

NBA Series

• 105°C 3,000~5,000Hrs 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.

NFS

NBA

High Ripple, Low Temp.



SPECIFICATIONS

Item	Characteristics											
Rated Voltage Range	160~500 V _{DC}											
Operating Temperature Range	-40~+105℃											
Capacitance Tolerance	±20%(M) (at 20℃, 120Hz)											
Leakage Current	<table><tr><th>C · V \ Time</th><th>After 1 minute</th><th>After 5 minutes</th></tr><tr><td>≤ 1000</td><td>I = 0.1CV + 40</td><td>I = 0.03CV + 15</td></tr><tr><td>> 1000</td><td>I = 0.04CV + 100</td><td>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 · 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>350~500</td></tr><tr><td>Tanδ(Max.)</td><td>0.20</td><td>0.24</td></tr></table> (at 20℃, 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>160~500</td></tr><tr><td>Z(- 25℃)/Z(20℃)</td><td>3</td></tr><tr><td>Z(- 40℃)/Z(20℃)</td><td>6</td></tr></table> (at 120Hz)			Rated Voltage(V _{DC})	160~500	Z(- 25℃)/Z(20℃)	3	Z(- 40℃)/Z(20℃)	6			
Rated Voltage(V _{DC})	160~500											
Z(- 25℃)/Z(20℃)	3											
Z(- 40℃)/Z(20℃)	6											
Load Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ 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℃. (where 3,000hour 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℃ after exposing them for 1,000 hours at 105℃ 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 NBA Series

Unit(mm)

Technical drawing of a capacitor showing side and end views with dimensions:

- Side View:** Shows a cylindrical body with a "Safety vent" and a "Sleeve". The total length is L' . The distance from the sleeve to the end is 15min. . The distance from the end to the center of the leads is 4min. . The lead diameter is $\phi d \pm 0.05$.
- End View 1:** Shows the diameter of the body as $\leq \phi 10$.
- End View 2:** Shows the diameter of the body as $\approx \phi 12.5$.
- End View 3:** Shows the diameter of the body as $\phi 20$.

Marking : DARK BLUE SLEEVE, SILVER INK

ϕD	6.3	8	10	12.5	16	18	20	22
ϕd	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
$\phi D'$	$\phi D + 0.5 \text{ max.}$							
L'	L + 1.5 max.		L + 2.0 max.					

※ $\phi 10 \times 12L$, $L' \leq L + 1.5$



MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

RATINGS OF NBA Series

Vdc	160		200		250		350	
Items μF	$\varnothing D \times L (mm)$	Rated Ripple Current (mAmps/105°C, 120Hz)	$\varnothing D \times L (mm)$	Rated Ripple Current (mAmps/105°C, 120Hz)	$\varnothing D \times L (mm)$	Rated Ripple Current (mAmps/105°C, 120Hz)	$\varnothing D \times L (mm)$	Rated Ripple Current (mAmps/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	204	10 × 16	158
					10 × 12.5		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						
	10 × 16	264						
33	10 × 16	270	10 × 20	308	12.5 × 20	323	12.5 × 20	319
39	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
			16 × 25	717				
120	10 × 33	638	12.5 × 35	815	16 × 25	785	18 × 35.5	924
	12.5 × 25	638	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						

Vdc	400		420		450		500	
Items μF	ø D × L (mm)	Rated Ripple Current (mAmps/105°C, 120Hz)	ø D × L (mm)	Rated Ripple Current (mAmps/105°C, 120Hz)	ø D × L (mm)	Rated Ripple Current (mAmps/105°C, 120Hz)	ø D × L (mm)	Rated Ripple Current (mAmps/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
8.2	8 × 20	119	10 × 16	113	10 × 16	113	10 × 20	141
	10 × 12	140						
	10 × 12.5							
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
33	12.5 × 25	343	12.5 × 30	340	12.5 × 30	340	12.5 × 45	370
			16 × 20	345	16 × 20	345	16 × 25	350
39	12.5 × 25	352	12.5 × 35	380	12.5 × 35	380	12.5 × 50	420
	12.5 × 30	378	16 × 25	400	16 × 25	400	16 × 31.5	413
47	12.5 × 35	462	12.5 × 40	450	12.5 × 40	450	16 × 35.5	462
	16 × 25	480	16 × 25	450	16 × 25	450	18 × 31.5	468
68	12.5 × 40	550	18 × 25	520	18 × 25	560	16 × 45	630
	18 × 25	627	18 × 31.5	580	18 × 31.5	590	18 × 35.5	600
82	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				
			20 × 40	1,000				
180	18 × 45	1,188						
	20 × 40	1,188						

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