

## HL Series Useful of 8,000 hours at 105°C

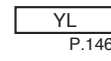
- Conform RoHS

### Features

- The HL series is the miniaturization products of 8,000 hours.



→ Long-life

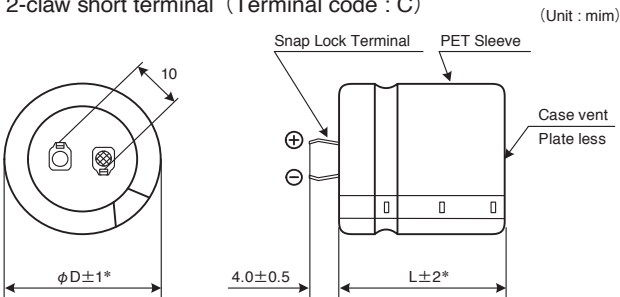


### Product Specifications

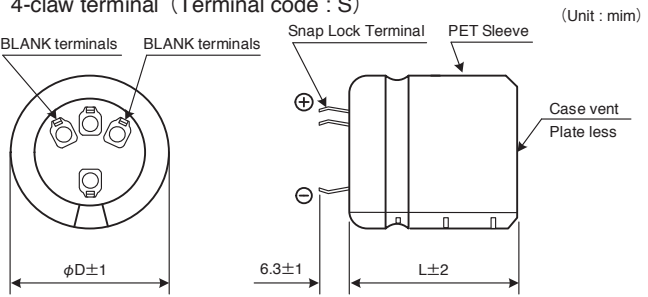
| Items                      | Specifications   |
|----------------------------|--|
| Temperature range          | -40°C ~ +105°C (200, 250V.DC)<br>-25°C ~ +105°C (315 ~ 500V.DC)  |
| Rated voltage              | 200 ~ 550V.DC  |
| Capacitance tolerance      | ±20% (20°C, 120Hz)   |
| Leakage current            | 0.02CV (µA) or 3mA, whichever is smaller or less (20°C, after 5 minutes)<br>[C = nominal capacitance (µF), V = rated voltage (V)]  |
| Dissipation factor         | Less than the value specified in the standard products table. (20°C, 120Hz)  |
| Permissible ripple current | As specified in the standard products table. (105°C, 120Hz)  |
| Endurance                  | After the rated voltage with specified ripple current is applied at 105°C for 5000 hours :<br>Capacitance change : Within ±20% of the initial value measured<br>Dissipation factor : 200% or less than the initial value specified<br>Leakage current : Less than or equal to the initial value specified  |
| Shelf life                 | The following specification shall be meet when the capacitor are restored to 20°C after storage of 500 hours at 105°C with no voltage applied. Before the measurement, the capacitor shall be preconditioned by applying the voltage treatment according to Item 4.1 of JIS C 5101-4.<br>Capacitance change : Within ±15% of the initial value measured<br>Dissipation factor : 175% or less than the initial value specified<br>Leakage current : Less than or equal to the initial value specified |
| Others                     | JIS C 5101-4   |

### Dimensions

2-claw short terminal (Terminal code : C)



4-claw terminal (Terminal code : S)



\* Products marked with “\*” in the standard products table : φD±1.5, L±2.5  
(For details of product specifications please request specification sheet.)

### Ripple current correction coefficient

| Temperature (°C)       | 60    | 70  | 85  | 105 |      |
|------------------------|-------|-----|-----|-----|------|
| Correction coefficient | 1.9   | 1.7 | 1.4 | 1.0 |      |
| Frequency (Hz)         | 50/60 | 120 | 300 | 1K  | ≥10K |
| Correction coefficient | 0.7   | 1.0 | 1.1 | 1.3 | 1.4  |

A continuous load should be avoided over 10 Arms at the terminal in accordance with the permissible current.  
Please consult us when the ripple voltage exceeds 70Vp-p.

### Product code

(Example) HL Series 400V 120µF ±20%

**HL 2G 121 M C X S2 WP EC**

- HL: Type of series
- 2G: Rated voltage code
- 121: Capacitance code
- M: Capacitance tolerance code
- C: Terminal code
- X: Case dia code
- S2: Case height code
- WP: Plate code
- EC: Environmental code

Refer to page 124-125 for other terminal shape available on request.

Standard Products Table

| Rated Voltage (V. DC) | Capacitance (μF) | Case size φD×L (mm) | tanδ 20°C, 120Hz | Ripple current (Arms) 105°C, 120Hz | ESR(typ.) (mΩ) 20°C, 100Hz | Product name     |
|-----------------------|------------------|---------------------|------------------|------------------------------------|----------------------------|------------------|
| 200                   | 330              | 22×25               | 0.15             | 1.09                               | 330                        | HL2D331MCXS2WPEC |
|                       |                  | 22×30               | 0.15             | 1.37                               | 240                        | HL2D471MCXS3WPEC |
|                       | 470              | 25×25               | 0.15             | 1.36                               | 240                        | HL2D471MCYS2WPEC |
|                       |                  | 22×35               | 0.15             | 1.57                               | 200                        | HL2D561MCXS4WPEC |
|                       | 560              | 25×30               | 0.15             | 1.57                               | 200                        | HL2D561MCYS3WPEC |
|                       |                  | 22×40               | 0.15             | 1.81                               | 160                        | HL2D681MCXS5WPEC |
|                       | 680              | 30×25               | 0.15             | 1.75                               | 160                        | HL2D681MCZS2WPEC |
|                       |                  | 22×45               | 0.15             | 2.06                               | 140                        | HL2D821MCXS6WPEC |
|                       | 820              | 25×35               | 0.15             | 1.99                               | 140                        | HL2D821MCYS4WPEC |
|                       |                  | 25×45               | 0.15             | 2.37                               | 110                        | HL2D102MCYS6WPEC |
|                       | 1,000            | 30×30               | 0.15             | 2.24                               | 110                        | HL2D102MCZS3WPEC |
|                       |                  | 35×25               | 0.15             | 1.94                               | 110                        | HL2D102MCAS2WPEC |
|                       |                  | 25×50               | 0.15             | 2.67                               | 100                        | HL2D122MCYS7WPEC |
|                       | 1,200            | 30×35               | 0.15             | 2.56                               | 100                        | HL2D122MCZS4WPEC |
|                       |                  | 35×30               | 0.15             | 2.23                               | 100                        | HL2D122MCAS3WPEC |
|                       |                  | 30×45               | 0.15             | 3.08                               | 80                         | HL2D152MCZS6WPEC |
|                       | 1,500            | 35×35               | 0.15             | 2.61                               | 80                         | HL2D152MCAS4WPEC |
|                       |                  | 30×50               | 0.15             | 3.49                               | 70                         | HL2D182MCZS7WPEC |
| 35×40                 |                  | 0.15                | 2.97             | 70                                 | HL2D182MCAS5WPEC           |                  |
| 2,200                 | 35×45            | 0.15                | 3.39             | 50                                 | HL2D222MCAS6WPEC           |                  |
|                       | 2,700            | 35×50               | 0.15             | 3.86                               | 50                         | HL2D272MCAS7WPEC |
|                       | 250              | 270                 | 22×25            | 0.15                               | 0.98                       | 360              |
| 22×30                 |                  |                     | 0.15             | 1.15                               | 290                        | HL2E331MCXS3WPEC |
| 330                   |                  | 25×25               | 0.15             | 1.14                               | 290                        | HL2E331MCYS2WPEC |
|                       |                  | 22×35               | 0.15             | 1.31                               | 250                        | HL2E391MCXS4WPEC |
| 470                   |                  | 22×40               | 0.15             | 1.50                               | 210                        | HL2E471MCXS5WPEC |
|                       |                  | 25×30               | 0.15             | 1.43                               | 210                        | HL2E471MCYS3WPEC |
|                       |                  | 30×25               | 0.15             | 1.45                               | 210                        | HL2E471MCZS2WPEC |
| 560                   |                  | 22×45               | 0.15             | 1.70                               | 180                        | HL2E561MCXS6WPEC |
|                       |                  | 25×35               | 0.15             | 1.64                               | 180                        | HL2E561MCYS4WPEC |
| 680                   |                  | 22×50               | 0.15             | 1.94                               | 150                        | HL2E681MCXS7WPEC |
|                       |                  | 25×40               | 0.15             | 1.88                               | 150                        | HL2E681MCYS5WPEC |
|                       |                  | 30×30               | 0.15             | 1.85                               | 150                        | HL2E681MCZS3WPEC |
|                       |                  | 35×25               | 0.15             | 1.60                               | 150                        | HL2E681MCAS2WPEC |
| 820                   |                  | 25×45               | 0.15             | 2.14                               | 120                        | HL2E821MCYS6WPEC |
|                       |                  | 30×35               | 0.15             | 2.12                               | 120                        | HL2E821MCZS4WPEC |
|                       |                  | 35×30               | 0.15             | 1.84                               | 120                        | HL2E821MCAS3WPEC |
| 1,000                 |                  | 30×40               | 0.15             | 2.44                               | 100                        | HL2E102MCZS5WPEC |
|                       |                  | 30×45               | 0.15             | 2.76                               | 80                         | HL2E122MCZS6WPEC |
| 1,200                 | 35×35            | 0.15                | 2.33             | 80                                 | HL2E122MCAS4WPEC           |                  |
|                       | 35×45            | 0.15                | 2.80             | 70                                 | HL2E152MCAS6WPEC           |                  |
| 1,800                 | 35×50            | 0.15                | 3.16             | 60                                 | HL2E182MCAS7WPEC           |                  |
| 315                   | 150              | 22×25               | 0.20             | 0.86                               | 850                        | HL2F151MCXS2WPEC |
|                       |                  | 22×30               | 0.20             | 1.10                               | 580                        | HL2F221MCXS3WPEC |
|                       | 220              | 25×25               | 0.20             | 1.10                               | 580                        | HL2F221MCYS2WPEC |
|                       |                  | 22×35               | 0.20             | 1.24                               | 480                        | HL2F271MCXS4WPEC |
|                       | 270              | 25×30               | 0.20             | 1.25                               | 480                        | HL2F271MCYS3WPEC |
|                       |                  | 22×40               | 0.20             | 1.40                               | 390                        | HL2F331MCXS5WPEC |
|                       | 330              | 25×35               | 0.20             | 1.44                               | 390                        | HL2F331MCYS4WPEC |
|                       |                  | 30×25               | 0.20             | 1.43                               | 390                        | HL2F331MCZS2WPEC |
|                       | 390              | 22×45               | 0.20             | 1.56                               | 330                        | HL2F391MCXS6WPEC |
|                       |                  | 25×40               | 0.20             | 1.60                               | 330                        | HL2F391MCYS5WPEC |
|                       | 470              | 30×30               | 0.20             | 1.56                               | 330                        | HL2F391MCZS3WPEC |
|                       |                  | 25×45               | 0.20             | 1.79                               | 280                        | HL2F471MCYS6WPEC |
|                       |                  | 35×25               | 0.20             | 1.48                               | 280                        | HL2F471MCAS2WPEC |
|                       | 560              | 25×50               | 0.20             | 1.99                               | 230                        | HL2F561MCYS7WPEC |
|                       |                  | 30×35               | 0.20             | 1.93                               | 230                        | HL2F561MCZS4WPEC |
|                       |                  | 35×30               | 0.20             | 1.70                               | 230                        | HL2F561MCAS3WPEC |
|                       | 680              | 30×40               | 0.20             | 2.19                               | 190                        | HL2F681MCZS5WPEC |
|                       |                  | 35×35               | 0.20             | 1.96                               | 190                        | HL2F681MCAS4WPEC |
|                       | 820              | 30×50               | 0.20             | 2.51                               | 160                        | HL2F821MCZS7WPEC |
|                       |                  | 35×40               | 0.20             | 2.23                               | 160                        | HL2F821MCAS5WPEC |
|                       | 1,000            | 35×45               | 0.20             | 2.55                               | 130                        | HL2F102MCAS6WPEC |
|                       | 1,200            | 35×50               | 0.20             | 2.87                               | 110                        | HL2F122MCAS7WPEC |

| Rated Voltage (V. DC) | Capacitance (μF) | Case size φD×L (mm) | tanδ 20°C, 120Hz | Ripple current (Arms) 105°C, 120Hz | ESR(typ.) (mΩ) 20°C, 100Hz | Product name     |
|-----------------------|------------------|---------------------|------------------|------------------------------------|----------------------------|------------------|
| 400                   | 120              | 22×25               | 0.20             | 0.77                               | 800                        | HL2G121MCXS2WPEC |
|                       |                  | 22×25*              | 0.20             | 0.87                               | 640                        | HL2G151MCXS2WPEC |
|                       | 150              | 22×30               | 0.20             | 0.92                               | 640                        | HL2G151MCXS3WPEC |
|                       |                  | 25×25               | 0.20             | 0.90                               | 640                        | HL2G151MCYS2WPEC |
|                       | 180              | 22×30*              | 0.20             | 1.01                               | 540                        | HL2G181MCXS3WPEC |
|                       |                  | 22×35               | 0.20             | 1.05                               | 540                        | HL2G181MCXS4WPEC |
|                       |                  | 25×25*              | 0.20             | 0.99                               | 540                        | HL2G181MCYS2WPEC |
|                       | 220              | 25×30               | 0.20             | 1.05                               | 540                        | HL2G181MCYS3WPEC |
|                       |                  | 22×35*              | 0.20             | 1.17                               | 440                        | HL2G221MCXS4WPEC |
|                       |                  | 22×40               | 0.20             | 1.22                               | 440                        | HL2G221MCXS5WPEC |
|                       | 270              | 25×30               | 0.20             | 1.16                               | 440                        | HL2G221MCYS3WPEC |
|                       |                  | 25×35               | 0.20             | 1.21                               | 440                        | HL2G221MCYS4WPEC |
|                       |                  | 30×25               | 0.20             | 1.17                               | 440                        | HL2G221MCZS2WPEC |
|                       | 330              | 22×40*              | 0.20             | 1.35                               | 360                        | HL2G271MCXS5WPEC |
|                       |                  | 22×45               | 0.20             | 1.40                               | 360                        | HL2G271MCXS6WPEC |
|                       |                  | 25×35               | 0.20             | 1.35                               | 360                        | HL2G271MCYS4WPEC |
|                       |                  | 25×40               | 0.20             | 1.40                               | 360                        | HL2G271MCYS5WPEC |
|                       | 390              | 30×25*              | 0.20             | 1.28                               | 360                        | HL2G271MCZS2WPEC |
|                       |                  | 22×45*              | 0.20             | 1.54                               | 290                        | HL2G331MCXS6WPEC |
|                       |                  | 22×50*              | 0.20             | 1.59                               | 290                        | HL2G331MCXS7WPEC |
|                       |                  | 25×40               | 0.20             | 1.55                               | 290                        | HL2G331MCYS5WPEC |
|                       |                  | 25×45               | 0.20             | 1.61                               | 290                        | HL2G331MCYS6WPEC |
|                       | 470              | 30×30               | 0.20             | 1.49                               | 290                        | HL2G331MCZS3WPEC |
|                       |                  | 35×25               | 0.20             | 1.52                               | 290                        | HL2G331MCAS2WPEC |
|                       |                  | 25×45*              | 0.20             | 1.74                               | 250                        | HL2G391MCYS6WPEC |
|                       |                  | 25×50               | 0.20             | 1.80                               | 250                        | HL2G391MCYS7WPEC |
|                       |                  | 30×30*              | 0.20             | 1.62                               | 250                        | HL2G391MCZS3WPEC |
|                       |                  | 30×35               | 0.20             | 1.70                               | 250                        | HL2G391MCZS4WPEC |
|                       | 560              | 35×25*              | 0.20             | 1.59                               | 250                        | HL2G391MCAS2WPEC |
|                       |                  | 35×30               | 0.20             | 1.68                               | 250                        | HL2G391MCAS3WPEC |
| 25×50*                |                  | 0.20                | 1.98             | 210                                | HL2G471MCYS7WPEC           |                  |
| 30×35*                |                  | 0.20                | 1.86             | 210                                | HL2G471MCZS4WPEC           |                  |
| 30×40                 |                  | 0.20                | 1.94             | 210                                | HL2G471MCZS5WPEC           |                  |
| 680                   | 35×30*           | 0.20                | 1.84             | 210                                | HL2G471MCAS3WPEC           |                  |
|                       | 35×35            | 0.20                | 1.92             | 210                                | HL2G471MCAS4WPEC           |                  |
|                       | 30×40*           | 0.20                | 2.11             | 180                                | HL2G561MCZS5WPEC           |                  |
|                       | 30×45            | 0.20                | 2.19             | 180                                | HL2G561MCZS6WPEC           |                  |
| 820                   | 35×35            | 0.20                | 2.09             | 180                                | HL2G561MCAS4WPEC           |                  |
|                       | 35×40            | 0.20                | 2.18             | 180                                | HL2G561MCAS5WPEC           |                  |
|                       | 30×50*           | 0.20                | 2.48             | 150                                | HL2G681MCZS7WPEC           |                  |
| 1,000                 | 35×40*           | 0.20                | 2.40             | 150                                | HL2G681MCAS5WPEC           |                  |
|                       | 35×45            | 0.20                | 2.48             | 150                                | HL2G681MCAS6WPEC           |                  |
| 1,200                 | 35×45*           | 0.20                | 2.72             | 120                                | HL2G821MCAS6WPEC           |                  |
|                       | 35×50            | 0.20                | 2.80             | 120                                | HL2G821MCAS7WPEC           |                  |
| 1,000                 | 35×50*           | 0.20                | 3.09             | 100                                | HL2G102MCAS7WPEC           |                  |

ALUMINUM ELECTROLYTIC CAPACITORS

# SNAP MOUNT TYPE ALUMINUM ELECTROLYTIC CAPACITORS

Standard Products Table

| Rated Voltage (V. DC) | Capacitance (μF) | Case size φD×L (mm) | tanδ 20°C, 120Hz | Ripple current (Arms) 105°C, 120Hz | ESR(typ.) (mΩ) 20°C, 100Hz | Product name       |
|-----------------------|------------------|---------------------|------------------|------------------------------------|----------------------------|--------------------|
| 420                   | 100              | 22×25               | 0.20             | 0.71                               | 1,020                      | HL420V101MCXS2WPEC |
|                       |                  | 22×25*              | 0.20             | 0.77                               | 850                        | HL420V121MCXS2WPEC |
|                       | 120              | 22×30               | 0.20             | 0.82                               | 850                        | HL420V121MCXS3WPEC |
|                       |                  | 22×30               | 0.20             | 0.92                               | 680                        | HL420V151MCXS3WPEC |
|                       | 150              | 22×35               | 0.20             | 0.96                               | 680                        | HL420V151MCXS4WPEC |
|                       |                  | 25×25               | 0.20             | 0.90                               | 680                        | HL420V151MCYS2WPEC |
|                       |                  | 22×35               | 0.20             | 1.05                               | 570                        | HL420V181MCXS4WPEC |
|                       | 180              | 22×40               | 0.20             | 1.10                               | 570                        | HL420V181MCXS5WPEC |
|                       |                  | 25×25*              | 0.20             | 0.99                               | 570                        | HL420V181MCYS2WPEC |
|                       |                  | 25×30               | 0.20             | 1.05                               | 570                        | HL420V181MCYS3WPEC |
|                       |                  | 22×40               | 0.20             | 1.22                               | 470                        | HL420V221MCXS5WPEC |
|                       | 220              | 22×45               | 0.20             | 1.26                               | 470                        | HL420V221MCXS6WPEC |
|                       |                  | 25×30*              | 0.20             | 1.16                               | 470                        | HL420V221MCYS3WPEC |
|                       |                  | 25×35               | 0.20             | 1.21                               | 470                        | HL420V221MCYS4WPEC |
|                       |                  | 30×25               | 0.20             | 1.15                               | 470                        | HL420V221MCZS2WPEC |
|                       | 270              | 22×45*              | 0.20             | 1.40                               | 380                        | HL420V271MCXS6WPEC |
|                       |                  | 22×50               | 0.20             | 1.44                               | 380                        | HL420V271MCXS7WPEC |
|                       |                  | 25×35*              | 0.20             | 1.35                               | 380                        | HL420V271MCYS4WPEC |
|                       |                  | 25×40               | 0.20             | 1.40                               | 380                        | HL420V271MCYS5WPEC |
|                       |                  | 30×25*              | 0.20             | 1.28                               | 380                        | HL420V271MCZS2WPEC |
|                       |                  | 30×30               | 0.20             | 1.35                               | 380                        | HL420V271MCZS3WPEC |
|                       | 330              | 35×25               | 0.20             | 1.38                               | 380                        | HL420V271MCAS2WPEC |
|                       |                  | 22×50*              | 0.20             | 1.59                               | 310                        | HL420V331MCXS7WPEC |
|                       |                  | 25×40*              | 0.20             | 1.55                               | 310                        | HL420V331MCYS5WPEC |
|                       |                  | 25×45               | 0.20             | 1.61                               | 310                        | HL420V331MCYS6WPEC |
|                       |                  | 30×30*              | 0.20             | 1.49                               | 310                        | HL420V331MCZS3WPEC |
|                       |                  | 30×35               | 0.20             | 1.56                               | 310                        | HL420V331MCZS4WPEC |
|                       |                  | 35×25*              | 0.20             | 1.46                               | 310                        | HL420V331MCAS2WPEC |
|                       | 390              | 25×45*              | 0.20             | 1.74                               | 270                        | HL420V391MCYS6WPEC |
|                       |                  | 25×50               | 0.20             | 1.80                               | 270                        | HL420V391MCYS7WPEC |
|                       |                  | 30×35*              | 0.20             | 1.70                               | 270                        | HL420V391MCZS4WPEC |
|                       |                  | 30×40               | 0.20             | 1.76                               | 270                        | HL420V391MCZS5WPEC |
|                       |                  | 35×30               | 0.20             | 1.67                               | 270                        | HL420V391MCAS3WPEC |
|                       | 470              | 25×50*              | 0.20             | 1.98                               | 220                        | HL420V471MCYS7WPEC |
|                       |                  | 30×40*              | 0.20             | 1.94                               | 220                        | HL420V471MCZS5WPEC |
|                       |                  | 30×45               | 0.20             | 2.00                               | 220                        | HL420V471MCZS6WPEC |
|                       |                  | 35×30*              | 0.20             | 1.84                               | 220                        | HL420V471MCAS3WPEC |
|                       | 560              | 35×35               | 0.20             | 1.92                               | 220                        | HL420V471MCAS4WPEC |
|                       |                  | 30×45*              | 0.20             | 2.19                               | 190                        | HL420V561MCZS6WPEC |
|                       |                  | 30×50               | 0.20             | 2.25                               | 190                        | HL420V561MCZS7WPEC |
|                       |                  | 35×35*              | 0.20             | 2.09                               | 190                        | HL420V561MCAS4WPEC |
|                       | 680              | 35×40               | 0.20             | 2.18                               | 190                        | HL420V561MCAS5WPEC |
|                       |                  | 30×50*              | 0.20             | 2.48                               | 150                        | HL420V681MCZS7WPEC |
|                       |                  | 35×40*              | 0.20             | 2.40                               | 150                        | HL420V681MCAS5WPEC |
|                       | 820              | 35×45               | 0.20             | 2.48                               | 150                        | HL420V681MCAS6WPEC |
|                       |                  | 35×45*              | 0.20             | 2.72                               | 130                        | HL420V821MCAS6WPEC |

| Rated Voltage (V. DC) | Capacitance (μF) | Case size φD×L (mm) | tanδ 20°C, 120Hz | Ripple current (Arms) 105°C, 120Hz | ESR(typ.) (mΩ) 20°C, 100Hz | Product name     |                  |
|-----------------------|------------------|---------------------|------------------|------------------------------------|----------------------------|------------------|------------------|
| 450                   | 82               | 22×25               | 0.20             | 0.64                               | 1,250                      | HL2W820MCXS2WPEC |                  |
|                       | 100              | 22×25*              | 0.20             | 0.71                               | 1,020                      | HL2W101MCXS2WPEC |                  |
|                       |                  | 22×30               | 0.20             | 0.82                               | 850                        | HL2W121MCXS3WPEC |                  |
|                       | 120              | 25×25               | 0.20             | 0.81                               | 850                        | HL2W121MCYS2WPEC |                  |
|                       |                  | 22×30*              | 0.20             | 0.92                               | 680                        | HL2W151MCXS3WPEC |                  |
|                       | 150              | 22×35               | 0.20             | 0.96                               | 680                        | HL2W151MCXS4WPEC |                  |
|                       |                  | 25×25*              | 0.20             | 0.90                               | 680                        | HL2W151MCYS2WPEC |                  |
|                       |                  | 25×30               | 0.20             | 0.96                               | 680                        | HL2W151MCYS3WPEC |                  |
|                       | 180              | 22×35*              | 0.20             | 1.05                               | 570                        | HL2W181MCXS4WPEC |                  |
|                       |                  | 22×40               | 0.20             | 1.10                               | 570                        | HL2W181MCXS5WPEC |                  |
|                       |                  | 25×30*              | 0.20             | 1.05                               | 570                        | HL2W181MCYS3WPEC |                  |
|                       |                  | 25×35               | 0.20             | 1.10                               | 570                        | HL2W181MCYS4WPEC |                  |
|                       | 220              | 30×25               | 0.20             | 1.06                               | 570                        | HL2W181MCZS2WPEC |                  |
|                       |                  | 22×40*              | 0.20             | 1.22                               | 470                        | HL2W221MCXS5WPEC |                  |
|                       |                  | 22×45*              | 0.20             | 1.26                               | 470                        | HL2W221MCXS6WPEC |                  |
|                       |                  | 25×35*              | 0.20             | 1.21                               | 470                        | HL2W221MCYS4WPEC |                  |
|                       | 270              | 25×40               | 0.20             | 1.27                               | 470                        | HL2W221MCYS5WPEC |                  |
|                       |                  | 30×25*              | 0.20             | 1.15                               | 470                        | HL2W221MCZS2WPEC |                  |
|                       |                  | 30×30               | 0.20             | 1.22                               | 470                        | HL2W221MCZS3WPEC |                  |
|                       |                  | 35×25               | 0.20             | 1.24                               | 470                        | HL2W221MCAS2WPEC |                  |
|                       |                  | 22×50*              | 0.20             | 1.44                               | 380                        | HL2W271MCXS7WPEC |                  |
|                       | 330              | 25×40*              | 0.20             | 1.40                               | 380                        | HL2W271MCYS5WPEC |                  |
|                       |                  | 25×45               | 0.20             | 1.45                               | 380                        | HL2W271MCYS6WPEC |                  |
|                       |                  | 30×30*              | 0.20             | 1.35                               | 380                        | HL2W271MCZS3WPEC |                  |
|                       |                  | 30×35               | 0.20             | 1.41                               | 380                        | HL2W271MCZS4WPEC |                  |
|                       | 390              | 35×25*              | 0.20             | 1.32                               | 380                        | HL2W271MCAS2WPEC |                  |
|                       |                  | 25×45*              | 0.20             | 1.61                               | 310                        | HL2W331MCYS6WPEC |                  |
|                       |                  | 25×50               | 0.20             | 1.66                               | 310                        | HL2W331MCYS7WPEC |                  |
|                       |                  | 30×35*              | 0.20             | 1.56                               | 310                        | HL2W331MCZS4WPEC |                  |
|                       |                  | 30×40               | 0.20             | 1.62                               | 310                        | HL2W331MCZS5WPEC |                  |
|                       | 470              | 35×30               | 0.20             | 1.54                               | 310                        | HL2W331MCAS3WPEC |                  |
|                       |                  | 30×40*              | 0.20             | 1.76                               | 270                        | HL2W391MCZS5WPEC |                  |
|                       |                  | 30×45               | 0.20             | 1.82                               | 270                        | HL2W391MCZS6WPEC |                  |
|                       |                  | 35×30*              | 0.20             | 1.67                               | 270                        | HL2W391MCAS3WPEC |                  |
|                       | 560              | 35×35               | 0.20             | 1.75                               | 270                        | HL2W391MCAS4WPEC |                  |
|                       |                  | 30×45*              | 0.20             | 2.00                               | 220                        | HL2W471MCZS6WPEC |                  |
|                       |                  | 30×50               | 0.20             | 2.07                               | 220                        | HL2W471MCZS7WPEC |                  |
|                       |                  | 35×35*              | 0.20             | 1.92                               | 220                        | HL2W471MCAS4WPEC |                  |
|                       | 680              | 35×40               | 0.20             | 1.99                               | 220                        | HL2W471MCAS5WPEC |                  |
|                       |                  | 30×50*              | 0.20             | 2.25                               | 190                        | HL2W561MCZS7WPEC |                  |
|                       |                  | 35×40*              | 0.20             | 2.18                               | 190                        | HL2W561MCAS5WPEC |                  |
|                       | 820              | 35×45               | 0.20             | 2.25                               | 190                        | HL2W561MCAS6WPEC |                  |
|                       |                  | 35×45*              | 0.20             | 2.48                               | 150                        | HL2W681MCAS6WPEC |                  |
|                       |                  |                     | 35×50            | 0.20                               | 2.55                       | 150              | HL2W681MCAS7WPEC |

Standard Products Table

| Rated Voltage<br>(V. DC) | Capacitance<br>( $\mu$ F) | Case size<br>$\phi$ D $\times$ L<br>(mm) | tan $\delta$<br>20°C, 120Hz | Ripple current<br>(Arms)<br>105°C, 120Hz | ESR(typ.)<br>(m $\Omega$ )<br>20°C, 100Hz | Product name     |
|--------------------------|---------------------------|--|-----------------------------|--|---|------------------|
|                          |                           |  |                             |  |   |                  |
| 500                      | 56                        | 22 $\times$ 25                           | 0.20                        | 0.40                                     | 1,710                                     | HL2H560MCXS2WPEC |
|                          |                           | 22 $\times$ 25*                          | 0.20                        | 0.45                                     | 1,410                                     | HL2H680MCXS2WPEC |
|                          | 68                        | 22 $\times$ 30                           | 0.20                        | 0.48                                     | 1,410                                     | HL2H680MCXS3WPEC |
|                          |                           | 25 $\times$ 25                           | 0.20                        | 0.49                                     | 1,410                                     | HL2H680MCYS2WPEC |
|                          | 82                        | 22 $\times$ 30*                          | 0.20                        | 0.54                                     | 1,170                                     | HL2H820MCXS3WPEC |
|                          |                           | 22 $\times$ 35                           | 0.20                        | 0.56                                     | 1,170                                     | HL2H820MCXS4WPEC |
|                          |                           | 25 $\times$ 25*                          | 0.20                        | 0.55                                     | 1,170                                     | HL2H820MCYS2WPEC |
|                          |                           | 25 $\times$ 30                           | 0.20                        | 0.57                                     | 1,170                                     | HL2H820MCYS3WPEC |
|                          | 100                       | 22 $\times$ 35*                          | 0.20                        | 0.62                                     | 960                                       | HL2H101MCXS4WPEC |
|                          |                           | 22 $\times$ 40                           | 0.20                        | 0.65                                     | 960                                       | HL2H101MCXS5WPEC |
|                          |                           | 25 $\times$ 30                           | 0.20                        | 0.64                                     | 960                                       | HL2H101MCYS3WPEC |
|                          |                           | 25 $\times$ 35                           | 0.20                        | 0.67                                     | 960                                       | HL2H101MCYS4WPEC |
|                          |                           | 30 $\times$ 25                           | 0.20                        | 0.68                                     | 960                                       | HL2H101MCZS2WPEC |
|                          | 120                       | 22 $\times$ 40*                          | 0.20                        | 0.72                                     | 800                                       | HL2H121MCXS5WPEC |
|                          |                           | 22 $\times$ 45                           | 0.20                        | 0.75                                     | 800                                       | HL2H121MCXS6WPEC |
|                          |                           | 25 $\times$ 35                           | 0.20                        | 0.74                                     | 800                                       | HL2H121MCYS4WPEC |
|                          |                           | 25 $\times$ 40                           | 0.20                        | 0.77                                     | 800                                       | HL2H121MCYS5WPEC |
|                          |                           | 30 $\times$ 25*                          | 0.20                        | 0.75                                     | 800                                       | HL2H121MCZS2WPEC |
|                          | 150                       | 30 $\times$ 30                           | 0.20                        | 0.79                                     | 800                                       | HL2H121MCZS3WPEC |
|                          |                           | 22 $\times$ 45*                          | 0.20                        | 0.85                                     | 640                                       | HL2H151MCXS6WPEC |
|                          |                           | 25 $\times$ 40*                          | 0.20                        | 0.88                                     | 640                                       | HL2H151MCYS5WPEC |
|                          |                           | 25 $\times$ 45                           | 0.20                        | 0.91                                     | 640                                       | HL2H151MCYS6WPEC |
|                          |                           | 30 $\times$ 30                           | 0.20                        | 0.90                                     | 640                                       | HL2H151MCZS3WPEC |
|                          | 180                       | 30 $\times$ 35                           | 0.20                        | 0.94                                     | 640                                       | HL2H151MCZS4WPEC |
|                          |                           | 35 $\times$ 25                           | 0.20                        | 0.94                                     | 640                                       | HL2H151MCAS2WPEC |
|                          |                           | 25 $\times$ 45*                          | 0.20                        | 1.01                                     | 540                                       | HL2H181MCYS6WPEC |
|                          |                           | 25 $\times$ 50                           | 0.20                        | 1.04                                     | 540                                       | HL2H181MCYS7WPEC |
|                          |                           | 30 $\times$ 35                           | 0.20                        | 1.04                                     | 540                                       | HL2H181MCZS4WPEC |
|                          | 220                       | 30 $\times$ 40                           | 0.20                        | 1.08                                     | 540                                       | HL2H181MCZS5WPEC |
|                          |                           | 35 $\times$ 25*                          | 0.20                        | 1.04                                     | 540                                       | HL2H181MCAS2WPEC |
|                          |                           | 35 $\times$ 30                           | 0.20                        | 1.09                                     | 540                                       | HL2H181MCAS3WPEC |
|                          |                           | 25 $\times$ 50*                          | 0.20                        | 1.17                                     | 440                                       | HL2H221MCYS7WPEC |
|                          |                           | 30 $\times$ 40                           | 0.20                        | 1.21                                     | 440                                       | HL2H221MCZS5WPEC |
|                          | 270                       | 30 $\times$ 45                           | 0.20                        | 1.26                                     | 440                                       | HL2H221MCZS6WPEC |
|                          |                           | 35 $\times$ 30*                          | 0.20                        | 1.22                                     | 440                                       | HL2H221MCAS3WPEC |
|                          |                           | 35 $\times$ 35                           | 0.20                        | 1.28                                     | 440                                       | HL2H221MCAS4WPEC |
|                          |                           | 30 $\times$ 45*                          | 0.20                        | 1.41                                     | 360                                       | HL2H271MCZS6WPEC |
|                          |                           | 30 $\times$ 50                           | 0.20                        | 1.45                                     | 360                                       | HL2H271MCZS7WPEC |
|                          | 330                       | 35 $\times$ 35*                          | 0.20                        | 1.44                                     | 360                                       | HL2H271MCAS4WPEC |
|                          |                           | 35 $\times$ 40                           | 0.20                        | 1.49                                     | 360                                       | HL2H271MCAS5WPEC |
|                          |                           | 30 $\times$ 50*                          | 0.20                        | 1.63                                     | 290                                       | HL2H331MCZS7WPEC |
|                          |                           | 35 $\times$ 40*                          | 0.20                        | 1.67                                     | 290                                       | HL2H331MCAS5WPEC |
|                          | 390                       | 35 $\times$ 45                           | 0.20                        | 1.73                                     | 290                                       | HL2H331MCAS6WPEC |
|                          |                           | 30 $\times$ 60*                          | 0.20                        | 1.89                                     | 250                                       | HL2H391MCZS9WPEC |
|                          |                           | 35 $\times$ 45*                          | 0.20                        | 1.90                                     | 250                                       | HL2H391MCAS6WPEC |
|                          | 470                       | 35 $\times$ 50                           | 0.20                        | 1.96                                     | 250                                       | HL2H391MCAS7WPEC |
|                          |                           | 35 $\times$ 50*                          | 0.20                        | 2.18                                     | 210                                       | HL2H471MCAS7WPEC |
|                          | 560                       | 35 $\times$ 60*                          | 0.20                        | 2.53                                     | 180                                       | HL2H561MCAS9WPEC |

### Life time graph

Useful life depending on ambient temperature  $T_a$  and ripple current operating conditions  $I$  versus rated ripple current at 105°C, 120Hz.

