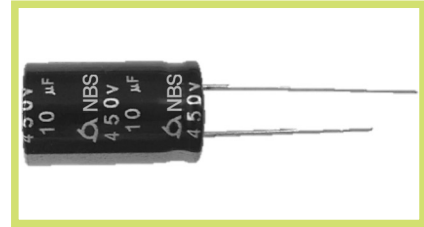
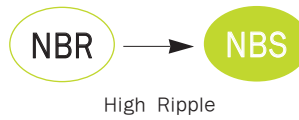


NBS Series

• 105°C 5,000Hrs assured

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

• AEC-Q200 compliant : Please contact us for more details, test data, information.



SPECIFICATIONS

Item	Characteristics											
Rated Voltage Range	160 ~ 500 V _{DC}											
Operating Temperature Range	-40 ~ +105°C											
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)											
Leakage Current	<table border="1"> <thead> <tr> <th>CV</th> <th>Time</th> <th>After 1 minute</th> <th>After 5 minutes</th> </tr> </thead> <tbody> <tr> <td rowspan="2">≤ 1000</td> <td></td> <td>I = 0.1CV + 40</td> <td>I = 0.03CV + 15</td> </tr> <tr> <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>	CV	Time	After 1 minute	After 5 minutes	≤ 1000		I = 0.1CV + 40	I = 0.03CV + 15		I = 0.04CV + 100	I = 0.02CV + 25
CV	Time	After 1 minute	After 5 minutes									
≤ 1000		I = 0.1CV + 40	I = 0.03CV + 15									
		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 ~ 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})	160 ~ 500	Z(-25°C)/Z(+20°C)	3	Z(-40°C)/Z(+20°C)	6					
Rated Voltage(V _{DC})	160 ~ 500											
Z(-25°C)/Z(+20°C)	3											
Z(-40°C)/Z(+20°C)	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.</p> <p>Capacitance change ≤ ±20 % of the initial value tan δ ≤ 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 tan δ ≤ 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 NBS Series

Unit(mm)

Marking : DARK BLUE SLEEVE, SILVER INK

	10	12.5	16	18	20	22
øD	10	12.5	16	18	20	22
ød	0.6	0.6	0.8	0.8	0.8	1.0
F	5.0	5.0	7.5	7.5	7.5	10.0
øD'	øD + 0.5 max.					
L'	L + 2.0 max.					

※ ø10 x 12L, L' ≤ L + 1.5

RATINGS OF NBS Series

V _{dc}	160		200		250		350	
Items μF	∅ D×L(mm)	Rated Ripple Current (mA _{rms} /105°C, 120Hz)	∅ D×L(mm)	Rated Ripple Current (mA _{rms} /105°C, 120Hz)	∅ D×L(mm)	Rated Ripple Current (mA _{rms} /105°C, 120Hz)	∅ D×L(mm)	Rated Ripple Current (mA _{rms} /105°C, 120Hz)
10					10×12	180	10×12	168
					10×12.5	180	10×12.5	168
15					10×12	204	10×16	176
					10×12.5	204	10×20	228
22	10×12	286	10×12	276	10×16	278	12.5×20	343
	10×12.5	286	10×12.5	276				
	10×16	335	10×16	290				
27	10×12	330	10×16	315	10×20	327	12.5×20	362
	10×12.5	330						
	10×16	368						
33	10×16	360	10×20	373	12.5×20	391	12.5×20	369
39	10×16	365	10×20	405	12.5×20	429	12.5×25	406
47	10×20	436	10×20	436	12.5×20	494	12.5×30	521
			12.5×20	494				
68	10×20	515	12.5×20	595	12.5×25	665	16×25	699
			12.5×25	665				
82	10×25	575	12.5×25	711	12.5×30	782	18×25	794
	12.5×20	575	16×20	711				
100	12.5×20	650	12.5×30	835	16×25	828	18×31.5	944
			16×25	835				
120	10×33	745	12.5×35	965	16×25	907	18×35.5	1067
	12.5×25	745	16×25	927				
150	16×25	935	16×25	953	18×25	1042	18×35.5	1197
180	16×25	1029	16×31.5	1080	18×31.5	1169	18×40	1336
220	16×31.5	1118	18×31.5	1310	18×31.5	1271		
	18×25	1118						
270	16×35.5	1271	18×35.5	1461				
330	16×40	1451	18×40	1588				
	18×31.5	1422						
470	18×40	1780						

V _{dc}	400		420		450		500	
Items μF	∅ D×L(mm)	Rated Ripple Current (mA _{rms} /105°C, 120Hz)	∅ D×L(mm)	Rated Ripple Current (mA _{rms} /105°C, 120Hz)	∅ D×L(mm)	Rated Ripple Current (mA _{rms} /105°C, 120Hz)	∅ D×L(mm)	Rated Ripple Current (mA _{rms} /105°C, 120Hz)
6.8							10×16	125
8.2	10×12	152	10×16	130	10×16	130	10×20	158
	10×12.5	152						
10	10×16	168	10×20	160	10×20	160	12.5×20	185
22	12.5×20	343	12.5×20	260	12.5×25	285	12.5×30	290
27	12.5×20	362	12.5×20	288	12.5×25	325	12.5×40	368
33	12.5×25	397	12.5×30	385	12.5×30	385	12.5×45	415
			16×20	390	16×20	390	16×25	395
39	12.5×25	406	12.5×35	428	12.5×35	428	12.5×50	470
	12.5×30	437	16×25	450	16×25	450	16×31.5	460
47	12.5×35	533	12.5×40	520	12.5×40	520	16×35.5	525
	16×25	554	16×25	520	16×25	520	18×31.5	525
68	12.5×40	635	18×25	620	18×25	620	16×45	700
	18×25	725			18×31.5	660	18×35.5	685
82	18×31.5	889	18×25	678	16×40	730	16×50	760
			18×31.5	730	18×31.5	730	18×40	745
100	18×31.5	944	16×45	860	16×45	855	18×45	900
	18×35.5	1,010	18×35.5	860	18×35.5	855	20×40	900
120	18×35.5	1,067	16×50	950	16×50	950	18×50	1050
	18×40	1,159	18×40	950	18×40	950		
150	18×40	1,296	16×50	1,150				
180	18×45	1,372	18×45	1,150				
	20×40	1,372						

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
100~470		1.00	1.67	2.05	2.15	2.25