

## 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 <sub>DC</sub>	420 ~ 500 V <sub>DC</sub>												
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>&gt; 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<sub>DC</sub>) (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<sub>DC</sub>)</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 <sub>DC</sub> )	160~250	350~500	Tanδ(Max.)	0.20	0.24						
Rated Voltage(V <sub>DC</sub> )	160~250	350~500												
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Temperature Characteristics (Max. Impedance ratio)	<table border="1"> <thead> <tr> <th>Rated Voltage(V<sub>DC</sub>)</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 <sub>DC</sub> )	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 <sub>DC</sub> )	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 <sub>dc</sub>	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 <sub>dc</sub>	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 <sub>dc</sub>	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 <sub>dc</sub> 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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