

## BIAS 2 Watt Power Supply BPSX 2 Series Data Sheet

Single (Vo) or Dual (Vo & Vr) output BPSX 2-08-00, -08-33, -08-50 BPSX 2-14-00, -14-33, -14-50 BPSX 2-24-00

The BPSX is a revolutionary, micro-sized, drop-in switching power supply module. It contains patented technology with unique features that provide solutions for a wide range of applications, including low power wireless and many other intelligent control devices. The patented SMPS topology is totally different from any other:

**It's Quiet:** Switching is synchronized and occurs only 10% of the time, so there is very little EMI / EMC interference with other circuits. This means no extra filtering or shielding is needed, helping to achieve longer transmission range with more reliable data communication in low power wireless applications.

**It's Powerful:** <u>No</u> power de-rating across the full wide temperature range. <u>No</u> current limit design margin needed when selecting a module. Charge large super caps faster than any regular SMPS with twice the power rating.

**It's Green:** High efficiency with ultra low standby power and very little self generated heat make it ideal for intelligent devices such as smart-sensors, smart-meters, smart-lighting, smart-grid, M2M or IoT, and any other control applications.

(@120VAC / 60 Hz / 25°C unless otherwise specified)		
Electrical		
Input Voltage Range	85 - 265 VAC (50/60Hz)	
Input Surge Withstand	308V, < 30 sec	
Output Power (Pmax)	2.0 W (60Hz) 1.67 W (50Hz)	
Efficiency	70% nom.	
Output Vo (Peak)	8, 14 or 24 VDC nom. +/- 5%	
Line / Load Regulation Vo (Peak)	+/- 1% Po < Pmax	
Temperature Regulation Vo (Peak)	+/- 2% Po < Pmax	
Ripple Vo (@120 Hz) (@ 100 kHz)	1.00 V p:p 0.25 V p:p	
Output Vr, 3.3 volt (+/- 5%)	For Vo = 8V, Ir out 160mA max, Io+Ir $\leq$ 250mA* For Vo = 14V, Ir out 70mA max, Io+Ir $\leq$ 143mA*	
Output Vr, 5.0 volt (+/- 5%)	For Vo = 8V, Ir out 250mA max, Io+Ir $\leq$ 250mA* For Vo = 14V, Ir out 83mA max, Io+Ir $\leq$ 143mA*	
No-load Consumption	30 mW typical @ Vin=120 VAC	
Isolation	3000 VAC (meets UL / CSA & EN Product Safe- ty)	
Earth Leakage @ 120 VAC	< 10 uA	
Short Circuit Protection	Continuous Din 40 Cuu @ Min 120 MAC	
	Continuous, Pin ≤ 0.6 w @ Vin = 120 VAC	
Reliability @ 25° C, MIL HDBK-217F	> 500 Khr MTBF	
Reliability @ 25° C, MIL HDBK-217F Thermal		
Thermal	> 500 Khr MTBF	
Thermal Operating Temperature	> 500 Khr MTBF -40 to +85° C	
Thermal Operating Temperature Operating Relative Humidity	> 500 Khr MTBF -40 to +85° C 0 – 95%, non-condensing	
Thermal Operating Temperature Operating Relative Humidity Storage Temperature	> 500 Khr MTBF -40 to +85° C 0 – 95%, non-condensing	
Thermal Operating Temperature Operating Relative Humidity Storage Temperature Mechanical	> 500 Khr MTBF -40 to +85° C 0 – 95%, non-condensing -40 to +105° C	
Thermal Operating Temperature Operating Relative Humidity Storage Temperature Mechanical Package Size	<ul> <li>&gt; 500 Khr MTBF</li> <li>-40 to +85° C</li> <li>0 - 95%, non-condensing</li> <li>-40 to +105° C</li> <li>1.35 x 1.12 x 0.58 inches</li> </ul>	
Thermal         Operating Temperature         Operating Relative Humidity         Storage Temperature         Mechanical         Package Size         (L x W x H)	<ul> <li>&gt; 500 Khr MTBF</li> <li>-40 to +85° C</li> <li>0 - 95%, non-condensing</li> <li>-40 to +105° C</li> <li>1.35 x 1.12 x 0.58 inches</li> </ul>	

### **Operating Specifications**



#### **Actual Size**

#### Features:

- Extended Temperature with NO DE-RATING! (-40 to +85°C)
- Universal Input (85-265 VAC, 50/60Hz)
- Small Size—0.87in<sup>3</sup> [14.3cm<sup>3</sup>]
- Low no-load input power <30mW</li>
- Constant power mode (not current limit)
- 3000 VAC Isolation
- EN 55022, Class B; FCC Part 15, Class B
- Meets UL/CSA and EN Product Safety (ITE)

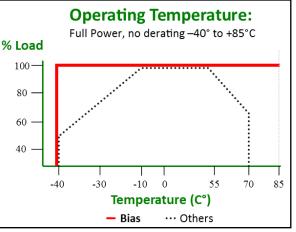
### Bias Power AC/DC power supplies are available with two different types of outputs to fit your applications...

The characteristics of the main (Vo) and auxiliary (Vr) outputs are different and each has application-specific benefits which can provide high value to the system designer:

Vo is a voltage-regulated output which has a constant power mode instead of a conventional current limit. This output is best suited as a source for isolated DC utility power, which may be used directly or post-regulated with either a linear regulator or a DC/DC converter. Vo is self protecting, cannot be overloaded and can be shorted indefinitely. So unlike design-yourown, or partially complete modules where significant design margin is required to stay far away from current limit, there is no need to oversize a Bias Power supply. The graceful transition from voltage regulation to constant power along with the wide range of product ratings allows the designer to select a supply tightly matched to the design load.

Vr is also a voltage-regulated output and is thermally protected from overload. It has very low output ripple capable of driving elements which require a low-noise, tightly-regulated supply. In addition, Vr is supplied internally by Vo. This means that any capacitance added to Vo can increase the hold-up time of Vr as well.

\*Note: maximum currents specified for constant voltage range only. See V-I curve on page 2 for Vo in constant power range.



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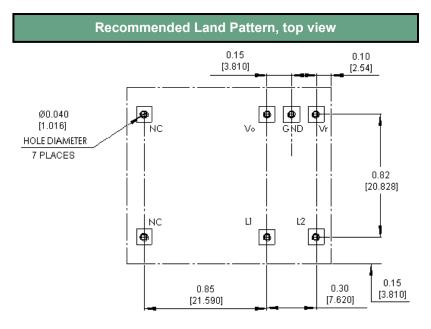


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Single (Vo) or Dual (Vo & Vr) output BPSX 2-08-00, -08-33, -08-50 BPSX 2-14-00, -14-33, -14-50 BPSX 2-24-00

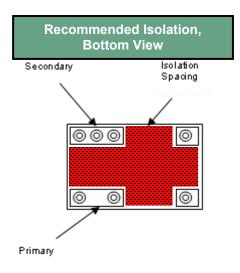
### Part Number Designation

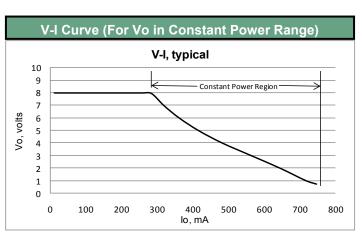
Part Number	Output Configuration	Vo	Vr
BPSX 2-08-00	Single output	8 VDC	N/A
BPSX 2-14-00	Single output	14 VDC	N/A
BPSX 2-24-00	Single output	24 VDC	N/A
BPSX 2-08-33	Dual Output	8 VDC	3.3 VDC
BPSX 2-08-50	Dual Output	8 VDC	5 VDC
BPSX 2-14-33	Dual Output	14 VDC	3.3 VDC
BPSX 2-14-50	Dual Output	14 VDC	5 VDC



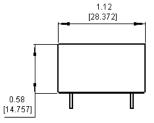
PIN	DESCRIPTION	
L1	Input High	
L2	Input Low	
N/C	No Connection	
Vo	Output	
GND	Ground	
Vr	Vr Output	
N/C	No Connection	
<u>NOTES</u> 1. Pins 0.031" [0.787 mm] round		
2. Pins extend 0.125" [3.175 mm]		

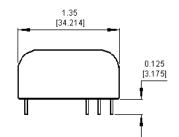
below stand-offs



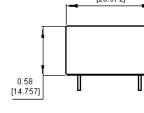


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