

# ALUMINUM ELECTROLYTIC CAPACITORS

# LQR

Screw Terminal Type,  
85°C High speed charge-discharge



- Suited for high frequency regenerative voltage for AC servomotor, general inverter.
- Suited for equipment used at voltage fluctuating area.
- Suited for rectifier circuit of voltage doubler
- Compliant to the RoHS directive (2011/65/EU, (EU)2015/863).

**LQR**

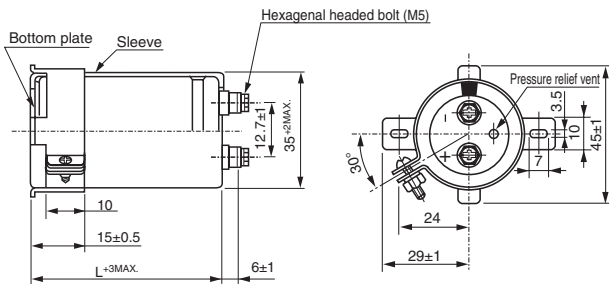
Hi speed charge-discharge  
**LNX**

## Specifications

| Item                                   | Performance Characteristics   |   |
|--|---|---|
| Category Temperature Range             | - 25 to +85°C   |   |
| Rated Voltage Range                    | 350 to 450V   |   |
| Rated Capacitance Range                | 680 to 15000μF  |   |
| Capacitance Tolerance                  | ±20% at 120Hz, 20°C   |   |
| Leakage Current                        | After 5 minutes' application of rated voltage, leakage current is not more than $3\sqrt{CV}$ (μA) or 5 mA, whichever is smaller (at 20°C).<br>[C: Rated Capacitance(μF), V: Voltage (V)]  |   |
| Tangent of loss angle (tan δ)          | See refer to next page (Measurement frequency : 120Hz at 20°C)  |   |
| Stability at Low Temperature           | Rated voltage (V)   | 350 to 450  |
|  | Impedance ratio ZT/Z20(MAX.)  | Z - 25°C / Z+20°C<br>8  |
| Endurance                              | The specifications listed at right shall be met when the capacitors are restored to 20°C after D.C. bias plus rated ripple current is applied for 5000 hours at 85°C, the peak voltage shall not exceed the rated voltage.        |   |
|  | Capacitance change  | Within ±20% of the initial capacitance value                    |
|  | tan δ   | 300% or less than the initial specified value                   |
| Shelf Life                             | After storing the capacitors under no load at 85°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the specified value for endurance characteristics listed above. |   |
|  | Leakage current   | Less than or equal to the initial specified value               |
| Endurance of charge-discharge behavior | After an application of charge-discharge voltage for 20million times (charge-discharge voltage difference(ΔV)=rated voltage × 0.3, cycle 3Hz) capacitors shall meet the characteristics requirement listed at right               |   |
|  | Capacitance change  | Within ±20% of the initial capacitance value                    |
|  | tan δ   | 300% or less than the initial specified value                   |
|  | Leakage current   | Less than or equal to the initial specified value               |
| Marking                                | Appearance  | There shall be found to remarkable abnormality on the capacitor |
|  | Printed with white color letter on darkbrown sleeve.  |   |

## Drawing

φ35 Screw terminal type



φ51 to 90 Screw terminal type



※ B  
3-leg brackets for φ90 capacitors have different hole shapes from the ordinary ones illustrated below.



Type numbering system (Example : 400V 1800μF)



※ Configuration  
Cr (iii) Plating (RoHS compliant)  
SE

Please refer to page 348 for schematic of dimensions.  
※Please contact to us if PVCless products are required.

● Dimension of terminal pitch (W) and length (ℓ) and Nominal dia. of bolt (mm)

| φD   | W    | ℓ | α | Nominal dia. of bolt |
|------|------|---|---|----------------------|
| 51   | 22.0 | 6 | 3 | M5                   |
| 63.5 | 28.6 | 6 | 3 | M5                   |
| 76.2 | 31.8 | 6 | 3 | M5                   |
| 90   | 31.8 | 6 | 3 | M5                   |

● Dimension of mounting bracket (mm)

| Symbol | Leg shape | 3-Leg |      |      |      | 2-Leg |      |      |      |
|--------|-----------|-------|------|------|------|-------|------|------|------|
|        |           | φD    | 51   | 63.5 | 76.2 | 90    | 51   | 63.5 | 76.2 |
| P      |           | 32.5  | 38.1 | 44.5 | 50.8 | 33.2  | 40.5 | 46.5 | 53   |
| A      |           | 38.5  | 43   | 49.2 | 58.5 | 40    | 46.5 | 53   | 59   |
| T      |           | 7.5   | 8.0  | 7.0  | 8.0  | 6.0   | 7.0  | 6.0  | 6.0  |
| S      |           | 5.0   | 5.0  | 5.0  | 5.0  | 4.5   | 4.5  | 4.5  | 4.5  |
| U      |           | 12    | 14   | 14   | 18   | 14    | 14   | 14   | 14   |
| θ°     |           | 60    | 60   | 60   | 60   | 30    | 30   | 30   | 30   |
| H      |           | 20    | 25   | 30   | 35   | 25    | 35   | 35   | 35   |
| h      |           | 15    | 20   | 24   | 25   | 15    | 20   | 20   | 20   |

● Dimension table in next page.

## LQR

### ■ Dimensions

| 350V (2V) |                 |                     |       |                      |              |
|-----------|-----------------|---------------------|-------|----------------------|--------------|
| Cap. (μF) | Size φD × L(mm) | Rated ripple (Arms) | tan δ | Leakage Current (mA) | Code         |
| 820       | 35 × 80         | 3.3                 | 0.15  | 1.60                 | LQR2V821MSEC |
| 1000      | 35 × 100        | 4.3                 | 0.15  | 1.77                 | LQR2V102MSEC |
| 1800      | 51 × 80         | 7.2                 | 0.15  | 2.38                 | LQR2V182MSEF |
| 2200      | 51 × 100        | 9.1                 | 0.15  | 2.63                 | LQR2V222MSEF |
| 2700      | 51 × 110        | 10.8                | 0.15  | 2.91                 | LQR2V272MSEF |
|           | 63.5 × 80       | 10.6                | 0.15  | 2.91                 | LQR2V272MSEG |
| 3300      | 51 × 130        | 12.4                | 0.15  | 3.22                 | LQR2V332MSEF |
|           | 63.5 × 90       | 11.9                | 0.15  | 3.22                 | LQR2V332MSEG |
| 3900      | 63.5 × 110      | 14.6                | 0.15  | 3.50                 | LQR2V392MSEG |
|           | 76.2 × 80       | 14.1                | 0.15  | 3.50                 | LQR2V392MSEH |
| 4700      | 51 × 170        | 17.0                | 0.15  | 3.84                 | LQR2V472MSEF |
|           | 76.2 × 90       | 16.4                | 0.15  | 3.84                 | LQR2V472MSEH |
| 5600      | 63.5 × 150      | 20.4                | 0.15  | 4.20                 | LQR2V562MSEG |
|           | 76.2 × 110      | 19.7                | 0.15  | 4.20                 | LQR2V562MSEH |
| 6800      | 63.5 × 170      | 23.5                | 0.15  | 4.62                 | LQR2V682MSEG |
|           | 76.2 × 130      | 22.9                | 0.15  | 4.62                 | LQR2V682MSEH |
|           | 90 × 100        | 22.5                | 0.15  | 4.62                 | LQR2V682MSEJ |
| 8200      | 63.5 × 190      | 27.1                | 0.15  | 5.00                 | LQR2V822MSEG |
|           | 76.2 × 150      | 26.4                | 0.15  | 5.00                 | LQR2V822MSEH |
| 10000     | 76.2 × 170      | 31.1                | 0.15  | 5.00                 | LQR2V103MSEH |
|           | 90 × 130        | 30.2                | 0.15  | 5.00                 | LQR2V103MSEJ |
| 12000     | 76.2 × 190      | 35.7                | 0.15  | 5.00                 | LQR2V123MSEH |
| 15000     | 90 × 190        | 40.5                | 0.15  | 5.00                 | LQR2V153MSEJ |

| 400V (2G) |                 |                     |       |                      |              |
|-----------|-----------------|---------------------|-------|----------------------|--------------|
| Cap. (μF) | Size φD × L(mm) | Rated ripple (Arms) | tan δ | Leakage Current (mA) | Code         |
| 680       | 35 × 80         | 3.2                 | 0.15  | 1.56                 | LQR2G681MSEC |
| 820       | 35 × 100        | 4.1                 | 0.15  | 1.71                 | LQR2G821MSEC |
| 1500      | 51 × 80         | 7.5                 | 0.15  | 2.32                 | LQR2G152MSEF |
| 1800      | 51 × 90         | 9.1                 | 0.15  | 2.54                 | LQR2G182MSEF |
| 2200      | 51 × 110        | 10.4                | 0.15  | 2.81                 | LQR2G222MSEF |
| 2700      | 63.5 × 90       | 11.5                | 0.15  | 3.11                 | LQR2G272MSEG |
| 3300      | 51 × 150        | 13.7                | 0.15  | 3.44                 | LQR2G332MSEF |
|           | 63.5 × 110      | 13.2                | 0.15  | 3.44                 | LQR2G332MSEG |
| 3900      | 63.5 × 130      | 16.0                | 0.15  | 3.74                 | LQR2G392MSEG |
|           | 76.2 × 90       | 15.3                | 0.15  | 3.74                 | LQR2G392MSEH |
| 4700      | 63.5 × 150      | 18.7                | 0.15  | 4.11                 | LQR2G472MSEG |
|           | 76.2 × 110      | 18.3                | 0.15  | 4.11                 | LQR2G472MSEH |
| 5600      | 63.5 × 170      | 22.0                | 0.15  | 4.49                 | LQR2G562MSEG |
|           | 76.2 × 130      | 21.4                | 0.15  | 4.49                 | LQR2G562MSEH |
| 6800      | 76.2 × 150      | 25.4                | 0.15  | 4.94                 | LQR2G682MSEH |
| 8200      | 76.2 × 170      | 28.6                | 0.15  | 5.00                 | LQR2G822MSEH |
|           | 90 × 130        | 27.8                | 0.15  | 5.00                 | LQR2G822MSEJ |
| 10000     | 90 × 150        | 32.7                | 0.15  | 5.00                 | LQR2G103MSEJ |
| 12000     | 90 × 170        | 37.6                | 0.15  | 5.00                 | LQR2G123MSEJ |
| 15000     | 90 × 220        | 43.0                | 0.15  | 5.00                 | LQR2G153MSEJ |

| 450V (2W) |                 |                     |       |                      |              |
|-----------|-----------------|---------------------|-------|----------------------|--------------|
| Cap. (μF) | Size φD × L(mm) | Rated ripple (Arms) | tan δ | Leakage Current (mA) | Code         |
| 680       | 35 × 100        | 3.5                 | 0.15  | 1.65                 | LQR2W681MSEC |
| 820       | 35 × 110        | 3.9                 | 0.15  | 1.82                 | LQR2W821MSEC |
| 1200      | 51 × 80         | 5.2                 | 0.15  | 2.20                 | LQR2W122MSEF |
| 1500      | 51 × 100        | 6.3                 | 0.15  | 2.46                 | LQR2W152MSEF |
| 1800      | 51 × 110        | 7.4                 | 0.15  | 2.70                 | LQR2W182MSEF |
|           | 63.5 × 80       | 7.9                 | 0.15  | 2.70                 | LQR2W182MSEG |
| 2200      | 51 × 130        | 8.7                 | 0.15  | 2.98                 | LQR2W222MSEF |
|           | 63.5 × 100      | 8.6                 | 0.15  | 2.98                 | LQR2W222MSEG |
| 2700      | 51 × 150        | 10.2                | 0.15  | 3.30                 | LQR2W272MSEF |
|           | 76.2 × 80       | 10.0                | 0.15  | 3.30                 | LQR2W272MSEH |
| 3300      | 63.5 × 130      | 12.4                | 0.15  | 3.65                 | LQR2W332MSEG |
|           | 76.2 × 100      | 11.8                | 0.15  | 3.65                 | LQR2W332MSEH |
| 3900      | 63.5 × 150      | 13.7                | 0.15  | 3.97                 | LQR2W392MSEG |
|           | 76.2 × 110      | 14.1                | 0.15  | 3.97                 | LQR2W392MSEH |
|           | 90 × 90         | 13.6                | 0.15  | 3.97                 | LQR2W392MSEJ |
| 4700      | 63.5 × 170      | 16.5                | 0.15  | 4.36                 | LQR2W472MSEG |
|           | 76.2 × 130      | 16.3                | 0.15  | 4.36                 | LQR2W472MSEH |
|           | 90 × 110        | 15.8                | 0.15  | 4.36                 | LQR2W472MSEJ |
| 5600      | 63.5 × 190      | 19.4                | 0.15  | 4.76                 | LQR2W562MSEG |
|           | 90 × 130        | 19.1                | 0.15  | 4.76                 | LQR2W562MSEJ |
| 6800      | 76.2 × 170      | 23.3                | 0.15  | 5.00                 | LQR2W682MSEH |
| 8200      | 90 × 150        | 26.1                | 0.15  | 5.00                 | LQR2W822MSEJ |
| 10000     | 90 × 190        | 31.3                | 0.15  | 5.00                 | LQR2W103MSEJ |
| 12000     | 90 × 220        | 35.5                | 0.15  | 5.00                 | LQR2W123MSEJ |

Rated ripple current (Arms) at 85°C 120Hz

### ● Frequency coefficient of rated ripple current

| Frequency (Hz) | 50   | 60   | 120  | 360  | 1k   | 10k or more |
|----------------|------|------|------|------|------|-------------|
| Coefficient    | 0.80 | 0.82 | 1.00 | 1.20 | 1.35 | 1.40        |