Performance Specifications and Ordering Guide①

ORDERING GUIDE SUMMARY

Models	Output						Input			Efficiency		Package (Case, Pinout)
	VOUT (Volts)	IOUT (mA Max.)	R/N (mV pk-pk)② Typ.	R/N (mV pk-pk)② Max.	Regulation (Max.) Line	Regulation (Max.) Load③	VIN Nom. (Volts)	Range (Volts)	IIN④ (mA)	Min.	Typ.	
OBSOLETE * BST-5/250-D12-C	±5	±250	75	120	±0.5%	±0.5%	12	9-18	25/267	75%	78%	C1,P2
OBSOLETE * BST-5/250-D48-C	±5	±250	75	120	±0.5%	±0.5%	48	18-72	7/69	72%	76%	C1,P2
OBSOLETE * BST-12/125-D12-C	±12	±125	75	150	±0.5%	±0.5%	12	9-18	25/329	74%	76%	C1,P2
BST-12/125-D48-C	±12	±125	75	150	±0.5%	±0.5%	48	18-72	8/81	73%	77%	C1,P2
OBSOLETE * BST-15/100-D12-C	±15	±100	75	150	±0.5%	±0.5%	12	9-18	25/329	74%	76%	C1,P2
BST-15/100-D48-C	±15	±100	75	150	±0.5%	±0.5%	48	18-72	8/81	73%	77%	C1,P2
OBSOLETE BST-12/105-D5-C	±12	±105	75	150	±0.5%	±0.5%	5	4.5-9	60/690	71%	73%	C1,P2
OBSOLETE BST-15/85-D5-C	±15	±85	75	150	±0.5%	±0.5%	5	4.5-9	68/689	72%	74%	C1,P2

① Typical at TA = +25°C under nominal line voltage and full-load conditions unless otherwise noted.
② Ripple/Noise (R/N) measured over a 20 MHz bandwidth.
③ Balanced loads, 10% to 100% load.
④ Nominal line voltage, no-load/full-load conditions.

*** LAST TIME BUY: AUGUST 31, 2014. CLICK HERE FOR OBSOLESCENCE NOTICE OF FEBRUARY 2014.**

As of September 2014, ONLY the following part numbers will be available: BST-12/125-D48-C; BST-15/100-D48-C

PART NUMBER STRUCTURE

B ST - 15 / 100 - D48 - C

Output Configuration:
B = Bipolar

Product Series

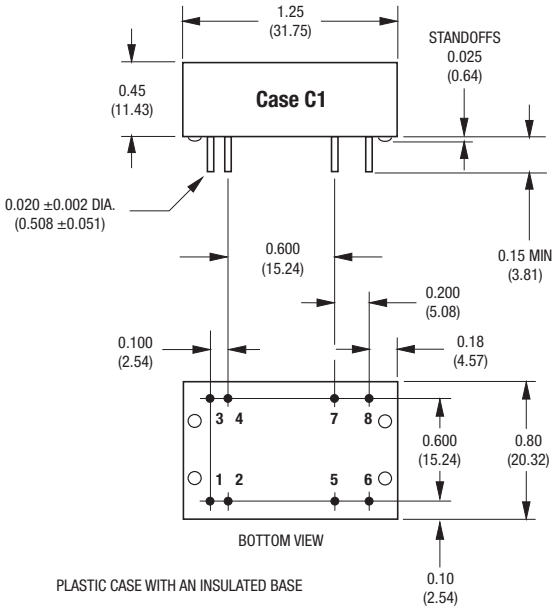
Nominal Output Voltages:
±5, ±12 or ±15 Volts

Maximum Output Current
in mA from each output

Input Voltage Range:
D5 = 4.5-9 Volts (5V nominal)
D12 = 9-18 Volts (12V nominal)
D48 = 18-72 Volts (48V nominal)

RoHS-6 Hazardous Substance Compliance
(does not claim EU RoHS exemption 7b – lead in solder)

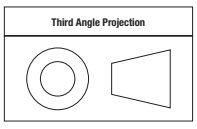
MECHANICAL SPECIFICATIONS



PLASTIC CASE WITH AN INSULATED BASE

DIMENSIONS ARE IN INCHES (MM)

Dimensions are in inches (mm shown for ref. only).

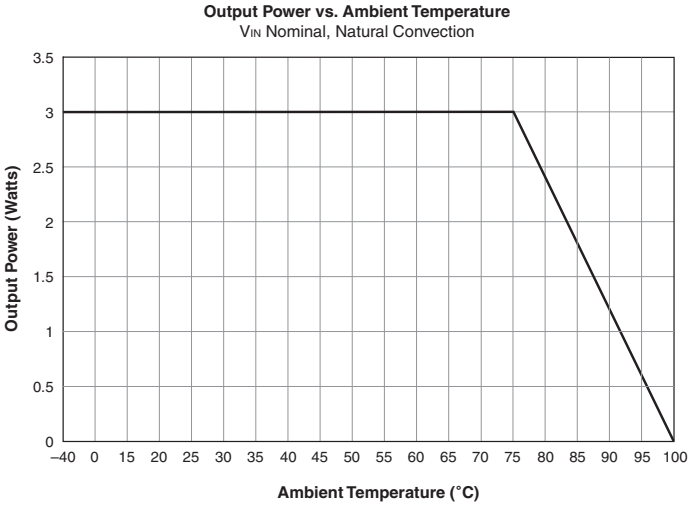


Tolerances (unless otherwise specified):
.XX ± 0.02 (0.5)
.XXX ± 0.010 (0.25)
Angles ± 2°

Components are shown for reference only.

I/O Connections	
Pin	Function P2
1	+Input
2	+Input
3	–Input
4	–Input
5	Common
6	+Output
7	Common
8	–Output

TEMPERATURE DERATING



Performance/Functional Specifications

Typical @ T_A = +25°C under nominal line voltage and full-load conditions unless noted. ①

Input	
Input Voltage Range:	
"D5" Models	4.5-9 Volts (5V nominal)
"D12" Models	9-18 Volts (12V nominal)
"D48" Models	18-72 Volts (48V nominal)
Input Current	See Ordering Guide
Input Filter Type	Pi
Reverse-Polarity Protection	Yes (Instantaneous, 2A maximum)
Output	
V_{OUT} **Accuracy** (50% load)	±1%, maximum
Temperature Coefficient	±0.02% per °C
Ripple/Noise (20MHz BW)	See Ordering Guide
Line/Load Regulation	See Ordering Guide
Efficiency	See Ordering Guide
Isolation Voltage	1000Vdc, minimum
Short Circuit Protection: ②	
"D5" Models	Power-limiting technique, auto-recovery
"D12" and "D48" Models	Hiccup technique, auto-recovery
Dynamic Characteristics	
Transient Response (50% load step)	200µsec to ±1.5% of final value
Switching Frequency:	
"D48" Models	200kHz
"D5" and "D12" Models	170kHz
Environmental	
Operating Temperature (Ambient, no derating)	–40 to +75°C
Storage Temperature	– 55 to +100°C
Physical	
Dimensions	1.25" x 0.8" x 0.45" (31.8 x 20.3 x 11.4mm)
Case Material	Diallyl phthalate, UL94V-0 rated
Pin Material	Gold-plated copper alloy with nickel underplate
Weight	0.5 ounces (14.2 grams)

① These power converters require a minimum 10% loading to maintain specified regulation. Operation under no-load conditions will not damage these devices; however they may not meet all listed specifications.

② The current limit inception point is dependent on the input voltage. Therefore, it is possible to draw current beyond the rated capacity. Users should fully characterize their load conditions.

Absolute Maximum Ratings	
Input Voltage:	
"D5" Models	12 Volts
"D12" Models	20 Volts
"D48" Models	80 Volts
Input Reverse-Polarity Protection	Current must be <2A. Brief duration only. Fusing recommended.
Output Overvoltage Protection	None
Output Current	Maximum current and short-circuit duration are model dependent. "D12" and "D48" models can withstand sustained output short circuits.
Storage Temperature	–55 to +100°C
Lead Temperature (soldering, 10 sec.)	+280°C

These are stress ratings. Exposure of devices to greater than any of these conditions may adversely affect long-term reliability. Proper operation under conditions other than those listed in the Performance/ Functional Specifications Table is not implied or recommended.

TECHNICAL NOTES

Floating Outputs

Since these are isolated DC/DC converters, their outputs are "floating." Any BST model may be configured to produce an output of 10V, 24V or 30V (for ±5V, ±12V or ±15V models, respectively) by applying the load across the +Output (pin 6) and –Output (pin 8), with either output grounded. The Common (pins 5 and 7) should be left open (unconnected). Minimum 20% loading is recommended under these conditions.

Filtering and Noise Reduction

All BST 3 Watt DC/DC Converters achieve their rated ripple and noise specifications without the use of external input/output capacitors. In critical applications, input/output ripple and noise may be further reduced by installing electrolytic capacitors across the input terminals and/or low-ESR tantalum or electrolytic capacitors across the output terminals. Output capacitors should be connected between their respective output pin (pins 6 and 8) and Common (pins 5 and 7) as shown in Figure 2. The caps should be located as close to the power converters as possible. Typical values are listed in the tables below. In many applications, using values greater than those listed will yield better results.

To Reduce Input Ripple

"D5" Models	47µF, 15V
"D12" Models	10µF, 35V
"D48" Models	4.7µF, 100V

To Reduce Output Ripple

±5V Outputs	47µF, 10V, Low ESR
±12/15V Outputs	22µF, 20V, Low ESR

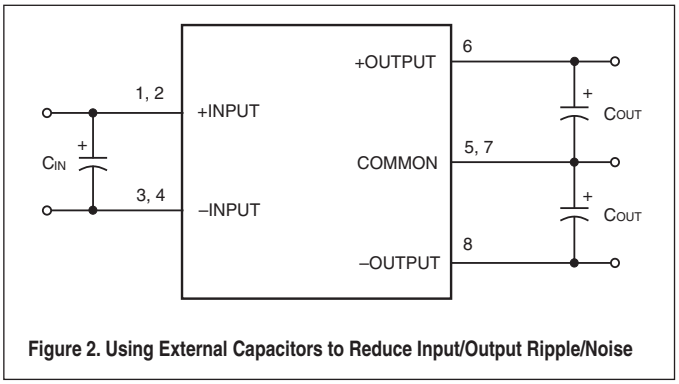


Figure 2. Using External Capacitors to Reduce Input/Output Ripple/Noise

Input Fusing

Certain applications and/or safety agencies may require the installation of fuses at the inputs of power conversion components. For MPS's BST 3 Watt DC/DC Converters, you should use fast-blow type fuses with values no greater than the following:

V_{IN} Range	Fuse Value
"D5"	1.5A
"D12"	1A
"D48"	0.5A

Custom Capabilities

MPS's world-class design, development and manufacturing team stands ready to work with you to deliver the exact power converter you need for your demanding, large volume, OEM applications. And ... we'll do it on time and within budget!

Our experienced applications and design staffs; quick-turn prototype capability; highly automated, SMT assembly facilities; and in-line SPC quality-control techniques combine to give us the unique ability to design and deliver any quantity of power converters to the highest standards of quality and reliability.

We have compiled a large library of DC/DC designs that are currently used in a variety of telecom, medical, computer, railway, aerospace and industrial applications. We may already have the converter you need.

Contact us. Our goal is to provide you the highest-quality, most cost-effective power converters available.

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ISO 9001 and 14001 REGISTERED

Mouser Electronics

Authorized Distributor

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Murata:

BST-5/250-D48 BST-5/250-D12 BST-12/105-D5-C BST-12/125-D12-C BST-15/100-D12-C BST-15/85-D5-C BST-5/250-D12-C BST-5/250-D48-C BST-15/85-D5 BST-15/100-D48 BST-15/100-D12 BST-12/125-D48 BST-12/125-D12 BST-12/105-D5