



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) 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 ≤ 250mA* 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* 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 (L x W x H) | 1.35 x 1.12 x 0.58 inches [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—0.87in³ [14.3cm³]
- 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)

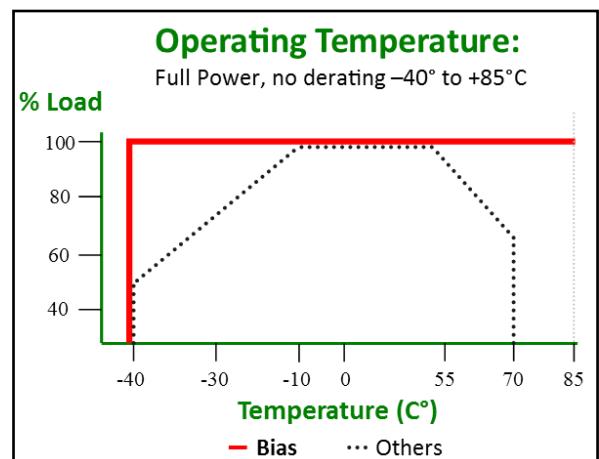
Bias Power AC/DC power supplies are available with two different types of outputs to fit your applications...

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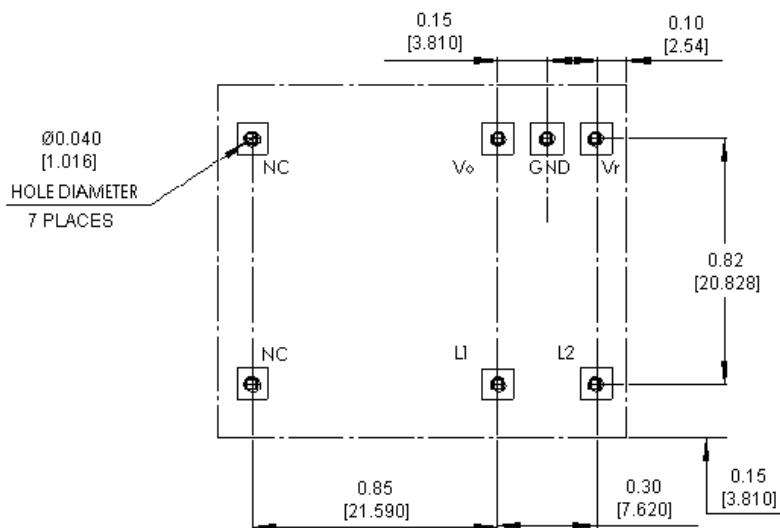
BPSX 2-14-00, -14-33, -14-50

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 |

Recommended Land Pattern, top view

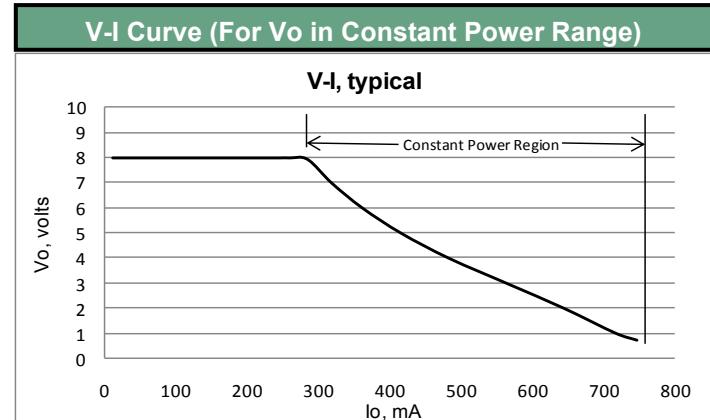
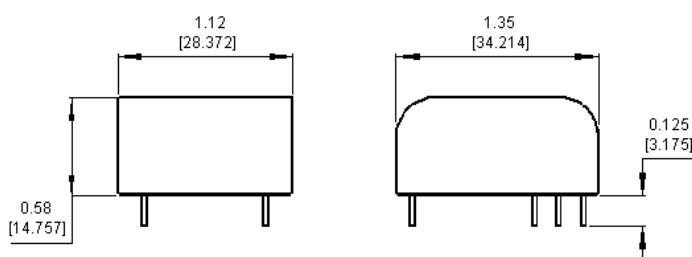
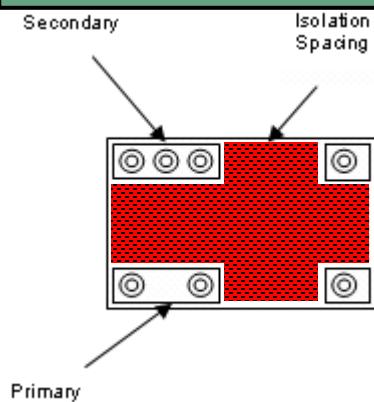


| PIN | DESCRIPTION |
|-----|---------------|
| L1 | Input High |
| L2 | Input Low |
| N/C | No Connection |
| Vo | Output |
| GND | Ground |
| Vr | Vr Output |
| N/C | No Connection |

NOTES

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

Recommended Isolation, Bottom View



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