nichicon

# LNX

Screw Terminal Type, 85°C
High ripple longer life.

HR High Ripple Current
L 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 φ100 × 250L size.
- Flame retardant electroly to type available.
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).

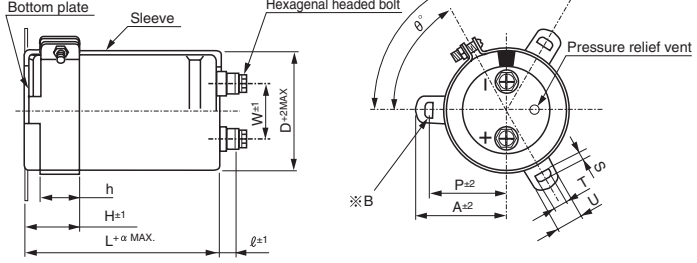
LQR
High Speed charge-discharge
LNX
Long life
LNY

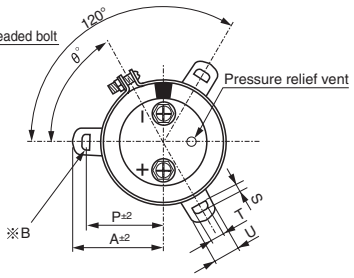
## Specifications

| Item | Performance Characteristics |
|---|---|
| Category Temperature Range | – 25 to +85°C |
| Rated Voltage Range | 350 to 630V |
| Rated Capacitance Range | 1000 to 27000μF |
| 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). [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 630; Impedance ratio ZT/Z20(MAX.): Z – 25°C / Z+20°C: 8. Measurement frequency : 120Hz |
| Endurance | The specifications listed at right shall be met when the capacitors are restored to 20°C after the standard ripple current is applied for 20000 hours at 85°C, the peak voltage shall not exceed the rated voltage.(2000 hours at 85°C for the parts rated at 630V, 5000 hours at 85°C for the parts rated at 500V and 550V) 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; Leakage current: Less than or equal to 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 values for the endurance characteristics listed above. |
| Marking | Printed with white color letter on black sleeve. |

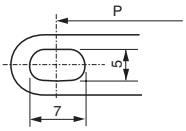
## Drawing

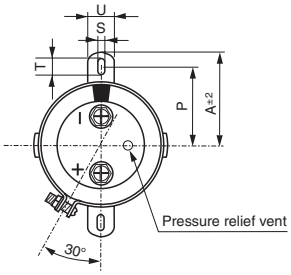
Method mount metal bracket




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




## Type numbering system (Example : 450V 2200μF)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | N | X | 2 | W | 2 | 2 | 2 | M | S | E | | | |

Mounting bracket
(φ 51 to φ 90)

| Code less | 3-leg brackets |
|---|---|
| BB | 2-leg brackets |
| BN | No brackets |

(φ 100)

| Code less | 3-leg brackets |
|---|---|
| BN | No brackets |

Case dia. code

| φD | Code |
|---|---|
| 51 | F |
| 63.5 | G |
| 76.2 | H |
| 90 | J |
| 100 | K |

Configuration※
Capacitance tolerance (±20%)
Rated Capacitance (2200μF)
Rated voltage (450V)
Series name
Type

※ 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 |
| 100 | 41.5 | 10 | 4 | M8 |

● Dimensions of mounting bracket (mm)

| Leg shape / Symbol \ φD | 3–Leg | | | | | 2–Leg | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 51 | 63.5 | 76.2 | 90 | 100 | 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 |

● Dimension table in next page.

# LNX

■Dimensions

| 350V (2V) | | | | | | |
|---|---|---|---|---|---|---|
| Cap. (μF) | Size φD x L(mm) | Standard ripple (Arms) *1 | Rated ripple (Arms) *2 | tan δ | Leakage Current (mA) | Code |
| 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 | 2.91 | LNX2V272MSEF |
| | 63.5 × 90 | 7.7 | 9.9 | 0.2 | 2.91 | 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 | LNX2V392MSEG |
| | 76.2 × 90 | 10.3 | 12.2 | 0.2 | 3.50 | LNX2V392MSEH |
| 4700 | 63.5 × 130 | 12.0 | 14.8 | 0.2 | 3.84 | LNX2V472MSEG |
| | 76.2 × 100 | 11.9 | 14.0 | 0.2 | 3.84 | LNX2V472MSEH |
| 5600 | 63.5 × 150 | 14.0 | 17.0 | 0.2 | 4.20 | LNX2V562MSEG |
| | 76.2 × 110 | 13.5 | 16.4 | 0.2 | 4.20 | LNX2V562MSEH |
| 6800 | 63.5 × 170 | 16.3 | 19.6 | 0.2 | 4.62 | LNX2V682MSEG |
| | 76.2 × 130 | 16.0 | 19.1 | 0.2 | 4.62 | LNX2V682MSEH |
| 8200 | 76.2 × 150 | 18.7 | 22.0 | 0.2 | 5.00 | LNX2V822MSEH |
| | 90 × 130 | 18.2 | 21.4 | 0.2 | 5.00 | LNX2V822MSEJ |
| 10000 | 76.2 × 170 | 21.8 | 25.5 | 0.2 | 5.00 | LNX2V103MSEH |
| | 90 × 150 | 21.3 | 25.3 | 0.2 | 5.00 | LNX2V103MSEJ |
| 12000 | 76.2 × 190 | 25.1 | 29.1 | 0.2 | 5.00 | LNX2V123MSEH |
| | 90 × 150 | 24.8 | 28.8 | 0.2 | 5.00 | LNX2V123MSEJ |
| 15000 | 90 × 190 | 29.0 | 36.0 | 0.2 | 5.00 | LNX2V153MSEJ |
| 18000 | 90 × 220 | 32.4 | 39.7 | 0.2 | 5.00 | LNX2V183MSEJ |
| 22000 | 100 × 220 | 38.0 | 43.2 | 0.2 | 5.00 | LNX2V223MSEK |
| 27000 | 100 × 250 | 42.0 | 47.0 | 0.2 | 5.00 | LNX2V273MSEK |

| 400V (2G) | | | | | | |
|---|---|---|---|---|---|---|
| Cap. (μF) | Size φD x L(mm) | Standard ripple (Arms) *1 | Rated ripple (Arms) *2 | tan δ | Leakage Current (mA) | Code |
| 1000 | 51 × 70 | 3.8 | 5.0 | 0.2 | 1.89 | LNX2G102MSEF |
| 1200 | 51 × 80 | 4.5 | 5.8 | 0.2 | 2.07 | LNX2G122MSEF |
| 1500 | 51 × 100 | 5.3 | 6.8 | 0.2 | 2.32 | LNX2G152MSEF |
| 1800 | 51 × 110 | 6.0 | 8.2 | 0.2 | 2.54 | 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 | 3.11 | LNX2G272MSEG |
| | 76.2 × 90 | 8.1 | 10.6 | 0.2 | 3.11 | LNX2G272MSEH |
| 3300 | 63.5 × 130 | 9.6 | 12.9 | 0.2 | 3.44 | LNX2G332MSEG |
| | 76.2 × 100 | 9.3 | 12.4 | 0.2 | 3.44 | LNX2G332MSEH |
| 3900 | 63.5 × 150 | 11.0 | 14.4 | 0.2 | 3.74 | LNX2G392MSEG |
| | 76.2 × 100 | 10.5 | 13.9 | 0.2 | 3.74 | LNX2G392MSEH |
| 4700 | 63.5 × 170 | 12.6 | 16.6 | 0.2 | 4.11 | LNX2G472MSEG |
| | 76.2 × 130 | 12.3 | 16.0 | 0.2 | 4.11 | LNX2G472MSEH |
| 5600 | 63.5 × 190 | 14.7 | 18.8 | 0.2 | 4.49 | LNX2G562MSEG |
| | 76.2 × 150 | 14.3 | 18.3 | 0.2 | 4.49 | LNX2G562MSEH |
| 6800 | 76.2 × 170 | 16.7 | 21.2 | 0.2 | 4.94 | LNX2G682MSEH |
| | 90 × 130 | 16.3 | 20.7 | 0.2 | 4.94 | LNX2G682MSEJ |
| 8200 | 76.2 × 190 | 19.3 | 24.1 | 0.2 | 5.00 | LNX2G822MSEH |
| | 90 × 150 | 19.0 | 23.7 | 0.2 | 5.00 | LNX2G822MSEJ |
| 10000 | 76.2 × 220 | 22.7 | 28.3 | 0.2 | 5.00 | LNX2G103MSEH |
| | 90 × 170 | 22.2 | 28.0 | 0.2 | 5.00 | LNX2G103MSEJ |
| 12000 | 90 × 190 | 25.5 | 31.9 | 0.2 | 5.00 | LNX2G123MSEJ |
| 15000 | 100 × 190 | 29.6 | 37.0 | 0.2 | 5.00 | LNX2G153MSEK |
| 18000 | 100 × 220 | 33.0 | 40.5 | 0.2 | 5.00 | LNX2G183MSEK |
| 22000 | 100 × 250 | 41.4 | 44.7 | 0.2 | 5.00 | LNX2G223MSEK |

| 450V (2W) | | | | | | |
|---|---|---|---|---|---|---|
| Cap. (μF) | Size φD x L(mm) | Standard ripple (Arms) *1 | Rated ripple (Arms) *2 | tan δ | Leakage Current (mA) | Code |
| 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 |
| 1800 | 51 × 130 | 6.4 | 8.7 | 0.2 | 2.70 | LNX2W182MSEF |
| | 63.5 × 90 | 6.1 | 7.6 | 0.2 | 2.70 | LNX2W182MSEG |
| 2200 | 63.5 × 110 | 7.2 | 9.6 | 0.2 | 2.98 | LNX2W222MSEG |
| | 76.2 × 90 | 7.1 | 9.4 | 0.2 | 2.98 | LNX2W222MSEH |
| 2700 | 63.5 × 130 | 8.6 | 11.3 | 0.2 | 3.30 | LNX2W272MSEG |
| | 76.2 × 100 | 8.3 | 11.0 | 0.2 | 3.30 | LNX2W272MSEH |
| 3300 | 63.5 × 150 | 10.0 | 13.3 | 0.2 | 3.65 | LNX2W332MSEG |
| | 76.2 × 110 | 9.7 | 12.9 | 0.2 | 3.65 | LNX2W332MSEH |
| 3900 | 63.5 × 170 | 11.4 | 15.1 | 0.2 | 3.97 | LNX2W392MSEG |
| | 76.2 × 130 | 11.2 | 14.6 | 0.2 | 3.97 | LNX2W392MSEH |
| 4700 | 63.5 × 190 | 13.0 | 17.3 | 0.2 | 4.36 | LNX2W472MSEG |
| | 76.2 × 150 | 12.9 | 16.9 | 0.2 | 4.36 | LNX2W472MSEH |
| 5600 | 76.2 × 170 | 15.4 | 19.4 | 0.2 | 4.76 | LNX2W562MSEH |
| | 90 × 150 | 15.3 | 19.1 | 0.2 | 4.76 | LNX2W562MSEJ |
| 6800 | 76.2 × 190 | 17.3 | 22.0 | 0.2 | 5.00 | LNX2W682MSEH |
| | 90 × 150 | 17.1 | 21.6 | 0.2 | 5.00 | LNX2W682MSEJ |
| 8200 | 76.2 × 220 | 20.3 | 25.7 | 0.2 | 5.00 | LNX2W822MSEH |
| | 90 × 170 | 19.8 | 25.4 | 0.2 | 5.00 | LNX2W822MSEJ |
| 10000 | 90 × 190 | 23.0 | 29.6 | 0.2 | 5.00 | LNX2W103MSEJ |
| 12000 | 90 × 220 | 26.9 | 33.5 | 0.2 | 5.00 | LNX2W123MSEJ |
| 15000 | 100 × 220 | 31.1 | 38.0 | 0.2 | 5.00 | LNX2W153MSEK |
| 18000 | 100 × 250 | 37.0 | 41.3 | 0.2 | 5.00 | LNX2W183MSEK |

| 500V (2H) | | | | | | |
|---|---|---|---|---|---|---|
| Cap. (μF) | Size φD x L(mm) | Standard ripple (Arms) *1 | Rated ripple (Arms) *2 | tan δ | Leakage Current (mA) | Code |
| 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 | 2.59 | LNX2H152MSEG |
| 1800 | 63.5 × 110 | 6.5 | – | 0.2 | 2.84 | LNX2H182MSEG |
| 2200 | 63.5 × 130 | 7.7 | – | 0.2 | 3.14 | LNX2H222MSEG |
| 2700 | 76.2 × 110 | 8.8 | – | 0.2 | 3.48 | LNX2H272MSEH |
| 3300 | 76.2 × 130 | 10.4 | – | 0.2 | 3.85 | LNX2H332MSEH |
| 3900 | 76.2 × 150 | 12.1 | – | 0.2 | 4.18 | LNX2H392MSEH |
| 4700 | 90 × 130 | 13.7 | – | 0.2 | 4.59 | LNX2H472MSEJ |
| 5600 | 90 × 150 | 15.9 | – | 0.2 | 5.00 | LNX2H562MSEJ |
| 6800 | 90 × 170 | 18.5 | – | 0.2 | 5.00 | LNX2H682MSEJ |
| 8200 | 90 × 190 | 21.4 | – | 0.2 | 5.00 | LNX2H822MSEJ |
| 10000 | 100 × 190 | 23.8 | – | 0.2 | 5.00 | LNX2H103MSEK |
| 12000 | 100 × 220 | 27.8 | – | 0.2 | 5.00 | LNX2H123MSEK |

Ripple current (Arms) at 85°C 120Hz

# LNX

## ■Dimensions

| 550V (2L) | | | | | | |
|---|---|---|---|---|---|---|
| Cap. (μF) | Size φD × L(mm) | Standard ripple (Arms) ※1 | Rated ripple (Arms) ※2 | tan δ | Leakage Current (mA) | Code |
| 1000 | 51 × 130 | 4.3 | – | 0.2 | 2.22 | LNX2L102MSEF |
| 1200 | 63.5 × 110 | 5.0 | – | 0.2 | 2.43 | LNX2L122MSEG |
| 1500 | 63.5 × 130 | 6.0 | – | 0.2 | 2.72 | LNX2L152MSEG |
| 1800 | 76.2 × 110 | 6.7 | – | 0.2 | 2.98 | LNX2L182MSEH |
| 2200 | 76.2 × 130 | 8.0 | – | 0.2 | 3.30 | LNX2L222MSEH |
| 2700 | 76.2 × 150 | 9.4 | – | 0.2 | 3.65 | LNX2L272MSEH |
| 3300 | 76.2 × 170 | 11.0 | – | 0.2 | 4.04 | LNX2L332MSEH |
| 3900 | 90 × 150 | 12.5 | – | 0.2 | 4.39 | LNX2L392MSEJ |
| 4700 | 90 × 170 | 14.5 | – | 0.2 | 4.82 | LNX2L472MSEJ |
| 5600 | 90 × 190 | 16.6 | – | 0.2 | 5.00 | LNX2L562MSEJ |
| 6800 | 90 × 220 | 19.5 | – | 0.2 | 5.00 | LNX2L682MSEJ |
| 8200 | 100 × 220 | 21.6 | – | 0.2 | 5.00 | LNX2L822MSEK |
| 10000 | 100 × 250 | 25.2 | – | 0.2 | 5.00 | LNX2L103MSEK |

| 630V(2J) | | | | | | |
|---|---|---|---|---|---|---|
| Cap. (μF) | Size φD × L(mm) | Standard ripple (Arms) ※1 | Rated ripple (Arms) ※2 | tan δ | Leakage Current (mA) | Code |
| 1000 | 63.5 × 130 | 5.9 | – | 0.3 | 2.38 | LNX2J102MSEG |
| 1200 | 76.2 × 110 | 6.7 | – | 0.3 | 2.60 | LNX2J122MSEH |
| 1500 | 76.2 × 130 | 8.1 | – | 0.3 | 2.91 | LNX2J152MSEH |
| 1800 | 76.2 × 150 | 9.6 | – | 0.3 | 3.19 | LNX2J182MSEH |
| 2200 | 90 × 130 | 10.7 | – | 0.3 | 3.53 | LNX2J222MSEJ |
| 2700 | 90 × 150 | 12.6 | – | 0.3 | 3.91 | LNX2J272MSEJ |
| 3300 | 90 × 170 | 14.7 | – | 0.3 | 4.32 | LNX2J332MSEJ |
| 3900 | 90 × 190 | 17.3 | – | 0.3 | 4.70 | LNX2J392MSEJ |
| 4700 | 100 × 220 | 21.4 | – | 0.3 | 5.00 | LNX2J472MSEK |
| 5600 | 100 × 250 | 24.7 | – | 0.3 | 5.00 | LNX2J562MSEK |

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 |

(※ 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.

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

# OCEAN CHIPS
## Океан Электроники
## Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».

AVIC JONHON

**«JONHON»** (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

**«FORSTAR»** (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).

FORSTAR®

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