <th>160</th> <th>200</th> <th>250</th> <th>400</th> <th>450</th> <th>(20°C, 120Hz)</th> </tr> </thead> <tbody> <tr> <td>tanδ</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> <td>0.24</td> <td></td> </tr> </tbody> </table> | | Rated Voltage (Vdc) | 160 | 200 | 250 | 400 | 450 | (20°C, 120Hz) | tanδ | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | | | | | | | | |
| Rated Voltage (Vdc) | 160 | 200 | 250 | 400 | 450 | (20°C, 120Hz) | | | | | | | | | | | | | | | | | |
| tanδ | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | | | | | | | | | | | | | | | | | | |
| Endurance | After applying rated voltage with rated ripple current for specified time at 105°C, the capacitors shall meet the following requirements. | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th>Capacitance Change</th> <th>Within ±30% of the initial value.</th> </tr> </thead> <tbody> <tr> <td>Dissipation Factor</td> <td>Not more than 300% of the specified value.</td> </tr> <tr> <td>Leakage Current</td> <td>Not more than the specified value.</td> </tr> </tbody> </table> | Capacitance Change | Within ±30% of the initial value. | Dissipation Factor | Not more than 300% of the specified value. | Leakage Current | Not more than the specified value. | <table border="1"> <thead> <tr> <th>Case Size</th> <th>Life Time (hrs)</th> </tr> </thead> <tbody> <tr> <td>6.3×11, 8×9, 10×9</td> <td>12000</td> </tr> <tr> <td>8×11.5, 10×12.5</td> <td>15000</td> </tr> <tr> <td>10×16, 10×20 φD ≥ 12.5</td> <td>20000</td> </tr> </tbody> </table> | Case Size | Life Time (hrs) | 6.3×11, 8×9, 10×9 | 12000 | 8×11.5, 10×12.5 | 15000 | 10×16, 10×20 φD ≥ 12.5 | 20000 | | | | | | | |
| Capacitance Change | Within ±30% of the initial value. | | | | | | | | | | | | | | | | | | | | | | |
| Dissipation Factor | Not more than 300% of the specified value. | | | | | | | | | | | | | | | | | | | | | | |
| Leakage Current | Not more than the specified value. | | | | | | | | | | | | | | | | | | | | | | |
| Case Size | Life Time (hrs) | | | | | | | | | | | | | | | | | | | | | | |
| 6.3×11, 8×9, 10×9 | 12000 | | | | | | | | | | | | | | | | | | | | | | |
| 8×11.5, 10×12.5 | 15000 | | | | | | | | | | | | | | | | | | | | | | |
| 10×16, 10×20 φD ≥ 12.5 | 20000 | | | | | | | | | | | | | | | | | | | | | | |
| Low Temperature Stability Impedance Ratio(MAX) | <table border="1"> <thead> <tr> <th>Rated Voltage (Vdc)</th> <th>160</th> <th>200</th> <th>250</th> <th>400</th> <th>450</th> <th>(120Hz)</th> </tr> </thead> <tbody> <tr> <td>Z(-25°C)/Z(20°C)</td> <td>3</td> <td>3</td> <td>3</td> <td>6</td> <td>6</td> <td></td> </tr> <tr> <td>Z(-40°C)/Z(20°C)</td> <td>8</td> <td>8</td> <td>8</td> <td>10</td> <td>-</td> <td></td> </tr> </tbody> </table> | | Rated Voltage (Vdc) | 160 | 200 | 250 | 400 | 450 | (120Hz) | Z(-25°C)/Z(20°C) | 3 | 3 | 3 | 6 | 6 | | Z(-40°C)/Z(20°C) | 8 | 8 | 8 | 10 | - | |
| Rated Voltage (Vdc) | 160 | 200 | 250 | 400 | 450 | (120Hz) | | | | | | | | | | | | | | | | | |
| Z(-25°C)/Z(20°C) | 3 | 3 | 3 | 6 | 6 | | | | | | | | | | | | | | | | | | |
| Z(-40°C)/Z(20°C) | 8 | 8 | 8 | 10 | - | | | | | | | | | | | | | | | | | | |

◆ MULTIPLIER FOR RIPPLE CURRENT

160~400Vdc

| Frequency (Hz) | | 120 | 1k | 10k | 100k ≤ |
|----------------|----------|-----|-----|-----|--------|
| Coefficient | 1~5.6µF | 1.0 | 1.6 | 1.8 | 2.0 |
| | 6.8~18µF | 1.0 | 1.5 | 1.7 | 1.9 |
| | 22~33µF | 1.0 | 1.4 | 1.6 | 1.8 |

450Vdc

| Frequency (Hz) | | 120 | 1k | 10k | 100k ≤ |
|----------------|----------|-----|-----|-----|--------|
| Coefficient | 4.7~15µF | 0.3 | 0.6 | 0.9 | 1.0 |
| | 22~68µF | 0.4 | 0.7 | 0.9 | 1.0 |

◆ OPTION

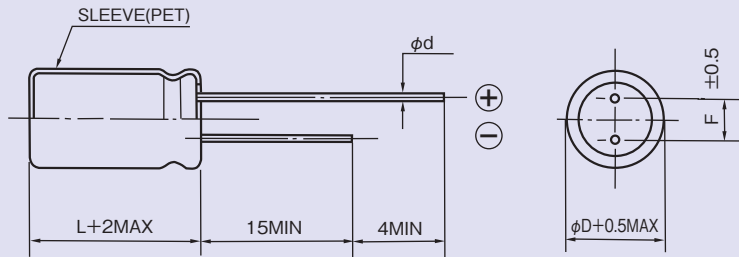
| | Code |
|------------|------|
| PET Sleeve | EFC |

◆ PART NUMBER

| | | | | | | |
|---------------|--------|-------------|-----------------------|--------|--------------|-----------|
| □□□ | LLE | □□□□□ | M | □□□ | □□ | D×L |
| Rated Voltage | Series | Capacitance | Capacitance Tolerance | Option | Lead Forming | Case Size |

◆ DIMENSIONS

(mm)



| | | | | | | |
|----------|-----|-----|----|------|-----|----|
| ϕD | 6.3 | 8 | 10 | 12.5 | 16 | 18 |
| ϕd | 0.5 | 0.6 | | 0.8 | | |
| F | 2.5 | 3.5 | 5 | | 7.5 | |

◆ STANDARD SIZE

| Rated Voltage (Vdc) | Capacitance (μF) | Size $\phi D \times L$ (mm) | Rated Ripple Current (mA r.m.s., 105°C) | |
|---------------------|-------------------------|-----------------------------|---|--------|
| | | | 120Hz | 100kHz |
| 160 | 5.6 | 6.3×11 | 52 | 104 |
| | 10 | 8×9 | 70 | 133 |
| | 15 | 8×11.5 | 92 | 174 |
| | | 10×9 | 95 | 180 |
| | 22 | 10×12.5 | 121 | 217 |
| | 33 | 10×16 | 158 | 284 |
| 200 | 2.2 | 6.3×11 | 36 | 72 |
| | 3.3 | 6.3×11 | 42 | 84 |
| | 4.7 | 6.3×11 | 49 | 98 |
| | 5.6 | 8×9 | 56 | 112 |
| | 6.8 | 8×9 | 62 | 117 |
| | 8.2 | 8×9 | 66 | 125 |
| | 10 | 8×11.5 | 80 | 152 |
| | 12 | 10×9 | 88 | 167 |
| | 18 | 10×12.5 | 113 | 214 |
| | 27 | 10×16 | 149 | 268 |
| 250 | 1.8 | 6.3×11 | 33 | 66 |
| | 2.2 | 6.3×11 | 36 | 72 |
| | 3.3 | 6.3×11 | 42 | 84 |
| | 4.7 | 8×9 | 53 | 106 |
| | 5.6 | 8×11.5 | 62 | 124 |
| | 6.8 | 8×11.5 | 68 | 129 |
| | 8.2 | 10×9 | 76 | 144 |
| | 10 | 10×12.5 | 90 | 171 |
| | 12 | 10×12.5 | 97 | 184 |
| | 18 | 10×16 | 127 | 241 |

| Rated Voltage (Vdc) | Capacitance (μF) | Size $\phi D \times L$ (mm) | Rated Ripple Current (mA r.m.s., 105°C) | |
|---------------------|-------------------------|-----------------------------|---|--------|
| | | | 120Hz | 100kHz |
| 400 | 1 | 6.3×11 | 24 | 48 |
| | 1.2 | 8×9 | 28 | 56 |
| | 1.5 | 8×9 | 30 | 60 |
| | 1.8 | 8×9 | 33 | 66 |
| | 2.2 | 8×9 | 36 | 72 |
| | | 8×11.5 | 40 | 80 |
| | 2.7 | 8×11.5 | 43 | 86 |
| | 3.3 | 8×11.5 | 47 | 94 |
| | | 10×9 | 48 | 96 |
| | 3.9 | 10×12.5 | 57 | 114 |
| 4.7 | 10×12.5 | 61 | 122 | |
| 6.8 | 10×16 | 85 | 161 | |
| 450 | 4.7 | 10×16 | 54 | 180 |
| | | 10×20 | 66 | 220 |
| | 6.8 | 10×20 | 84 | 280 |
| | 8.2 | 10×20 | 84 | 280 |
| | 10 | 12.5×20 | 135 | 450 |
| | 15 | 12.5×25 | 180 | 600 |
| | 22 | 12.5×25 | 240 | 600 |
| | | 16×20 | 292 | 730 |
| | 33 | 16×25 | 392 | 980 |
| | | 18×20 | 312 | 780 |
| 47 | 18×25 | 480 | 1200 | |
| 68 | 18×31.5 | 520 | 1300 | |

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[LKMD1401H181MF](#) [LKMI2502G820MF](#) [LKMJ2001J122MF](#) [LKML2501C472MF](#) [LKMJ4002C681MF](#) [450MXH330MEFCSN25X45](#)
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