

# Non-Polar Aluminum Electrolytic Capacitors

NRE-SN Series

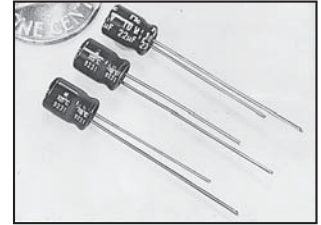
LOW PROFILE, SUB-MINIATURE, RADIAL LEADS,  
NON-POLAR ALUMINUM ELECTROLYTIC

## FEATURES

- BI-POLAR
- 7mm HEIGHT / LOW PROFILE

**RoHS  
Compliant**  
includes all homogeneous materials

\*See Part Number System for Details



## CHARACTERISTICS

|                                                                                                   |                                           |                                             |      |      |      |      |      |
|---------------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------------|------|------|------|------|------|
| Rated Voltage Range                                                                               | 6.3 ~ 50Vdc                               |                                             |      |      |      |      |      |
| Capacitance Range                                                                                 | 1.0 ~ 47 $\mu$ F                          |                                             |      |      |      |      |      |
| Operating Temperature Range                                                                       | -40 ~ +85°C                               |                                             |      |      |      |      |      |
| Capacitance Tolerance                                                                             | $\pm 20\%$ (M)                            |                                             |      |      |      |      |      |
| Max. Leakage Current<br>After 1 minutes At +20°C                                                  | 0.05CV or 10 $\mu$ A whichever is greater |                                             |      |      |      |      |      |
| Surge Voltage &<br>Max. Tan $\delta$ @ 120Hz/+20°C                                                | W.V. (Vdc)                                | 6.3                                         | 10   | 16   | 25   | 35   | 50   |
|                                                                                                   | S.V. (Vdc)                                | 8                                           | 13   | 20   | 32   | 44   | 63   |
|                                                                                                   | Tan $\delta$                              | 0.24                                        | 0.20 | 0.16 | 0.16 | 0.14 | 0.12 |
| Low Temperature Stability<br>(Impedance Ratio @ 120Hz)                                            | Z-25°C/Z+20°C                             | 4                                           | 3    | 2    | 2    | 2    | 2    |
|                                                                                                   | Z-40°C/Z+20°C                             | 8                                           | 6    | 4    | 4    | 3    | 3    |
| Load Life Test at Rated W.V.<br>+85°C 1,000 Hours (Polarity Shall Be<br>Reversed Every 250 Hours) | Capacitance Change                        | Within $\pm 25\%$ of initial measured value |      |      |      |      |      |
|                                                                                                   | Tan $\delta$                              | Less than 200% of specified maximum value   |      |      |      |      |      |
|                                                                                                   | Leakage Current                           | Less than specified maximum value           |      |      |      |      |      |

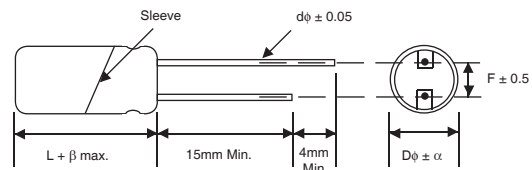
## STANDARD PRODUCTS AND CASE SIZE TABLE D $\phi$ x L (mm)

| Cap. ( $\mu$ F) | Code | Working Voltage (Vdc) |       |       |       |       |       |
|-----------------|------|-----------------------|-------|-------|-------|-------|-------|
|                 |      | 6.3                   | 10    | 16    | 25    | 35    | 50    |
| 1.0             | 1R0  | -                     | -     | -     | -     | -     | 4x7   |
| 2.2             | 2R2  | -                     | -     | -     | -     | 4x7   | 5x7   |
| 3.3             | 3R3  | -                     | -     | -     | 4x7   | 5x7   | 5x7   |
| 4.7             | 4R7  | -                     | -     | -     | 4x7   | 5x7   | 6.3x7 |
| 10              | 100  | -                     | 4x7   | 4x7   | 5x7   | 6.3x7 | -     |
| 22              | 220  | 5x7                   | 5x7   | 6.3x7 | 6.3x7 | -     | -     |
| 33              | 330  | 5x7                   | 6.3x7 | 6.3x7 | -     | -     | -     |
| 47              | 470  | 6.3x7                 | 6.3x7 | 6.3x7 | -     | -     | -     |

## LEAD SPACING AND DIAMETER (mm)

|                       |      |      |      |
|-----------------------|------|------|------|
| Case Dia. (D $\phi$ ) | 4    | 5    | 6.3  |
| Lead Dia. (d $\phi$ ) | 0.45 | 0.45 | 0.45 |
| Lead Space (F)        | 1.5  | 2.0  | 2.5  |

## DIMENSIONS (mm)



Drawing is representative of parts as supplied in bulk or straight lead format, please see taping specification for details on taped format packaging.

## PART NUMBER SYSTEM

NRE-SN 3R3 M 50V 5X7 TB F

Series  
Capacitance Code: First 2 characters significant, third character is multiplier  
Tolerance Code (M=20%)  
Working Voltage (Vdc)  
Case Size (D $\phi$  x L)  
TB = Tape & Box\*  
RoHS Compliant

\*see taping specifications for details

## PRECAUTIONS

Please review the notes on correct use, safety and precautions found on pages T10 & T11 of NIC's Electrolytic Capacitor catalog.

Also found at [www.niccomp.com/precautions](http://www.niccomp.com/precautions)

If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: [tpmg@niccomp.com](mailto:tpmg@niccomp.com)



### STANDARD PRODUCT, SPECIFICATIONS AND CASE SIZES D $\phi$ x L (mm)

| Part Number          | Cap.<br>( $\mu$ F) | W.V.<br>(Vdc) | Dissipation Factor<br>+20°C/120Hz | Ripple Current Rating (mA)<br>+85°C/120Hz | Max. ESR ( $\Omega$ )<br>+20°C/120Hz | Load Life Hours<br>@ +85°C |
|----------------------|--------------------|---------------|-----------------------------------|-------------------------------------------|--------------------------------------|----------------------------|
| NRE-SN330M6.3V5x7F   | 33                 | 6.3           | 0.24                              | 42                                        | 12.1                                 | 1,000                      |
| NRE-SN470M6.3V6.3x7F | 47                 |               | 0.24                              | 55                                        | 8.47                                 | 1,000                      |
| NRE-SN100M10V4x7F    | 10                 | 10            | 0.20                              | 24                                        | 33.2                                 | 1,000                      |
| NRE-SN220M10V5x7F    | 22                 |               | 0.20                              | 40                                        | 15.1                                 | 1,000                      |
| NRE-SN330M10V6.3x7F  | 33                 |               | 0.20                              | 56                                        | 10.1                                 | 1,000                      |
| NRE-SN470M10V6.3x7F  | 47                 |               | 0.20                              | 67                                        | 7.06                                 | 1,000                      |
| NRE-SN100M16V4x7F    | 10                 | 16            | 0.16                              | 30                                        | 26.6                                 | 1,000                      |
| NRE-SN220M16V6.3x7F  | 22                 |               | 0.16                              | 51                                        | 9.09                                 | 1,000                      |
| NRE-SN330M16V6.3x7F  | 33                 |               | 0.16                              | 63                                        | 8.05                                 | 1,000                      |
| NRE-SN470M16V6.3x7F  | 47                 |               | 0.16                              | 68                                        | 5.65                                 | 1,000                      |
| NRE-SN3R3M25V4x7F    | 3.3                | 25            | 0.16                              | 18                                        | 80.4                                 | 1,000                      |
| NRE-SN4R7M25V4x7F    | 4.7                |               | 0.16                              | 20                                        | 56.5                                 | 1,000                      |
| NRE-SN100M25V5x7F    | 10                 |               | 0.16                              | 35                                        | 26.6                                 | 1,000                      |
| NRE-SN220M25V6.3x7F  | 22                 |               | 0.16                              | 53                                        | 9.09                                 | 1,000                      |
| NRE-SN2R2M35V4x7F    | 2.2                | 35            | 0.14                              | 10                                        | 105.6                                | 1,000                      |
| NRE-SN3R3M35V5x7F    | 3.3                |               | 0.14                              | 16                                        | 70.4                                 | 1,000                      |
| NRE-SN4R7M35V5x7F    | 4.7                |               | 0.14                              | 22                                        | 49.4                                 | 1,000                      |
| NRE-SN100M35V6.3x7F  | 10                 |               | 0.14                              | 37                                        | 23.2                                 | 1,000                      |
| NRE-SN1R0M50V4x7F    | 1.0                | 50            | 0.12                              | 10                                        | 199                                  | 1,000                      |
| NRE-SN2R2M50V5x7F    | 2.2                |               | 0.12                              | 14                                        | 90.5                                 | 1,000                      |
| NRE-SN3R3M50V5x7F    | 3.3                |               | 0.12                              | 20                                        | 60.4                                 | 1,000                      |
| NRE-SN4R7M50V6.3x7F  | 4.7                |               | 0.12                              | 27                                        | 42.4                                 | 1,000                      |