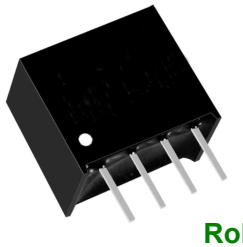
EN: This Datasheet/Document is presented by the manufacturer.

Please visit our website for pricing and availability at www.hestore.hu.

B_S-1W & B_D-1W Series

1W, FIXED INPUT ISOLATED & UNREGULATED SINGLE OUTPUT DC-DC CONVERTER



RoHS

PART NUMBER SYSTEM

B0505S-1W

- Rated Power
- Package Style
- Output Voltage
- Input Voltage
- Product Series

FEATURES

- High efficiency up to 80%
- Compact SIP/DIPpackage
- Isolation voltage: 1KVDC
- Operating temperature range: -40°C to +85°C
- Good temperature characteristic
- Internal surface mounted design
- No external component required
- PCB Mounting
- International standard pin-out

APPLICATIONS

The B_S-1W & B_D-1W Series are designed for application where isolated output is required from a distributed power system.

These products apply to where:

1) Input voltage variation ≤ ±10%;
2) 1KVDC input and output isolation;
3) Regulated and low ripple noise is not required.

Such as: digital circuits, low frequency analog circuits, and IGBT power device driving circuits.

SELECTION GUIDE

Model Number	Input Voltage(VDC)	Output Voltage (VDC)	Output Current (mA)		Input Current (mA)(typ.)		Reflected Ripple Current (mA,typ.)	Max. Capacitive Load(μF)	Efficiency (%, typ.) @Max. Load	Approval
	Nominal (Range)		Max.	Min.	@Max. Load	@No Load				
B0505S/D-1W	5 (4.5-5.5)	5	200	20	270	31	20	220	70	UL CE
B0515S-1W		15	67	7	247				80	UL CE
B1203S-1W	12 (10.8-13.2)	3.3	303	30	110	16	23		72	--
B1205S-1W		5	200	20	116				71	UL CE
B1212S-1W		12	83	9	104				78	UL CE
B1215D-1W		15	67	7	101				80	UL CE
B2405S-1W	24 (21.6-26.4)	5	200	20	57	8	61		73	UL CE

INPUT SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Unit
Input Surge Voltage (1sec. max.)	5VDC input	-0.7	--	9	VDC
	12VDC input	-0.7	--	18	
	24VDC input	-0.7	--	30	
Input Filter		Capacitance Filter			

OUTPUT SPECIFICATIONS

Item	Test Conditions		Min.	Typ.	Max.	Unit
Output Power			0.1	--	1	W
Output Voltage Accuracy			See tolerance envelope curve			
Line Regulation	For Vin change of ±1%	3.3VDC output	--	--	±1.5	%
		Others	--	--	±1.2	
Load Regulation	10% to 100% load	3.3VDC output	--	15	20	
		5V output	--	12.8	15	
		12VDC output	--	6.8	15	
		15VDC output	--	6.3	15	

Temperature Drift	100% load	--	--	±0.03	%/°C
Ripple & Noise*	20MHz Bandwidth	--	75	100	mVp-p
Short Circuit Protection**		--	--	1	s

Note: * Ripple and noise are measured by "parallel cable" method, please see DC-DC Converter Application Notes for specific operation.
**Supply voltage must be discontinued at the end of short circuit duration.

COMMON SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Unit
Insulation Voltage	Tested for 1 minute and leakage current less than 1 mA	1000	--	--	VDC
Insulation Resistance	Test at 500VDC	1000	--	--	MΩ
Isolation Capacitance	Input/Output,100KHz/1V	--	30	--	pF
Switching Frequency	Full load, nominal input voltage	--	100	--	KHz
MTBF	MIL-HDBK-217F@25℃	3500	--	--	K hours
Case Material		Black flame-retardant and heat-resistant plastic (UL94 V-0)			
Weight	B_S-1W Series	--	1.2	--	g
	B_D-1W Series	--	1.8	--	

ENVIRONMENTAL SPECIFICATIONS

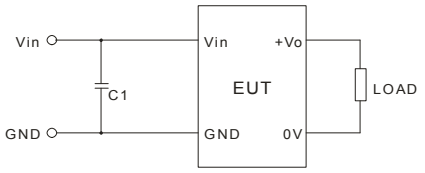
Item	Test Conditions	Min.	Typ.	Max.	Unit
Storage Humidity	Non condensing	--	--	95	%RH
Operating Temperature	Power derating (above 85℃)	-40	--	85	°C
Storage Temperature		-55	--	125	
Temp. rise at full load		--	25	--	
Lead Temperature	1.5mm from case for 10 seconds	--	--	300	
Cooling		Free air convection			

EMC SPECIFICATIONS

EMI	CE	CISPR22/EN55022 CLASS A（External Circuit Refer to Figure1）
EMS	ESD	IEC/EN61000-4-2 Contact ±8KV perf. Criteria B

EMC RECOMMENDED CIRCUIT

EMI Recommended External Circuit:

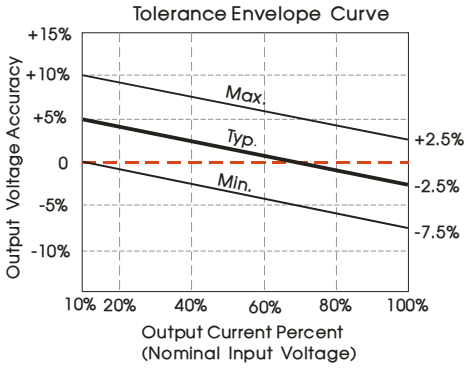


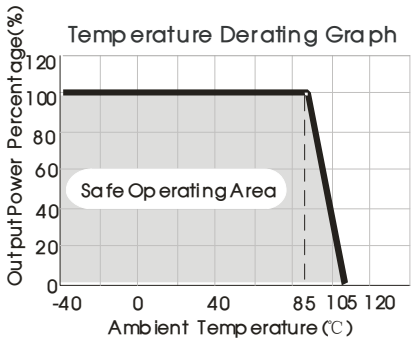
(Figure 1)

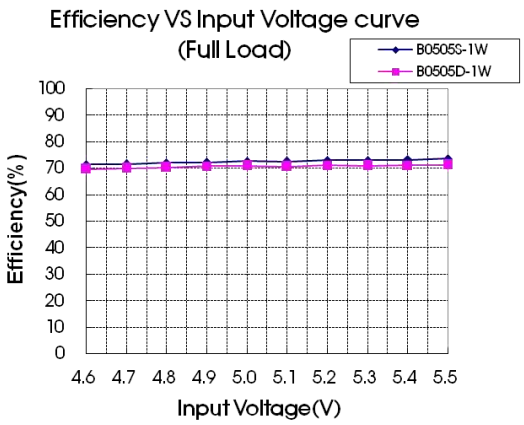
B_S-1W Series
Recommended external circuit parameters:
Vin：5V/12V/24V
C1：1μF/50V
Note: Product bare input of 5V,12V already meet CLASS A, increase the capacitor margin increase.

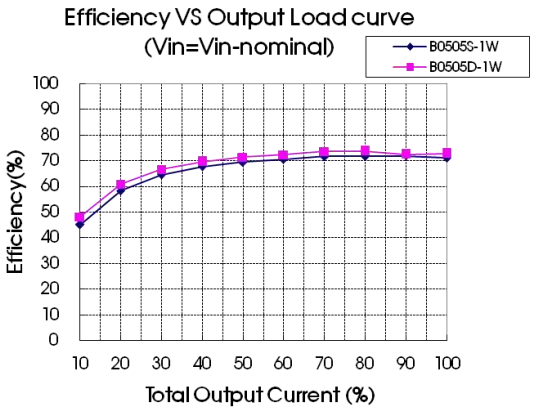
B_D-1W Series
Recommended external circuit parameters:
Vin 5V：
C1：1μF/50V
Vin ： 12V
C1：2.2μF/50V

PRODUCT TYPICAL CURVE



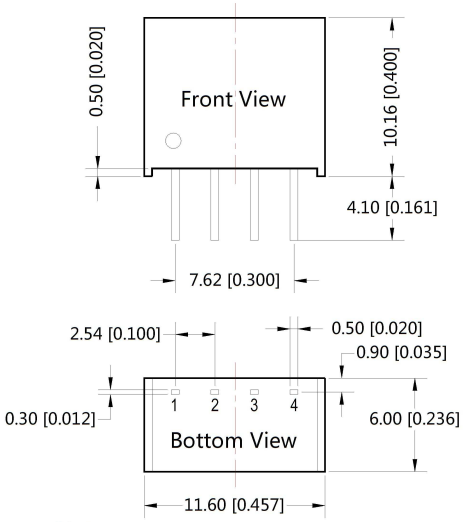


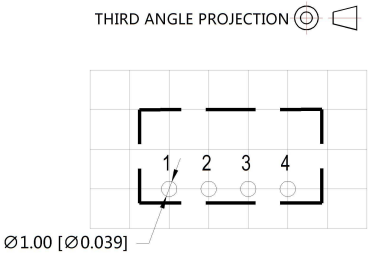




OUTLINE DIMENSIONS, RECOMMENDED FOOTPRINT & PACKAGING

B_S-1W



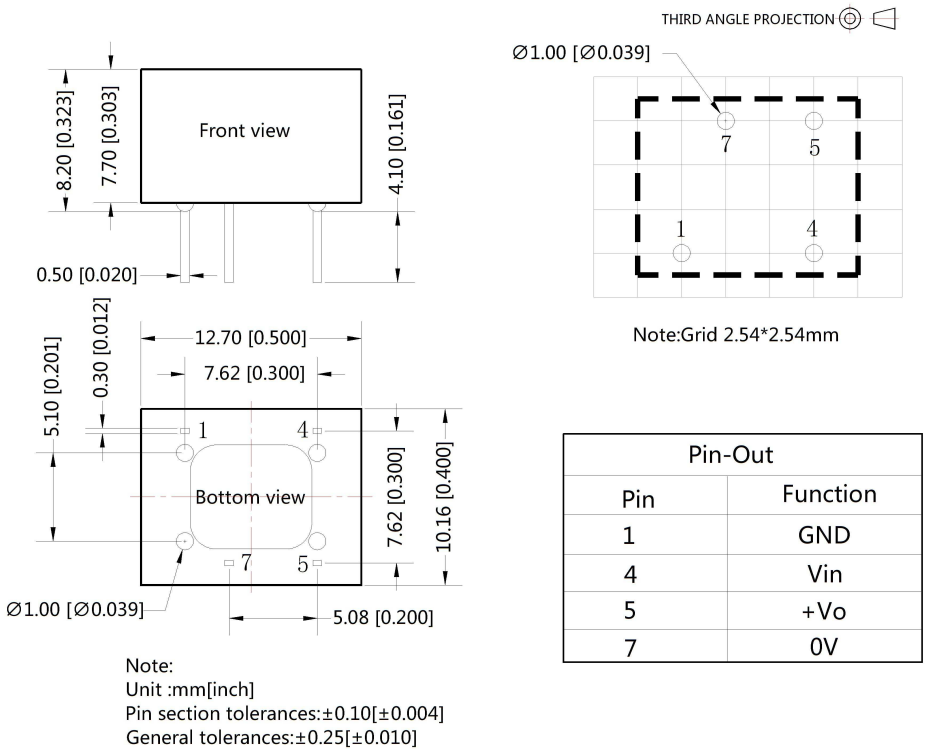


Note : Grid 2.54*2.54mm

Pin-Out	
Pin	Function
1	GND
2	Vin
3	0V
4	+Vo

Note:
Unit :mm[inch]
Pin section tolerances :±0.10[±0.004]
General tolerances:±0.25[±0.010]

B_D-1W



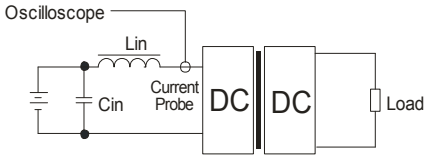
Pin-Out	
Pin	Function
1	GND
4	Vin
5	+Vo
7	0V

Note:
Unit :mm[inch]
Pin section tolerances:±0.10[±0.004]
General tolerances:±0.25[±0.010]

TEST CONFIGURATIONS

Input Reflected-Ripple Current Test Setup

Input reflected-ripple current is measured with an inductor Lin and Capacitor Cin to simulate source impedance.



Lin(4.7μH) Cin(220μF, ESR < 1.0Ω at 100 KHz)

DESIGN CONSIDERATIONS

1) Requirement on output load

In order to ensure the converter can work reliably with high efficiency, the minimum load should not less than 10% rated load when it is used. If the needed power is indeed small, please parallel a resistor on the output side (The sum of the efficient power and resistor consumption power is not less than 10%), or use our company’ s products with a lower rated output power (B_S-W2 & B_D-W2 Series).

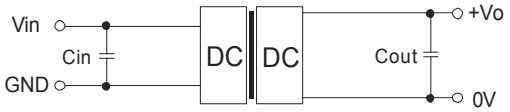
2) Overload Protection

Under normal operating conditions, the output circuit of these products has no protection against overload. The simplest method is add a circuit breaker to the circuit.

3) Recommended circuit

If you want to further decrease the input/output ripple, an capacitor filtering network may be connected to the input and output ends of the DC/DC converter, see (Figure 2).

It should also be noted that the capacitance of filter capacitor must be proper. If the capacitance is too big, a startup problem might arise. For every channel of output, provided the safe and reliable operation is ensured, the recommended capacitance of its filter capacitor sees (Table 1).



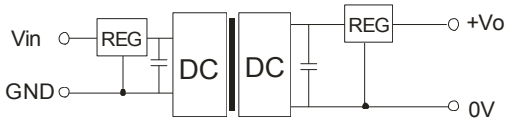
(Figure 2)

EXTERNAL CAPACITOR TABLE (TABLE 1)

Vin (VDC)	Cin (μF)	Vout (VDC)	Cout (μF)
5	4.7	3.3/5	10
12	2.2	12	2.2
24	1	15	1

4) Output Voltage Regulation and Over-voltage Protection Circuit

The simplest device for output voltage regulation, over-voltage and over-current protection is a linear regulator and an capacitor filtering network with overheat protection that is connected to the input or output end in series (Figure 3), the recommended capacitance of its filter capacitor sees (Table 1), linear regulator based on the actual voltage and current to reasonable selection.



(Figure 3)

5) Cannot use in parallel and hot swap

Note:

1. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
2. The maximum capacitive load offered were tested at input voltage range and full load;
3. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%RH with nominal input voltage and rated output load;
4. All index testing methods in this datasheet are based on our Company's corporate standards;
5. We can provide product customization service, please contact our technicians directly for specific information;
6. Specifications are subject to change without prior notice.