

NB series

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

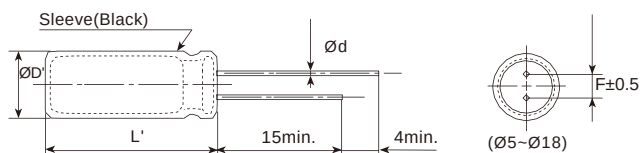
Upgrade



SPECIFICATIONS

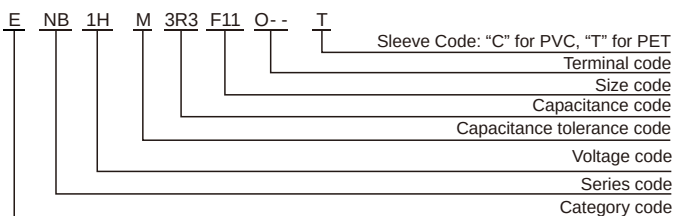
Items	Characteristics										
Category Temperature Range	-40~+130°C										
Rated Voltage Range	10~120 V _{dc}										
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)										
Leakage Current	I≤0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated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

Freq.(Hz) Cap.(μF)	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 ΦDxL(mm)	Rated ripple current (mA rms/130°C, 100kHz)	Part Number
10(1A)	330	6.3×12	180	ENB1AM331E120T
		8×11	360	ENB1AM331F110T
	470	8×12	360	ENB1AM471F120T
		10×13	620	ENB1AM471G130T
	680	8×12	400	ENB1AM681F120T
		10×13	620	ENB1AM681G130T
	1000	10×16	660	ENB1AM102G160T
		10×20	960	ENB1AM102G200T
	2200	12.5×25	1430	ENB1AM222W250T
	3300	16×25	1900	ENB1AM332L250T
16(1C)	4700	16×30	2300	ENB1AM472L300T
	100	5×11	90	ENB1CM101D110T
	220	6.3×11	125	ENB1CM221E110T
	330	8×12	360	ENB1CM331F120T
		8×12	360	ENB1CM471G130T
	470	10×13	620	ENB1CM471G130T
		10×20	960	ENB1CM102G200T
	2200	10×25	980	ENB1CM222G250T
		12.5×25	1430	ENB1CM222W250T
	3300	16×30	2300	ENB1CM332L300T
25(1E)	4700	16×35	2550	ENB1CM472L350T
	220	8×12	360	ENB1EM221F120T
		8×12	360	ENB1EM331F120T
	330	10×13	620	ENB1EM331G130T
		8×16	610	ENB1EM471F160T
	470	10×16	800	ENB1EM471G160T
		10×20	960	ENB1EM102G200T
	1000	12.5×20	1100	ENB1EM102W200T
		16×30	2300	ENB1EM222L300T
	3300	16×35	2550	ENB1EM332L350T
35(1V)	100	6.3×12	210	ENB1VM101E120T
		8×11	360	ENB1VM101F110T
	220	8×12	375	ENB1VM221F120T
		10×13	620	ENB1VM221G130T
	330	8×16	550	ENB1VM331F160T
		10×16	800	ENB1VM331G160T
	470	10×16	705	ENB1VM471G160T
		10×20	960	ENB1VM471G200T
	1000	12.5×20	1180	ENB1VM102W200T
		12.5×25	1430	ENB1VM102W250T
50(1H)	2200	16×35	2550	ENB1VM222L350T
	3300	18×35	2800	ENB1VM332M350T
	1	5×11	26	ENB1HM010D110T
		5×11	35	ENB1HM2R2D110T
	2.2	8×11	50	ENB1HM2R2F110T
		5×11	40	ENB1HM3R3D110T
	3.3	8×11	70	ENB1HM3R3F110T
		5×11	42	ENB1HM4R7D110T
	4.7	8×11	100	ENB1HM4R7F110T
		5×11	90	ENB1HM100D110T
50(1H)	10	8×11	200	ENB1HM100F110T
		5×12	110	ENB1HM220D120T
	22	8×11	260	ENB1HM220F110T
		6.3×11	150	ENB1HM330E110T
	33	8×11	300	ENB1HM330F110T
		6.3×11	180	ENB1HM470E110T
	47	8×11	300	ENB1HM470F110T
		8×12	340	ENB1HM101F120T
	100	10×13	520	ENB1HM101G130T
		8×16	520	ENB1HM221F160T
50(1H)	220	10×20	890	ENB1HM221G200T
		10×16	530	ENB1HM331G160T
	330	12.5×20	1000	ENB1HM331W200T
		10×20	950	ENB1HM471G200T

WV (V _{dc})	Cap (μF)	Size ΦD×L(mm)	Rated ripple current (mA _{rms} /130°C,100kHz)	Part Number
50(1H)	470	12.5×25	1200	ENB1HM471W250T
	680	12.5×20	1060	ENB1HM681W200T
		16×20	1250	ENB1HM681L200T
	1000	12.5×25	1500	ENB1HM102W250T
		16×30	2180	ENB1HM102L300T
63(1J)	2200	18×40	2800	ENB1HM222M400T
	33	6.3×12	150	ENB1JM330E120T
		8×11	250	ENB1JM330F110T
	47	8×12	250	ENB1JM470F120T
		10×13	400	ENB1JM470G130T
	100	8×12	340	ENB1JM101F120T
		10×16	450	ENB1JM101G160T
	220	10×16	450	ENB1JM221G160T
		12.5×20	820	ENB1JM221W200T
	330	12.5×20	850	ENB1JM331W200T
12.5×25		1000	ENB1JM331W250T	
13×25		1000	ENB1JM471K250T	
16×25		1500	ENB1JM471L250T	
1000	16×30	1850	ENB1JM102L300T	
80(1B)	4.7	5×11	26	ENB1BM4R7D110T
	10	5×11	68	ENB1BM100D110T
	22	6.3×11	105	ENB1BM220E110T
	33	6.3×12	135	ENB1BM330E120T
		8×12	250	ENB1BM330F120T
	100	8×16	400	ENB1BM101F160T
	220	10×20	750	ENB1BM221G200T
	330	12.5×20	850	ENB1BM331W200T
470	16×20	1200	ENB1BM471L200T	
100(1K)	4.7	5×11	40	ENB1KM4R7D110T
		8×11	100	ENB1KM4R7F110T
	10	6.3×11	130	ENB1KM100E110T
		8×11	200	ENB1KM100F110T
	22	6.3×12	150	ENB1KM220E120T
		8×12	220	ENB1KM220F120T
	33	8×12	220	ENB1KM330F120T
		10×13	260	ENB1KM330G130T
	47	8×16	240	ENB1KM470F160T
		10×16	330	ENB1KM470G160T
	100	10×16	350	ENB1KM101G160T
		12.5×20	670	ENB1KM101W200T
	220	13×20	720	ENB1KM221K200T
		16×25	1100	ENB1KM221L250T
330	16×25	1300	ENB1KM331L250T	
	16×30	1300	ENB1KM331L300T	
470	18×30	1600	ENB1KM471M300T	
120(2B)	22	8×12	115	ENB2BM220F120T
	33	8×16	200	ENB2BM330F160T
		10×13	200	ENB2BM330G130T
	47	8×20	240	ENB2BM470F200T
		10×16	240	ENB2BM470G160T
	56	10×16	255	ENB2BM560G160T
	68	10×16	255	ENB2BM680G160T
	82	10×20	270	ENB2BM820G200T
	100	10×25	340	ENB2BM101G250T
	120	12.5×20	465	ENB2BM121W200T
	150	12.5×25	515	ENB2BM151W250T
	220	13×30	630	ENB2BM221K300T
		16×20	630	ENB2BM221L200T
	270	16×25	720	ENB2BM271L250T
		18×20	720	ENB2BM271M200T
	330	16×30	775	ENB2BM331L300T
18×25		775	ENB2BM331M250T	
470	16×40	865	ENB2BM471L400T	
	18×30	865	ENB2BM471M300T	