

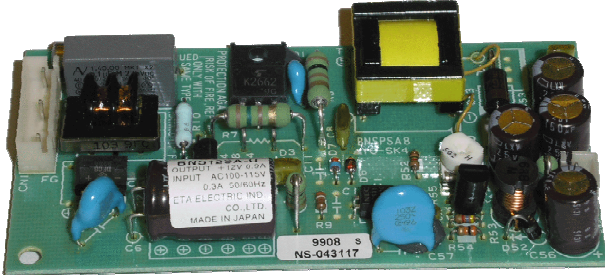


ETA-USA

HIGH QUALITY SWITCHING POWER SUPPLIES

AC/DC SWITCHING POWER SUPPLY
 INPUT: 85~132VAC
 SINGLE OUTPUT
 10 WATTS

BNS/BNSE-SA-U SERIES

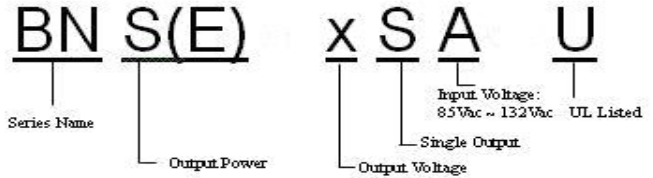


BNS: 49Wx94Lx18H [mm] [1.93Wx3.7Lx0.71H inch]
 BNSE: 68Wx71Lx17H [mm] [2.68Wx2.8Lx0.67H inch]

[BNS SERIES: ]

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, 5ways mounting
5. Input: 85~132Vac
6. EMI: complies with FCC/B
6. Safety: UL 1950, CSA950(C-UL), VDE (**BNSE: Now applying for safety approval**)
7. CE-marked acc. To LVD

Input Characteristics	Unit	BNS3.3SX-U	BNS05SX-U	BNS12SX-U	BNS15SX-U	BNS24SX-U
		BNSE3.3SX-U	BNSE05SX-U	BNSE12SX-U	BNSE15SX-U	BNSE24SX-U
Input Voltage	Vac	AC100~115V				
Input Voltage Range	Vdc	AC85~132V (DC110~175V)				
Input Current	A	0.3A				
Input Frequency	Hz	50/60Hz				
Input Frequency Range	Hz	47~440Hz				
Inrush Current *1	A	20A (typical) at AC100V				
Phase		Single				
Efficiency (typical) *2	%	67	70	73	75	76

Output Characteristics	Unit	BNS3.3SX-U	BNS05SX-U	BNS12SX-U	BNS15SX-U	BNS24SX-U
		BNSE3.3SX-U	BNSE05SX-U	BNSE12SX-U	BNSE15SX-U	BNSE24SX-U
Output Voltage	Vdc	3.3	5	12	15	24
Output Current	A	2.0	2.0	0.9	0.7	0.5
Voltage Adjust Range	V	± 10% of Rated Output Voltage (at no load within the input range)				
Ripple and Noise(max.) *3	mV	80	80	120	120	120
Regulation						
a. Static Line Regulation max.	mV	26	40	96	120	192
b. Static Load Regulation max.	mV	30	45	108	135	216
c. Temperature Coefficient *4	%/°C	0.03%/°C				
d. Drift max. *5	mV	32	40	75	90	135
e. Dynamic Load Reg. typ.*6	mV	Not Specified				
f. Recovery Time *6	mS	Not Specified				
g. Rise Time	mS	200mS (maximum) at 25°C and rated input/output				
h. Hold Up Time	mS	20mS (typical) at 25°C and rated input/output				



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Environmental Specification					
Operating Temperature	-10 to +50°C				
Operating Humidity	20 to 90%RH(non-condensing)				
Storage Temperature	-20 to +75°C				
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				
Vibration	5-10Hz:10mm double amplitude,10-55Hz:19.6m/s ² ,20minutes' period for 60minutes each along X,Y,Z axes(non-operating)				
Shock	196m/s ²				
Cooling	Convection				
Isolation Resistance	Primary-Secondary-Frame Ground 50MΩ(minimum) by DC500V insulation tester				
Function/Protection					
Over current Protection ≥105% of Rated Output Current[A] *7	Current Limiting with automatic recovery				
	2.1	2.1	0.95	0.74	0.53
Over voltage Protection ≥115% of Rated Output Voltage[V]	Zener diode clamping				
	3.8	5.75	13.8	17.3	27.6
Remote Sense	not available				
Remote On/Off	not available				
Other Specifications					
Leakage Current(typ.)	0.5 mA(maximum) at 25°C ,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 BNSE) C-UL: CSA C22.2 No.950 (Except BNSE)				
MTBF [H]	650,000				
Switching Frequency[kHz] (typ.) *8	64	66	66	66	85
Mechanical Specification					
Dimension [mm]	BNS: 49Wx94Lx18H [mm] [1.929Wx3.701Lx0.70874H inch] BNSE: 68Wx71Lx17H [mm] [2.677Wx2.795Lx0.6693H inch]				
Weight (typical)	open board type:60g				

Conditions:

- *1 at cold start
- *2 at DC130V input/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 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°C and 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 over current and short circuit
- *8 variable change on input voltage and load conditions



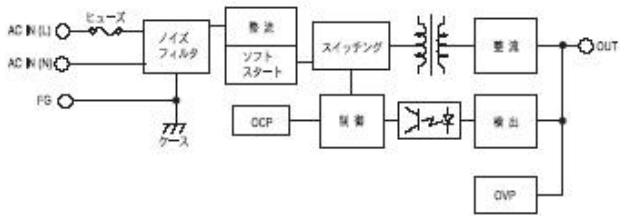


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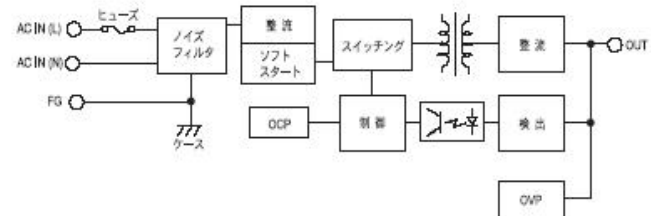
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BLOCK DIAGRAM

BNS-SX-U Series

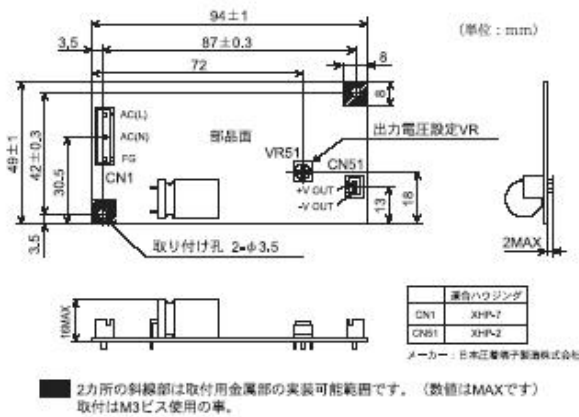


BNSE-SX-U Series

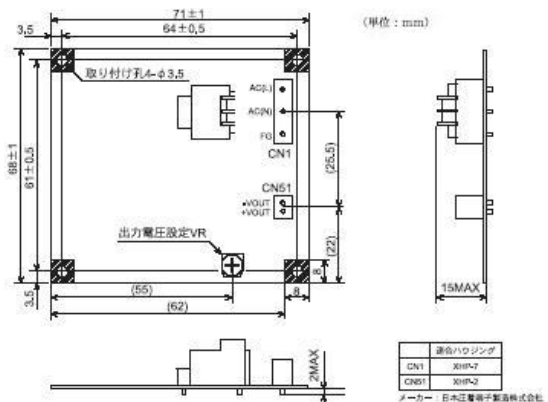


DIMENSION DIAGRAM

BNS-SX-U Series

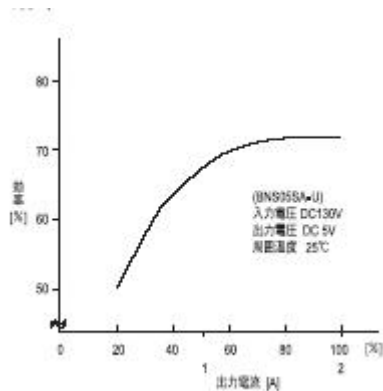


BNSE-SX-U Series

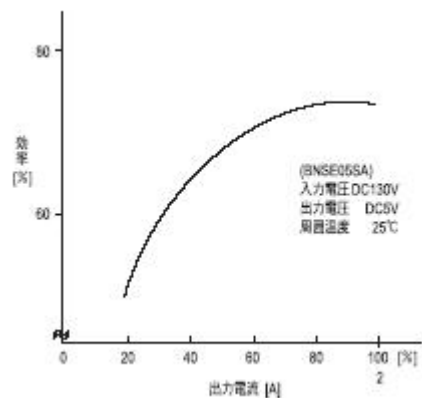


EFFICIENCY CURVES

BNS-SX-U Series



BNSE-SX-U Series





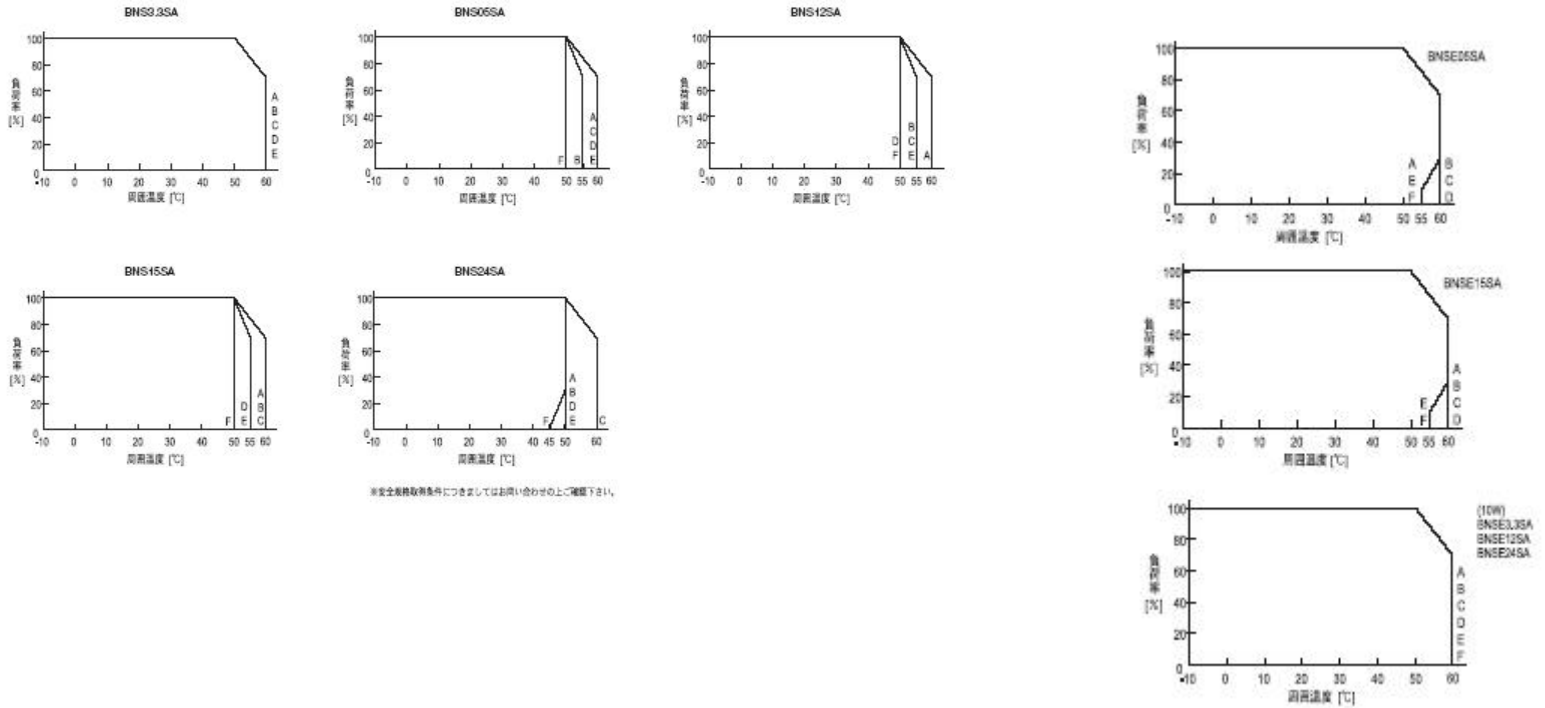
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HIGH QUALITY SWITCHING POWER SUPPLIES

DERATING CURVE

BNS-SX-U Series

BNSE-SX-U Series



OCP CURVES

BNS-SX-U Series

BNSE-SX-U Series

