

## L7 series

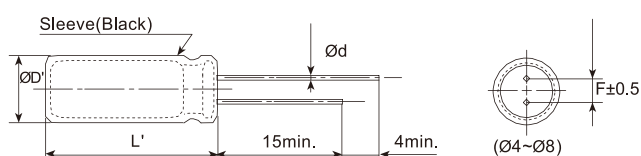
- Miniature series with 7mm height
- Endurance : +105 °C 2,000 hours
- Wide temperature range of -40°C to +105°C
- RoHS Compliant



### SPECIFICATIONS

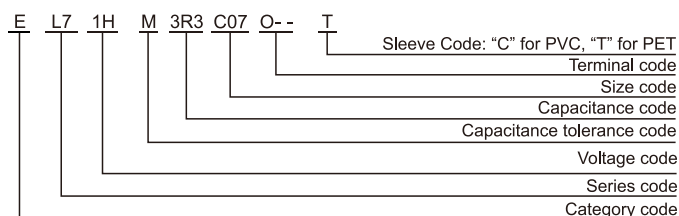
| Items                                                     | Characteristics                                                                                                                                                |                                      |      |      |      |      |      |      |                 |  |
|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------|------|------|------|------|------|-----------------|--|
| Category Temperature Range                                | -40~+105°C                                                                                                                                                     |                                      |      |      |      |      |      |      |                 |  |
| Rated Voltage Range                                       | 6.3~63 V <sub>dc</sub>                                                                                                                                         |                                      |      |      |      |      |      |      |                 |  |
| Capacitance Tolerance                                     | ±20%(M) (at 20°C,120Hz)                                                                                                                                        |                                      |      |      |      |      |      |      |                 |  |
| Leakage Current                                           | I≤0.01CV or 3μA, whichever is greater.<br>Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C after 2 minutes)          |                                      |      |      |      |      |      |      |                 |  |
| Dissipation Factor (tanδ)                                 | Rated Voltage(V <sub>dc</sub> )                                                                                                                                | 6.3                                  | 10   | 16   | 25   | 35   | 50   | 63   | (at 20°C,120Hz) |  |
|                                                           | tanδ (max.)                                                                                                                                                    | 0.22                                 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 |                 |  |
| Low Temperature Characteristics<br>(Max. Impedance Ratio) | Rated Voltage(V <sub>dc</sub> )                                                                                                                                | 6.3                                  | 10   | 16   | 25   | 35   | 50   | 63   | (at 120Hz)      |  |
|                                                           | Z(-25°C)/Z(+20°C)                                                                                                                                              | 4                                    | 3    | 2    |      |      |      |      |                 |  |
|                                                           | Z(-40°C)/Z(+20°C)                                                                                                                                              | 8                                    | 6    | 4    | 3    |      |      |      |                 |  |
| Endurance                                                 | The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 2,000 hours at 105°C.          |                                      |      |      |      |      |      |      |                 |  |
|                                                           | Capacitance Change                                                                                                                                             | ≤±20% of the initial value           |      |      |      |      |      |      |                 |  |
|                                                           | D.F. (tanδ)                                                                                                                                                    | ≤200% of the initial specified value |      |      |      |      |      |      |                 |  |
|                                                           | Leakage Current                                                                                                                                                | ≤The initial specified value         |      |      |      |      |      |      |                 |  |
| Shelf Life                                                | The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied. |                                      |      |      |      |      |      |      |                 |  |
|                                                           | Capacitance Change                                                                                                                                             | ≤±20% of the initial value           |      |      |      |      |      |      |                 |  |
|                                                           | D.F. (tanδ)                                                                                                                                                    | ≤200% of the initial specified value |      |      |      |      |      |      |                 |  |
|                                                           | Leakage Current                                                                                                                                                | ≤200% of the initial specified value |      |      |      |      |      |      |                 |  |

### DIMENSIONS[mm]



| ØD  | 4          | 5    | 6.3 | 8   |
|-----|------------|------|-----|-----|
| Ød  | 0.45       | 0.45 | 0.5 | 0.5 |
| F   | 1.5        | 2.0  | 2.5 | 3.5 |
| ØD' | ØD+0.5max. |      |     |     |
| L'  | L+2max.    |      |     |     |

### PART NUMBERING SYSTEM



### RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

| WV(V <sub>dc</sub> ) \ Freq.(Hz) | 50/60 | 120  | 1k   | 10k-100k |
|----------------------------------|-------|------|------|----------|
| 6.3 to 16                        | 0.80  | 1.00 | 1.30 | 1.50     |
| 25 to 35                         | 0.80  | 1.00 | 1.20 | 1.20     |
| ≥50                              | 0.80  | 1.00 | 1.15 | 1.20     |

The endurance of capacitors is shortened with internal heating produced by ripple current at the rate of halving the lifetime with every 5 °C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

L7 series

STANDARD RATINGS

| WV<br>(V <sub>dc</sub> ) | Cap<br>(μF) | Size<br>ΦD×L(mm) | tanδ | Rated ripple current<br>(mA <sub>rms</sub> /105°C, 120Hz) |
|--------------------------|-------------|------------------|------|-----------------------------------------------------------|
| 6.3(0J)                  | 22          | 4*7              | 0.22 | 28                                                        |
|                          | 33          | 4*7              | 0.22 | 32                                                        |
|                          |             | 5*7              | 0.22 | 35                                                        |
|                          | 47          | 5*7              | 0.22 | 47                                                        |
|                          | 68          | 5*7              | 0.22 | 50                                                        |
|                          | 100         | 6.3*7            | 0.22 | 75                                                        |
|                          | 220         | 8*7              | 0.22 | 92                                                        |
| 10(1A)                   | 22          | 4*7              | 0.19 | 32                                                        |
|                          | 33          | 5*7              | 0.19 | 48                                                        |
|                          | 47          | 5*7              | 0.19 | 51                                                        |
|                          | 68          | 6.3*7            | 0.19 | 68                                                        |
|                          | 100         | 6.3*7            | 0.19 | 80                                                        |
|                          |             | 8*7              | 0.19 | 95                                                        |
|                          | 220         | 8*7              | 0.19 | 130                                                       |
| 16(1C)                   | 10          | 4*7              | 0.16 | 28                                                        |
|                          | 22          | 4*7              | 0.16 | 35                                                        |
|                          |             | 5*7              | 0.16 | 42                                                        |
|                          | 33          | 5*7              | 0.16 | 50                                                        |
|                          | 47          | 6.3*7            | 0.16 | 67                                                        |
|                          | 68          | 6.3*7            | 0.16 | 70                                                        |
|                          |             | 8*7              | 0.16 | 78                                                        |
|                          | 100         | 8*7              | 0.16 | 110                                                       |
| 25(1E)                   | 4.7         | 4*7              | 0.14 | 17                                                        |
|                          | 6.8         | 4*7              | 0.14 | 19                                                        |
|                          |             | 4*7              | 0.14 | 28                                                        |
|                          | 10          | 5*7              | 0.14 | 33                                                        |
|                          |             | 5*7              | 0.14 | 43                                                        |
|                          | 22          | 6.3*7            | 0.14 | 45                                                        |
|                          |             | 6.3*7            | 0.14 | 62                                                        |
|                          | 33          | 6.3*7            | 0.14 | 62                                                        |
|                          | 47          | 8*7              | 0.14 | 75                                                        |
|                          | 68          | 8*7              | 0.14 | 80                                                        |
|                          | 100         | 8*7              | 0.14 | 80                                                        |
|                          |             | 8*7              | 0.14 | 115                                                       |

| WV<br>(V <sub>dc</sub> ) | Cap<br>(μF) | Size<br>ΦD×L(mm) | tanδ | Rated ripple current<br>(mA <sub>rms</sub> /105°C, 120Hz) |
|--------------------------|-------------|------------------|------|-----------------------------------------------------------|
| 35(1V)                   | 4.7         | 4*7              | 0.12 | 22                                                        |
|                          | 6.8         | 4*7              | 0.12 | 24                                                        |
|                          |             | 5*7              | 0.12 | 28                                                        |
|                          | 10          | 5*7              | 0.12 | 35                                                        |
|                          | 22          | 6.3*7            | 0.12 | 60                                                        |
|                          | 33          | 6.3*7            | 0.12 | 50                                                        |
|                          |             | 8*7              | 0.12 | 68                                                        |
|                          | 47          | 8*7              | 0.12 | 80                                                        |
| 68                       | 8*7         | 0.12             | 85   |                                                           |
| 50(1H)                   | 0.1         | 4*7              | 0.10 | 1.5                                                       |
|                          | 0.22        | 4*7              | 0.10 | 2.5                                                       |
|                          | 0.33        | 4*7              | 0.10 | 3.5                                                       |
|                          | 0.47        | 4*7              | 0.10 | 5                                                         |
|                          | 0.68        | 4*7              | 0.10 | 7                                                         |
|                          | 1           | 4*7              | 0.10 | 10                                                        |
|                          | 2.2         | 4*7              | 0.10 | 20                                                        |
|                          | 3.3         | 4*7              | 0.10 | 26                                                        |
|                          | 4.7         | 4*7              | 0.10 | 27                                                        |
|                          |             | 5*7              | 0.10 | 29                                                        |
|                          | 10          | 6.3*7            | 0.10 | 38                                                        |
|                          | 22          | 8*7              | 0.10 | 63                                                        |
| 33                       | 8*7         | 0.10             | 78   |                                                           |
| 63(1J)                   | 0.1         | 4*7              | 0.09 | 1.5                                                       |
|                          | 0.22        | 4*7              | 0.09 | 2.5                                                       |
|                          | 0.33        | 4*7              | 0.09 | 3.5                                                       |
|                          | 0.47        | 4*7              | 0.09 | 6                                                         |
|                          | 1           | 4*7              | 0.09 | 12                                                        |
|                          | 2.2         | 4*7              | 0.09 | 20                                                        |
|                          | 3.3         | 5*7              | 0.09 | 28                                                        |
|                          | 4.7         | 6.3*7            | 0.09 | 33                                                        |
|                          | 10          | 6.3*7            | 0.09 | 40                                                        |
|                          | 22          | 8*7              | 0.09 | 65                                                        |