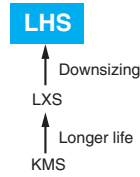


# LHS Series

- For solar power generation
- Endurance with ripple current : 5,000 hours at 105°C
- Rated voltage range : 450 to 500V
- For inverter control, switching power supplies
- Non solvent resistant type
- RoHS2 Compliant



**500V  
Lineup!**

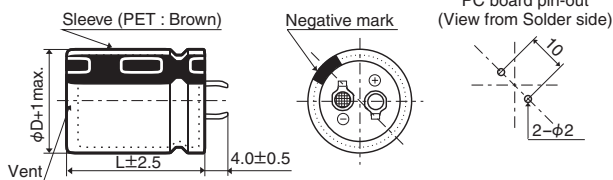


## ◆ SPECIFICATIONS

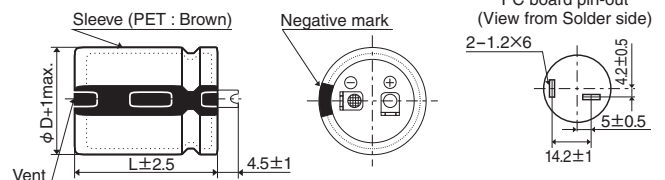
| Items   | Characteristics   |  |
|---|---|--|
| <b>Category</b>   | -25 to +105°C   |  |
| <b>Temperature Range</b>                                      | -25 to +105°C   |  |
| <b>Rated Voltage Range</b>                                    | 450 to 500V <sub>dc</sub>   |  |
| <b>Capacitance Tolerance</b>                                  | ±20% (M) (at 20°C, 120Hz)   |  |
| <b>Leakage Current</b>  | I ≤ 3/CV<br>Where, I : Max. leakage current (µA), C : Nominal capacitance (µF), V : Rated voltage (V) (at 20°C after 5 minutes)   |  |
| <b>Dissipation Factor (tan δ)</b>                             | Rated voltage (V <sub>dc</sub> )  | 450 to 500V  |
|   | tan δ (Max.)  | 0.20 (at 20°C, 120Hz)  |
| <b>Low Temperature Characteristics (Max. Impedance Ratio)</b> | Rated voltage (V <sub>dc</sub> )  | 450 to 500V  |
|   | Z(-25°C)/Z(+20°C)   | 8 (at 120Hz)   |
| <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 5,000 hours at 105°C.   |  |
|   | Capacitance change  | ≤ ±20% of the initial value  |
|   | D.F. (tan δ)  | ≤ 200% of the initial specified value (475, 500V <sub>dc</sub> : ≤ 250%) |
|   | 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  | ≤ ±15% of the initial value  |
|   | D.F. (tan δ)  | ≤ 150% of the initial specified value                                    |
|   | Leakage current   | ≤ The initial specified value  |

## ◆ DIMENSIONS [mm]

● Terminal Code : VS (φ22 to φ35) : Standard

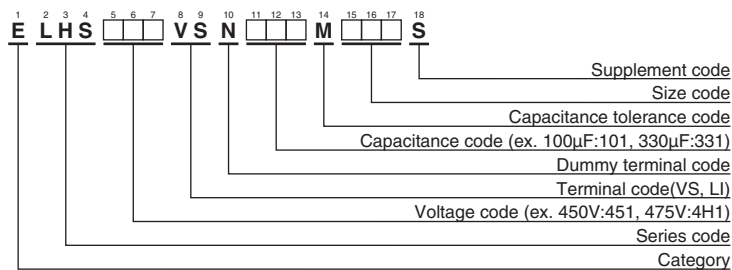


● Terminal Code : LI (φ30, φ35)



The standard design has no plastic disc.

## ◆ PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

◆STANDARD RATINGS

| WV (V <sub>dc</sub> ) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (Arms/105°C, 120Hz) | Part No.           | WV (V <sub>dc</sub> ) | Cap (μF) | Case size φD×L(mm) | tan δ   | Rated ripple current (Arms/105°C, 120Hz) | Part No.           |                    |
|-----------------------|----------|--------------------|-------|--|--------------------|-----------------------|----------|--------------------|---------|--|--------------------|--------------------|
| 450                   | 100      | 22 × 25            | 0.20  | 0.71                                     | ELHS451VSN101MP25S | 475                   | 150      | 30 × 25            | 0.20    | 1.01                                     | ELHS4H1VSN151MR25S |                    |
|                       | 120      | 22 × 30            | 0.20  | 0.81                                     | ELHS451VSN121MP30S |                       | 180      | 30 × 30            | 0.20    | 1.11                                     | ELHS4H1VSN181MR30S |                    |
|                       | 150      | 22 × 35            | 0.20  | 0.93                                     | ELHS451VSN151MP35S |                       | 180      | 35 × 25            | 0.20    | 1.08                                     | ELHS4H1VSN181MA25S |                    |
|                       | 150      | 25.4 × 25          | 0.20  | 0.93                                     | ELHS451VSN151MQ25S |                       | 220      | 30 × 35            | 0.20    | 1.26                                     | ELHS4H1VSN221MR35S |                    |
|                       | 180      | 22 × 40            | 0.20  | 1.04                                     | ELHS451VSN181MP40S |                       | 270      | 30 × 40            | 0.20    | 1.44                                     | ELHS4H1VSN271MR40S |                    |
|                       | 180      | 25.4 × 30          | 0.20  | 1.05                                     | ELHS451VSN181MQ30S |                       | 270      | 35 × 30            | 0.20    | 1.35                                     | ELHS4H1VSN271MA30S |                    |
|                       | 220      | 22 × 45            | 0.20  | 1.17                                     | ELHS451VSN221MP45S |                       | 330      | 30 × 45            | 0.20    | 1.63                                     | ELHS4H1VSN331MR45S |                    |
|                       | 220      | 25.4 × 35          | 0.20  | 1.21                                     | ELHS451VSN221MQ35S |                       | 330      | 35 × 35            | 0.20    | 1.51                                     | ELHS4H1VSN331MA35S |                    |
|                       | 220      | 30 × 25            | 0.20  | 1.15                                     | ELHS451VSN221MR25S |                       | 390      | 30 × 50            | 0.20    | 1.80                                     | ELHS4H1VSN391MR50S |                    |
|                       | 270      | 22 × 50            | 0.20  | 1.33                                     | ELHS451VSN271MP50S |                       | 390      | 35 × 40            | 0.20    | 1.70                                     | ELHS4H1VSN391MA40S |                    |
|                       | 270      | 25.4 × 40          | 0.20  | 1.36                                     | ELHS451VSN271MQ40S |                       | 470      | 30 × 60            | 0.20    | 2.05                                     | ELHS4H1VSN471MR60S |                    |
|                       | 270      | 30 × 30            | 0.20  | 1.29                                     | ELHS451VSN271MR30S |                       | 470      | 35 × 45            | 0.20    | 1.91                                     | ELHS4H1VSN471MA45S |                    |
|                       | 270      | 35 × 25            | 0.20  | 1.25                                     | ELHS451VSN271MA25S |                       | 470      | 35 × 50            | 0.20    | 1.95                                     | ELHS4H1VSN471MA50S |                    |
|                       | 330      | 22 × 60            | 0.20  | 1.54                                     | ELHS451VSN331MP60S |                       | 560      | 35 × 60            | 0.20    | 2.21                                     | ELHS4H1VSN561MA60S |                    |
|                       | 330      | 25.4 × 45          | 0.20  | 1.54                                     | ELHS451VSN331MQ45S |                       | 500      | 120                | 30 × 25 | 0.20                                     | 0.90               | ELHS501VSN121MR25S |
|                       | 330      | 25.4 × 50          | 0.20  | 1.56                                     | ELHS451VSN331MQ50S |                       |          | 150                | 30 × 30 | 0.20                                     | 1.02               | ELHS501VSN151MR30S |
|                       | 330      | 30 × 35            | 0.20  | 1.46                                     | ELHS451VSN331MR35S |                       |          | 150                | 35 × 25 | 0.20                                     | 0.99               | ELHS501VSN151MA25S |
|                       | 330      | 35 × 30            | 0.20  | 1.41                                     | ELHS451VSN331MA30S |                       |          | 180                | 30 × 35 | 0.20                                     | 1.14               | ELHS501VSN181MR35S |
|                       | 390      | 25.4 × 60          | 0.20  | 1.74                                     | ELHS451VSN391MQ60S |                       |          | 220                | 30 × 40 | 0.20                                     | 1.30               | ELHS501VSN221MR40S |
|                       | 390      | 30 × 40            | 0.20  | 1.63                                     | ELHS451VSN391MR40S |                       |          | 220                | 35 × 30 | 0.20                                     | 1.22               | ELHS501VSN221MA30S |
|                       | 470      | 30 × 45            | 0.20  | 1.84                                     | ELHS451VSN471MR45S |                       |          | 270                | 30 × 45 | 0.20                                     | 1.47               | ELHS501VSN271MR45S |
|                       | 470      | 30 × 50            | 0.20  | 1.87                                     | ELHS451VSN471MR50S |                       |          | 270                | 35 × 35 | 0.20                                     | 1.37               | ELHS501VSN271MA35S |
|                       | 470      | 35 × 35            | 0.20  | 1.71                                     | ELHS451VSN471MA35S |                       |          | 330                | 30 × 50 | 0.20                                     | 1.66               | ELHS501VSN331MR50S |
|                       | 560      | 35 × 40            | 0.20  | 1.95                                     | ELHS451VSN561MA40S |                       |          | 330                | 35 × 40 | 0.20                                     | 1.57               | ELHS501VSN331MA40S |
|                       | 560      | 35 × 45            | 0.20  | 1.99                                     | ELHS451VSN561MA45S |                       |          | 390                | 30 × 60 | 0.20                                     | 1.87               | ELHS501VSN391MR60S |
|                       | 680      | 30 × 60            | 0.20  | 2.33                                     | ELHS451VSN681MR60S |                       |          | 390                | 35 × 45 | 0.20                                     | 1.74               | ELHS501VSN391MA45S |
|                       | 680      | 35 × 50            | 0.20  | 2.22                                     | ELHS451VSN681MA50S |                       |          | 470                | 35 × 50 | 0.20                                     | 1.95               | ELHS501VSN471MA50S |
|                       | 820      | 35 × 60            | 0.20  | 2.52                                     | ELHS451VSN821MA60S |                       |          | 560                | 35 × 60 | 0.20                                     | 2.21               | ELHS501VSN561MA60S |

◆RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

| Frequency(Hz)           | 50   | 120  | 300  | 1k   | 10k  | 50k  |
|-------------------------|------|------|------|------|------|------|
| 450V <sub>dc</sub>      | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |
| 475, 500V <sub>dc</sub> | 0.70 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

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.