

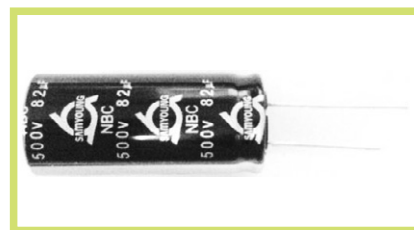
**NBC Series**

• 105°C 5,000~12,000Hrs assured.

- Non-solvent proof
- High ripple and long life, Low Temp.
- For SMPS,IP-Board,Adaptor,LED Lighting
- RoHS compliant.
- Halogen-free capacitors are also available.



High Ripple



**SPECIFICATIONS**

Item	Characteristics												
Rated Voltage Range	160~500 V <sub>DC</sub>												
Operating Temperature Range	-40~ +105°C												
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)												
Leakage Current	<table border="1"> <thead> <tr> <th>C · V</th> <th>Time</th> <th>After 1 minute</th> <th>After 5 minutes</th> </tr> </thead> <tbody> <tr> <td>≤ 1000</td> <td></td> <td>I = 0.1CV + 40</td> <td>I = 0.03CV + 15</td> </tr> <tr> <td>&gt; 1000</td> <td></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>160~500</th> </tr> </thead> <tbody> <tr> <td>Z(-25°C)/Z(20°C)</td> <td>3</td> </tr> <tr> <td>Z(-40°C)/Z(20°C)</td> <td>6</td> </tr> </tbody> </table> <p>(at 120Hz)</p>	Rated Voltage(V <sub>DC</sub> )	160~500	Z(-25°C)/Z(20°C)	3	Z(-40°C)/Z(20°C)	6						
Rated Voltage(V <sub>DC</sub> )	160~500												
Z(-25°C)/Z(20°C)	3												
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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 12,000 hours at 105°C. (where 5,000hour for ø6.3, 8,000hours for ø8, 10,000hours for ø10)</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 NBC Series**

Unit(mm)

Marking : DARK BLUE SLEEVE, SILVER INK

øD	6.3	8	10	12.5	16	18	20
ød	0.5	0.6	0.6	0.6	0.8	0.8	0.8
F	2.5	3.5	5.0	5.0	7.5	7.5	7.5
øD'	øD + 0.5 max.						
L'	L + 1.5 max.		L + 2.0 max.				

※ ø10 x 12L, L' ≤ L + 1.5

NBC Series

## RATINGS OF NBC Series

V <sub>dc</sub>	160		200		250		350	
Items μF	∅ D × L (mm)	Rated ripple current (mArms/105°C, 120Hz)	∅ D × L (mm)	Rated ripple current (mArms/105°C, 120Hz)	∅ D × L (mm)	Rated ripple current (mArms/105°C, 120Hz)	∅ D × L (mm)	Rated ripple current (mArms/105°C, 120Hz)
4.7			8 × 11.5	77	8 × 15	80	8 × 11.5	93
6.8	8 × 11.5	90	8 × 15	103	8 × 20	106	8 × 15	101
					10 × 12	119		
					10 × 12.5	119		
10	8 × 15	121	8 × 11.5	113	10 × 12	160	10 × 12	153
			8 × 20	140	10 × 12.5	160	10 × 12.5	153
15	8 × 15	148	8 × 15	148	10 × 12	174	10 × 16	149
					10 × 12.5	174	10 × 20	197
22	10 × 12	221	10 × 12	221	10 × 16	230	12.5 × 20	297
	10 × 12.5	221	10 × 12.5	221				
	10 × 16	243	10 × 16	243				
27	10 × 12	240	10 × 16	264	10 × 20	270	12.5 × 20	314
	10 × 12.5	240						
33	10 × 16	270	10 × 20	308	12.5 × 20	323	12.5 × 20	319
	10 × 16	292	10 × 20	336	12.5 × 20	354	12.5 × 25	352
47	10 × 20	369	10 × 20	369	12.5 × 20	440	12.5 × 30	451
			12.5 × 20	440				
68	10 × 20	400	12.5 × 20	492	12.5 × 25	594	16 × 25	605
			12.5 × 25	594				
82	10 × 25	455	12.5 × 25	616	12.5 × 30	660	18 × 25	688
	12.5 × 20	495	16 × 20	616				
100	12.5 × 20	561	12.5 × 30	700	16 × 25	717	18 × 31.5	817
	10 × 33	638	16 × 25	717				
120	12.5 × 25	638	12.5 × 35	815	16 × 25	785	18 × 35.5	924
	16 × 25	825	16 × 25	785				
150	16 × 25	825	16 × 25	836	18 × 25	902	18 × 35.5	1,036
180	16 × 25	891	16 × 31.5	935	18 × 31.5	1,012	18 × 40	1,155
220	16 × 31.5	968	18 × 31.5	1,100	18 × 31.5	1,100		
	18 × 25	968						
270	16 × 35.5	1,100	18 × 35.5	1,265				
330	16 × 40	1,256	18 × 40	1,375				
	18 × 31.5	1,231						
470	18 × 40	1,541						

V <sub>dc</sub>	400		420		450		500	
Items μF	∅ D × L (mm)	Rated ripple current (mArms/105°C, 120Hz)	∅ D × L (mm)	Rated ripple current (mArms/105°C, 120Hz)	∅ D × L (mm)	Rated ripple current (mArms/105°C, 120Hz)	∅ D × L (mm)	Rated ripple current (mArms/105°C, 120Hz)
1	6.3 × 11	22	6.3 × 11	17	6.3 × 11	17		
1.5	6.3 × 15	32	6.3 × 15	24	6.3 × 15	24		
	8 × 11.5	34	8 × 11.5	26	8 × 11.5	26		
2.2	8 × 11.5	41	8 × 11.5	30	8 × 15	33		
3.3	8 × 11.5	50	8 × 11.5	37	8 × 11.5	37	10 × 12	63
							10 × 12.5	63
4.7	8 × 11.5	60	8 × 11.5	44	10 × 12	76	10 × 12	75
					10 × 12.5	76	10 × 12.5	75
6.8	8 × 15	94	8 × 20	105	8 × 20	105	10 × 16	110
	8 × 20	119	10 × 16	113	10 × 16	113	10 × 20	141
10 × 12	132							
10 × 12.5	132							
10	10 × 16	145	10 × 20	135	10 × 20	135	12.5 × 20	165
22	12.5 × 20	297	12.5 × 20	225	12.5 × 25	250	12.5 × 30	260
27	12.5 × 20	314	12.5 × 20	254	12.5 × 25	265	12.5 × 40	329
			12.5 × 30	340	12.5 × 30	340	12.5 × 45	370
33	12.5 × 25	343	16 × 20	345	16 × 20	345	16 × 25	350
			12.5 × 25	352	12.5 × 35	380	12.5 × 35	380
39	12.5 × 30	378	16 × 25	400	16 × 25	400	16 × 31.5	413
	12.5 × 35	462	12.5 × 40	450	12.5 × 40	450	16 × 35.5	462
47	16 × 25	480	16 × 25	450	16 × 25	450	18 × 31.5	468
	12.5 × 40	550	18 × 25	520	18 × 25	560	16 × 45	630
68	18 × 25	627	18 × 31.5	580	18 × 31.5	590	18 × 35.5	600
	18 × 31.5	770	18 × 25	600	16 × 40	650	16 × 50	685
18 × 31.5			650	18 × 31.5	650	18 × 40	670	
100	18 × 31.5	817	16 × 45	770	16 × 45	770	18 × 45	800
	18 × 35.5	875	18 × 35.5	770	18 × 35.5	770	20 × 40	800
120	18 × 35.5	924	16 × 50	850	16 × 50	850	18 × 50	920
	18 × 40	1,003	18 × 40	850	18 × 40	850		
150	18 × 40	1,122	18 × 45	1,000				
180	18 × 45	1,188	20 × 40	1,000				
	20 × 40	1,188						

## RATED RIPPLE CURRENT MULTIPLIERS

### Frequency Multipliers

Cap. (μF)	Freq. (Hz)	120	1k	10k	50k	100k
1 ~ 82	1 ~ 82	1.00	1.75	2.25	2.35	2.50
	100 ~ 470	1.00	1.67	2.05	2.15	2.25