

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><tr><td> C · V \ Time </td><td>After 1 minute</td><td colspan="2">After 5 minutes</td></tr><tr><td>≤ 1000</td><td>I = 0.1CV + 40</td><td colspan="2">I = 0.03CV + 15</td></tr><tr><td>> 1000</td><td>I = 0.04CV + 100</td><td colspan="2">I = 0.02CV + 25</td></tr></table> Where, I:Max. Leakage current(μA) C:Nominal capacitance (μF) V:Rated voltage (V_{DC})(at 20°C)			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><tr><td>Rated Voltage(V_{DC})</td><td>160~250</td><td colspan="2">350~500</td></tr><tr><td>Tanδ(Max.)</td><td>0.20</td><td colspan="2">0.24</td></tr></table> (at 20°C, 120Hz)			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><tr><td>Rated Voltage(V_{DC})</td><td>160~250</td><td>350~400</td><td>420~500</td></tr><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></table> (at 120Hz)			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	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) Capacitance change ≤ ±20% of the initial value Tanδ ≤ 200% of the initial specified value Leakage current ≤ The initial specified value														
Shelf Life	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. Capacitance change ≤ ±20% of the initial value Tanδ ≤ 200% of the initial specified value Leakage current ≤ 500% of the initial specified value														
Others	Satisfied characteristics KS C IEC 60384-4														

DIMENSIONS OF NFC Series

Unit(mm)

Side view of the capacitor. Dimensions shown: Safety vent, Sleeve, $\varnothing D'$, L' , 15min., 4min., $\varnothing D \pm 0.05$.

End view of the capacitor. Dimensions shown: $F \pm 0.5$, $\approx \varnothing 10$.

End view of the capacitor. Dimensions shown: $F \pm 0.5$, $\approx \varnothing 12.5$.

End view of the capacitor. Dimensions shown: $F \pm 0.5$, $\varnothing 20$.

Marking : DARK BROWN SLEEVE, SILVER INK

$\varnothing D$	6.3	8	10	12.5	16	18	20	22	25.4
$\varnothing d$	0.5	0.6	0.6	0.6	0.8	0.8	0.8	1.0	1.0
F	2.5	3.5	5.0	5.0	7.5	7.5	7.5	10.0	10.0
$\varnothing D'$	$\varnothing D + 0.5 \text{ max.}$								
L'	$L + 1.5 \text{ max.}$				$L + 2.0 \text{ max.}$				

※ $\varnothing 8 \times 50L$, $L' \leq L + 2.0$

RATINGS OF NFC Series

V _{DC}	Capacitance (μF)	ø D × L (mm)	Rated Ripple Current (mA _{rms} /105°C, 120Hz)
160	22	8 × 20	135
		10 × 20	192
	33	10 × 20	236
	47	12.5 × 20	312
	68	10 × 20	380
		12.5 × 25	409
	82	8 × 50	360
	100	16 × 25	548
	150	16 × 25	701
	220	16 × 31.5	876
	330	18 × 31.5	1110
		22 × 25	1120
	390	22 × 30	1300
	470	25.4 × 30	1520
	560	22 × 35	1640
		22 × 40	1720
	680	22 × 45	1970
		25.4 × 35	1930
	820	22 × 50	2250
		25.4 × 40	2220
	1000	25.4 × 50	2650
200	3.3	6.3 × 11	36
	10	8 × 11.5	75
	22	8 × 20	135
		10 × 20	192
	33	12.5 × 20	262
	47	12.5 × 20	312
	68	8 × 50	320
		12.5 × 25	409
	82	16 × 20	462
	100	16 × 25	548
	150	16 × 25	701
	220	18 × 31.5	906
		22 × 25	910
	330	22 × 30	1190
		25.4 × 30	1270
	390	22 × 35	1370
	470	22 × 40	1570
		25.4 × 35	1600
	560	22 × 45	1790
		22 × 50	1860
	820	25.4 × 40	1830
		25.4 × 50	2400

V _{DC}	Capacitance (μF)	ø D × L (mm)	Rated Ripple Current (mA _{rms} /105°C, 120Hz)
250	6.8	8 × 11.5	70
	10	8 × 20	95
		10 × 20	130
	22	10 × 20	193
		12.5 × 20	214
	33	12.5 × 25	285
	47	8 × 50	250
		12.5 × 25	340
	68	16 × 25	452
	100	16 × 31.5	591
	150	18 × 31.5	748
	180	22 × 25	780
	220	18 × 35.5	936
		22 × 30	920
	270	22 × 35	1070
		25.4 × 30	1090
	330	20 × 40	1196
		22 × 40	1240
	390	25.4 × 35	1270
		22 × 45	1410
350	470	25.4 × 40	1440
	560	22 × 50	1610
	680	25.4 × 50	1870
	6.8	8 × 15	65
	10	8 × 20	90
		10 × 20	126
	22	12.5 × 20	207
	33	8 × 50	245
		16 × 20	284
	47	16 × 25	364
	68	16 × 31.5	472
	100	18 × 31.5	591
		22 × 25	530
	120	22 × 30	620
	150	18 × 40	760
		25.4 × 30	740
	180	22 × 35	800
	200	22 × 40	880
		25.4 × 35	900
	220	22 × 45	970
	270	22 × 50	1110
		25.4 × 40	1090
	330	25.4 × 50	1310

RATED RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

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

RATINGS OF NFC Series

V _{dc}	Capacitance (μF)	∅ D × L (mm)	Rated Ripple Current (mA _{rms} /105°C, 120Hz)
400	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
	82	18 × 31.5	536
		22 × 25	490
	100	18 × 35.5	611
	120	18 × 40	680
		22 × 30	670
	150	18 × 40	760
		22 × 35	750
		25.4 × 30	760
	180	20 × 40	855
		22 × 40	860
		25.4 × 35	880
420	200	22 × 45	940
	220	22 × 45	996
		22 × 50	1030
		25.4 × 40	1010
	270	25.4 × 50	1220
	330	25.4 × 50	1260
	68	18 × 31.5	500
	82	18 × 31.5	560
		22 × 25	490
	100	18 × 35.5	720
		22 × 30	580
	120	18 × 40	740
		22 × 35	670
		25.4 × 30	680
	150	18 × 45	753
		22 × 40	780
		25.4 × 35	800
	180	22 × 45	900
	200	25.4 × 40	970
	220	22 × 50	1030
	270	25.4 × 50	1200

V _{dc}	Capacitance (μF)	∅ D × L (mm)	Rated Ripple Current (mA _{rms} /105°C, 120Hz)
450	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
	8.2	10 × 25	121
	10	12.5 × 20	135
	22	8 × 50	230
	27	16 × 25	267
	33	16 × 31.5	319
	47	10 × 50	334
		18 × 25	368
	68	12.5 × 42.5	476
		18 × 31.5	500
		22 × 25	440
	82	12.5 × 50	473
		18 × 31.5	594
	100	12.5 × 60	630
		18 × 35.5	720
500		22 × 30	620
	120	18 × 40	740
		22 × 35	650
		25.4 × 30	660
	150	18 × 45	753
		20 × 40	757
		22 × 40	780
		25.4 × 35	780
	180	22 × 45	870
		22 × 50	910
		25.4 × 40	890
	200	22 × 50	950
	220	25.4 × 50	1070
	6.8	10 × 20	100
	10	12.5 × 20	135
	15	12.5 × 25	182
	22	12.5 × 30	210
	27	10 × 50	253
	33	16 × 31.5	319
		18 × 25	308
	39	12.5 × 50	358
	40	12.5 × 50	360
	47	18 × 31.5	393
	56	12.5 × 60	440
		22 × 25	390
	60	12.5 × 60	455
	68	18 × 35.5	489
		22 × 30	450
	82	18 × 40	594
		25.4 × 30	530
	100	18 × 45	620
		20 × 40	618
		22 × 35	580
		22 × 40	610
		22 × 45	702
	120	25.4 × 35	680
		25.4 × 40	710
	150	22 × 50	827
	180	25.4 × 50	950