

# B1000RW Series

## 10W, Wide Input Range Single & Dual Output DC/DC Converters



### Key Features:

- 10W Output Power
- 2:1 Input Range
- 1,500 VDC Isolation
- Meets EN55022 Class A
- Compact DIP Package
- LOW COST!

### Electrical Specifications

#### Input

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Start Voltage	12 VDC Input	8.0	8.5	9.0	VDC
	24 VDC Input	15.0	17.0	18.0	
	48 VDC Input	30.0	33.0	36.0	
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			$\pm 0.5$	$\pm 1.0$	%
Output Voltage Balance	Dual Output , Balanced Loads		$\pm 0.5$	$\pm 2.0$	%
Line Regulation	$V_{in} = \text{Min to Max}$		$\pm 0.1$	$\pm 0.3$	%
Load Regulation	$I_{out} = 10\% \text{ to } 100\%$		$\pm 0.1$	$\pm 0.5$	%
Ripple & Noise (20 MHz) (Note 2)			50	75	mV P - P
Ripple & Noise (20 MHz)	Over Line, Load & Temp.			100	mV P - P
Ripple & Noise (20 MHz)				15	mV rms
Output Power Protection		120			%
Transient Recovery Time (Note 3)	25% Load Step Change		150	300	$\mu\text{Sec}$
Transient Response Deviation			$\pm 2.0$	$\pm 4.0$	%
Temperature Coefficient			$\pm 0.01$	$\pm 0.02$	$\%/^{\circ}\text{C}$
Output Short Circuit	Continuous				

#### General

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	60 Seconds	1,500			VDC
Isolation Test Voltage	Flash Tested For 1 Sec	1,650			VDC
Isolation Resistance	500 VDC	1,000			$M\Omega$
Isolation Capacitance	100 kHz, 1V		150	470	pF
Switching Frequency		260	300	340	kHz

#### Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range	Ambient	-40	+25	+71	$^{\circ}\text{C}$
Operating Temperature Range	Case	-40		+90	$^{\circ}\text{C}$
Storage Temperature Range		-40		+125	$^{\circ}\text{C}$
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%
RFI	Six-Side 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	1.13 Oz (32g)				

#### Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25 $^{\circ}\text{C}$ , Gnd Benign	700			kHours

#### Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Surge (1 Sec)	12 VDC Input	-0.7		25.0	VDC
	24 VDC Input	-0.7		50.0	
	48 VDC Input	-0.7		100.0	
Lead Temperature	1.5 mm From Case For 10 Sec			260.0	$^{\circ}\text{C}$
Internal Power Dissipation	All Models			5,000	mW

Specifications typical @ +25 $^{\circ}\text{C}$ , nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.



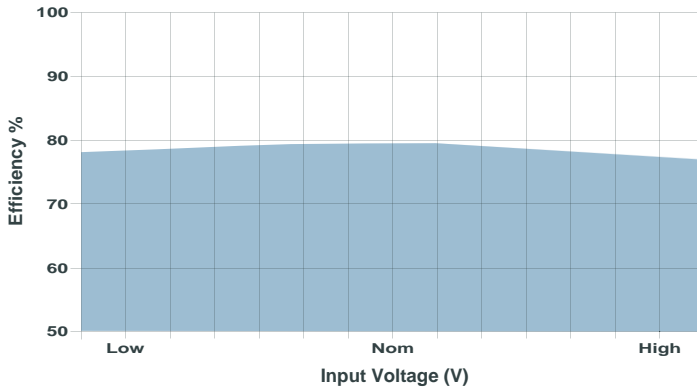


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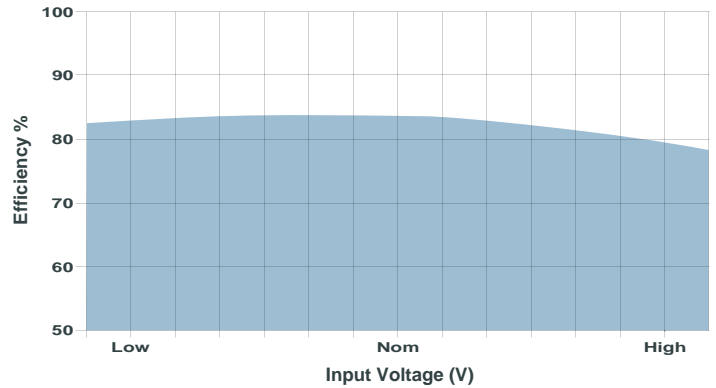


10W, High Performance, Wide Input DC/DC Converters

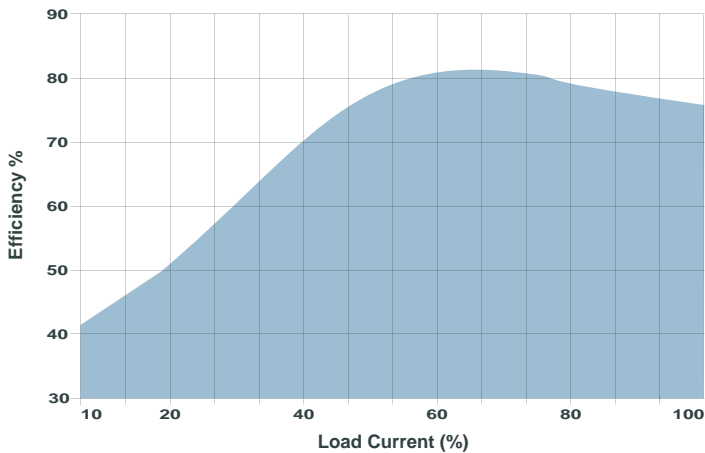
**Efficiency vs Input Voltage (Single Output Models)**



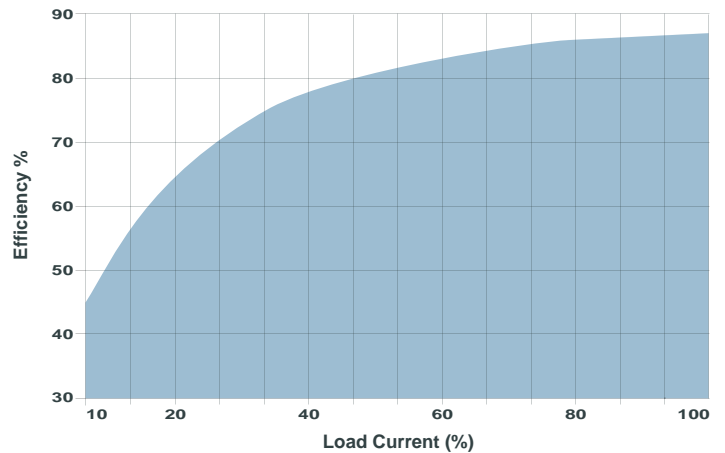
**Efficiency vs Input Voltage (Dual Output Models)**



**Efficiency vs Output Load (Single Output Models)**



**Efficiency vs Output Load (Dual Output Models)**



## Thermal Measurement



A number of factors affect the thermal performance of the converter, including mounting orientation, component spacing, airflow over the unit, etc. To avoid exceeding the maximum rated temperature of internal components, the case temperature of the converter must be kept below 90°C.

The derating curves given in this datasheet have been derived using a converter operating at full load and nominal input. Temperature measurements have been made as shown above.

