

ALUMINUM ELECTROLYTIC CAPACITORS



NX series

Screw Terminal Type, High ripple longer life.

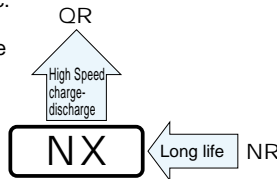


High Ripple Current



Long Life

- Suited for use in industrial power supplies for inverter circuitry, etc.
- High ripple current, extra-high voltage application.
- High reliability, long life for 20,000 hours application of rated ripple current at +85°C.
- Extended range up to $\phi 100 \times 250L$ size.
- Flame retardant electroly to type available.
- Bushing type for better vibration and insulation also available.
- Available for adapted to the RoHS directive (2002/95/EC).

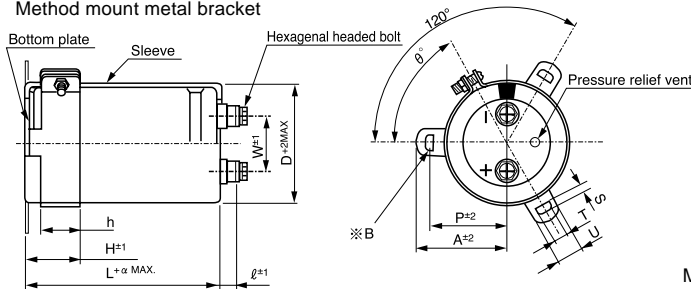


Specifications

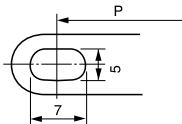
| Item | Performance Characteristics | |
|------------------------------|---|--|
| Category Temperature Range | - 25 ~ +85°C | |
| Rated Voltage Range | 350 ~ 630V | |
| Rated Capacitance Range | 1000 ~ 27000 μ F | |
| Capacitance Tolerance | $\pm 20\%$ at 120Hz, 20°C | |
| Leakage Current | After 5 minutes' application of rated voltage, leakage current is not more than $3\sqrt{CV}$ (μ A) or 5 mA, whichever is smaller (at 20°C). [C : Rated Capacitance(μ F), V : Voltage (V)] | |
| tan δ | See P225 (Measurement frequency : 120Hz, Temperature : 20°C) | |
| Stability at Low Temperature | Rated voltage (V) | 350 ~ 630 |
| | Impedance ratio $ZT/Z20$ (MAX.) | $Z - 25^\circ\text{C} / Z + 20^\circ\text{C}$ 8 |
| Endurance | After an application of DC voltage (in the range of rated voltage even after over-lapping the standard ripple current) for 20,000 hours at 85°C, capacitors shall meet the characteristics requirements indicated at right. (2000 hours at 85°C for the parts rated at 630V, 5000 hours at 85°C for the parts rated at 500V and 550V) | |
| | After an application of DC voltage (in the range of rated DC voltage even after over-lapping the maximum allowable ripple current) for 5000 hours at 85°C, capacitors meet the characteristic requirements listed at right. | |
| Shelf Life | Capacitance change | Within $\pm 20\%$ of initial value |
| | tan δ | 300% or less of initial specified value |
| | Leakage current | Initial specified value or less |
| Marking | Printed with white color letter on black sleeve. | |

Drawing

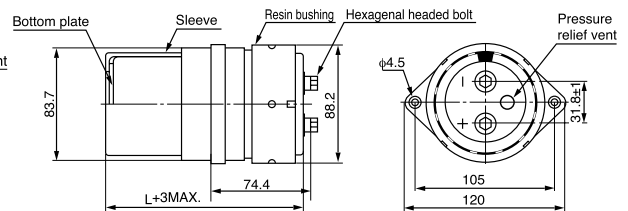
Method mount metal bracket



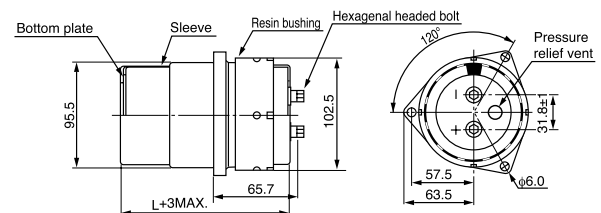
※ B
3-leg brackets for $\phi 90$ capacitors have different hole shapes from the ordinary ones illustrated below.



Method to mount resin bushing ($\phi 76.2$) (Apply to L=150 or more)



Method to mount resin bushing ($\phi 90$) (Apply to L=150 or more)



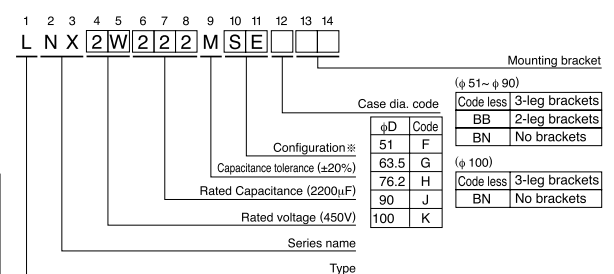
Dimension of terminal pitch (W) and length (ℓ) and Nominal dia. of bolt (mm)

| 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 |
| 100 | 41.5 | 10 | 4 | M8 |

Dimensions of mounting bracket (mm)

| Symbol | 3-Leg | | | | | 2-Leg | | | | |
|----------------|----------|------|------|------|------|-------|------|------|------|-----|
| | ϕD | 51 | 63.5 | 76.2 | 90 | 51 | 63.5 | 76.2 | 90 | |
| P | | 32.5 | 38.1 | 44.5 | 50.8 | 56.3 | 33.2 | 40.5 | 46.5 | 53 |
| A | | 38.5 | 43 | 49.2 | 58.5 | 62 | 40 | 46.5 | 53 | 59 |
| T | | 7.5 | 8.0 | 7.0 | 8.0 | 8.0 | 6.0 | 7.0 | 6.0 | 6.0 |
| S | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 4.5 | 4.5 | 4.5 | 4.5 |
| U | | 12 | 14 | 14 | 18 | 16 | 14 | 14 | 14 | 14 |
| θ° | | 60 | 60 | 60 | 60 | 60 | 30 | 30 | 30 | 30 |
| H | | 20 | 25 | 30 | 35 | 36 | 25 | 35 | 35 | 35 |
| h | | 15 | 20 | 24 | 25 | 30 | 15 | 20 | 20 | 20 |

Type numbering system (Example : 450V 2200 μ F)



| Configuration | |
|-----------------------------------|-----------------|
| Cr (III) Plating (RoHS compliant) | Cr (VI) Plating |
| SE | SM |

Resin bushing available upon request.

※ Please contact to us if PVC less products are required.

• Dimension table in next page.

CAT.8100V

ALUMINUM ELECTROLYTIC CAPACITORS



NX series

■ Dimensions

| V (Surge) (Code) | Cap.(μF) | Case size φ D×L(mm) | Standard ripple (Arms) ±1 | Rated ripple (Arms) ±2 | tan δ (MAX) | Leakage current (mA MAX) ±3 | Code |
|------------------|----------|---------------------|---------------------------|------------------------|-------------|-----------------------------|--------------|
| 350V (400) (2V) | 1000 | 51×60 | 3.5 | 4.6 | 0.2 | 1.77 | LNX2V102MSEF |
| | 1200 | 51×70 | 4.2 | 5.3 | 0.2 | 1.94 | LNX2V122MSEF |
| | 1500 | 51×80 | 4.9 | 6.3 | 0.2 | 2.17 | LNX2V152MSEF |
| | 1800 | 51×90 | 5.6 | 7.3 | 0.2 | 2.38 | LNX2V182MSEF |
| | 2200 | 51×110 | 6.7 | 8.8 | 0.2 | 2.63 | LNX2V222MSEF |
| | 2700 | 51×130 | 8.0 | 10.3 | 0.2 | 2.92 | LNX2V272MSEF |
| | | 63.5×90 | 7.7 | 9.9 | 0.2 | 2.92 | LNX2V272MSEG |
| | 3300 | 51×150 | 9.2 | 12.1 | 0.2 | 3.22 | LNX2V332MSEF |
| | | 63.5×100 | 9.0 | 11.8 | 0.2 | 3.22 | LNX2V332MSEG |
| | 3900 | 63.5×110 | 10.4 | 12.5 | 0.2 | 3.50 | LNX2V392MSEF |
| | | 76.2×90 | 10.3 | 12.2 | 0.2 | 3.50 | LNX2V392MSEG |
| | 4700 | 63.5×130 | 12.0 | 14.8 | 0.2 | 3.85 | LNX2V472MSEF |
| | | 76.2×100 | 11.9 | 14.0 | 0.2 | 3.85 | LNX2V472MSEG |
| | 5600 | 63.5×150 | 14.0 | 17.0 | 0.2 | 4.20 | LNX2V562MSEF |
| | | 76.2×110 | 13.5 | 16.4 | 0.2 | 4.20 | LNX2V562MSEG |
| | 6800 | 63.5×170 | 16.3 | 19.6 | 0.2 | 4.63 | LNX2V682MSEF |
| | | 76.2×130 | 16.0 | 19.1 | 0.2 | 4.63 | LNX2V682MSEG |
| | 8200 | 76.2×150 | 18.7 | 22.0 | 0.2 | 5.00 | LNX2V822MSEF |
| | | 90×130 | 18.2 | 21.4 | 0.2 | 5.00 | LNX2V822MSEG |
| | 10000 | 76.2×170 | 21.8 | 25.5 | 0.2 | 5.00 | LNX2V103MSEF |
| | | 90×150 | 21.3 | 25.3 | 0.2 | 5.00 | LNX2V103MSEG |
| | 12000 | 76.2×190 | 25.1 | 29.1 | 0.2 | 5.00 | LNX2V123MSEF |
| 90×150 | | 24.8 | 28.8 | 0.2 | 5.00 | LNX2V123MSEG | |
| 15000 | 90×190 | 29.0 | 36.0 | 0.2 | 5.00 | LNX2V153MSEF | |
| 18000 | 90×220 | 32.4 | 39.7 | 0.2 | 5.00 | LNX2V183MSEF | |
| 22000 | 100×220 | 38.0 | 43.2 | 0.2 | 5.00 | LNX2V223MSEF | |
| 27000 | 100×250 | 42.0 | 47.0 | 0.2 | 5.00 | LNX2V273MSEF | |
| 400V (450) (2G) | 1000 | 51×70 | 3.8 | 5.0 | 0.2 | 1.90 | LNX2G102MSEF |
| | 1200 | 51×80 | 4.5 | 5.8 | 0.2 | 2.08 | LNX2G122MSEF |
| | 1500 | 51×100 | 5.3 | 6.8 | 0.2 | 2.32 | LNX2G152MSEF |
| | 1800 | 51×110 | 6.0 | 8.2 | 0.2 | 2.55 | LNX2G182MSEF |
| | 2200 | 51×130 | 7.0 | 9.3 | 0.2 | 2.81 | LNX2G222MSEF |
| | | 63.5×90 | 6.8 | 8.9 | 0.2 | 2.81 | LNX2G222MSEG |
| | 2700 | 63.5×110 | 8.2 | 10.8 | 0.2 | 3.12 | LNX2G272MSEF |
| | | 76.2×90 | 8.1 | 10.6 | 0.2 | 3.12 | LNX2G272MSEG |
| | 3300 | 63.5×130 | 9.6 | 12.9 | 0.2 | 3.45 | LNX2G332MSEF |
| | | 76.2×100 | 9.3 | 12.4 | 0.2 | 3.45 | LNX2G332MSEG |
| | 3900 | 63.5×150 | 11.0 | 14.4 | 0.2 | 3.75 | LNX2G392MSEF |
| | | 76.2×100 | 10.5 | 13.9 | 0.2 | 3.75 | LNX2G392MSEG |
| | 4700 | 63.5×170 | 12.6 | 16.6 | 0.2 | 4.11 | LNX2G472MSEF |
| | | 76.2×130 | 12.3 | 16.0 | 0.2 | 4.11 | LNX2G472MSEG |
| | 5600 | 63.5×190 | 14.7 | 18.8 | 0.2 | 4.49 | LNX2G562MSEF |
| | | 76.2×150 | 14.3 | 18.3 | 0.2 | 4.49 | LNX2G562MSEG |
| | 6800 | 76.2×170 | 16.7 | 21.2 | 0.2 | 4.95 | LNX2G682MSEF |
| | | 90×130 | 16.3 | 20.7 | 0.2 | 4.95 | LNX2G682MSEG |
| | 8200 | 76.2×190 | 19.3 | 24.1 | 0.2 | 5.00 | LNX2G822MSEF |
| | | 90×150 | 19.0 | 23.7 | 0.2 | 5.00 | LNX2G822MSEG |
| | 10000 | 76.2×220 | 22.7 | 28.3 | 0.2 | 5.00 | LNX2G103MSEF |
| | | 90×170 | 22.2 | 28.0 | 0.2 | 5.00 | LNX2G103MSEG |
| 12000 | 90×190 | 25.5 | 31.9 | 0.2 | 5.00 | LNX2G123MSEF | |
| 15000 | 100×190 | 29.6 | 37.0 | 0.2 | 5.00 | LNX2G153MSEF | |
| 18000 | 100×220 | 33.0 | 40.5 | 0.2 | 5.00 | LNX2G183MSEF | |
| 22000 | 100×250 | 41.4 | 44.7 | 0.2 | 5.00 | LNX2G223MSEF | |

● Frequency coefficient of rated ripple current

| Frequency (Hz) | 60 | 120 | 360 | 1k | 10k~ |
|----------------|------|------|------|------|------|
| Coefficient | 0.82 | 1.00 | 1.20 | 1.35 | 1.40 |

- (※ 1) • Standard ripple current:
Ripple current value allowable for the life time of 20,000 hours at 85°C.
(5,000 hours at 85°C for the voltage rating of 500V and 550V, 2,000 hours at 85°C for the voltage rating of 630V)
- (※ 2) • Maximum rated ripple current:
Ripple current value allowable for the life time of 5,000 hours at 85°C.
• Estimated life time of capacitor is calculated by the following formula, taking the operating temperature, inner temperature rise due to the ripple and derated voltage into consideration.

$$L_n = L_0 \times 2^{\frac{85-T}{10}} \times 2^{-\frac{\Delta T}{K}} \times \alpha$$

Where,
 L_n : Lifetime under normal operating conditions.(h)
 L_0 : Lifetime under maximum operating temperature of 85°C and applied DC voltage. (28000h)
 T : Ambient temperature.(°C)
 ΔT : Inner temperature rise of capacitor due to ripple current(°C)
 K : Acceleration coefficient for temperature rise due to the ripple current.
 when $T+\Delta T \leq 90^\circ\text{C}$, $K=10$
 when $T+\Delta T > 90^\circ\text{C}$, $K=2.5$
 α : Life factor

• Life factor α due to the voltage derating shall be decided by the temperature and the applied voltage

| Oper. temp. | $T \leq 70^\circ\text{C}$ | $70^\circ\text{C} < T \leq 85^\circ\text{C}$ | | |
|---------------|---------------------------|--|------------------------|------------------------|
| Voltage ratio | — | $V/V_0 \leq 0.8$ | $0.8 < V/V_0 \leq 0.9$ | $0.9 < V/V_0 \leq 1.0$ |
| α | 1.0 | 1.0 | 0.8 | 0.7 |

V : Applied voltage(V) V_0 : Rated voltage(V)

| V (Surge) (Code) | Cap.(μF) | Case size φ D×L(mm) | Standard ripple (Arms) ±1 | Rated ripple (Arms) ±2 | tan δ (MAX) | Leakage current (mA MAX) ±3 | Code |
|------------------|----------|---------------------|---------------------------|------------------------|-------------|-----------------------------|--------------|
| 450V (500) (2W) | 1000 | 51×80 | 4.0 | 5.2 | 0.2 | 2.01 | LNX2W102MSEF |
| | 1200 | 51×100 | 4.7 | 6.3 | 0.2 | 2.20 | LNX2W122MSEF |
| | 1500 | 51×110 | 5.4 | 7.3 | 0.2 | 2.46 | LNX2W152MSEF |
| | | 51×130 | 6.4 | 8.7 | 0.2 | 2.70 | LNX2W182MSEF |
| | 1800 | 63.5×90 | 6.1 | 7.6 | 0.2 | 2.70 | LNX2W182MSEG |
| | | 63.5×110 | 7.2 | 9.6 | 0.2 | 2.98 | LNX2W222MSEG |
| | | 76.2×90 | 7.1 | 9.4 | 0.2 | 2.98 | LNX2W222MSEF |
| | 2700 | 63.5×130 | 8.6 | 11.3 | 0.2 | 3.31 | LNX2W272MSEF |
| | | 76.2×100 | 8.3 | 11.0 | 0.2 | 3.31 | LNX2W272MSEG |
| | 3300 | 63.5×150 | 10.0 | 13.3 | 0.2 | 3.66 | LNX2W332MSEF |
| | | 76.2×110 | 9.7 | 12.9 | 0.2 | 3.66 | LNX2W332MSEG |
| | 3900 | 63.5×170 | 11.4 | 15.1 | 0.2 | 3.97 | LNX2W392MSEF |
| | | 76.2×130 | 11.2 | 14.6 | 0.2 | 3.97 | LNX2W392MSEG |
| | 4700 | 63.5×190 | 13.0 | 17.3 | 0.2 | 4.36 | LNX2W472MSEF |
| | | 76.2×150 | 12.9 | 16.9 | 0.2 | 4.36 | LNX2W472MSEG |
| | 5600 | 76.2×170 | 15.4 | 19.4 | 0.2 | 4.76 | LNX2W562MSEF |
| | | 90×150 | 15.3 | 19.1 | 0.2 | 4.76 | LNX2W562MSEG |
| | 6800 | 76.2×190 | 17.3 | 22.0 | 0.2 | 5.00 | LNX2W682MSEF |
| | | 90×150 | 17.1 | 21.6 | 0.2 | 5.00 | LNX2W682MSEG |
| | 8200 | 76.2×220 | 20.3 | 25.7 | 0.2 | 5.00 | LNX2W822MSEF |
| | | 90×170 | 19.8 | 25.4 | 0.2 | 5.00 | LNX2W822MSEG |
| | 10000 | 90×190 | 23.0 | 29.6 | 0.2 | 5.00 | LNX2W103MSEF |
| 12000 | 90×220 | 26.9 | 33.5 | 0.2 | 5.00 | LNX2W123MSEF | |
| 15000 | 100×220 | 31.1 | 38.0 | 0.2 | 5.00 | LNX2W153MSEF | |
| 18000 | 100×250 | 37.0 | 41.3 | 0.2 | 5.00 | LNX2W183MSEF | |
| 500V (550) (2H) | 1000 | 51×110 | 4.2 | — | 0.2 | 2.12 | LNX2H102MSEF |
| | 1200 | 63.5×90 | 4.8 | — | 0.2 | 2.32 | LNX2H122MSEG |
| | 1500 | 63.5×90 | 5.5 | — | 0.2 | 2.60 | LNX2H152MSEF |
| | 1800 | 63.5×110 | 6.5 | — | 0.2 | 2.85 | LNX2H182MSEG |
| | 2200 | 63.5×130 | 7.7 | — | 0.2 | 3.15 | LNX2H222MSEG |
| | 2700 | 76.2×110 | 8.8 | — | 0.2 | 3.49 | LNX2H272MSEF |
| | 3300 | 76.2×130 | 10.4 | — | 0.2 | 3.85 | LNX2H332MSEF |
| | 3900 | 76.2×150 | 12.1 | — | 0.2 | 4.19 | LNX2H392MSEF |
| | 4700 | 90×130 | 13.7 | — | 0.2 | 4.60 | LNX2H472MSEF |
| | 5600 | 90×150 | 15.9 | — | 0.2 | 5.00 | LNX2H562MSEF |
| | 6800 | 90×170 | 18.5 | — | 0.2 | 5.00 | LNX2H682MSEF |
| | 8200 | 90×190 | 21.4 | — | 0.2 | 5.00 | LNX2H822MSEF |
| 10000 | 100×190 | 23.8 | — | 0.2 | 5.00 | LNX2H103MSEF | |
| 12000 | 100×220 | 27.8 | — | 0.2 | 5.00 | LNX2H123MSEF | |
| 550V (600) (2L) | 1000 | 51×130 | 4.3 | — | 0.2 | 2.22 | LNX2L102MSEF |
| | 1200 | 63.5×110 | 5.0 | — | 0.2 | 2.44 | LNX2L122MSEG |
| | 1500 | 63.5×130 | 6.0 | — | 0.2 | 2.72 | LNX2L152MSEG |
| | 1800 | 76.2×110 | 6.7 | — | 0.2 | 2.98 | LNX2L182MSEF |
| | 2200 | 76.2×130 | 8.0 | — | 0.2 | 3.30 | LNX2L222MSEF |
| | 2700 | 76.2×150 | 9.4 | — | 0.2 | 3.66 | LNX2L272MSEF |
| | 3300 | 76.2×170 | 11.0 | — | 0.2 | 4.04 | LNX2L332MSEF |
| | 3900 | 90×150 | 12.5 | — | 0.2 | 4.39 | LNX2L392MSEF |
| | 4700 | 90×170 | 14.5 | — | 0.2 | 4.82 | LNX2L472MSEF |
| | 5600 | 90×190 | 16.6 | — | 0.2 | 5.00 | LNX2L562MSEF |
| | 6800 | 90×220 | 19.5 | — | 0.2 | 5.00 | LNX2L682MSEF |
| | 8200 | 100×220 | 21.6 | — | 0.2 | 5.00 | LNX2L822MSEF |
| 10000 | 100×250 | 25.2 | — | 0.2 | 5.00 | LNX2L103MSEF | |
| 630V (680) (2J) | 1000 | 63.5×130 | 5.9 | — | 0.3 | 2.38 | LNX2J102MSEG |
| | 1200 | 76.2×110 | 6.7 | — | 0.3 | 2.61 | LNX2J122MSEF |
| | 1500 | 76.2×130 | 8.1 | — | 0.3 | 2.92 | LNX2J152MSEF |
| | 1800 | 76.2×150 | 9.6 | — | 0.3 | 3.19 | LNX2J182MSEF |
| | 2200 | 90×130 | 10.7 | — | 0.3 | 3.53 | LNX2J222MSEF |
| | 2700 | 90×150 | 12.6 | — | 0.3 | 3.91 | LNX2J272MSEF |
| | 3300 | 90×170 | 14.7 | — | 0.3 | 4.33 | LNX2J332MSEF |
| | 3900 | 90×190 | 17.3 | — | 0.3 | 4.70 | LNX2J392MSEF |
| | 4700 | 100×220 | 21.4 | — | 0.3 | 5.00 | LNX2J472MSEF |
| | 5600 | 100×250 | 24.7 | — | 0.3 | 5.00 | LNX2J562MSEF |

Ripple (Arms) at 85°C 120Hz

- (※ 3) Leakage current: $I = 3\sqrt{CV} \times 10^{-3}$ or 5mA, whichever the smaller.

I : Leakage Current (mA)
 C : Rated Capacitance (μF)
 V : Voltage (V)

• 3-leg bracket is furnished as standard.
 In case no-bracket or 2-leg bracket required, please put BN or BB at the end of type number.

Ex. 3-leg bracket LNX2G472MSEH
 2-leg bracket LNX2G472MSEHBB
 No bracket LNX2G472MSEHBN

• Flame-retardant type electrolyte is also available.
 Please contact to Nichicon representative for the rated ripple current value.