

# SNAP MOUNT TYPE ALUMINUM ELECTROLYTIC CAPACITORS

## XL1 Series

Useful of 15,000 hours at 105°C (Warranty of 10,000 hours at 105°C)

• Conform RoHS

### Features

- Warranty of 10,000 hours at 105°C through improvement of electrolyte liquid and etched foil technology



### Product Specifications

| Items                      | Specifications   |
|----------------------------|--|
| Temperature range          | -40°C ~ +105°C   |
| Rated voltage              | 200 ~ 450V.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)  |
| High-temperature load      | After the rated voltage with specified ripple current is applied at 105°C for 10,000 hours:<br>Capacitance tolerance: ±15% or less of the initial value<br>Dissipation factor: 200% or less of the specified initial value<br>Leakage current: Specified initial value or less |
| Others                     | JIS C 5101-4.  |

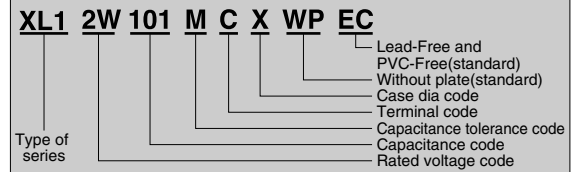
### Ripple current correction coefficient

| Temperature (°C)       | 60    | 70  | 85  | 105 |      |
|------------------------|-------|-----|-----|-----|------|
| Correction coefficient | 2.2   | 2.0 | 1.8 | 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) XL1 series 450V 100µF±20%



Refer to page 66-67 for other terminal shape available on request.

### Standard Products Table

| Rated Voltage (V.DC) | Capacitance (µF) | Case size øDXL(mm) | tanδ 20°C, 120Hz | Ripple current (Arms) 105°C, 120Hz | ESR(typ.) 20°C, 100Hz (mΩ) | Product name    |
|----------------------|------------------|--------------------|------------------|------------------------------------|----------------------------|-----------------|
| 200                  | 220              | 22×25              | 0.15             | 0.76                               | 398                        | XL12D221MCXWPEC |
|                      |                  | 22×30              | 0.15             | 0.90                               | 325                        | XL12D271MCXWPEC |
|                      | 270              | 25×25              | 0.15             | 0.86                               | 325                        | XL12D271MCYWPEC |
|                      |                  | 22×35              | 0.15             | 1.05                               | 265                        | XL12D331MCXWPEC |
|                      | 330              | 25×30              | 0.15             | 1.01                               | 265                        | XL12D331MCYWPEC |
|                      |                  | 22×35              | 0.15             | 1.15                               | 225                        | XL12D391MCXWPEC |
|                      | 390              | 25×30              | 0.15             | 1.10                               | 225                        | XL12D391MCYWPEC |
|                      |                  | 30×25              | 0.15             | 1.13                               | 225                        | XL12D391MCZWPEC |
|                      |                  | 22×45              | 0.15             | 1.40                               | 187                        | XL12D471MCXWPEC |
|                      | 470              | 25×35              | 0.15             | 1.29                               | 187                        | XL12D471MCYWPEC |
|                      |                  | 30×25              | 0.15             | 1.24                               | 187                        | XL12D471MCZWPEC |
|                      |                  | 22×50              | 0.15             | 1.59                               | 156                        | XL12D561MCXWPEC |
|                      | 560              | 25×40              | 0.15             | 1.48                               | 156                        | XL12D561MCYWPEC |
|                      |                  | 30×30              | 0.15             | 1.44                               | 156                        | XL12D561MCZWPEC |
|                      |                  | 25×45              | 0.15             | 1.70                               | 129                        | XL12D681MCYWPEC |
|                      | 680              | 30×35              | 0.15             | 1.67                               | 129                        | XL12D681MCZWPEC |
|                      |                  | 35×30              | 0.15             | 1.67                               | 129                        | XL12D681MCAWPEC |
|                      |                  | 25×50              | 0.15             | 1.94                               | 107                        | XL12D821MCYWPEC |
|                      | 820              | 30×40              | 0.15             | 1.92                               | 107                        | XL12D821MCZWPEC |
|                      |                  | 35×30              | 0.15             | 1.83                               | 107                        | XL12D821MCAWPEC |
| 30×45                |                  | 0.15               | 2.22             | 88                                 | XL12D102MCZWPEC            |                 |
| 1000                 | 35×35            | 0.15               | 2.15             | 88                                 | XL12D102MCAWPEC            |                 |
|                      | 30×50            | 0.15               | 2.53             | 73                                 | XL12D122MCZWPEC            |                 |
| 1200                 | 35×40            | 0.15               | 2.44             | 73                                 | XL12D122MCAWPEC            |                 |
|                      | 1500             | 35×45              | 0.15             | 2.85                               | 59                         | XL12D152MCAWPEC |

| Rated Voltage (V.DC) | Capacitance (µF) | Case size øDXL(mm) | tanδ 20°C, 120Hz | Ripple current (Arms) 105°C, 120Hz | ESR(typ.) 20°C, 100Hz (mΩ) | Product name    |
|----------------------|------------------|--------------------|------------------|------------------------------------|----------------------------|-----------------|
| 250                  | 150              | 22×25              | 0.15             | 0.62                               | 584                        | XL12E151MCXWPEC |
|                      |                  | 22×30              | 0.15             | 0.73                               | 487                        | XL12E181MCXWPEC |
|                      | 180              | 25×25              | 0.15             | 0.70                               | 487                        | XL12E181MCYWPEC |
|                      |                  | 22×35              | 0.15             | 0.86                               | 398                        | XL12E221MCXWPEC |
|                      | 220              | 25×30              | 0.15             | 0.83                               | 398                        | XL12E221MCYWPEC |
|                      |                  | 22×40              | 0.15             | 1.00                               | 325                        | XL12E271MCXWPEC |
|                      | 270              | 25×30              | 0.15             | 0.92                               | 325                        | XL12E271MCYWPEC |
|                      |                  | 22×45              | 0.15             | 1.16                               | 265                        | XL12E331MCXWPEC |
|                      | 330              | 25×35              | 0.15             | 1.07                               | 265                        | XL12E331MCYWPEC |
|                      |                  | 30×25              | 0.15             | 1.03                               | 265                        | XL12E331MCZWPEC |
|                      |                  | 22×50              | 0.15             | 1.32                               | 225                        | XL12E391MCXWPEC |
|                      | 390              | 25×40              | 0.15             | 1.23                               | 225                        | XL12E391MCYWPEC |
|                      |                  | 30×30              | 0.15             | 1.20                               | 225                        | XL12E391MCZWPEC |
|                      |                  | 25×45              | 0.15             | 1.42                               | 187                        | XL12E471MCYWPEC |
|                      | 470              | 30×35              | 0.15             | 1.39                               | 187                        | XL12E471MCZWPEC |
|                      |                  | 35×30              | 0.15             | 1.40                               | 187                        | XL12E471MCAWPEC |
|                      |                  | 25×50              | 0.15             | 1.62                               | 156                        | XL12E561MCYWPEC |
|                      | 560              | 30×40              | 0.15             | 1.58                               | 156                        | XL12E561MCZWPEC |
|                      |                  | 35×35              | 0.15             | 1.60                               | 156                        | XL12E561MCAWPEC |
|                      |                  | 30×45              | 0.15             | 1.83                               | 129                        | XL12E681MCZWPEC |
| 680                  | 35×40            | 0.15               | 1.85             | 129                                | XL12E681MCAWPEC            |                 |
|                      | 30×50            | 0.15               | 2.09             | 107                                | XL12E821MCZWPEC            |                 |
| 820                  | 35×45            | 0.15               | 2.11             | 107                                | XL12E821MCAWPEC            |                 |
|                      | 1000             | 35×50              | 0.15             | 2.43                               | 88                         | XL12E102MCAWPEC |

# SNAP MOUNT TYPE ALUMINUM ELECTROLYTIC CAPACITORS

ALUMINUM ELECTROLYTIC CAPACITORS

| Rated Voltage (V. DC) | Capacitance (μF) | Case size øDXL(mm) | tanδ 20°C,120Hz | Ripple current (Arms) 105°C,120Hz | ESR(typ.) 20°C,100Hz (mΩ) | Product name    |
|-----------------------|------------------|--------------------|-----------------|-----------------------------------|---------------------------|-----------------|
| 400                   | 56               | 22×25              | 0.25            | 0.37                              | 1650                      | XL12G560MCXWPEC |
|                       | 68               | 22×30              | 0.25            | 0.44                              | 1300                      | XL12G680MCXWPEC |
|                       | 82               | 22×35              | 0.25            | 0.51                              | 1126                      | XL12G820MCXWPEC |
|                       |                  | 25×25              | 0.25            | 0.47                              | 1126                      | XL12G820MCYWPEC |
|                       | 100              | 22×40              | 0.25            | 0.60                              | 924                       | XL12G101MCXWPEC |
|                       |                  | 25×30              | 0.25            | 0.55                              | 924                       | XL12G101MCYWPEC |
|                       | 120              | 22×45              | 0.25            | 0.70                              | 770                       | XL12G121MCXWPEC |
|                       |                  | 25×35              | 0.25            | 0.64                              | 770                       | XL12G121MCYWPEC |
|                       |                  | 30×25              | 0.25            | 0.62                              | 770                       | XL12G121MCZWPEC |
|                       | 150              | 22×50              | 0.25            | 0.82                              | 615                       | XL12G151MCXWPEC |
|                       |                  | 25×40              | 0.25            | 0.76                              | 615                       | XL12G151MCYWPEC |
|                       |                  | 30×30              | 0.25            | 0.74                              | 615                       | XL12G151MCZWPEC |
|                       | 180              | 35×25              | 0.25            | 0.75                              | 615                       | XL12G151MCAWPEC |
|                       |                  | 25×45              | 0.25            | 0.87                              | 520                       | XL12G181MCYWPEC |
|                       |                  | 30×35              | 0.25            | 0.85                              | 520                       | XL12G181MCZWPEC |
|                       | 220              | 35×30              | 0.25            | 0.86                              | 520                       | XL12G181MCAWPEC |
|                       |                  | 25×50              | 0.25            | 1.00                              | 434                       | XL12G221MCYWPEC |
|                       |                  | 30×40              | 0.25            | 0.99                              | 434                       | XL12G221MCZWPEC |
|                       | 270              | 35×30              | 0.25            | 0.94                              | 434                       | XL12G221MCAWPEC |
|                       |                  | 30×45              | 0.25            | 1.15                              | 354                       | XL12G271MCZWPEC |
| 35×35                 |                  | 0.25               | 1.11            | 354                               | XL12G271MCAWPEC           |                 |
| 330                   | 30×50            | 0.25               | 1.32            | 290                               | XL12G331MCZWPEC           |                 |
|                       | 35×40            | 0.25               | 1.28            | 290                               | XL12G331MCAWPEC           |                 |
| 390                   | 35×45            | 0.25               | 1.45            | 245                               | XL12G391MCAWPEC           |                 |
| 470                   | 35×50            | 0.25               | 1.66            | 203                               | XL12G471MCAWPEC           |                 |

| Rated Voltage (V. DC) | Capacitance (μF) | Case size øDXL(mm) | tanδ 20°C,120Hz | Ripple current (Arms) 105°C,120Hz | ESR(typ.) 20°C,100Hz (mΩ) | Product name    |
|-----------------------|------------------|--------------------|-----------------|-----------------------------------|---------------------------|-----------------|
| 450                   | 39               | 22×25              | 0.25            | 0.32                              | 2409                      | XL12W390MCXWPEC |
|                       |                  | 22×30              | 0.25            | 0.38                              | 1999                      | XL12W470MCXWPEC |
|                       | 47               | 25×25              | 0.25            | 0.36                              | 1999                      | XL12W470MCYWPEC |
|                       |                  | 22×35              | 0.25            | 0.43                              | 1678                      | XL12W560MCXWPEC |
|                       | 56               | 25×30              | 0.25            | 0.43                              | 1678                      | XL12W560MCYWPEC |
|                       |                  | 22×40              | 0.25            | 0.50                              | 1382                      | XL12W680MCXWPEC |
|                       | 68               | 25×30              | 0.25            | 0.46                              | 1382                      | XL12W680MCYWPEC |
|                       |                  | 22×40              | 0.25            | 0.55                              | 1146                      | XL12W820MCXWPEC |
|                       | 82               | 25×35              | 0.25            | 0.54                              | 1146                      | XL12W820MCYWPEC |
|                       |                  | 30×25              | 0.25            | 0.51                              | 1146                      | XL12W820MCZWPEC |
|                       |                  | 22×50              | 0.25            | 0.67                              | 939                       | XL12W101MCXWPEC |
|                       | 100              | 25×40              | 0.25            | 0.62                              | 939                       | XL12W101MCYWPEC |
|                       |                  | 30×30              | 0.25            | 0.60                              | 939                       | XL12W101MCZWPEC |
|                       |                  | 25×45              | 0.25            | 0.72                              | 783                       | XL12W121MCYWPEC |
|                       | 120              | 30×35              | 0.25            | 0.69                              | 783                       | XL12W121MCZWPEC |
|                       |                  | 35×30              | 0.25            | 0.70                              | 783                       | XL12W121MCAWPEC |
|                       |                  | 25×50              | 0.25            | 0.83                              | 626                       | XL12W151MCYWPEC |
|                       | 150              | 30×40              | 0.25            | 0.81                              | 626                       | XL12W151MCZWPEC |
|                       |                  | 35×30              | 0.25            | 0.78                              | 626                       | XL12W151MCAWPEC |
|                       |                  | 30×45              | 0.25            | 0.93                              | 522                       | XL12W181MCZWPEC |
|                       | 180              | 35×35              | 0.25            | 0.91                              | 522                       | XL12W181MCAWPEC |
|                       |                  | 30×50              | 0.25            | 1.07                              | 434                       | XL12W221MCZWPEC |
|                       | 220              | 35×40              | 0.25            | 1.05                              | 434                       | XL12W221MCAWPEC |
|                       |                  | 270                | 35×45           | 0.25                              | 1.21                      | 354             |

## Life time graph

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

