

HIGH TEMPERATURE, EXTENDED LOAD LIFE, RADIAL LEADS, POLARIZED

### FEATURES

- HIGH VOLTAGE (6.3 ~ 250V)
- LOW IMPEDANCE AT 100KHz
- LONG LIFE AT HIGH TEMPERATURE (UP TO 10,000 HOURS)

**RoHS Compliant**  
includes all homogeneous materials

\*See Part Number System for Details



### CHARACTERISTICS

|                                                      |               |                                                    |               |                                                                     |      |      |      |      |      |      |                                  |      |
|------------------------------------------------------|---------------|----------------------------------------------------|---------------|---------------------------------------------------------------------|------|------|------|------|------|------|----------------------------------|------|
| Rated Voltage Range                                  |               | 6.3 ~ 250VDC                                       |               |                                                                     |      |      |      |      |      |      |                                  |      |
| Capacitance Range                                    |               | 1.0 ~ 15,000μF                                     |               |                                                                     |      |      |      |      |      |      |                                  |      |
| Operating Temperature Range                          |               | -40°C ~ +105°C                                     |               |                                                                     |      |      |      |      |      |      |                                  |      |
| Capacitance Tolerance                                |               | ±20% (M)                                           |               |                                                                     |      |      |      |      |      |      |                                  |      |
| Maximum Leakage Current                              |               | 0.01CV or 3μA whichever is greater after 2 minutes |               |                                                                     |      |      |      |      |      |      | 0.04CV+100μA<br>(After 1 minute) |      |
|                                                      |               |                                                    |               |                                                                     |      |      |      |      |      |      | 0.02CV+25μA<br>(After 5 minutes) |      |
| Max. Tan δ at 120Hz/20°C                             | W.V. (Vdc)    | 6.3                                                | 10            | 16                                                                  | 25   | 35   | 50   | 63   | 100  | 160  | 200                              | 250  |
|                                                      | S.V. (Vdc)    | 8                                                  | 13            | 20                                                                  | 32   | 44   | 63   | 79   | 125  | 200  | 250                              | 300  |
|                                                      | C ≤ 1,000μF   | 0.22                                               | 0.19          | 0.16                                                                | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 | 0.12 | 0.12                             | 0.12 |
|                                                      | C = 2,200μF   | 0.24                                               | 0.21          | 0.18                                                                | 0.16 | 0.14 | 0.12 | -    | -    | -    | -                                | -    |
|                                                      | C = 3,300μF   | 0.26                                               | 0.23          | 0.20                                                                | 0.18 | 0.16 | -    | -    | -    | -    | -                                | -    |
|                                                      | C = 4,700μF   | 0.28                                               | 0.25          | 0.22                                                                | 0.20 | -    | -    | -    | -    | -    | -                                | -    |
|                                                      | C = 6,800μF   | 0.32                                               | 0.29          | 0.26                                                                | -    | -    | -    | -    | -    | -    | -                                | -    |
|                                                      | C = 10,000μF  | 0.40                                               | 0.37          | -                                                                   | -    | -    | -    | -    | -    | -    | -                                | -    |
| Low Temperature Stability<br>Impedance Ratio @ 120Hz | Z-20°C/Z+20°C | 4                                                  | 3             | 2                                                                   | 2    | 2    | 2    | 2    | 2    | 3    | 3                                | 3    |
|                                                      | Z-40°C/Z+20°C | 8                                                  | 6             | 4                                                                   | 3    | 3    | 3    | 3    | 3    | 4    | 4                                | 4    |
| Case Size & Voltage                                  | Hours         | Load Life Test @ 105°C and Rated Voltage           |               |                                                                     |      |      |      |      |      |      |                                  |      |
| Dφ ≤ 6.3mm, 6.3~10V                                  | 4000          | Change in Characteristics                          | Δ Capacitance | Within ±25% of initial measured value (±20% for 160 ~ 250Vdc parts) |      |      |      |      |      |      |                                  |      |
| Dφ ≤ 6.3mm, 16~100V                                  | 5000          |                                                    |               |                                                                     |      |      |      |      |      |      |                                  |      |
| Dφ 8mm, 6.3~10V                                      | 6000          |                                                    | Δ Tan δ       | Less than 200% of specified value                                   |      |      |      |      |      |      |                                  |      |
| Dφ 8mm, 16~100V                                      | 7000          |                                                    |               |                                                                     |      |      |      |      |      |      |                                  |      |
| Dφ 10mm, 6.3~10V                                     | 6000          |                                                    |               |                                                                     |      |      |      |      |      |      |                                  |      |
| Dφ 10mm, 16~100V                                     | 7000          |                                                    |               |                                                                     |      |      |      |      |      |      |                                  |      |
| Dφ 10mm, 160~250V                                    | 2000          |                                                    |               |                                                                     |      |      |      |      |      |      |                                  |      |
| Dφ ≥ 12.5mm, 6.3~10V                                 | 8000          |                                                    | Δ LC          | Less than specified value                                           |      |      |      |      |      |      |                                  |      |
| Dφ ≥ 12.5mm, 16~100V                                 | 10000         |                                                    |               |                                                                     |      |      |      |      |      |      |                                  |      |
| Dφ ≥ 12.5mm, 160~250V                                | 2000          |                                                    |               |                                                                     |      |      |      |      |      |      |                                  |      |

### PART NUMBER SYSTEM

NRE-FL 101 M 100V 12.5X20 TB F

Series

Capacitance Code: First 2 characters significant, third character is multiplier

Tolerance Code (M=20%)

Working Voltage (Vdc)

Case Size (Dφ x L)

TB = Tape & Box\*

F RoHS Compliant

\*see tape specification 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)



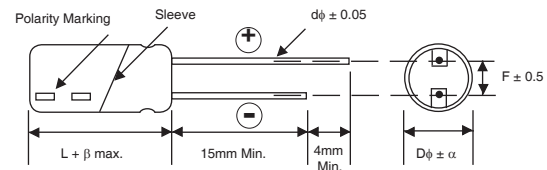
**STANDARD PRODUCT AND CASE SIZE TABLE D  $\phi$  x L (mm)**

| Cap. ( $\mu$ F) | Code | Working Voltage (Vdc) |         |         |         |         |         |         |         |         |         |         |
|-----------------|------|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                 |      | 6.3                   | 10      | 16      | 25      | 35      | 50      | 63      | 100     | 160     | 200     | 250     |
| 1.0             | 1R0  | -                     | -       | -       | -       | -       | 5x11    | -       | 5x11    | -       | -       | -       |
| 2.2             | 2R2  | -                     | -       | -       | -       | -       | 5x11    | -       | 5x11    | -       | -       | -       |
| 3.3             | 3R3  | -                     | -       | -       | -       | -       | 5x11    | -       | 5x11    | -       | -       | -       |
| 4.7             | 4R7  | -                     | -       | -       | -       | -       | 5x11    | -       | 5x11    | -       | -       | -       |
| 10              | 100  | -                     | -       | -       | -       | -       | 5x11    | 5x11    | 6.3x11  | -       | -       | -       |
| 22              | 220  | -                     | -       | -       | -       | -       | 5x11    | 6.3x11  | 8x11.5  | 10x20   | 10x20   | 10x20   |
| 33              | 330  | -                     | -       | -       | 5x11    | 5x11    | 6.3x11  | 6.3x11  | 10x12.5 | 12.5x20 | 12.5x25 | 12.5x25 |
| 47              | 470  | -                     | -       | 5x11    | 5x11    | 6.3x11  | 6.3x11  | 8x11.5  | 10x16   | 12.5x25 | 12.5x25 | 16x25   |
| 68              | 680  | -                     | -       | -       | -       | -       | -       | -       | -       | 12.5x25 | 16x25   | 16x31.5 |
| 100             | 101  | 5x11                  | 5x11    | 6.3x11  | 6.3x11  | 8x11.5  | 8x11.5  | 10x12.5 | 12.5x20 | 16x25   | 16x31.5 | 16x35.5 |
| 150             | 151  | -                     | -       | -       | -       | -       | -       | -       | -       | 16x31.5 | 16x35.5 | -       |
| 220             | 221  | 6.3x11                | 6.3x11  | 8x11.5  | 8x11.5  | 10x12.5 | 10x16   | 10x20   | 16x25   | 18x35.5 | 18x35.5 | -       |
| 330             | 331  | 6.3x11                | 8x11.5  | 8x11.5  | 10x12.5 | 10x16   | 10x20   | 12.5x20 | 16x25   | -       | -       | -       |
| 470             | 471  | 8x11.5                | 8x11.5  | 10x12.5 | 10x16   | 10x20   | 12.5x20 | 12.5x25 | -       | -       | -       | -       |
| 1000            | 102  | 10x12.5               | 10x16   | 10x20   | 12.5x20 | 12.5x25 | 16x25   | 16x31.5 | -       | -       | -       | -       |
| 2200            | 222  | 12.5x20               | 12.5x20 | 12.5x25 | 16x25   | 16x31.5 | 18x35.5 | -       | -       | -       | -       | -       |
| 3300            | 332  | 12.5x20               | 12.5x25 | 16x25   | 16x31.5 | 18x35.5 | -       | -       | -       | -       | -       | -       |
| 4700            | 472  | 16x25                 | 16x25   | 16x31.5 | 18x35.5 | -       | -       | -       | -       | -       | -       | -       |
| 6800            | 682  | 16x25                 | 16x31.5 | 18x35.5 | -       | -       | -       | -       | -       | -       | -       | -       |
| 10000           | 103  | 16x31.5               | 18x35.5 | -       | -       | -       | -       | -       | -       | -       | -       | -       |
| 15000           | 153  | 18x35.5               | -       | -       | -       | -       | -       | -       | -       | -       | -       | -       |

**LEAD SPACING AND DIAMETER (mm)**

| Case Dia. (D $\phi$ ) | 5                                          | 6.3 | 8   | 10  | 12.5 | 16  | 18  |
|-----------------------|--------------------------------------------|-----|-----|-----|------|-----|-----|
| Lead Dia. (D $\phi$ ) | 0.5                                        | 0.5 | 0.6 | 0.6 | 0.6  | 0.8 | 0.8 |
| Lead Spacing (F)      | 2.0                                        | 2.5 | 3.5 | 5.0 | 5.0  | 7.5 | 7.5 |
| Dim. $\alpha$         | 0.5                                        | 0.5 | 0.5 | 0.5 | 0.5  | 0.5 | 0.5 |
| Dim. $\beta$          | L $\leq$ 16mm: 1.5mm, L $\geq$ 20mm: 2.0mm |     |     |     |      |     |     |

**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.

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

| Part Number            | Cap. ( $\mu$ F) | W.V. (Vdc) | Max. Tan $\delta$ | Max. LC 2 minutes ( $\mu$ A) | Max. Impedance | Max. Ripple Current at 100KHz/105°C (mA rms) | Load Life Hours @ +105°C |
|------------------------|-----------------|------------|-------------------|------------------------------|----------------|----------------------------------------------|--------------------------|
|                        |                 |            |                   |                              | 100KHz/20°C    |                                              |                          |
| NRE-FL101M6.3V5x11F    | 100             | 6.3        | 0.22              | 6.3                          | 0.90           | 150                                          | 4,000                    |
| NRE-FL221M6.3V6.3x11F  | 220             |            | 0.22              | 13.2                         | 0.40           | 250                                          | 4,000                    |
| NRE-FL331M6.3V6.3x11F  | 330             |            | 0.22              | 18.9                         | 0.40           | 250                                          | 4,000                    |
| NRE-FL471M6.3V8x11.5F  | 470             |            | 0.22              | 29.61                        | 0.25           | 400                                          | 6000                     |
| NRE-FL102M6.3V10x12.5F | 1000            |            | 0.22              | 63                           | 0.16           | 580                                          | 6000                     |
| NRE-FL222M6.3V12.5x20F | 2200            |            | 0.24              | 138.6                        | 0.062          | 1300                                         | 8000                     |
| NRE-FL332M6.3V12.5x20F | 3300            |            | 0.26              | 207.9                        | 0.062          | 1300                                         | 8000                     |
| NRE-FL472M6.3V16x25F   | 4700            |            | 0.28              | 296.1                        | 0.034          | 1850                                         | 8000                     |
| NRE-FL682M6.3V16x25F   | 6800            |            | 0.32              | 428.4                        | 0.034          | 1850                                         | 8000                     |
| NRE-FL103M6.3V16x31.5F | 10000           |            | 0.40              | 630                          | 0.029          | 2000                                         | 8000                     |
| NRE-FL153M6.3V18x35.5F | 15000           |            | 0.50              | 945                          | 0.025          | 2200                                         | 8000                     |
| NRE-FL101M10V5x11F     | 100             | 10         | 0.19              | 10                           | 0.90           | 150                                          | 4,000                    |
| NRE-FL221M10V6.3x11F   | 220             |            | 0.19              | 22                           | 0.40           | 250                                          | 4,000                    |
| NRE-FL331M10V8x11.5F   | 330             |            | 0.19              | 33                           | 0.25           | 400                                          | 6000                     |
| NRE-FL471M10V8x11.5F   | 470             |            | 0.19              | 47                           | 0.25           | 400                                          | 6000                     |
| NRE-FL102M10V10x16F    | 1000            |            | 0.19              | 100                          | 0.12           | 770                                          | 6000                     |
| NRE-FL222M10V12.5x20F  | 2200            |            | 0.21              | 220                          | 0.062          | 1300                                         | 8000                     |
| NRE-FL332M10V12.5x25F  | 3300            |            | 0.23              | 330                          | 0.048          | 1650                                         | 8000                     |
| NRE-FL472M10V16x25F    | 4700            |            | 0.25              | 470                          | 0.034          | 1850                                         | 8000                     |
| NRE-FL682M10V16x31.5F  | 6800            |            | 0.29              | 680                          | 0.029          | 2000                                         | 8000                     |
| NRE-FL103M10V18x35.5F  | 10000           |            | 0.37              | 1000                         | 0.025          | 2200                                         | 8000                     |

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

| Part Number           | Cap.<br>( $\mu$ F) | W.V.<br>(Vdc) | Max.<br>Tan $\delta$ | Max. LC<br>2 minutes<br>( $\mu$ A) | Max. Impedance | Max. Ripple Current at<br>100KHz/105°C<br>(mA rms) | Load Life Hours<br>@ +105°C |
|-----------------------|--------------------|---------------|----------------------|------------------------------------|----------------|----------------------------------------------------|-----------------------------|
|                       |                    |               |                      |                                    | 100KHz/20°C    |                                                    |                             |
| NRE-FL470M16V5x11F    | 47                 | 16            | 0.16                 | 7.52                               | 0.90           | 150                                                | 5000                        |
| NRE-FL101M16V6.3x11F  | 100                |               | 0.16                 | 16                                 | 0.40           | 250                                                | 5000                        |
| NRE-FL221M16V8x11.5F  | 220                |               | 0.16                 | 35.2                               | 0.25           | 400                                                | 7000                        |
| NRE-FL331M16V8x11.5F  | 330                |               | 0.16                 | 52.8                               | 0.25           | 400                                                | 7000                        |
| NRE-FL471M16V10x12.5F | 470                |               | 0.16                 | 75.2                               | 0.16           | 580                                                | 7000                        |
| NRE-FL102M16V10x20F   | 1000               |               | 0.16                 | 160                                | 0.078          | 1050                                               | 7000                        |
| NRE-FL222M16V12.5x25F | 2200               |               | 0.18                 | 352                                | 0.048          | 1650                                               | 10000                       |
| NRE-FL332M16V16x25F   | 3300               |               | 0.20                 | 528                                | 0.034          | 1850                                               | 10000                       |
| NRE-FL472M16V16x31.5F | 4700               |               | 0.22                 | 752                                | 0.029          | 2000                                               | 10000                       |
| NRE-FL682M16V18x35.5F | 6800               |               | 0.26                 | 1088                               | 0.025          | 2200                                               | 10000                       |
| NRE-FL330M25V5x11F    | 33                 | 25            | 0.14                 | 8.25                               | 0.90           | 150                                                | 5000                        |
| NRE-FL470M25V5x11F    | 47                 |               | 0.14                 | 11.75                              | 0.90           | 150                                                | 5000                        |
| NRE-FL101M25V6.3x11F  | 100                |               | 0.14                 | 25                                 | 0.40           | 250                                                | 5000                        |
| NRE-FL221M25V8x11.5F  | 220                |               | 0.14                 | 55                                 | 0.25           | 400                                                | 7000                        |
| NRE-FL331M25V10x12.5F | 330                |               | 0.14                 | 82.5                               | 0.16           | 580                                                | 7000                        |
| NRE-FL471M25V10x16F   | 470                |               | 0.14                 | 117.5                              | 0.12           | 770                                                | 7000                        |
| NRE-FL102M25V12.5x20F | 1000               |               | 0.14                 | 250                                | 0.062          | 1300                                               | 10000                       |
| NRE-FL222M25V16x25F   | 2200               |               | 0.16                 | 550                                | 0.034          | 1850                                               | 10000                       |
| NRE-FL332M25V16x31.5F | 3300               |               | 0.18                 | 825                                | 0.029          | 2000                                               | 10000                       |
| NRE-FL472M25V18x35.5F | 4700               |               | 0.20                 | 1175                               | 0.025          | 2200                                               | 10000                       |
| NRE-FL330M35V5x11F    | 33                 | 35            | 0.12                 | 11.55                              | 0.90           | 150                                                | 5000                        |
| NRE-FL470M35V6.3x11F  | 47                 |               | 0.12                 | 16.45                              | 0.40           | 250                                                | 5000                        |
| NRE-FL101M35V8x11.5F  | 100                |               | 0.12                 | 35                                 | 0.25           | 400                                                | 7000                        |
| NRE-FL221M35V10x12.5F | 220                |               | 0.12                 | 77                                 | 0.16           | 580                                                | 7000                        |
| NRE-FL331M35V10x16F   | 330                |               | 0.12                 | 115.5                              | 0.12           | 770                                                | 7000                        |
| NRE-FL471M35V10x20F   | 470                |               | 0.12                 | 164.5                              | 0.078          | 1050                                               | 7000                        |
| NRE-FL102M35V12.5x25F | 1000               |               | 0.12                 | 350                                | 0.048          | 1650                                               | 10000                       |
| NRE-FL222M35V16x31.5F | 2200               |               | 0.14                 | 770                                | 0.029          | 2000                                               | 10000                       |
| NRE-FL332M35V18x35.5F | 3300               |               | 0.16                 | 1155                               | 0.025          | 2200                                               | 10000                       |
| NRE-FL1R0M50V5x11F    | 1.0                | 50            | 0.10                 | 3                                  | 4.0            | 30                                                 | 5000                        |
| NRE-FL2R2M50V5x11F    | 2.2                |               | 0.10                 | 3                                  | 2.5            | 43                                                 | 5000                        |
| NRE-FL3R3M50V5x11F    | 3.3                |               | 0.10                 | 3                                  | 2.2            | 53                                                 | 5000                        |
| NRE-FL4R7M50V5x11F    | 4.7                |               | 0.10                 | 3                                  | 1.9            | 88                                                 | 5000                        |
| NRE-FL100M50V5x11F    | 10                 |               | 0.10                 | 5                                  | 1.5            | 100                                                | 5000                        |
| NRE-FL220M50V5x11F    | 22                 |               | 0.10                 | 11                                 | 0.90           | 150                                                | 5000                        |
| NRE-FL330M50V6.3x11F  | 33                 |               | 0.10                 | 16.5                               | 0.40           | 250                                                | 5000                        |
| NRE-FL470M50V6.3x11F  | 47                 |               | 0.10                 | 23.5                               | 0.40           | 250                                                | 5000                        |
| NRE-FL101M50V8x11.5F  | 100                |               | 0.10                 | 50                                 | 0.25           | 400                                                | 7000                        |
| NRE-FL221M50V10x16F   | 220                |               | 0.10                 | 110                                | 0.12           | 770                                                | 7000                        |
| NRE-FL331M50V10x20F   | 330                |               | 0.10                 | 165                                | 0.078          | 1050                                               | 7000                        |
| NRE-FL471M50V12.5x20F | 470                |               | 0.10                 | 235                                | 0.062          | 1300                                               | 10000                       |
| NRE-FL102M50V16x25F   | 1000               |               | 0.10                 | 500                                | 0.034          | 1850                                               | 10000                       |
| NRE-FL222M50V18x35.5F | 2200               |               | 0.12                 | 1100                               | 0.025          | 2200                                               | 10000                       |
| NRE-FL100M63V5x11F    | 10                 | 63            | 0.09                 | 6.3                                | 2.3            | 87                                                 | 5000                        |
| NRE-FL220M63V6.3x11F  | 22                 |               | 0.09                 | 13.86                              | 1.3            | 140                                                | 5000                        |
| NRE-FL330M63V6.3x11F  | 33                 |               | 0.09                 | 20.79                              | 1.2            | 140                                                | 5000                        |
| NRE-FL470M63V8x11.5F  | 47                 |               | 0.09                 | 29.61                              | 0.63           | 210                                                | 7000                        |
| NRE-FL101M63V10x12.5F | 100                |               | 0.09                 | 63                                 | 0.43           | 300                                                | 7000                        |
| NRE-FL221M63V10x20F   | 220                |               | 0.09                 | 138.6                              | 0.21           | 520                                                | 7000                        |
| NRE-FL331M63V12.5x20F | 330                |               | 0.09                 | 207.9                              | 0.16           | 660                                                | 10000                       |
| NRE-FL471M63V12.5x25F | 470                |               | 0.09                 | 296.1                              | 0.12           | 750                                                | 10000                       |
| NRE-FL102M63V16x31.5F | 1000               |               | 0.09                 | 630                                | 0.054          | 1390                                               | 10000                       |

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

| Part Number            | Cap.<br>( $\mu$ F) | W.V.<br>(Vdc) | Max.<br>Tan $\delta$ | Max. LC<br>5 minutes<br>( $\mu$ A) | Max. Impedance | Max. Ripple Current at<br>100KHz/105°C<br>(mA rms) | Load Life Hours<br>@ +105°C |
|------------------------|--------------------|---------------|----------------------|------------------------------------|----------------|----------------------------------------------------|-----------------------------|
|                        |                    |               |                      |                                    | 100KHz/20°C    |                                                    |                             |
| NRE-FL1R0M100V5x11F    | 1.0                | 100           | 0.08                 | 3.0                                | 4.5            | 20                                                 | 5000                        |
| NRE-FL2R2M100V5x11F    | 2.2                |               | 0.08                 | 3.0                                | 3.0            | 30                                                 | 5000                        |
| NRE-FL3R3M100V5x11F    | 3.3                |               | 0.08                 | 3.3                                | 2.7            | 40                                                 | 5000                        |
| NRE-FL4R7M100V5x11F    | 4.7                |               | 0.08                 | 4.7                                | 2.5            | 65                                                 | 5000                        |
| NRE-FL100M100V6.3x11F  | 10                 |               | 0.08                 | 10                                 | 1.2            | 140                                                | 5000                        |
| NRE-FL220M100V8x11.5F  | 22                 |               | 0.08                 | 22                                 | 0.63           | 160                                                | 7000                        |
| NRE-FL330M100V10x12.5F | 33                 |               | 0.08                 | 33                                 | 0.43           | 230                                                | 7000                        |
| NRE-FL470M100V10x16F   | 47                 |               | 0.08                 | 47                                 | 0.31           | 290                                                | 7000                        |
| NRE-FL101M100V12.5x20F | 100                |               | 0.08                 | 100                                | 0.16           | 430                                                | 10000                       |
| NRE-FL221M100V16x25F   | 220                |               | 0.08                 | 220                                | 0.073          | 900                                                | 10000                       |
| NRE-FL331M100V16x25F   | 330                |               | 0.08                 | 330                                | 0.073          | 900                                                | 10000                       |
| NRE-FL220M160V10x20F   | 22                 | 160           | 0.12                 | 70.4                               | 1.0            | 350                                                | 2000                        |
| NRE-FL330M160V12.5x20F | 33                 |               | 0.12                 | 105.6                              | 0.70           | 450                                                | 2000                        |
| NRE-FL470M160V12.5x25F | 47                 |               | 0.12                 | 150.4                              | 0.45           | 600                                                | 2000                        |
| NRE-FL680M160V12.5x25F | 68                 |               | 0.12                 | 217.6                              | 0.45           | 600                                                | 2000                        |
| NRE-FL101M160V16x25F   | 100                |               | 0.12                 | 320                                | 0.24           | 950                                                | 2000                        |
| NRE-FL151M160V16x31.5F | 150                |               | 0.12                 | 480                                | 0.17           | 1200                                               | 2000                        |
| NRE-FL221M160V18x35.5F | 220                |               | 0.12                 | 704                                | 0.14           | 1400                                               | 2000                        |
| NRE-FL220M200V10x20F   | 22                 | 200           | 0.12                 | 88                                 | 1.0            | 350                                                | 2000                        |
| NRE-FL330M200V12.5x25F | 33                 |               | 0.12                 | 132                                | 0.55           | 550                                                | 2000                        |
| NRE-FL470M200V12.5x25F | 47                 |               | 0.12                 | 188                                | 0.44           | 600                                                | 2000                        |
| NRE-FL680M200V16x25F   | 68                 |               | 0.12                 | 272                                | 0.24           | 950                                                | 2000                        |
| NRE-FL101M200V16x31.5F | 100                |               | 0.12                 | 400                                | 0.17           | 1200                                               | 2000                        |
| NRE-FL151M200V16x35.5F | 150                |               | 0.12                 | 600                                | 0.16           | 1280                                               | 2000                        |
| NRE-FL221M200V18x35.5F | 220                |               | 0.12                 | 880                                | 0.14           | 1400                                               | 2000                        |
| NRE-FL220M250V10x20F   | 22                 | 250           | 0.12                 | 110                                | 1.4            | 300                                                | 2000                        |
| NRE-FL330M250V12.5x25F | 33                 |               | 0.12                 | 165                                | 0.70           | 450                                                | 2000                        |
| NRE-FL470M250V16x25F   | 47                 |               | 0.12                 | 235                                | 0.31           | 850                                                | 2000                        |
| NRE-FL680M250V16x31.5F | 68                 |               | 0.12                 | 340                                | 0.22           | 1050                                               | 2000                        |
| NRE-FL101M250V16x35.5F | 100                |               | 0.12                 | 500                                | 0.18           | 1200                                               | 2000                        |

### RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

| Frequency (Hz)       | 120  | 1K   | 10K  | $\leq$ 100K |
|----------------------|------|------|------|-------------|
| 1.0 ~ 10 $\mu$ F     | 0.42 | 0.60 | 0.80 | 1.00        |
| 22 ~ 33 $\mu$ F      | 0.55 | 0.75 | 0.90 | 1.00        |
| 47 ~ 330 $\mu$ F     | 0.70 | 0.85 | 0.95 | 1.00        |
| 470 ~ 1000 $\mu$ F   | 0.75 | 0.90 | 0.98 | 1.00        |
| 2200 ~ 15000 $\mu$ F | 0.80 | 0.95 | 1.00 | 1.00        |

| All 160 ~ 250V Parts |        |      |      |      |             |
|----------------------|--------|------|------|------|-------------|
| Frequency (Hz)       | 60(50) | 120  | 1K   | 10K  | $\leq$ 100K |
| Coefficient          | 0.40   | 0.50 | 0.75 | 0.90 | 1.00        |