

# LE Series

- Suitable for long life products
- Downsize and long life
- Endurance with ripple current : 10,000 hours at 105°C
- Case size range :  $\phi 5 \times 11L$  to  $\phi 8 \times 11.5L$
- Solvent resistant type (see PRECAUTIONS AND GUIDELINES)
- RoHS2 Compliant

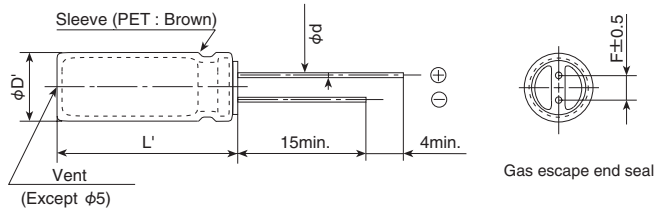


## ◆ SPECIFICATION

Items	Characteristics							
<b>Category</b>	-40 to +105°C							
<b>Temperature Range</b>								
<b>Rated Voltage Range</b>	10 to 100V <sub>dc</sub>							
<b>Capacitance Tolerance</b>	±20% (M) (at 20°C, 120Hz)							
<b>Leakage Current</b>	I=0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) (at 20°C after 2 minutes)							
<b>Dissipation Factor (tan δ)</b>	Rated voltage (V <sub>dc</sub> )	10V	16V	25V	35V	50V	63V	100V
	tan δ (Max.)	0.45	0.35	0.30	0.22	0.19	0.17	0.15
<b>Low Temperature Characteristics (Max. Impedance Ratio)</b>	Rated voltage (V <sub>dc</sub> )	10V	16V	25V	35V	50V	63V	100V
	Z(-25°C)/Z(20°C)	8	6	4	4	3	3	3
<b>Endurance</b>	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 (the peak voltage shall not exceed the rated voltage) for 10,000 hours at 105°C.							
	Capacitance change	≤ ±25% of the initial value						
	D.F. (tan δ)	≤ 300% of the initial specified value						
	Leakage current	≤ The initial specified value						
<b>Shelf Life</b>	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. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.							
	Capacitance change	≤ ±25% of the initial value						
	D.F. (tan δ)	≤ 300% of the initial specified value						
	Leakage current	≤ The initial specified value						

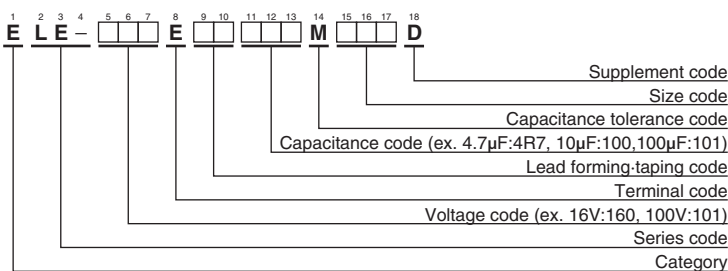
## ◆ DIMENSIONS [mm]

### ● Terminal Code : E



$\phi D$	5	6.3	8
$\phi d$	0.5	0.5	0.6
F	2.0	2.5	3.5
$\phi D'$	$\phi D + 0.5 \text{max.}$		
L'	$L + 1.5 \text{max.}$		

## ◆ PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

**LE Series**
**◆ STANDARD RATINGS**

WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	tan δ	Rated ripple current (mA <sub>rms</sub> /105°C, 100kHz)	Part No.
10	100	5 × 11	0.45	130	ELE-100E□□101ME11D
	220	6.3 × 11	0.45	210	ELE-100E□□221MF11D
	330	8 × 11.5	0.45	330	ELE-100E□□331MHB5D
16	47	5 × 11	0.35	130	ELE-160E□□470ME11D
	100	6.3 × 11	0.35	210	ELE-160E□□101MF11D
	220	8 × 11.5	0.35	330	ELE-160E□□221MHB5D
25	33	5 × 11	0.30	130	ELE-250E□□330ME11D
	47	5 × 11	0.30	130	ELE-250E□□470ME11D
	100	6.3 × 11	0.30	210	ELE-250E□□101MF11D
35	33	5 × 11	0.22	130	ELE-350E□□330ME11D
	47	6.3 × 11	0.22	210	ELE-350E□□470MF11D
	100	8 × 11.5	0.22	330	ELE-350E□□101MHB5D
50	1.0	5 × 11	0.19	25	ELE-500E□□1R0ME11D
	2.2	5 × 11	0.19	35	ELE-500E□□2R2ME11D
	3.3	5 × 11	0.19	70	ELE-500E□□3R3ME11D
	4.7	5 × 11	0.19	80	ELE-500E□□4R7ME11D
	10	5 × 11	0.19	90	ELE-500E□□100ME11D
	22	5 × 11	0.19	110	ELE-500E□□220ME11D
	33	6.3 × 11	0.19	190	ELE-500E□□330MF11D
	47	6.3 × 11	0.19	190	ELE-500E□□470MF11D
100	8 × 11.5	0.19	270	ELE-500E□□101MHB5D	
63	10	5 × 11	0.17	80	ELE-630E□□100ME11D
	22	6.3 × 11	0.17	170	ELE-630E□□220MF11D
	33	6.3 × 11	0.17	170	ELE-630E□□330MF11D
	47	8 × 11.5	0.17	240	ELE-630E□□470MHB5D
100	1.0	5 × 11	0.15	40	ELE-101E□□1R0ME11D
	2.2	5 × 11	0.15	50	ELE-101E□□2R2ME11D
	3.3	5 × 11	0.15	60	ELE-101E□□3R3ME11D
	4.7	5 × 11	0.15	70	ELE-101E□□4R7ME11D
	10	6.3 × 11	0.15	150	ELE-101E□□100MF11D
	22	8 × 11.5	0.15	230	ELE-101E□□220MHB5D

□□ : Enter the appropriate lead forming or taping code.

**◆ RATED RIPPLE CURRENT MULTIPLIERS**

## ⊙ Frequency Multipliers

Capacitance(μF)	Frequency(Hz)			
	120	1k	10k	100k
1.0 to 10	0.42	0.60	0.80	1.00
22 to 33	0.55	0.75	0.90	1.00
47 to 330	0.70	0.85	0.95	1.00

The endurance of capacitors is reduced 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.