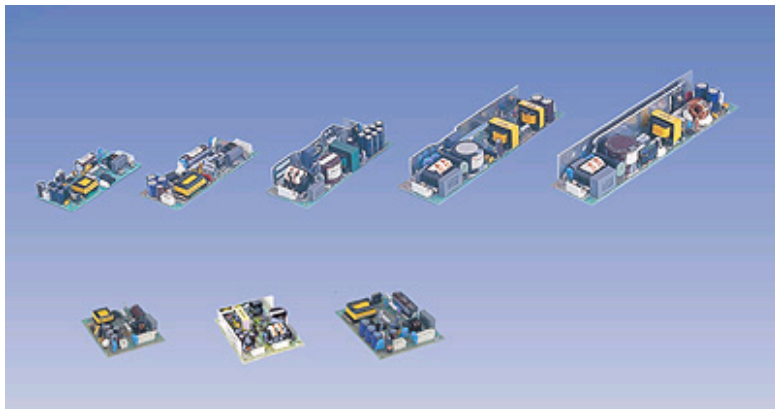


# 15 WATT AC-DC CONVERTER

## BNM/ BNME-SA

### General Description

BN-Series are open frame, board type power supply with AC input range of 85~132 VAC for use in Japan and North America market. Simplified circuit design gives high cost-effectiveness and small size. This series meets UL/CSA and Japan Electrical Appliance and Material Control law, in addition to EMI limits of FCC class B and VCCI class.



### Options

N/A

### Features

1. Cost Effective
2. High Efficiency
3. Small Size
4. Mountable , 5 ways mounting
5. Input: 85~132Vac
6. EMI: complies with FCC/B
6. Safety: UL 1950, CSA950(C-UL), VDE
7. CE-marked acc. To LVD

Specifications<AC/DC>	Model				
<b>BNM**SA-U/BNME**SA</b> <b>15WATTS/SINGLE</b>	BNM3.3SA-U BNME3.3SA	BNM05SA-U BNME05SA	BNM12SA-U BNME12SA	BNM15SA-U BNME15SA	BNM24SA-U BNME24SA
<b>Input Characteristic</b>					
Input Voltage	AC100-115V				
Input Current	0.4A				
Input Range	AC85-132V(DC110-175V)				
Input Frequency	50/60Hz				
Input Frequency Range	47-440Hz				
Phase	Single				
Inrush Current *1	20A(typical) at AC100V				
Efficiency [%] (typical) *2	70	74	78	79	80

Specifications<AC/DC>	Model				
	BNM**SA-U/BNME**SA 15WATTS/SINGLE	BNM3.3SA-U BNME3.3SA	BNM05SA-U BNME05SA	BNM12SA-U BNME12SA	BNM15SA-U BNME15SA
<b>Output Characteristic</b>					
Output Voltage [V]	3.3	5	12	15	24
Output Current [A]	3.0	3.0	1.3	1.0	0.7
Voltage Adjust Range	+/- 10% of Rated Output Voltage(at no load within the input range)				
Ripple and Noise [mVp-p](max) 0 to +60C *3	120	120	150	150	150
	160	160	180	180	180
<b>Regulation</b>					
a.Statistic Line Regulation [mV](maximum)	26	40	96	120	192
b.Statistic Load Regulation [mV](maximum)	30	45	108	135	216
c.Temperature Coefficient *4	0.03%/C				
d.Drift[mV](maximum) *5	32	40	75	90	135
e.Dynamic Load Regulation [mV](typical) *6	not specified				
f.Recovery Time *6	not specified				
Rise up time	200mS(maximum) at 25C and rated input/output				
Hold up time	20mS(typical) at 25C and rated input/output				
<b>Functions</b>					
Overcurrent Protection *7 Output Current[A]	= or >105% of Rated	Current Limiting with automatic recovery			
	3.2	3.2	1.4	1.1	0.74
Overvoltage Protection Output Voltage[V]	= or >115% of Rated	Zener diode clamping			
	3.8	5.75	13.8	17.3	27.6
Remote Sense / Remote On/Off	not available				
<b>Environmental</b>					
Operating Temperature	-10 to +50C				
Operating Humidity	20 to 90%RH(non-condensing)				
Storage Temperature	-20 to +75C				
Storage Humidity	20 to 90%RH(non-condensing)				
Withstanding Voltage	Primary-Secondary AC2,000V for 1minute Primary-Frame Ground AC2,000V for 1minute Secondary-Frame Ground AC500V for 1minute				
Isolation Resistance	Primary-Secondary-Frame Ground 50MOhm(minimum) by DC500V insulation tester				
Vibration	5-10Hz:10mm double amplitude,10-55Hz:19.6m/s <sup>2</sup> , 20minutes' period for 60minutes each along X,Y,Z axes(non-operating)				
Shock	196m/s <sup>2</sup>				
Cooling	Convection				
Leakage Current	0.5mA(maximum) at 25C,rated input/output and rated input frequency				
Line Conducted Noise	Built to meet FCC Part15-B Class B Built to meet VCCI Class B				
Safety	UL: UL1950(Except BNME) C-UL: CSA C22.2 No.950(Except BNME)				
Weight (typical)	open board type:75g				
MTBF [H]	500,000				
Switching Frequency[kHz](typical) *8	53	63	63	63	63

Conditions:

\*1 at cold start

\*2 at DC130V input and rated output

\*3 measured by a bayonet probe at the end of a pair of 15cm-long wires terminated with a 100uF electrolytic capacitor and a 0.1uF film capacitor in parallel at a 0 to 20MHz bandwidth

\*4 at -10 to +50°C

\*5 for 7hour period after 1hour warm-up at 25°Cand rated input/output

\*6 when output current changed from 25% of rated output current to 75% rapidly at AC100V input

\*7 for less than 1minute of overcurrent and short circuit

\*8 variable on input voltage and load conditions