

# CE-LX Series

Long Life

Low Impedance



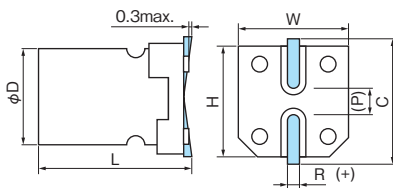
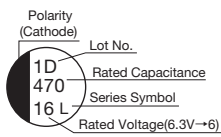
- 105°C 2,000 to 5,000hours
- Solvent proof (within 2 minutes)
- AEC-Q200

## Specifications

| Items                              | Condition   | Specifications                         |  |      |      |      |      |      |      |      |      |
|------------------------------------|---|--|--|------|------|------|------|------|------|------|------|
| Rated voltage (V)                  | —   | 6.3                                    | 10   | 16   | 25   | 35   | 50   | 63   | 80   | 100  |      |
| Surge voltage (V)                  | Room temperature  | 8.0                                    | 13   | 20   | 32   | 44   | 63   | 79   | 100  | 125  |      |
| Category temperature range (°C)    | —   | -55 to +105                            |  |      |      |      |      |      |      |      |      |
| Capacitance tolerance (%)          | 120Hz/20°C  | M : ±20                                |  |      |      |      |      |      |      |      |      |
| Dissipation Factor (tan δ)         | tanδ(max.)<br>120Hz/20°C                                    | φ4 to φ6.3                             | 0.26   | 0.20 | 0.16 | 0.14 | 0.12 | 0.12 | 0.08 | —    | —    |
|                                    |   | φ8 to φ18                              | 0.28   | 0.24 | 0.22 | 0.16 | 0.14 | 0.14 | 0.08 | 0.08 | 0.07 |
| Leakage current (LC)               | μA/after 2minutes (max.), 20°C                              | Exceeding 1,000μF, +0.02 every 1,000μF |  |      |      |      |      |      |      |      |      |
| Impedance ratio at low temperature | Based on the value at 120Hz, +20°C                          | -40°C Z/Z <sub>20°C</sub>              | 3  | 3    | 3    | 3    | 3    | 3    | 2    | 2    | 2    |
|                                    |   | -55°C Z/Z <sub>20°C</sub>              | 4  | 4    | 4    | 3    | 3    | 3    | 3    | 3    | 3    |
| Endurance                          | 105°C rated voltage applied (With the rated ripple current) | Test                                   | φ4 to φ6.3, φ10 × 7.7 : 2,000hours, φ8 to φ18 : 5,000hours |      |      |      |      |      |      |      |      |
|                                    |   | ΔC/C                                   | Within ±30% of the initial value                           |      |      |      |      |      |      |      |      |
|                                    |   | tanδ                                   | Less than 300% of the specified value                      |      |      |      |      |      |      |      |      |
|                                    |   | LC                                     | Less than the specified value                              |      |      |      |      |      |      |      |      |

## Marking, Dimensions

[ φD≤10 ]



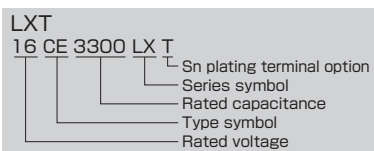
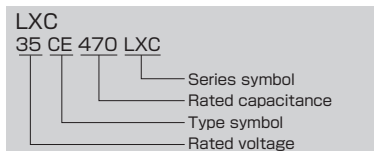
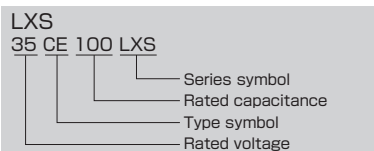
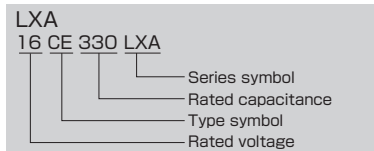
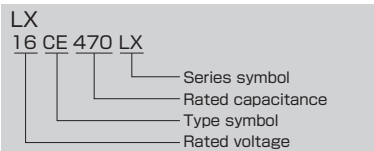
A pressure relief vent is provided for φD=8 or bigger

(P)reference size

(Unit : mm)

| D <sup>±0.5</sup> | L <sup>±0.3</sup>    | W <sup>±0.2</sup> | H <sup>±0.2</sup> | C <sup>±0.2</sup> | R          | P   |
|-------------------|----------------------|-------------------|-------------------|-------------------|------------|-----|
| 4                 | 6.0                  | 4.3               | 4.3               | 5.0               | 0.5 to 0.8 | 1.0 |
| 5                 | 6.0                  | 5.3               | 5.3               | 6.0               | 0.5 to 0.8 | 1.4 |
| 6.3               | 6.0                  | 6.6               | 6.6               | 7.3               | 0.5 to 0.8 | 2.2 |
| 6.3               | 7.7                  | 6.6               | 6.6               | 7.3               | 0.5 to 0.8 | 2.2 |
| 8                 | 10.2                 | 8.3               | 8.3               | 9.0               | 0.7 to 1.0 | 3.2 |
| 10                | 7.7                  | 10.3              | 10.3              | 11.0              | 1.0 to 1.4 | 4.6 |
| 10                | 10.2                 | 10.3              | 10.3              | 11.0              | 1.0 to 1.4 | 4.6 |
| 10                | 13.5 <sup>±0.5</sup> | 10.3              | 10.3              | 11.0              | 1.0 to 1.4 | 4.6 |
| 12.5              | 13.5 <sup>±0.5</sup> | 12.8              | 12.8              | 13.5              | 1.0 to 1.4 | 4.6 |
| 16                | 16.5 <sup>±0.5</sup> | 16.3              | 16.3              | 17.3              | 1.7 to 2.1 | 7.0 |
| 18                | 16.5 <sup>±1.0</sup> | 19.0              | 19.0              | 20.0              | 1.7 to 2.1 | 7.0 |
| 18                | 21.5 <sup>±1.0</sup> | 19.0              | 19.0              | 20.0              | 1.7 to 2.1 | 7.0 |

## Part number



Aluminum Electrolytic Capacitors Surface Mount Type

- CE-BD
- CE-BSS
- CE-BS
- CE-LD
- CE-FSS
- CE-FS
- CE-FS(High Voltage)
- CE-FH
- CE-AX
- CE-KX
- CE-ZX
- CE-ZC
- CE-LX**
- CE-GA
- CE-LS
- CE-LH
- CE-LH(High Voltage)
- CE-LL
- CE-LF
- CE-PC
- CE-PH
- CE-PS
- CE-PF
- CE-TH
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- CE-PS
- CE-PF
- CE-TH
- CE-JX
- CE-NP
- CE-FN

**Size, Impedance, Rated Ripple Current**

| $\mu\text{F}$ \ V | 6.3       |       |      | 10         |       |      | 16         |       |      | 25         |       |      | 35         |       |      |     |
|-------------------|-----------|-------|------|------------|-------|------|------------|-------|------|------------|-------|------|------------|-------|------|-----|
| 4.7               |           |       |      |            |       |      |            |       |      |            |       |      | 4x6.0      | 1.45  | 90   |     |
| 10                |           |       |      |            |       |      |            |       |      |            | 4x6.0 | 1.45 | 90         | 5x6.0 | 0.70 | 170 |
| 15                |           |       |      |            |       |      | 4x6.0      | 1.45  | 90   | 5x6.0      | 0.70  | 170  | 5x6.0      | 0.70  | 170  |     |
| 22                |           |       |      | 4x6.0      | 1.45  | 90   | 5x6.0      | 0.70  | 170  | 5x6.0      | 0.70  | 170  | 5x6.0      | 0.70  | 170  |     |
| 27                | 4x6.0     | 1.45  | 90   | 5x6.0      | 0.70  | 170  | 5x6.0      | 0.70  | 170  | 6.3x6.0    | 0.39  | 250  | 6.3x6.0    | 0.39  | 250  |     |
| 33                | 5x6.0     | 0.70  | 170  | 5x6.0      | 0.70  | 170  | 6.3x6.0    | 0.39  | 250  | 6.3x6.0    | 0.39  | 250  | 6.3x6.0    | 0.39  | 250  |     |
| 47                | 5x6.0     | 0.70  | 170  | 6.3x6.0    | 0.39  | 250  | 6.3x6.0    | 0.39  | 250  | 6.3x6.0    | 0.39  | 250  | 6.3x6.0    | 0.39  | 250  |     |
| 56                | 5x6.0     | 0.70  | 170  | 6.3x6.0    | 0.39  | 250  | 6.3x6.0    | 0.39  | 250  | 6.3x6.0    | 0.39  | 250  | 6.3x6.0    | 0.39  | 250  |     |
| 68                | 6.3x6.0   | 0.39  | 250  | 6.3x6.0    | 0.39  | 250  | 6.3x6.0    | 0.39  | 250  | 6.3x6.0    | 0.39  | 250  | 6.3x6.0    | 0.39  | 250  |     |
| 100               | 5x6.0 ★2  | 0.70  | 170  |            |       |      |            |       |      |            |       |      | 6.3x7.7 ★2 | 0.30  | 300  |     |
|                   | 6.3x6.0   | 0.39  | 250  | 6.3x6.0    | 0.39  | 250  | 6.3x6.0    | 0.39  | 250  | 6.3x7.7    | 0.30  | 300  | 8x10.2     | 0.17  | 600  |     |
| 150               | 6.3x6.0   | 0.39  | 250  | 6.3x6.0    | 0.39  | 250  | 6.3x7.7    | 0.30  | 300  | 8x10.2     | 0.17  | 600  | 8x10.2     | 0.17  | 600  |     |
|                   |           |       |      |            |       |      |            |       |      |            |       |      | 10x7.7 ★1  | 0.17  | 600  |     |
| 220               | 6.3x6.0   | 0.39  | 250  | 6.3x7.7    | 0.30  | 300  | 6.3x7.7    | 0.30  | 300  | 8x10.2     | 0.17  | 600  | 8x10.2     | 0.17  | 600  |     |
|                   |           |       |      |            |       |      |            |       |      | 10x7.7 ★1  | 0.17  | 600  |            |       |      |     |
| 330               | 6.3x7.7   | 0.30  | 300  | 8x10.2     | 0.17  | 600  | 8x10.2     | 0.17  | 600  | 8x10.2     | 0.17  | 600  | 10x10.2    | 0.090 | 850  |     |
|                   |           |       |      |            |       |      | 10x7.7 ★1  | 0.17  | 600  |            |       |      |            |       |      |     |
| 470               | 8x10.2    | 0.17  | 600  | 8x10.2     | 0.17  | 600  | 8x10.2     | 0.17  | 600  | 10x10.2    | 0.090 | 850  | 10x13.5 ★3 | 0.070 | 950  |     |
|                   |           |       |      | 10x7.7 ★1  | 0.17  | 600  |            |       |      |            |       |      | 12.5x13.5  | 0.060 | 1100 |     |
| 680               | 8x10.2    | 0.17  | 600  | 10x10.2    | 0.090 | 850  | 10x10.2    | 0.090 | 850  | 10x13.5 ★3 | 0.070 | 950  |            |       |      |     |
|                   | 10x7.7 ★1 | 0.17  | 600  |            |       |      |            |       |      | 12.5x13.5  | 0.060 | 1100 | 12.5x13.5  | 0.060 | 1100 |     |
| 1000              |           |       |      |            |       |      | 10x13.5 ★3 | 0.070 | 950  |            |       |      |            |       |      |     |
|                   | 8x10.2    | 0.17  | 600  | 10x10.2    | 0.090 | 850  | 12.5x13.5  | 0.060 | 1100 | 12.5x13.5  | 0.060 | 1100 | 16x16.5    | 0.035 | 1800 |     |
| 1500              |           |       |      | 10x13.5 ★3 | 0.070 | 950  |            |       |      |            |       |      |            |       |      |     |
|                   | 10x10.2   | 0.090 | 850  | 12.5x13.5  | 0.060 | 1100 | 12.5x13.5  | 0.060 | 1100 | 16x16.5    | 0.035 | 1800 | 16x16.5    | 0.035 | 1800 |     |
| 2200              | 12.5x13.5 | 0.060 | 1100 | 12.5x13.5  | 0.060 | 1100 |            |       |      | 16x16.5    | 0.035 | 1800 | 18x16.5    | 0.033 | 2060 |     |
| 2700              |           |       |      |            |       |      |            |       |      |            |       |      | 18x21.5    | 0.028 | 2260 |     |
| 3300              |           |       |      |            |       |      | 16x16.5    | 0.035 | 1800 | 18x16.5    | 0.033 | 2060 |            |       |      |     |
| 3900              |           |       |      |            |       |      |            |       |      | 18x21.5    | 0.028 | 2260 |            |       |      |     |
| 4700              |           |       |      | 16x16.5    | 0.035 | 1800 | 18x16.5    | 0.033 | 2060 |            |       |      |            |       |      |     |
| 5600              |           |       |      |            |       |      | 18x21.5    | 0.028 | 2260 |            |       |      |            |       |      |     |
| 6800              | 16x16.5   | 0.035 | 1800 | 18x16.5    | 0.033 | 2060 |            |       |      |            |       |      |            |       |      |     |
| 8200              | 18x16.5   | 0.033 | 2060 | 18x21.5    | 0.028 | 2260 |            |       |      |            |       |      |            |       |      |     |
| 10000             | 18x16.5   | 0.033 | 2060 |            |       |      |            |       |      |            |       |      |            |       |      |     |
| 12000             | 18x21.5   | 0.028 | 2260 |            |       |      |            |       |      |            |       |      |            |       |      |     |

| $\mu\text{F}$ \ V | 50        |       |      | 63        |       |      | 80        |       |     | 100       |       |      |
|-------------------|-----------|-------|------|-----------|-------|------|-----------|-------|-----|-----------|-------|------|
| 4.7               | 4x6.0     | 2.90  | 60   |           |       |      |           |       |     |           |       |      |
| 10                | 6.3x6.0   | 0.88  | 165  | 6.3x6.0   | 1.50  | 80   |           |       |     |           |       |      |
| 22                | 6.3x6.0   | 0.88  | 165  | 6.3x7.7   | 1.20  | 120  |           |       |     |           |       |      |
| 27                | 6.3x7.7   | 0.68  | 195  |           |       |      |           |       |     |           |       |      |
| 33                | 6.3x7.7   | 0.68  | 195  |           |       |      |           |       |     | 10x10.2   | 0.65  | 200  |
| 47                | 6.3x7.7   | 0.68  | 195  | 10x7.7 ★1 | 0.70  | 200  | 10x10.2   | 0.65  | 200 | 12.5x13.5 | 0.32  | 500  |
| 56                | 8x10.2    | 0.34  | 350  |           |       |      |           |       |     |           |       |      |
| 68                | 8x10.2    | 0.34  | 350  |           |       |      |           |       |     | 12.5x13.5 | 0.32  | 500  |
| 100               | 8x10.2    | 0.34  | 350  | 12.5x13.5 | 0.16  | 800  | 12.5x13.5 | 0.32  | 500 | 16x16.5   | 0.17  | 793  |
|                   | 10x7.7 ★1 | 0.34  | 330  |           |       |      |           |       |     |           |       |      |
| 150               | 10x10.2   | 0.18  | 670  | 12.5x13.5 | 0.16  | 800  | 12.5x13.5 | 0.32  | 500 | 16x16.5   | 0.17  | 793  |
| 220               | 10x10.2   | 0.18  | 670  | 12.5x13.5 | 0.16  | 800  |           |       |     | 18x16.5   | 0.153 | 917  |
| 330               | 12.5x13.5 | 0.12  | 900  | 16x16.5   | 0.082 | 1410 | 16x16.5   | 0.17  | 793 | 18x21.5   | 0.083 | 1230 |
| 470               | 16x16.5   | 0.073 | 1610 | 16x16.5   | 0.082 | 1410 | 18x16.5   | 0.153 | 917 |           |       |      |
| 680               | 16x16.5   | 0.073 | 1610 | 18x16.5   | 0.080 | 1690 |           |       |     |           |       |      |
| 1000              | 16x16.5   | 0.073 | 1610 | 18x21.5   | 0.055 | 1960 |           |       |     |           |       |      |
| 1200              | 18x16.5   | 0.068 | 1900 |           |       |      |           |       |     |           |       |      |
| 1500              | 18x21.5   | 0.042 | 2180 |           |       |      |           |       |     |           |       |      |

Please refer to page 14 for ripple current frequency coefficients.

 Case size:  $\phi$ DxL (mm)  
 $\phi$ 16,  $\phi$ 18: CE-LXT

 Impedance( $\Omega$ )  
 max. at 100kHz, 20°C

 Rated ripple current  
 mA rms(100kHz, 105°C)

- ★1 LXA
- ★2 LXS
- ★3 LXC