



# MicroPower Direct



10W, 5 VDC Input  
Compact, Dual Output  
DC/DC Converters  
**B1000R Series**

## Key Features

- 5 VDC Input
- 1500 VDC Isolation
- 10W Output Power
- Tightly Regulated Dual Outputs
- Meets EN55022 Class "A"
- Low Cost

## Electrical Specifications

Specifications typical @ +25°C with nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

### Input

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Range		4.5	5.0	5.5	VDC
Input Filter	$\pi$ (Pi) Filter (Complies with EN55022 Class A)				
Reverse Polarity Input Current				2.0	A
Short Circuit Input Power			3,500	4,500	mW

### Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Accuracy			±0.5	±1.0	%
Output Voltage Balance	Dual Output , Balanced Loads		±0.2	±0.5	%
Line Regulation	V <sub>in</sub> = Min to Max			±0.1	%
Load Regulation	I <sub>out</sub> = 10% to 100%			±0.15	%
Ripple & Noise (20 MHz)			20	30	mV P - P
Output Power Protection		150			%
Transient Recovery Time (Note 1)	25% Load Step Change			200	μSec
Transient Response Deviation				±4.0	%
Temperature Coefficient			±0.01	±0.02	%/°C
Output Short Circuit	Continuous				

### General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	60 Seconds	1,500			VDC
Isolation Resistance	500 VDC	1,000			MΩ
Isolation Capacitance	100 kHz, 1V		500	600	pF
Switching Frequency		270	280	290	kHz

### Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range		-40	+25	+71	°C
Storage Temperature Range		-40		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%
RFI	Six-Sided Shielded, Metal Case				
Conducted EMI	EN55022 Class A				

### Physical

Case Size	2.0 x 1.0 x 0.40 Inches (50.8 x 25.4 x 10.2 mm)
Case Material	Metal with Non-Conductive Base
Weight	1.06 Oz (30g)

### Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign		700		kHours

### Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Surge (1 Sec)		-0.7		7.5	VDC
Internal Power Dissipation				5,000	mW

**Caution:** Exceeding Absolute Maximum Ratings may damage the module. These are not continuous operating ratings.

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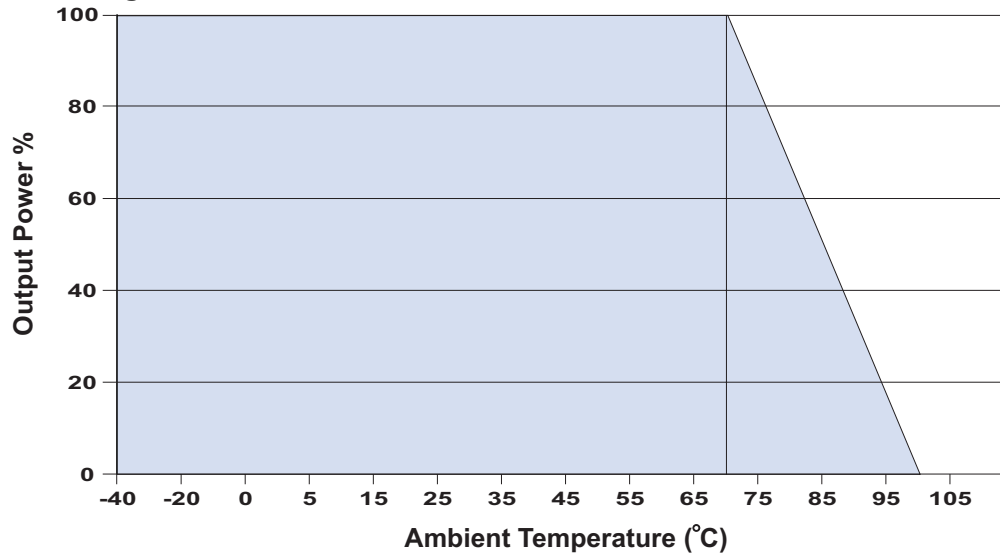
# Model Selection Guide

Model Number	Input					Output			Efficiency (% Typ)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Current (mA)		Reflected Ripple Current (mA, Typ)	Voltage (VDC)	Current (mA, Max)	Current (mA, Min)		
	Nominal	Range	Full-Load	No-Load						
B1001R	5	4.5 - 5.5	2,500	30	>50	±12.0	±415	±42	78	5,000
B1002R	5	4.5 - 5.5	2,538	30	>50	±15.0	±330	±33	78	5,000
B1003R	5	4.5 - 5.5	2,669	60	>50	±18.0	±278	±28	75	5,000

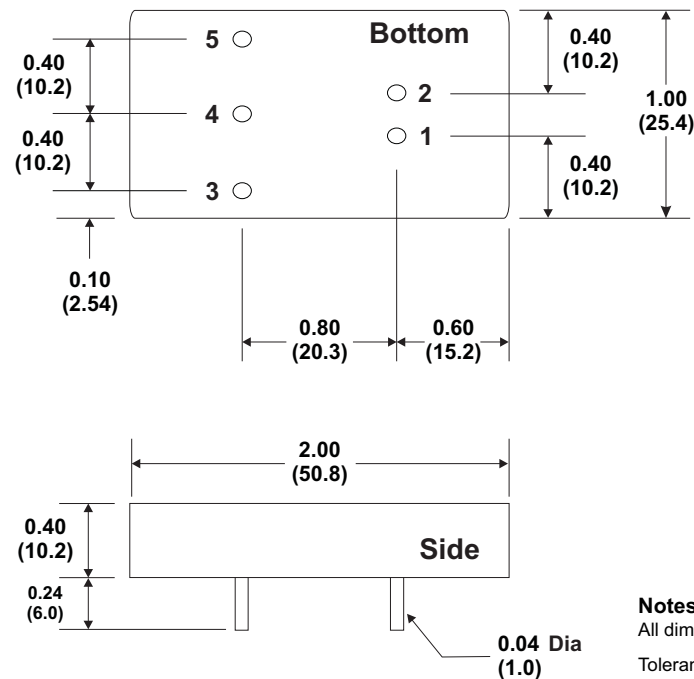
**Notes:**

- Transient recovery is measured to within a 1% error band for a load step change of 75% to 100%.
- When measuring output ripple, it is recommended that an external 0.47 µF ceramic capacitor be placed from each output (pin 3 & pin 5) to common (pin 4).
- Dual output units may be connected to provide a 24 VDC, 30 VDC or 36 VDC output. To do this, connect the load across the positive (+Vout) and negative (-Vout) outputs and float the output common.

## Derating Curve



## Mechanical Dimensions



## Capacitive Load

µF Max
±1,000

## Pin Connections

Pin	Function
1	+Vin
2	-Vin
3	+Vout
4	Common
5	-Vout

**Notes:**

All dimensions are typical in inches (mm)  
Tolerance x.xx = ±0.01 (±0.25)



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