

NB series

- High reliability, withstand high temperature
- Endurance +130°C 2,000~5,000 hours
- RoHS Compliant

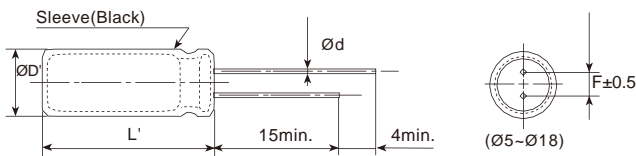
Upgrade



SPECIFICATIONS

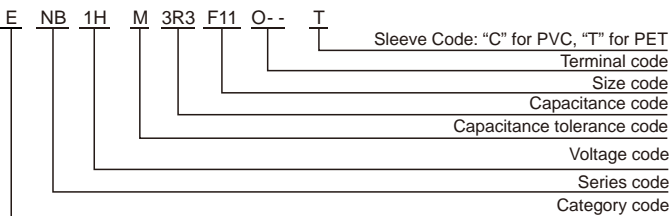
Items	Characteristics																				
Category Temperature Range	-40~+130°C																				
Rated Voltage Range	10~120 V _{dc}																				
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)																				
Leakage Current	I ≤ 0.01CV or 3μA, whichever is greater. Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)																				
Dissipation Factor (tan δ)	Rated Voltage(V _{dc})	10	16	25	35	50	63	80	100	120	(at 20°C, 120Hz)										
	tan δ (max.)	0.24	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.12											
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(V _{dc})	10	16	25	35	50	63	80	100	120	(at 120Hz)										
	Z(-25°C)/Z(+20°C)	3		2				3													
	Z(-40°C)/Z(+20°C)	6		4		3		6													
Endurance	The specifications listed below shall be met when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for a specified period of time at 130°C.																				
	Capacitance Change	±30% of the initial value								<table border="1" style="font-size: small;"> <tr> <th>Dia. (mm)</th> <th>Load life (hours)</th> </tr> <tr> <td>ØD=5&6.3</td> <td>2,000</td> </tr> <tr> <td>ØD=8</td> <td>3,000</td> </tr> <tr> <td>ØD=10</td> <td>4,000</td> </tr> <tr> <td>ØD 12.5</td> <td>5,000</td> </tr> </table>		Dia. (mm)	Load life (hours)	ØD=5&6.3	2,000	ØD=8	3,000	ØD=10	4,000	ØD 12.5	5,000
	Dia. (mm)	Load life (hours)																			
	ØD=5&6.3	2,000																			
	ØD=8	3,000																			
ØD=10	4,000																				
ØD 12.5	5,000																				
D.F. (tan δ)	300% of the initial specified value																				
Leakage Current	The initial specified value																				
The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 130°C for 1,000 hours.																					
Shelf Life	Capacitance Change	±30% of the initial value																			
	D.F. (tan δ)	300% of the initial specified value																			
	Leakage Current	500% of the initial specified value																			

DIMENSIONS[mm]



ØD	5	6.3	8	10	12.5	16	18
Ød	0.5	0.5	0.5	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ØD'	ØD+0.5max.						
L'	L+2max.						

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap.(μF) \ Freq.(Hz)	50/60	120	1k	10k	100k
Cap.<10	0.35	0.42	0.60	0.80	1.00
10 Cap.<47	0.45	0.55	0.75	0.90	1.00
47 Cap.<470	0.60	0.70	0.85	0.95	1.00
470 Cap.<2200	0.65	0.75	0.90	0.98	1.00
Cap. 2200	0.75	0.80	0.95	1.00	1.00

The endurance of capacitors is shortened with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

Radial Type

NB series

■ STANDARD RATINGS

WV (Vdc)	Cap (µF)	Size DxL(mm)	Rated ripple current (mA rms/130°C, 100kHz)	Part Number
10(1A)	330	6.3x12	180	ENB1AM331E12OT
		8x11	360	ENB1AM331F11OT
	470	8x12	360	ENB1AM471F12OT
		10x13	620	ENB1AM471G13OT
	680	8x12	400	ENB1AM681F12OT
		10x13	620	ENB1AM681G13OT
	1000	10x16	660	ENB1AM102G16OT
		10x20	960	ENB1AM102G20OT
	2200	12.5x25	1430	ENB1AM222W25OT
	3300	16x25	1900	ENB1AM332L25OT
4700	16x30	2300	ENB1AM472L30OT	
16(1C)	100	5x11	90	ENB1CM101D11OT
	220	6.3x11	125	ENB1CM221E11OT
	330	8x12	360	ENB1CM331F12OT
		8x12	360	ENB1CM471G12OT
	470	10x13	620	ENB1CM471G13OT
		10x20	960	ENB1CM102G20OT
	2200	10x25	980	ENB1CM222G25OT
		12.5x25	1430	ENB1CM222W25OT
	3300	16x30	2300	ENB1CM332L30OT
	4700	16x35	2550	ENB1CM472L35OT
25(1E)	220	8x12	360	ENB1EM221F12OT
		8x12	360	ENB1EM331F12OT
	330	10x13	620	ENB1EM331G13OT
		8x16	610	ENB1EM471F16OT
	470	10x16	800	ENB1EM471G16OT
		10x20	960	ENB1EM102G20OT
	1000	12.5x20	1100	ENB1EM102W20OT
		16x30	2300	ENB1EM222L30OT
3300	16x35	2550	ENB1EM332L35OT	
35(1V)	100	6.3x12	210	ENB1VM101E12OT
		8x11	360	ENB1VM101F11OT
	220	8x12	375	ENB1VM221F12OT
		10x13	620	ENB1VM221G13OT
	330	8x16	550	ENB1VM331F16OT
		10x16	800	ENB1VM331G16OT
	470	10x16	705	ENB1VM471G16OT
		10x20	960	ENB1VM471G20OT
	1000	12.5x20	1180	ENB1VM102W20OT
		12.5x25	1430	ENB1VM102W25OT
2200	16x35	2550	ENB1VM222L35OT	
3300	18x35	2800	ENB1VM332M35OT	
50(1H)	1	5x11	26	ENB1HM010D11OT
		5x11	35	ENB1HM2R2D11OT
	2.2	8x11	50	ENB1HM2R2F11OT
		5x11	40	ENB1HM3R3D11OT
	3.3	8x11	70	ENB1HM3R3F11OT
		5x11	42	ENB1HM4R7D11OT
	4.7	8x11	100	ENB1HM4R7F11OT
		5x11	90	ENB1HM100D11OT
	10	8x11	200	ENB1HM100F11OT
		5x12	110	ENB1HM220D12OT
	22	8x11	260	ENB1HM220F11OT
		6.3x11	150	ENB1HM330E11OT
	33	8x11	300	ENB1HM330F11OT
		6.3x11	180	ENB1HM470E11OT
	47	8x11	300	ENB1HM470F11OT
		8x12	340	ENB1HM101F12OT
	100	10x13	520	ENB1HM101G13OT
		8x16	520	ENB1HM221F16OT
	220	10x20	890	ENB1HM221G20OT
		10x16	530	ENB1HM331G16OT
330	12.5x20	1000	ENB1HM331W20OT	
	10x20	950	ENB1HM471G20OT	

WV (Vdc)	Cap (µF)	Size DxL(mm)	Rated ripple current (mA rms/130°C, 100kHz)	Part Number
50(1H)	470	12.5x25	1200	ENB1HM471W25OT
		12.5x20	1060	ENB1HM681W20OT
	680	16x20	1250	ENB1HM681L20OT
		12.5x25	1500	ENB1HM102W25OT
	1000	16x30	2180	ENB1HM102L30OT
2200	18x40	2800	ENB1HM222M40OT	
63(1J)	33	6.3x12	150	ENB1JM330E12OT
		8x11	250	ENB1JM330F11OT
	47	8x12	250	ENB1JM470F12OT
		10x13	400	ENB1JM470G13OT
	100	8x12	340	ENB1JM101F12OT
		10x16	450	ENB1JM101G16OT
	220	10x16	450	ENB1JM221G16OT
		12.5x20	820	ENB1JM221W20OT
	330	12.5x20	850	ENB1JM331W20OT
		12.5x25	1000	ENB1JM331W25OT
470	13x25	1000	ENB1JM471K25OT	
	16x25	1500	ENB1JM471L25OT	
1000	16x30	1850	ENB1JM102L30OT	
80(1B)	4.7	5x11	26	ENB1BM4R7D11OT
	10	5x11	68	ENB1BM100D11OT
	22	6.3x11	105	ENB1BM220E11OT
	33	6.3x12	135	ENB1BM330E12OT
		8x12	250	ENB1BM330F12OT
	100	8x16	400	ENB1BM101F16OT
		220	10x20	750
	330	12.5x20	850	ENB1BM331W20OT
		16x20	1200	ENB1BM471L20OT
	100(1K)	4.7	5x11	40
8x11			100	ENB1KM4R7F11OT
10		6.3x11	130	ENB1KM100E11OT
		8x11	200	ENB1KM100F11OT
22		6.3x12	150	ENB1KM220E12OT
		8x12	220	ENB1KM220F12OT
33		8x12	220	ENB1KM330F12OT
		10x13	260	ENB1KM330G13OT
47		8x16	240	ENB1KM470F16OT
		10x16	330	ENB1KM470G16OT
100	10x16	350	ENB1KM101G16OT	
	12.5x20	670	ENB1KM101W20OT	
220	13x20	720	ENB1KM221K20OT	
	16x25	1100	ENB1KM221L25OT	
330	16x25	1300	ENB1KM331L25OT	
	16x30	1300	ENB1KM331L30OT	
470	18x30	1600	ENB1KM471M30OT	
120(2B)	22	8x12	115	ENB2BM220F12OT
		8x16	200	ENB2BM330F16OT
	33	10x13	200	ENB2BM330G13OT
		8x20	240	ENB2BM470F20OT
	47	10x16	240	ENB2BM470G16OT
		10x16	255	ENB2BM560G16OT
	68	10x16	255	ENB2BM680G16OT
		10x20	270	ENB2BM820G20OT
	100	10x25	340	ENB2BM101G25OT
		12.5x20	465	ENB2BM121W20OT
150	12.5x25	515	ENB2BM151W25OT	
	13x30	630	ENB2BM221K30OT	
220	16x20	630	ENB2BM221L20OT	
	16x25	720	ENB2BM271L25OT	
270	18x20	720	ENB2BM271M20OT	
	16x30	775	ENB2BM331L30OT	
330	18x25	775	ENB2BM331M25OT	
	16x40	865	ENB2BM471L40OT	
470	18x30	865	ENB2BM471M30OT	