



# BIAS 2 Watt Power Supply

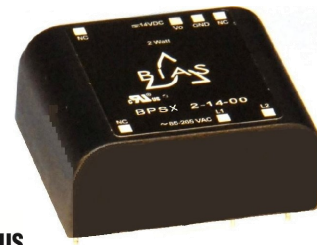
## BPSX 2 Series Data Sheet

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



Actual Size

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:** No power de-rating across the full wide temperature range. No 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.

### Operating Specifications

(@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)<br>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)<br>(@ 100 kHz) | 1.00 V p:p<br>0.25 V p:p   |
| Output Vr, 3.3 volt (+/- 5%)       | For Vo = 8V, Ir out 160mA max, Io+Ir ≤ 250mA*<br>For Vo = 14V, Ir out 70mA max, Io+Ir ≤ 143mA* |
| Output Vr, 5.0 volt (+/- 5%)       | For Vo = 8V, Ir out 250mA max, Io+Ir ≤ 250mA*<br>For Vo = 14V, Ir out 83mA max, Io+Ir ≤ 143mA* |
| No-load Consumption                | 30 mW typical @ Vin=120 VAC  |
| Isolation                          | 3000 VAC (meets UL / CSA & EN Product Safety)  |
| Earth Leakage @ 120 VAC            | < 10 uA  |
| Short Circuit Protection           | Continuous, Pin ≤ 0.6 w @ Vin = 120 VAC  |
| Reliability @ 25° C, MIL HDBK-217F | > 500 Khr MTBF   |
| Thermal                            |  |
| Operating Temperature              | -40 to +85° C  |
| Operating Relative Humidity        | 0 – 95%, non-condensing  |
| Storage Temperature                | -40 to +105° C   |
| Mechanical                         |  |
| Package Size<br>(L x W x H)        | 1.35 x 1.12 x 0.58 inches<br>[34.214 x 28.372 x 14.757 mm]                                     |
| Safety                             |  |
| Safety Compliance                  | UL / EN 60950-1 2nd Ed. (CB Report Available)  |
| EMI Emissions                      | EN 55022, Class B, FCC Part 15, Class B  |

### 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
- 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)

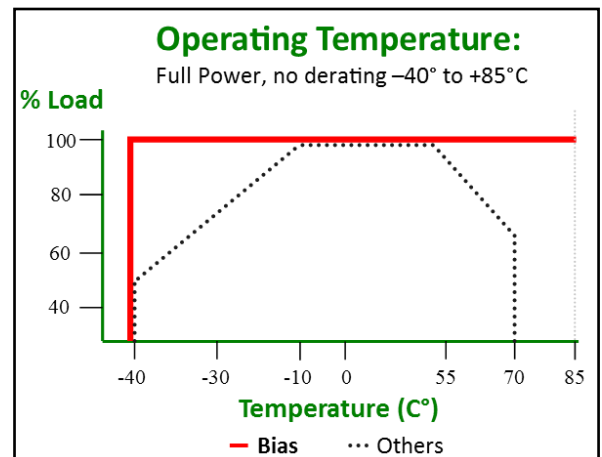
**Bias Power AC/DC power supplies are available with two different types of outputs to fit your applications...**

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-your-own, 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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BPSX 2-14-00, -14-33, -14-50

BPSX 2-24-00

### Part Number Designation

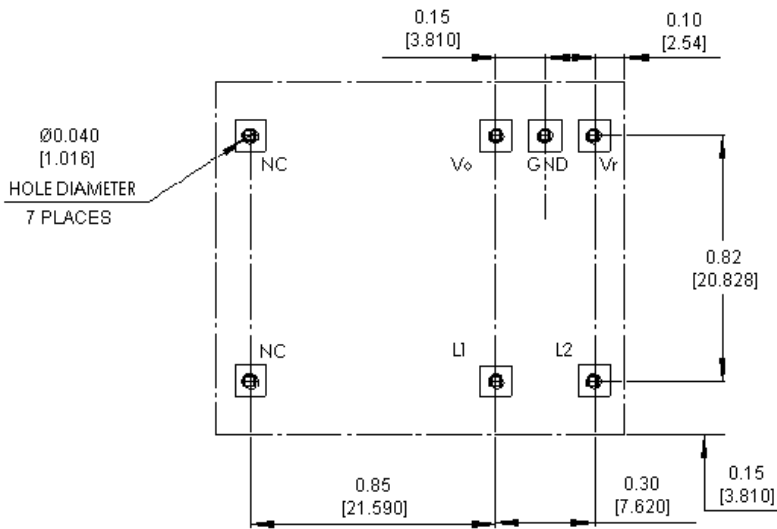
| Part Number  | Output Configuration | Vo     | Vr      |
|--------------|----------------------|--------|---------|
| BPSX 2-08-00 | Single output        | 8 VDC  | N/A     |
| BPSX 2-14-00 | Single output        | 14 VDC | N/A     |
| BPSX 2-24-00 | Single output        | 24 VDC | N/A     |
| BPSX 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 |

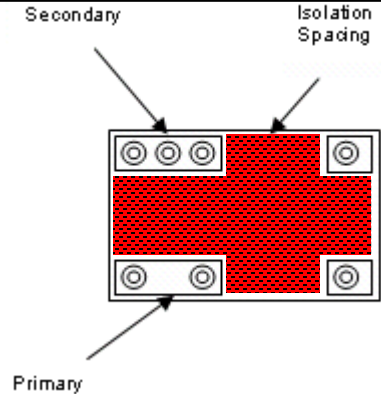
#### NOTES

1. Pins 0.031" [0.787 mm] round
2. Pins extend 0.125" [3.175 mm] below stand-offs

### Recommended Land Pattern, top view



### Recommended Isolation, Bottom View



### V-I Curve (For Vo in Constant Power Range)

