

NFC Series

• 105°C 2,000~5,000Hrs assured.

- Non-solvent proof.
- High Ripple, Long Life.
- For SMPS, IP-Board, Adaptor.
- RoHS compliant.
- Halogen-free capacitors are also available.



SPECIFICATIONS

| Item | Characteristics | | | | | | | | | | | | | |
|--|--|---------------------------|---------------------------------|----------------|-----------------|------------|-------------------|-----------------|--------|------------------|-------------------|---|---|---|
| Rated Voltage Range | 160 ~ 400 V _{DC} | 420 ~ 500 V _{DC} | | | | | | | | | | | | |
| Operating Temperature Range | -40 ~ + 105°C | -25 ~ + 105°C | | | | | | | | | | | | |
| Capacitance Tolerance | ±20%(M) (at 20°C, 120Hz) | | | | | | | | | | | | | |
| Leakage Current | <table border="1"> <thead> <tr> <th>C · V \ Time</th> <th>After 1 minute</th> <th>After 5 minutes</th> </tr> </thead> <tbody> <tr> <td>≤ 1000</td> <td>I = 0.1CV + 40</td> <td>I = 0.03CV + 15</td> </tr> <tr> <td>> 1000</td> <td>I = 0.04CV + 100</td> <td>I = 0.02CV + 25</td> </tr> </tbody> </table> <p>Where, I:Max. Leakage current(μA) C:Nominal capacitance (μF) V:Rated voltage (V_{DC}) (at 20°C)</p> | | C · V \ Time | After 1 minute | After 5 minutes | ≤ 1000 | I = 0.1CV + 40 | I = 0.03CV + 15 | > 1000 | I = 0.04CV + 100 | I = 0.02CV + 25 | | | |
| C · V \ Time | After 1 minute | After 5 minutes | | | | | | | | | | | | |
| ≤ 1000 | I = 0.1CV + 40 | I = 0.03CV + 15 | | | | | | | | | | | | |
| > 1000 | I = 0.04CV + 100 | I = 0.02CV + 25 | | | | | | | | | | | | |
| Dissipation Factor(Tanδ) | <table border="1"> <thead> <tr> <th>Rated Voltage(V_{DC})</th> <th>160~250</th> <th>350~500</th> </tr> </thead> <tbody> <tr> <td>Tanδ(Max.)</td> <td>0.20</td> <td>0.24</td> </tr> </tbody> </table> <p>(at 20°C, 120Hz)</p> | | Rated Voltage(V _{DC}) | 160~250 | 350~500 | Tanδ(Max.) | 0.20 | 0.24 | | | | | | |
| Rated Voltage(V _{DC}) | 160~250 | 350~500 | | | | | | | | | | | | |
| Tanδ(Max.) | 0.20 | 0.24 | | | | | | | | | | | | |
| Temperature Characteristics (Max. Impedance ratio) | <table border="1"> <thead> <tr> <th>Rated Voltage(V_{DC})</th> <th>160~250</th> <th>350~400</th> <th>420~500</th> </tr> </thead> <tbody> <tr> <td>Z(-25°C)/Z(+20°C)</td> <td>3</td> <td>5</td> <td>6</td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>6</td> <td>6</td> <td>—</td> </tr> </tbody> </table> <p>(at 120Hz)</p> | | Rated Voltage(V _{DC}) | 160~250 | 350~400 | 420~500 | Z(-25°C)/Z(+20°C) | 3 | 5 | 6 | Z(-40°C)/Z(+20°C) | 6 | 6 | — |
| Rated Voltage(V _{DC}) | 160~250 | 350~400 | 420~500 | | | | | | | | | | | |
| Z(-25°C)/Z(+20°C) | 3 | 5 | 6 | | | | | | | | | | | |
| Z(-40°C)/Z(+20°C) | 6 | 6 | — | | | | | | | | | | | |
| Load Life | <p>The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 5,000 hours at 105°C. (where, 2,000 hours for Ø6.3)</p> <p>Capacitance change ≤ ±20% of the initial value Tanδ ≤ 200% of the initial specified value Leakage current ≤ The initial specified value</p> | | | | | | | | | | | | | |
| Shelf Life | <p>The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements.</p> <p>Capacitance change ≤ ±20% of the initial value Tanδ ≤ 200% of the initial specified value Leakage current ≤ 500% of the initial specified value</p> | | | | | | | | | | | | | |
| Others | Satisfied characteristics KS C IEC 60384-4 | | | | | | | | | | | | | |

DIMENSIONS OF NFC Series

Unit(mm)

Marking : DARK BROWN SLEEVE, SILVER INK

| | 6.3 | 8 | 10 | 12.5 | 16 | 18 | 20 | 22 |
|-----|---------------|-----|--------------|------|-----|-----|-----|------|
| ØD | 6.3 | 8 | 10 | 12.5 | 16 | 18 | 20 | 22 |
| Ød | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 | 0.8 |
| F | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 | 7.5 | 10.0 |
| ØD' | ØD + 0.5 max. | | | | | | | |
| L' | L + 1.5 max. | | L + 2.0 max. | | | | | |

※ Ø8 x 50L, L' ≤ L + 2.0

RATINGS OF NFC Series

| V _{dc} | 160 | | 200 | |
|-----------------|-----------|---|-----------|---|
| Items μF | ∅ D×L(mm) | Rated Ripple Current (mArms/105°C,120Hz) | ∅ D×L(mm) | Rated Ripple Current (mArms/105°C,120Hz) |
| 3.3 | | | 6.3×11 | 36 |
| 10 | | | 8×11.5 | 75 |
| 22 | 8×20 | 135 | 8×20 | 135 |
| | 10×20 | 192 | 10×20 | 192 |
| 33 | 10×20 | 236 | 12.5×20 | 262 |
| 47 | 12.5×20 | 312 | 12.5×20 | 312 |
| 68 | 10×20 | 380 | 12.5×25 | 409 |
| | 12.5×25 | 409 | 8×50 | 320 |
| 82 | 8×50 | 360 | 16×20 | 462 |
| 100 | 16×25 | 548 | 16×25 | 548 |
| 150 | 16×25 | 701 | 16×25 | 701 |
| 220 | 16×31.5 | 876 | 18×31.5 | 906 |
| 330 | 18×31.5 | 1,110 | | |

| V _{dc} | 250 | | 350 | |
|-----------------|-----------|---|-----------|---|
| Items μF | ∅ D×L(mm) | Rated Ripple Current (mArms/105°C,120Hz) | ∅ D×L(mm) | Rated Ripple Current (mArms/105°C,120Hz) |
| 6.8 | 8×11.5 | 70 | 8×15 | 65 |
| 10 | 8×20 | 95 | 8×20 | 90 |
| | 10×20 | 130 | 10×20 | 126 |
| 22 | 10×20 | 193 | 12.5×20 | 207 |
| | 12.5×20 | 214 | | |
| 33 | 12.5×25 | 285 | 8×50 | 245 |
| | | | 16×20 | 284 |
| 47 | 8×50 | 250 | 16×25 | 364 |
| | 12.5×25 | 340 | | |
| 68 | 16×25 | 452 | 16×31.5 | 472 |
| 100 | 16×31.5 | 591 | 18×31.5 | 591 |
| 150 | 18×31.5 | 748 | 18×40 | 760 |
| 220 | 18×35.5 | 936 | 22×45 | 970 |
| 330 | 20×40 | 1,196 | | |

| V _{dc} | 400 | | 420 | |
|-----------------|-----------|---|-----------|---|
| Items μF | ∅ D×L(mm) | Rated Ripple Current (mArms/105°C,120Hz) | ∅ D×L(mm) | Rated Ripple Current (mArms/105°C,120Hz) |
| 1 | 6.3×11 | 19 | | |
| 3.3 | 8×11.5 | 42 | | |
| 6.8 | 8×15 | 66 | | |
| 8.2 | 8×20 | 80 | | |
| 10 | 10×16 | 85 | | |
| 22 | 12.5×25 | 225 | | |
| 27 | 8×50 | 240 | | |
| 33 | 16×20 | 284 | | |
| 47 | 16×25 | 364 | | |
| 68 | 16×31.5 | 472 | 18×31.5 | 500 |
| 82 | 18×31.5 | 536 | 18×31.5 | 560 |
| 100 | 18×35.5 | 611 | 18×35.5 | 720 |
| 120 | 18×40 | 680 | 18×40 | 740 |
| 150 | 18×40 | 760 | 18×45 | 753 |
| 180 | 20×40 | 855 | | |
| 220 | 22×45 | 996 | | |

RATINGS OF NFC Series

| V _{dc} μF | 450 | | 500 | |
|-----------------------|-----------------------|--|--------------|--|
| | Items ∅ D × L (mm) | Rated Ripple Current (mArms/105°C, 120Hz) | ∅ D × L (mm) | Rated Ripple Current (mArms/105°C, 120Hz) |
| 1 | 6.3 × 11 | 12 | | |
| 1.5 | 8 × 11.5 | 23 | | |
| 2.2 | 8 × 15 | 38 | | |
| 3.3 | 8 × 15 | 42 | | |
| 4.7 | 8 × 20 | 62 | | |
| 6.8 | 10 × 20 | 100 | 10 × 20 | 100 |
| 8.2 | 10 × 25 | 121 | | |
| 10 | 12.5 × 20 | 135 | 12.5 × 20 | 135 |
| 15 | | | 12.5 × 25 | 182 |
| 22 | 8 × 50 | 230 | 12.5 × 30 | 210 |
| 27 | 16 × 25 | 267 | 10 × 50 | 253 |
| 33 | 16 × 31.5 | 319 | 18 × 25 | 308 |
| | | | 16 × 31.5 | 319 |
| 39 | | | 12.5 × 50 | 358 |
| 40 | | | 12.5 × 50 | 360 |
| 47 | 10 × 50 | 334 | 18 × 31.5 | 393 |
| | 18 × 25 | 368 | | |
| 56 | | | 12.5 × 60 | 440 |
| 60 | | | 12.5 × 60 | 455 |
| 68 | 12.5 × 42.5 | 476 | 18 × 35.5 | 489 |
| | 18 × 31.5 | 500 | | |
| 82 | 12.5 × 50 | 473 | 18 × 40 | 594 |
| | 18 × 31.5 | 594 | | |
| 100 | 12.5 × 60 | 630 | 18 × 45 | 620 |
| | 18 × 35.5 | 720 | 20 × 40 | 618 |
| 120 | 18 × 40 | 740 | 22 × 45 | 702 |
| 150 | 18 × 45 | 753 | 22 × 50 | 827 |
| | 20 × 40 | 757 | | |
| 180 | 22 × 50 | 910 | | |

RATED RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

| Freq.(Hz) | 120 | 1k | 10k | 50k | 100k |
|-----------|------|------|------|------|------|
| Factor | 1.00 | 1.25 | 1.50 | 1.60 | 1.75 |

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