

## Features

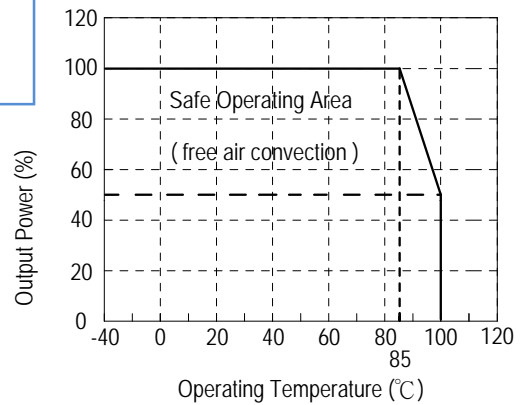
- Micro Size SIP7 Package (17.8\*6.6\*8.4mm)
- Meet REINFORCED Requirement
- 10KVDC/5.2KVAC Isolation
- Doubled Isolation Construct for Medical Application
- High Efficiency to 88%
- Very Low I/O Capacitance 10PF max
- Suitable for Industrial IGBT Application
- Continuous Short Circuit Protection
- Operating Temperature Range -40°C to +100°C  
Without Derating.
- Small Footprint.
- No External Capacitor needed.

## SIP7, Single & Dual Outputs



RoHS

## Derating Graph



## Description

The BPR2 series are miniature and patent reserved, excellent performance.

Micro SIP7 package, high efficiency up to 88%, high power density,

2W single and dual outputs, new unique construct for meets REINFORCED creepage distance requirement and 10KVDC/5.2KVAC Hi-POT test.

The BPR2 series because it's high efficiency, therefore it can operating at 85°C without derating and 100°C in 50% load.

## Selection Guide

| Part Number | Input Voltage            | Output Voltage | Output Current | Efficiency | Max. Capacitive Load |
|-------------|--------------------------|----------------|----------------|------------|----------------------|
| BPR2-xx3.3S | 3.3, 5, 9, 12, 15, 24VDC | 3.3VDC         | 600mA          | 74-80%     | 1000uF               |
| BPR2-xx05S  | 3.3, 5, 9, 12, 15, 24VDC | 5VDC           | 400mA          | 77-84%     | 680uF                |
| BPR2-xx09S  | 3.3, 5, 9, 12, 15, 24VDC | 9VDC           | 222mA          | 80-87%     | 470uF                |
| BPR2-xx12S  | 3.3, 5, 9, 12, 15, 24VDC | 12VDC          | 167mA          | 81-87%     | 330uF                |
| BPR2-xx15S  | 3.3, 5, 9, 12, 15, 24VDC | 15VDC          | 133mA          | 81-88%     | 220uF                |
| BPR2-xx24S  | 3.3, 5, 9, 12, 15, 24VDC | 24VDC          | 83mA           | 81-88%     | 100uF                |
| BPR2-xx3.3D | 3.3, 5, 9, 12, 15, 24VDC | ±3.3VDC        | ±300mA         | 75-81%     | ±470uF               |
| BPR2-xx05D  | 3.3, 5, 9, 12, 15, 24VDC | ±5VDC          | ±200mA         | 77-84%     | ±330uF               |
| BPR2-xx09D  | 3.3, 5, 9, 12, 15, 24VDC | ±9VDC          | ±111mA         | 80-87%     | ±220uF               |
| BPR2-xx12D  | 3.3, 5, 9, 12, 15, 24VDC | ±12VDC         | ±83mA          | 81-87%     | ±150uF               |
| BPR2-xx15D  | 3.3, 5, 9, 12, 15, 24VDC | ±15VDC         | ±67mA          | 81-88%     | ±100uF               |
| BPR2-xx24D  | 3.3, 5, 9, 12, 15, 24VDC | ±24VDC         | ±42mA          | 81-88%     | ±47uF                |

xx=Input Voltage(possible for other input and output voltage combinations on request)

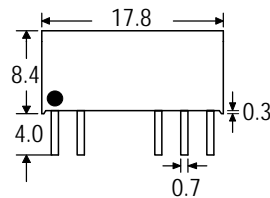
**Specifications**

(measured at  $T_A=25^{\circ}\text{C}$ , nominal input voltage, full load and after warm-up)

|   |  |                              |
|---|--|------------------------------|
| Input Voltage Range                               | ±10%                                   |                              |
| Output Voltage Accuracy                           | ±5%                                    |                              |
| Line Voltage Regulation                           | 1.2%/ 1% of $V_{in}$ typ.              |                              |
| Load Voltage Regulation ( 10% to 100% full load ) | All                                    | 10% max.                     |
| Output Ripple and Noise (20MHz Limited)           | 100mVp-p max.                          |                              |
| Temperature coefficient (Full load)               | 0.03%/°C max.                          |                              |
| Operating Frequency                               | 60kHz min. / 85kHz typ. / 120kHz max.  |                              |
| Efficiency at Full Load                           | 74% min. / 88% max.                    |                              |
| Isolation Voltage                                 | (tested for 1 second)                  | 10000VDC                     |
|   | (rated for 1 minute)                   | 5200VAC / 60Hz               |
| Isolation Capacitance (tested at 100kHz)          | 6pF min. / 10pF max.                   |                              |
| Isolation Resistance                              | 15G $\Omega$ min.                      |                              |
| Short Circuit Protection                          | Continuous                             |                              |
| Operating Temperature Range (free air convection) | -40°C to +100°C (see Graph)            |                              |
| Storage Temperature Range                         | -55°C to +125°C                        |                              |
| MTBF ( using MIL-HDBK 217F )                      | +25°C                                  | 4260x10 <sup>3</sup> hours   |
|   | +85°C                                  | 1009x10 <sup>3</sup> hours   |
| Relative Humidity                                 | 95% RH                                 |                              |
| Case Material                                     | UL94-V0                                | Non-conductive black plastic |
| Potting Material                                  | UL94-V0                                | Epoxy                        |
| Package Weight                                    | 2.0g                                   |                              |
| Packing Quantity                                  | 28pcs per Tube                         |                              |
| Lead Temperature                                  | 300°C max. 1.5mm from case for 10 sec. |                              |

**Package Style and Pinning (mm)**

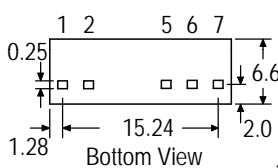
Micro Size 7 Pin SIP Package



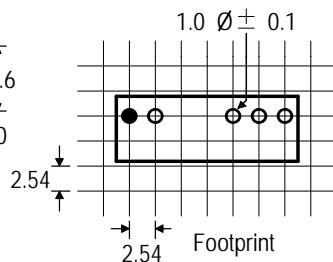
**Pin Connections**

| pin# | Single | Dual  |
|------|--------|-------|
| 1    | +Vin   | +Vin  |
| 2    | -Vin   | -Vin  |
| 5    | -Vout  | -Vout |
| 6    | NP     | COM   |
| 7    | +Vout  | +Vout |

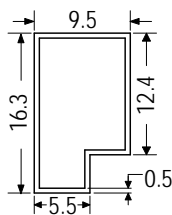
NP=No Pin



XX.X ± 0.25 mm  
XX.XX ± 0.15 mm



**Tube Outline Dimensions (mm)**



Tolerance:  
XX.X ± 0.5 mm  
Note:  
L=520 ± 2 mm  
Devices per tube quantity: 28 PCS

