## FEATURES

- Highly reliable capacitors that withstand high ripple current.
- Two or three dimensions with same rating.
- Terminal spacing fixed at 10mm for printed circuit board plug in.
- Aluminum case designed explosion-proof vent.
- Best for switching power supplies.
- For detailed specifications, please refer to Engineering Bulletin No. E107.

## PART NUMBERING

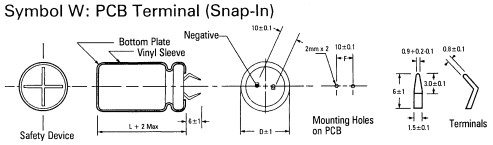
| Part Number Example: LCE-050/100M30X42F | | | | | | | |
|---|---|---|---|---|---|---|---|
| **LCE** | **-** | **050** | **/** | **100** | **M** | **30X42** | **F** |
| Type | | Rated DC Voltage | | Capacitance Code (μF)* | Tolerance Code | Size | RoHs Compliant |
| * Capacitance Code: First two digits represent significant figures, third digit represents multiplier (number of zeros). | | | | | | | |

## SPECIFICATIONS

| Performance Characteristics | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Operating Temperature Range | -40°C ~ +105°C. | | | | | | -25°C ~ +105°C. | | | | | | |
| Temperature Characteristics (120Hz) | Impedance Ratio | | | | | | | | | | | | |
| | Rated Voltage (WVDC) | 10 | 16 | 25 | 35 | 50 | 63 | 100 | 160 | 200 | 250 | 350 | 400 |
| | Z (-25°C) / Z (+20°C) | 5 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 8 |
| | Z (-40°C) / Z (+20°C) | 15 | 15 | 15 | 12 | 12 | 12 | 12 | | | | | |
| Voltage Range | 10VDC ~ 100VDC. | | | | | | 160VDC ~ 450VDC. | | | | | | |
| Capacitance Range | 330μF ~ 68000μF. | | | | | | 33μF ~ 2200μF. | | | | | | |
| Capacitance Tolerance (20°C, 120Hz) | ±20%. | | | | | | | | | | | | |
| Maximum Dissipation Factor % (20°C, 120Hz) | Less than the value under table. | | | | | | | | | | | | |
| | μF | Rated Voltage (WVDC) | | | | | | | | | | | |
| | | 10 ~ 16 | | 25 ~ 35 | | 50 ~ 63 | | 80 ~ 100 | | 160 ~ 250 | | 315 ~ 450 | |
| | 33 ~ 470 | | | | | | | 15 | | 15 | | 20 | |
| | 560 ~ 3900 | 25 | | 20 | | 20 | | 20 | | 15 | | 20 | |
| | 4700 ~ 8200 | 35 | | 30 | | 30 | | 25 | | | | | |
| | 10000 ~ 22000 | 40 | | 35 | | 30 | | | | | | | |
| | 27000 ~ 47000 | 45 | | 40 | | 35 | | | | | | | |
| | 56000 ~ 68000 | 50 | | 45 | | | | | | | | | |
| Maximum Leakage Current (20°C) (after 5 minutes) | 0.02CV. | | | | | | | | | | | | |
| Load Life Test | Test Conditions | | | | | | | | | | | | |
| | Duration Time | 2000 hours. | | | | | | | | | | | |
| | Ambient Temperature | 85°C. | | | | | | | | | | | |
| | Applied Voltage | Rate DC working voltage. | | | | | | | | | | | |
| | Ater test requirements @ 20°C | | | | | | | | | | | | |
| | Capacitance Change | Within ±20% of the initial measured value. | | | | | | | | | | | |
| | Dissipation Factor | 200% of the initial specified value. | | | | | | | | | | | |
| | Leakage Current | The initial specified value. | | | | | | | | | | | |
| Shelf Life | Test Conditions | | | | | | | | | | | | |
| | Duration Time | 500 hours. | | | | | | | | | | | |
| | Ambient Temperature | 85°C. | | | | | | | | | | | |
| | Applied Voltage | None. | | | | | | | | | | | |
| | After test requirements @ 20°C: Same limits as load life. | | | | | | | | | | | | |
| | Pre-trestment for measurements shall be conducted after applications of DC working voltage for 30 minutes. | | | | | | | | | | | | |

## DIAGRAM OF DIMENSIONS (CASE VENT) (UNIT: mm)

Symbol W: PCB Terminal (Snap-In)




| Ambient Temperature | Multiplying Factor |
|---|---|
| 45°C & under | 2.55 |
| 65°C | 2.25 |
| 85°C | 1.80 |
| 105°C | 1.00 |

| Frequency | Multiplying Factor | | |
|---|---|---|---|
| | 10 ~ 50 | 63 ~ 100 | 160 ~ 250 |
| 60Hz | 0.90 | 0.85 | 0.80 |
| 120Hz | 1.00 | 1.00 | 1.00 |
| 300Hz | 1.03 | 1.07 | 1.15 |
| 1KHz | 1.05 | 1.13 | 1.25 |
| 10KHz | 1.10 | 1.19 | 1.35 |

| WVDC | Capacitance (uF) | Case Size dØ x L (mm) | Ripple Current (A) rms max (120Hz/105 °C) |
|---|---|---|---|
| 10 | 4700 | 22 x 26 | 1.24 |
| | 6800 | 22 x 26 | 1.56 |
| | | 25 x 26 | |
| | 8200 | 22 x 26 | 2.04 |
| | 10000 | 22 x 31 | 2.20 |
| | | 25 x 26 | |
| | | 30 x 26 | |
| | 12000 | 22 x 36 | 2.43 |
| | 15000 | 22 x 36 | 2.76 |
| | | 25 x 31 | |
| | | 30 x 26 | |
| | 18000 | 22 x 36 | 2.94 |
| | | 25 x 31 | |
| | 22000 | 22 x 41 | 3.12 |
| | | 25 x 36 | |
| | | 30 x 31 | |
| | | 35 x 27 | |
| | 27000 | 22 x 46 | 3.48 |
| | | 25 x 36 | |
| | | 30 x 31 | |
| | | 35 x 27 | |
| | 33000 | 25 x 46 | 3.72 |
| | | 30 x 36 | |
| | | 35 x 32 | |
| | 39000 | 25 x 51 | 4.10 |
| | | 30 x 41 | |
| | | 35 x 32 | |
| | 47000 | 30 x 46 | 4.38 |
| | | 35 x 37 | |
| | 56000 | 30 x 51 | 4.64 |
| | | 35 x 42 | |
| | 68000 | 35 x 52 | 4.80 |
| 16 | 3300 | 22 x 26 | 1.17 |
| | 4700 | 22 x 31 | 1.53 |
| | | 25 x 26 | |
| | 6800 | 22 x 31 | 2.02 |
| | | 25 x 26 | |
| | | 30 x 26 | |
| | 8200 | 22 x 31 | 2.20 |
| | 10000 | 22 x 36 | 2.79 |
| | | 25 x 31 | |
| | | 30 x 26 | |
| | 12000 | 22 x 36 | 3.06 |
| | | 25 x 31 | |
| | | 30 x 26 | |
| | 15000 | 22 x 51 | 3.24 |
| | | 25 x 41 | |
| | | 30 x 36 | |

| WVDC | Capacitance (uF) | Case Size dØ x L (mm) | Ripple Current (A) rms max (120Hz/105 °C) |
|---|---|---|---|
| 16 | 15000 | 35 x 32 | 3.24 |
| | 18000 | 22 x 51 | 3.51 |
| | | 25 x 46 | |
| | | 30 x 36 | |
| | | 35 x 32 | |
| | 22000 | 25 x 51 | 4.08 |
| | | 30 x 46 | |
| | | 35 x 32 | |
| | 27000 | 25 x 51 | 4.30 |
| | | 30 x 41 | |
| | | 35 x 37 | |
| | 33000 | 30 x 46 | 4.83 |
| | | 35 x 37 | |
| | 39000 | 30 x 51 | 5.78 |
| | | 35 x 42 | |
| | 47000 | 35 x 47 | 6.32 |
| | 56000 | 35 x 52 | 7.05 |
| 25 | 2200 | 22 x 26 | 1.03 |
| | 3300 | 22 x 26 | 1.48 |
| | | 25 x 26 | |
| | 4700 | 22 x 31 | 1.92 |
| | | 25 x 26 | |
| | | 30 x 36 | |
| | 5600 | 22 x 31 | 2.25 |
| | 6800 | 22 x 31 | 2.60 |
| | | 25 x 26 | |
| | | 30 x 26 | |
| | 8200 | 22 x 36 | 3.04 |
| | | 25 x 31 | |
| | | 30 x 26 | |
| | 10000 | 22 x 41 | 3.50 |
| | | 25 x 36 | |
| | | 30 x 31 | |
| | | 35 x 27 | |
| | 12000 | 22 x 46 | 4.02 |
| | | 25 x 41 | |
| | | 30 x 31 | |
| | | 35 x 27 | |
| | 15000 | 25 x 46 | 4.58 |
| | | 30 x 36 | |
| | | 35 x 32 | |
| | 18000 | 25 x 51 | 4.82 |
| | | 30 x 41 | |
| | | 35 x 37 | |
| | 22000 | 30 x 46 | 5.12 |
| | | 35 x 37 | |
| | 27000 | 35 x 47 | 5.47 |
| | 33000 | 35 x 52 | 6.09 |

| WVDC | Capacitance (uF) | Case Size dØ x L (mm) | Ripple Current (A) rms max (120Hz/105 °C) |
|---|---|---|---|
| 35 | 1500 | 22 x 26 | 1.26 |
| | 2200 | 22 x 31 | 1.35 |
| | | 25 x 26 | |
| | 3300 | 22 x 31 | 1.84 |
| | | 25 x 26 | |
| | | 30 x 26 | |
| | 3900 | 22 x 31 | 2.23 |
| | 4700 | 22 x 36 | 2.42 |
| | | 25 x 31 | |
| | | 30 x 26 | |
| | 5600 | 22 x 36 | 2.89 |
| | | 25 x 31 | |
| | | 30 x 26 | |
| | 6800 | 22 x 41 | 3.24 |
| | | 25 x 36 | |
| | | 30 x 31 | |
| | | 35 x 27 | |
| | 8200 | 22 x 51 | 3.57 |
| | | 25 x 41 | |
| | | 30 x 31 | |
| | | 35 x 27 | |
| | 10000 | 25 x 46 | 3.96 |
| | | 30 x 36 | |
| | | 35 x 32 | |
| | 12000 | 25 x 51 | 4.21 |
| | | 30 x 41 | |
| | | 35 x 32 | |
| | 15000 | 30 x 46 | 4.69 |
| | | 35 x 37 | |
| | 18000 | 25 x 42 | 5.07 |
| | 22000 | 35 x 52 | 5.50 |
| 50 | 1000 | 22 x 26 | 0.84 |
| | 1500 | 22 x 31 | 1.10 |
| | | 25 x 26 | |
| | 1800 | 22 x 31 | 1.54 |
| | 2200 | 22 x 31 | 1.65 |
| | | 25 x 26 | |
| | | 30 x 26 | |
| | 2700 | 22 x 36 | 1.94 |
| | | 25 x 31 | |
| | 3300 | 22 x 36 | 2.24 |
| | | 25 x 31 | |
| | | 30 x 26 | |
| | 3900 | 22 x 41 | 2.54 |
| | | 25 x 36 | |
| | | 30 x 31 | |
| | 4700 | 22 x 46 | 2.95 |
| | | 25 x 41 | |

| WVDC | Capacitance (uF) | Case Size dØ x L (mm) | Ripple Current (A) rms max (120Hz/105 °C) |
|---|---|---|---|
| 50 | 4700 | 30 x 31 | 2.95 |
| | | 35 x 27 | |
| | 5600 | 22 x 51 | 3.10 |
| | | 25 x 46 | |
| | | 30 x 41 | |
| | | 35 x 32 | |
| | 6800 | 25 x 51 | 3.26 |
| | | 30 x 41 | |
| | | 35 x 32 | |
| | 8200 | 30 x 46 | 3.58 |
| | | 35 x 37 | |
| | 10000 | 30 x 51 | 4.11 |
| | | 35 x 42 | |
| | 12000 | 35 x 47 | 4.62 |
| | 15000 | 35 x 52 | 5.05 |
| 63 | 680 | 22 x 26 | 0.70 |
| | 1000 | 22 x 26 | 0.85 |
| | | 25 x 26 | |
| | 1200 | 22 x 26 | 0.98 |
| | 1500 | 22 x 31 | 1.10 |
| | | 25 x 26 | |
| | | 30 x 26 | |
| | 1800 | 22 x 31 | 1.40 |
| | | 25 x 26 | |
| | 2200 | 22 x 36 | 1.65 |
| | | 25 x 31 | |
| | | 30 x 26 | |
| | 2700 | 22 x 41 | 2.07 |
| | | 25 x 36 | |
| | | 30 x 26 | |
| | 3300 | 22 x 51 | 2.48 |
| | | 25 x 41 | |
| | | 30 x 31 | |
| | | 35 x 27 | |
| | 3900 | 25 x 46 | 3.05 |
| | | 30 x 36 | |
| | | 35 x 32 | |
| | 4700 | 25 x 51 | 3.43 |
| | | 30 x 41 | |
| | | 35 x 32 | |
| | 5600 | 30 x 46 | 3.86 |
| | | 35 x 37 | |
| | 6800 | 30 x 51 | 4.64 |
| | | 35 x 42 | |
| | 8200 | 35 x 47 | 5.05 |
| | 10000 | 35 x 52 | 5.75 |
| 80 | 470 | 22 x 26 | 0.63 |
| | 680 | 22 x 31 | 0.84 |

| WVDC | Capacitance (uF) | Case Size dØ x L (mm) | Ripple Current (A) rms max (120Hz/105 °C) |
|---|---|---|---|
| 80 | 680 | 25 x 26 | 0.84 |
| | 820 | 22 x 31 | 1.02 |
| | 1000 | 22 x 36 | 1.16 |
| | | 25 x 31 | |
| | | 30 x 26 | |
| | 1200 | 22 x 36 | 1.46 |
| | | 25 x 31 | |
| | 1500 | 22 x 41 | 1.74 |
| | | 25 x 36 | |
| | | 30 x 31 | |
| | 1800 | 22 x 46 | 1.95 |
| | | 25 x 41 | |
| | | 30 x 31 | |
| | 2200 | 22 x 51 | 2.25 |
| | | 25 x 46 | |
| | | 30 x 36 | |
| | | 35 x 32 | |
| | 2700 | 25 x 51 | 2.68 |
| | | 30 x 41 | |
| | | 35 x 37 | |
| | 3300 | 25 x 56 | 3.30 |
| | | 30 x 51 | |
| | | 35 x 42 | |
| | 3900 | 30 x 51 | 3.85 |
| | | 35 x 42 | |
| | 4700 | 30 x 51 | 4.29 |
| | | 35 x 42 | |
| | 5600 | 35 x 47 | 5.10 |
| | 6800 | 35 x 52 | 5.66 |
| 100 | 330 | 22 x 26 | 0.54 |
| | 470 | 22 x 31 | 0.79 |
| | | 25 x 26 | |
| | 560 | 25 x 26 | 0.96 |
| | 680 | 22 x 31 | 1.02 |
| | | 25 x 26 | |
| | | 30 x 26 | |
| | 820 | 22 x 31 | 1.24 |
| | | 25 x 26 | |
| | 1000 | 22 x 41 | 1.38 |
| | | 25 x 31 | |
| | | 30 x 26 | |
| | 1200 | 22 x 46 | 1.65 |
| | | 25 x 36 | |
| | | 30 x 31 | |
| | 1500 | 22 x 46 | 1.83 |
| | | 25 x 41 | |
| | | 30 x 31 | |
| | | 35 x 27 | |

| WVDC | Capacitance (uF) | Case Size dØ x L (mm) | Ripple Current (A) rms max (120Hz/105 °C) |
|---|---|---|---|
| 100 | 1800 | 25 x 41 | 2.52 |
| | | 30 x 36 | |
| | | 35 x 32 | |
| | 2200 | 25 x 51 | 3.03 |
| | | 30 x 41 | |
| | | 35 x 32 | |
| | 2700 | 30 x 46 | 4.10 |
| | | 35 x 37 | |
| | 3300 | 30 x 56 | 4.59 |
| | | 35 x 47 | |
| | 3900 | 35 x 47 | 4.98 |
| | 4700 | 35 x 52 | 5.43 |
| 160 | 220 | 22 x 26 | 0.65 |
| | 270 | 22 x 22 | 0.74 |
| | 330 | 22 x 31 | 0.90 |
| | | 25 x 26 | |
| | | 30 x 26 | |
| | 390 | 22 x 36 | 1.00 |
| | | 25 x 31 | |
| | 470 | 22 x 36 | 1.18 |
| | | 25 x 31 | |
| | 560 | 22 x 41 | 1.32 |
| | | 25 x 36 | |
| | | 30 x 31 | |
| | 680 | 22 x 46 | 1.58 |
| | | 25 x 41 | |
| | | 30 x 36 | |
| | | 35 x 32 | |
| | 820 | 25 x 46 | 1.75 |
| | | 30 x 36 | |
| | | 35 x 32 | |
| | 1000 | 25 x 51 | 2.08 |
| | | 30 x 41 | |
| | 1200 | 25 x 56 | 2.30 |
| | | 30 x 46 | |
| | 1500 | 30 x 51 | 2.68 |
| | | 35 x 42 | |
| | 1800 | 30 x 51 | 3.00 |
| | | 35 x 42 | |
| | 2200 | 35 x 52 | 3.39 |
| 200 | 100 | 22 x 26 | 0.38 |
| | 150 | 22 x 26 | 0.54 |
| | | 25 x 26 | |
| | 220 | 22 x 31 | 0.73 |
| | | 25 x 26 | |
| | | 30 x 26 | |
| | 270 | 22 x 31 | 0.94 |

| WVDC | Capacitance (uF) | Case Size dØ x L (mm) | Ripple Current (A) rms max (120Hz/105 °C) |
|---|---|---|---|
| 200 | 270 | 25 x 26 | 1.03 |
| | 330 | 22 x 36 | 1.21 |
| | | 25 x 31 | |
| | | 30 x 26 | |
| | 390 | 22 x 41 | 1.39 |
| | | 25 x 36 | |
| | | 30 x 31 | |
| | 470 | 22 x 46 | 1.62 |
| | | 25 x 41 | |
| | | 30 x 31 | |
| | | 35 x 26 | |
| | 560 | 22 x 51 | 1.85 |
| | | 25 x 41 | |
| | | 30 x 36 | |
| | 680 | 22 x 56 | 2.04 |
| | | 25 x 51 | |
| | | 30 x 36 | |
| | 820 | 25 x 56 | 12.34 |
| | | 30 x 41 | |
| | | 35 x 37 | |
| | 1000 | 30 x 51 | 2.70 |
| | | 35 x 42 | |
| | 1200 | 30 x 51 | 3.00 |
| | | 35 x 42 | |
| | 1500 | 35 x 52 | 3.43 |
| 250 | 68 | 22 x 26 | 0.27 |
| | 100 | 22 x 31 | 0.44 |
| | | 25 x 26 | |
| | 150 | 22 x 31 | 0.60 |
| | | 25 x 26 | |
| | | 30 x 26 | |
| | 180 | 22 x 31 | 0.69 |
| | | 25 x 26 | |
| | 220 | 22 x 36 | 1.00 |
| | | 25 x 31 | |
| | | 30 x 26 | |
| | 270 | 22 x 41 | 1.16 |
| | | 25 x 36 | |
| | | 30 x 31 | |
| | 330 | 22 x 46 | 1.28 |
| | | 25 x 36 | |
| | | 30 x 31 | |
| | | 35 x 26 | |
| | 390 | 22 x 46 | 1.48 |
| | | 25 x 36 | |
| | | 30 x 31 | |
| | 470 | 25 x 46 | 1.76 |
| | | 30 x 36 | |

| WVDC | Capacitance (uF) | Case Size dØ x L (mm) | Ripple Current (A) rms max (120Hz/105 °C) |
|---|---|---|---|
| 250 | 470 | 35 x 32 | 1.76 |
| | 560 | 25 x 51 | 1.93 |
| | | 30 x 41 | |
| | | 35 x 32 | |
| | 680 | 30 x 46 | 2.22 |
| | | 35 x 37 | |
| | 820 | 30 x 51 | 2.48 |
| | | 35 x 42 | |
| | 1000 | 35 x 47 | 2.80 |
| | 1200 | 35 x 52 | 3.17 |
| 400 | 33 | 22 x 26 | 0.39 |
| | 47 | 22 x 26 | 0.56 |
| | | 25 x 26 | |
| | 100 | 22 x 36 | 0.82 |
| | | 25 x 31 | |
| | | 30 x 26 | |
| | 220 | 25 x 51 | 1.21 |
| | | 30 x 40 | |
| | | 35 x 32 | |
| | 330 | 30 x 51 | 1.57 |
| | | 35 x 42 | |
| | 470 | 35 x 52 | 1.98 |
| | 560 | 35 x 52 | 2.23 |
| 450 | 33 | 22 x 26 | 0.24 |
| | 47 | 22 x 31 | 0.35 |
| | | 25 x 26 | |
| | 56 | 22 x 31 | 0.41 |
| | | 25 x 26 | |
| | 68 | 22 x 36 | 0.55 |
| | | 25 x 31 | |
| | | 30 x 26 | |
| | 82 | 22 x 36 | 0.64 |
| | | 25 x 31 | |
| | | 30 x 36 | |
| | 100 | 22 x 41 | 0.74 |
| | | 25 x 31 | |
| | | 30 x 31 | |
| | 120 | 22 x 46 | 0.82 |
| | | 25 x 31 | |
| | | 30 x 26 | |
| | 150 | 22 x 46 | 0.96 |
| | | 25 x 41 | |
| | | 30 x 36 | |
| | 180 | 25 x 51 | 1.14 |
| | | 30 x 41 | |
| | | 35 x 36 | |
| | 220 | 30 x 46 | 1.24 |
| | | 35 x 37 | |
| | 270 | 30 x 51 | 1.48 |
| | | 35 x 42 | |
| | 330 | 35 x 47 | 1.64 |
| | 390 | 35 x 52 | 1.86 |