DSP1D Series

Dual Output DC-DC Converters

The DSP1D Series is specifically designed to convert a nominal 5 volt input into two isolated output voltages.

The dual semi-regulated output voltages were designed to allow analog circuits and three-terminal regulators to operate within their most efficient input voltage range.

This series achieves high power densities through the use of 350 kHz fixed-frequency switching converters.

RoHS Compliant

Key Features & Benefits

- RoHS lead solder exemption compliant
- Up to 1 Watt unregulated output power
- Single-In-Line package
- Four-terminal operation
- Efficiencies to 70%
- Output Voltages: 5V, 7V, 12V, 14V, 15V, 17V
- 700 V isolation
- -40 °C to +85 °C operation

1. MODEL SELECTION

MODEL	INPUT RANGE [VDC]		OUTPUT		
	MIN	*MAX*	*[VDC]*	*[mA]*	*POWER [W]*
DSP1N5D5	4.5	5.5	±5	±75	0.75
DSP1N5D7	4.5	5.5	±7	±70	1
DSP1N5D12	4.5	5.5	±12	±40	1
DSP1N5D14	4.5	5.5	±14	±35	1
DSP1N5D15	4.5	5.5	±15	±33	1
DSP1N5D17	4.5	5.5	±17	±30	1

Model numbers highlighted in yellow are not recommended for new designs.

2. GENERAL SPECIFICATIONS [1]

PARAMETER	CONDITIONS / DESCRIPTION	MIN	TYP	MAX	UNITS
Isolation					
Isolation Voltage		500			VDC
Capacitance	Input to Output		10		pF
Output Trim Function					
Input Resistance			40		kΩ
Programming Range		+5, -34			%
Environmental					
Case Operating Range (T_C)[2]		-40		85	°C
Storage Range		-55		105	°C
Line Regulation			1		%
Load Regulation	20% to 100% Load		5		%
General					
MTBF	Calculated		700,000		hrs
Weight			0.1/28		oz/g
Case Material			Non Conductive Plastic		

NOTES

1 All parameters measured at Tc = 25 °C, nominal input voltage and full rated load unless otherwise noted.

2 Derate output power linearly to 0.6 watts from 70 °C to 85 °C.

3. DSP1 SERIES APPLICATION NOTES

EXTERNAL CAPACITANCE REQUIREMENTS

Output filtering is required for operation. A minimum of 10 F is specified for optimal performance. Output capacitance may be increased for additional filtering, and should not exceed 400 µF. To meet the reflected ripple requirements of the converter, an input impedance of less than 0.5 Ohms from DC to 350 kHz is required. If a capacitive input source is farther than 2" from the converter, it is recommended to use a 10 µF, 25 V solid tantalum capacitor.

REGULATION

This converter uses a semi-regulated design. The output will vary as the load is changed, with output decreasing with increasing load. Additionally, output voltage will change in proportion to a change in input voltage. The typical output voltage will change 1% for each 1% change in input voltage.

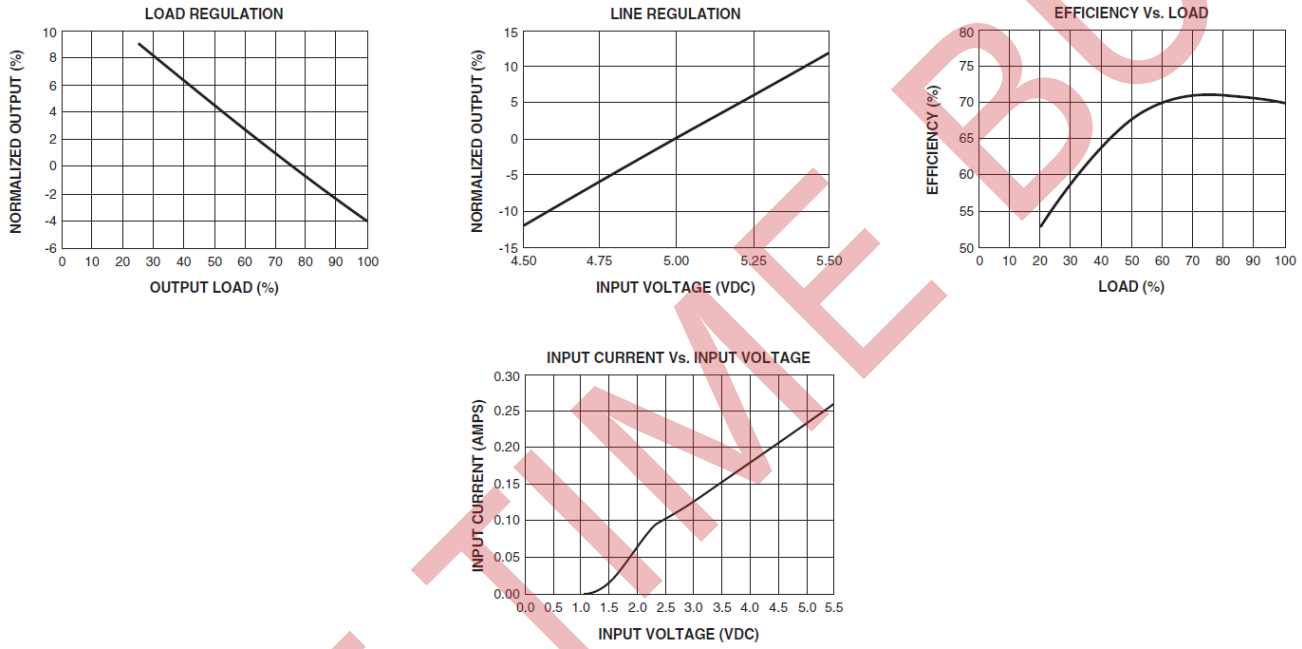
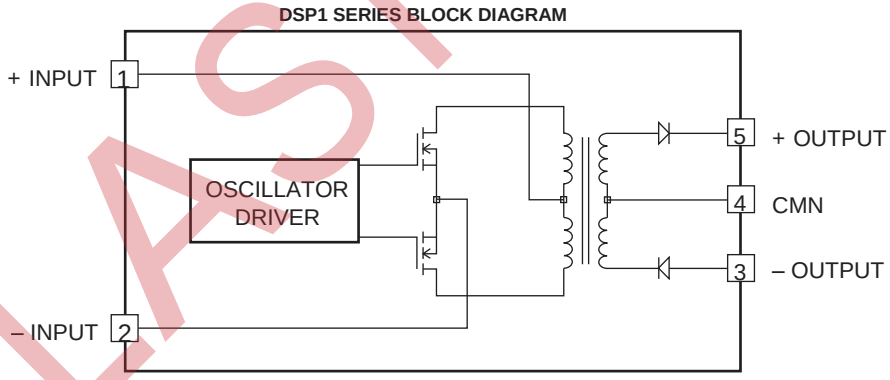


Figure 1. Typical Performance (Tc = 25°C)



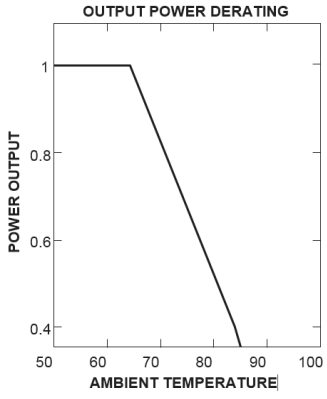


Figure 2. Block Diagram

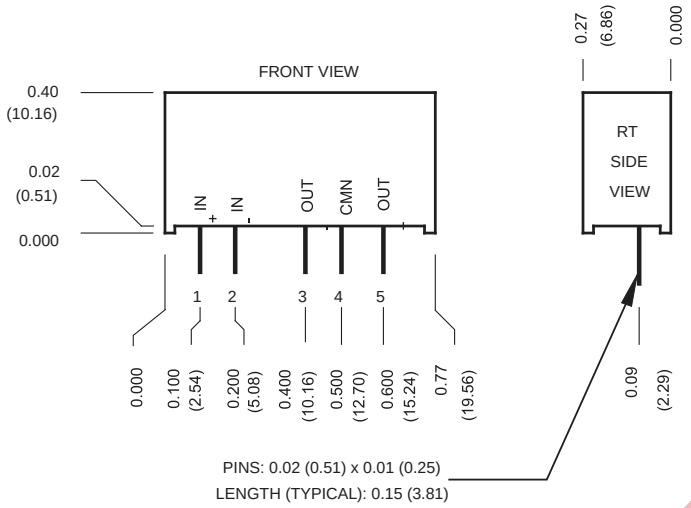


Figure 3. Mechanical Dimensions

PIN	FUNCTION
1	+INPUT
2	-INPUT
3	- OUT
4	COMMON
5	+OUT

Mechanical tolerances unless otherwise noted:

X.XX dimensions: ±0.020 inches
X.XXX dimensions: ±0.010 inches

For more information on these products consult: tech.support@psbel.com

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TECHNICAL REVISIONS - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.

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