

NB series

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

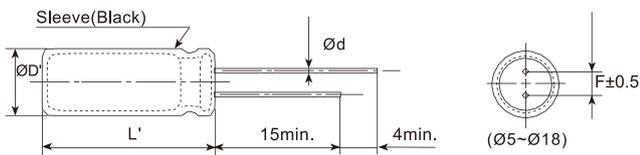
Upgrade



SPECIFICATIONS

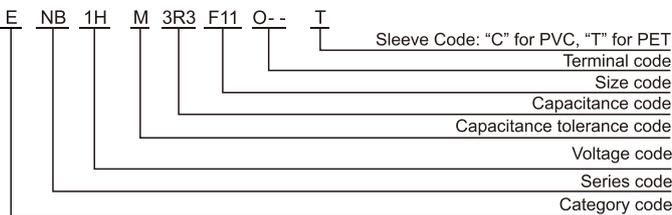
Items	Characteristics										
Category Temperature Range	-40~+130°C										
Rated Voltage Range	10~120 V _{dc}										
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)										
Leakage Current	I ≤ 0.01CV or 3μA, whichever is greater. Where, I: Max. leakage current (μA), C: Nominal capacitance (μF), V: Rated voltage (V) (at 20°C after 2 minutes)										
Dissipation Factor (tanδ)	Rated Voltage(V _{dc})	10	16	25	35	50	63	80	100	120	(at 20°C, 120Hz)
	tanδ (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							Dia. (mm)		Load life (hours)
	D.F. (tanδ)	≤300% of the initial specified value							ØD=5&6.3		2,000
	Leakage Current	≤The initial specified value							ØD=8		3,000
									ØD=10		4,000
		ØD=12.5		5,000							
Shelf Life	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.										
	Capacitance Change	≤±30% of the initial value									
	D.F. (tanδ)	≤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.

NB series

■ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	Rated ripple current (mArms/130°C,100kHz)	Part Number
10(1A)	330	6.3×12	180	ENB1AM331E12OT
		8×11	360	ENB1AM331F11OT
	470	8×12	360	ENB1AM471F12OT
		10×13	620	ENB1AM471G13OT
	680	8×12	400	ENB1AM681F12OT
		10×13	620	ENB1AM681G13OT
	1000	10×16	660	ENB1AM102G16OT
		10×20	960	ENB1AM102G20OT
2200	12.5×25	1430	ENB1AM222W25OT	
3300	16×25	1900	ENB1AM332L25OT	
4700	16×30	2300	ENB1AM472L30OT	
16(1C)	100	5×11	90	ENB1CM101D11OT
	220	6.3×11	125	ENB1CM221E11OT
	330	8×12	360	ENB1CM331F12OT
		8×12	360	ENB1CM471F12OT
	470	10×13	620	ENB1CM471G13OT
		10×20	960	ENB1CM102G20OT
	2200	10×25	980	ENB1CM222G25OT
		12.5×25	1430	ENB1CM222W25OT
	3300	16×30	2300	ENB1CM332L30OT
	4700	16×35	2550	ENB1CM472L35OT
25(1E)	220	8×12	360	ENB1EM221F12OT
		8×12	360	ENB1EM331F12OT
	330	10×13	620	ENB1EM331G13OT
		8×16	610	ENB1EM471F16OT
	470	10×16	800	ENB1EM471G16OT
		10×20	960	ENB1EM102G20OT
	1000	12.5×20	1100	ENB1EM102W20OT
2200	16×30	2300	ENB1EM222L30OT	
3300	16×35	2550	ENB1EM332L35OT	
35(1V)	100	6.3×12	210	ENB1VM101E12OT
		8×11	360	ENB1VM101F11OT
	220	8×12	375	ENB1VM221F12OT
		10×13	620	ENB1VM221G13OT
	330	8×16	550	ENB1VM331F16OT
		10×16	800	ENB1VM331G16OT
	470	10×16	705	ENB1VM471G16OT
		10×20	960	ENB1VM471G20OT
	1000	12.5×20	1180	ENB1VM102W20OT
	2200	12.5×25	1430	ENB1VM102W25OT
3300	16×35	2550	ENB1VM222L35OT	
3300	18×35	2800	ENB1VM332M35OT	
50(1H)	1	5×11	26	ENB1HM010D11OT
		5×11	35	ENB1HM2R2D11OT
	2.2	8×11	50	ENB1HM2R2F11OT
		5×11	40	ENB1HM3R3D11OT
	3.3	8×11	70	ENB1HM3R3F11OT
		5×11	42	ENB1HM4R7D11OT
	4.7	8×11	100	ENB1HM4R7F11OT
		5×11	90	ENB1HM100D11OT
	10	8×11	200	ENB1HM100F11OT
		5×12	110	ENB1HM220D12OT
	22	8×11	260	ENB1HM220F11OT
		6.3×11	150	ENB1HM330E11OT
	33	8×11	300	ENB1HM330F11OT
		6.3×11	180	ENB1HM470E11OT
	47	8×11	300	ENB1HM470F11OT
		8×12	340	ENB1HM101F12OT
	100	10×13	520	ENB1HM101G13OT
		8×16	520	ENB1HM221F16OT
	220	10×20	890	ENB1HM221G20OT
		10×16	530	ENB1HM331G16OT
	330	12.5×20	1000	ENB1HM331W20OT
		10×20	950	ENB1HM471G20OT

WV (Vdc)	Cap (μF)	Size DxL(mm)	Rated ripple current (mArms/130°C,100kHz)	Part Number
50(1H)	470	12.5×25	1200	ENB1HM471W25OT
	680	12.5×20	1060	ENB1HM681W20OT
		16×20	1250	ENB1HM681L20OT
	1000	12.5×25	1500	ENB1HM102W25OT
		16×30	2180	ENB1HM102L30OT
2200	18×40	2800	ENB1HM222M40OT	
63(1J)	33	6.3×12	150	ENB1JM330E12OT
		8×11	250	ENB1JM330F11OT
	47	8×12	250	ENB1JM470F12OT
		10×13	400	ENB1JM470G13OT
	100	8×12	340	ENB1JM101F12OT
		10×16	450	ENB1JM101G16OT
	220	10×16	450	ENB1JM221G16OT
		12.5×20	820	ENB1JM221W20OT
	330	12.5×20	850	ENB1JM331W20OT
		12.5×25	1000	ENB1JM331W25OT
470	13×25	1000	ENB1JM471K25OT	
	16×25	1500	ENB1JM471L25OT	
1000	16×30	1850	ENB1JM102L30OT	
80(1B)	4.7	5×11	26	ENB1BM4R7D11OT
	10	5×11	68	ENB1BM100D11OT
	22	6.3×11	105	ENB1BM220E11OT
	33	6.3×12	135	ENB1BM330E12OT
		8×12	250	ENB1BM330F12OT
	100	8×16	400	ENB1BM101F16OT
	220	10×20	750	ENB1BM221G20OT
	330	12.5×20	850	ENB1BM331W20OT
	470	16×20	1200	ENB1BM471L20OT
	100(1K)	4.7	5×11	40
8×11			100	ENB1KM4R7F11OT
10		6.3×11	130	ENB1KM100E11OT
		8×11	200	ENB1KM100F11OT
22		6.3×12	150	ENB1KM220E12OT
		8×12	220	ENB1KM220F12OT
33		8×12	220	ENB1KM330F12OT
		10×13	260	ENB1KM330G13OT
47		8×16	240	ENB1KM470F16OT
		10×16	330	ENB1KM470G16OT
100	10×16	350	ENB1KM101G16OT	
220	12.5×20	670	ENB1KM101W20OT	
220	13×20	720	ENB1KM221K20OT	
	16×25	1100	ENB1KM221L25OT	
330	16×25	1300	ENB1KM331L25OT	
	16×30	1300	ENB1KM331L30OT	
470	18×30	1600	ENB1KM471M30OT	
120(2B)	22	8×12	115	ENB2BM220F12OT
		8×16	200	ENB2BM330F16OT
	33	10×13	200	ENB2BM330G13OT
		8×20	240	ENB2BM470F20OT
	47	10×16	240	ENB2BM470G16OT
		10×16	255	ENB2BM560G16OT
	68	10×16	255	ENB2BM680G16OT
	82	10×20	270	ENB2BM820G20OT
	100	10×25	340	ENB2BM101G25OT
	120	12.5×20	465	ENB2BM121W20OT
		12.5×25	515	ENB2BM151W25OT
	150	13×30	630	ENB2BM221K30OT
		16×20	630	ENB2BM221L20OT
	270	16×25	720	ENB2BM271L25OT
		18×20	720	ENB2BM271M20OT
	330	16×30	775	ENB2BM331L30OT
		18×25	775	ENB2BM331M25OT
	470	16×40	865	ENB2BM471L40OT
		18×30	865	ENB2BM471M30OT