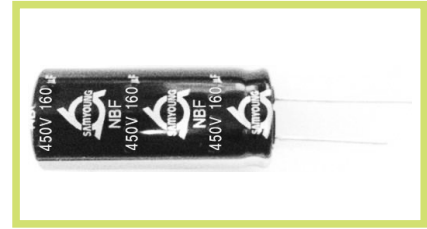
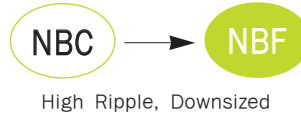


NBF Series

• 105°C 12,000Hrs assured.

- Non-solvent proof
- High Ripple, Long Life, Low Temp.
- Suitable to fit for automotive equipment
- RoHS compliant.
- Halogen-free capacitors are also available.



SPECIFICATIONS

Item	Characteristics												
Rated Voltage Range	450~500												
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>> 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_{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										
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Dissipation Factor(Tanδ)	<table border="1"> <thead> <tr> <th>Rated Voltage(V_{DC})</th> <th>450~500</th> </tr> </thead> <tbody> <tr> <td>Tanδ(Max.)</td> <td>0.24</td> </tr> </tbody> </table> <p>(at 20°C, 120Hz)</p>	Rated Voltage(V _{DC})	450~500	Tanδ(Max.)	0.24								
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Temperature Characteristics (Max. Impedance ratio)	<table border="1"> <thead> <tr> <th>Rated Voltage(V_{DC})</th> <th>450~500</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 _{DC})	450~500	Z(-25°C)/Z(20°C)	3	Z(-40°C)/Z(20°C)	6						
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Load Life	<p>The following specification 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.</p> <p>Capacitance change ≤ ±20 % of the initial value Tanδ ≤ 200 % of the initial specified value Leakage current ≤ Capacitancechange</p>												
Shelf Life	<p>The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing then 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 NBF Series

Unit(mm)

Marking : BLACK SLEEVE, WHITE INK

øD	16	18
ød	0.8	0.8
F	7.5	7.5
øD'	øD + 0.5 max.	
L'	L + 2.0 max.	

RATINGS OF NBF Series

V _{dc}	Capacitance (μF)	∅ D×L(mm)	Rated Ripple Current (mA rms/105°C, 120min)
450	47	16 × 20	400
	62	16 × 25	510
		18 × 20	510
	82	16 × 31.5	650
		18 × 25	640
	100	16 × 35.5	750
	110	18 × 31.5	800
	120	16 × 45	860
	130	18 × 35.5	920
	160	18 × 40	980
180	18 × 45	1020	
500	33	16 × 20	340
	39	16 × 25	390
	52	16 × 31.5	490
		18 × 25	480
	82	16 × 45	710
		18 × 31.5	660
		18 × 35.5	690
	100	16 × 50	810
		18 × 40	790

RATED RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Cap.(μF) \ Freq.(Hz)	120	1k	10k	50k	100k
1~82	1.00	1.75	2.25	2.35	2.50
100~1000	1.00	1.67	2.05	2.15	2.25