

150HB4_1.5 Series

150W Half-Brick - Single Output DC-DC Converter - Wide Input - Isolated & Regulated



DC-DC Converter

150 Watt

- ⊕ Wide Input voltage range (2:1/4:1)
- ⊕ Typical Efficiency: 85%
- ⊕ Switching frequency 300KHz
- ⊕ Output overcurrent protect
- ⊕ Short circuit protection (SCP)
- ⊕ Input under voltage protection
- ⊕ Input-output isolated
- ⊕ PCB Board in-line type installs
- ⊕ High reliability
- ⊕ Optional heat sink

The 150HB4_1.5 series offers 150W of output, wide input voltage of 2:1 or 4:1 (9-36VDC, 18-72VDC), and features 1500VDC isolation, input under voltage protection, over current and short circuit protection.

All models are particularly suited to tele-communications, industrial, test equipments power etc.



Common specifications

Short circuit protection:	Continuous, automatic recovery
Efficiency:	85% TYP
Operation temperature range:	-25°C~+70°C
Storage temperature range:	-50°C ~+105°C
Storage humidity range:	< 90%
Temperature coefficient:	±0.02%/°C
Cooling:	Heatsink, nature cooling
Vibration resistance:	10~55Hz: 5G
Case material:	Epoxy, aluminium base plate
Over current mode:	Full input range. Protection type: Hiccup mode, automatic recovery
MTBF:	MIL-HDBK-217F2, 5x10 ⁵ hours

Input specifications

Item	Test condition	Min	Typ	Max	Units
Start time	Not capacitive load		20		ms
Input under voltage protection	• 24V (18-36Vin) • 48V (36-72Vin) • 110V (72-144Vin) • 18V (9-36Vin)		17	35	V
Remote On/Off Function CTL	• CNT Pin connect -Vin • CNT Pin left open	OFF		ON	

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and 1mA max	1500			VDC
Isolation resistance	Input-output		100		Mohm

Output specifications

Item	Test condition	Min	Typ	Max	Units
Output power				150	W
Line regulation	V _{min} ≤ V _i ≤ V _{max}		±0.2		%
Load regulation	I _o =0.1...1.0xI _{onom} , V _{min} ≤ V _i ≤ V _{max} , V _i =V _{rated}		±0.5		%
Output voltage accuracy	I _o =0.1...1.0xI _{onom} , V _i =V _{rated}		±1.0		%
Over current protection	V _{min} ≤ V _i ≤ V _{max}		120		%
Peak Deviation	25% Rated Load Vary		±5.0		%
Dynamic Response Setting Time	25% Rated Load Vary		400		μs
Output voltage trim	V _{min} ≤ V _i ≤ V _{max}		10		%
Ripple & Noise*	20MHz Bandwidth		1		%
Switching frequency	V _{min} ≤ V _i ≤ V _{max}		300		KHz

*Test ripple and noise by "parallel cable" method.

Example:

150HB4_4828S1.5

W= 150 Watt; HB= Half Brick; 4= Wide input (4:1); 48= 18-72 Vin; 28= 28Vout; S= Single Output; 1.5= 1.5kVDC Isolation

Note:

1. Operation under minimum load will not damage the converter; However, they may not meet all specification listed, and that will reduce the life of product.
2. All specifications measured at T_a=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
3. In this datasheet, all the test methods of indications are based on corporate standards.

150HB4 Series

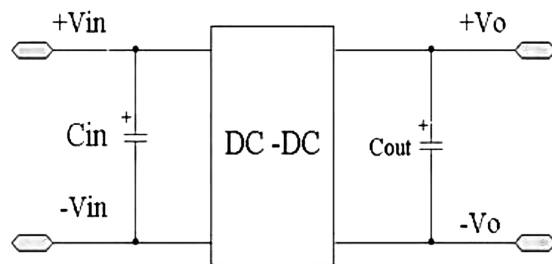
150W Half-Brick - Single Output DC-DC Converter - Wide Input - Isolated & Regulated

Part Number	Input Voltage [V]	Output Voltage [VDC]	Output Current [A, max]
150HB_1212S1.5	9-18	12	12.5
150HB_1215S1.5	9-18	15	10
150HB_1224S1.5	9-18	24	6.25
150HB_1228S1.5	9-18	28	5.4
150HB_1248S1.5	9-18	48	3.1
150HB4_1812S1.5	9-36	12	12.5
150HB4_1815S1.5	9-36	15	10
150HB4_1824S1.5	9-36	24	6.25
150HB4_1828S1.5	9-36	28	5.4
150HB4_1848S1.5	9-36	48	3.1
150HB_2403S1.5	18-36	3.3	30
150HB_2405S1.5	18-36	5	30
150HB_2412S1.5	18-36	12	12.5
150HB_2415S1.5	18-36	15	10
150HB_2418S1.5	18-36	18	8.33
150HB_2424S1.5	18-36	24	6.25
150HB_2428S1.5	18-36	28	5.4
150HB_2436S1.5	18-36	36	4.17
150HB_2448S1.5	18-36	48	3.1
150HB4_4812S1.5	18-72	12	12.5
150HB4_4815S1.5	18-72	15	10
150HB4_4824S1.5	18-72	24	6.25
150HB4_4828S1.5	18-72	28	5.4
150HB4_4848S1.5	18-72	48	3.1
150HB_4803S1.5	36-72	3.3	30
150HB_4805S1.5	36-72	5	30
150HB_4812S1.5	36-72	12	12.5
150HB_4815S1.5	36-72	15	10
150HB_4818S1.5	36-72	18	8.33
150HB_4824S1.5	36-72	24	6.25
150HB_4828S1.5	36-72	28	5.4
150HB_4836S1.5	36-72	36	4.17
150HB_4848S1.5	36-72	48	3.1
150HB4_11003S1.5	72-144	3.3	30
150HB4_11005S1.5	72-144	5	30
150HB4_11012S1.5	72-144	12	12.5
150HB4_11015S1.5	72-144	15	10
150HB4_11018S1.5	72-144	18	8.33
150HB4_11024S1.5	72-144	24	6.25
150HB4_11028S1.5	72-144	28	5.4
150HB4_11036S1.5	72-144	36	4.17
150HB4_11048S1.5	72-144	48	3.1

150HB4 Series

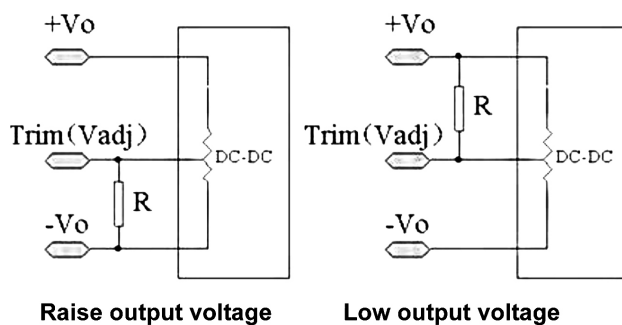
150W Half-Brick - Single Output DC-DC Converter - Wide Input - Isolated & Regulated

Recommended circuit

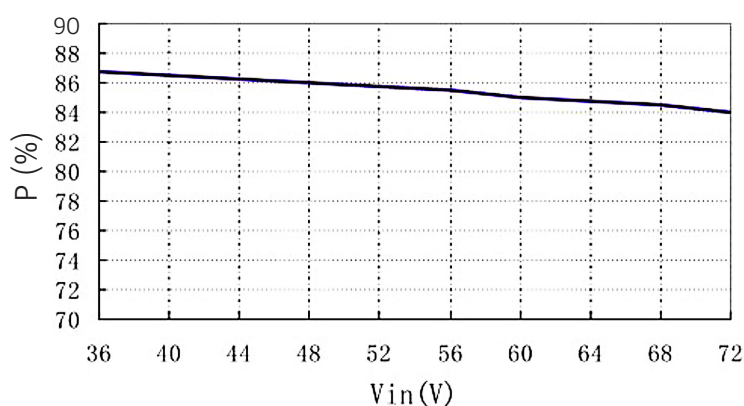


- (1) Power module with C_{in} is helpful to improve the electromagnetic compatibility, it is recommended to use 47 $\mu F \sim 100 \mu F$ electrolytic capacitor
- (2) Power module with C_{out} is helpful to lower the output ripple
- (3) Power module output connects the digital circuit needs to add C_{out}
- (4) C_{out} is recommended to use 100 $\mu F/A$, the current is refers to the output current

TRIM



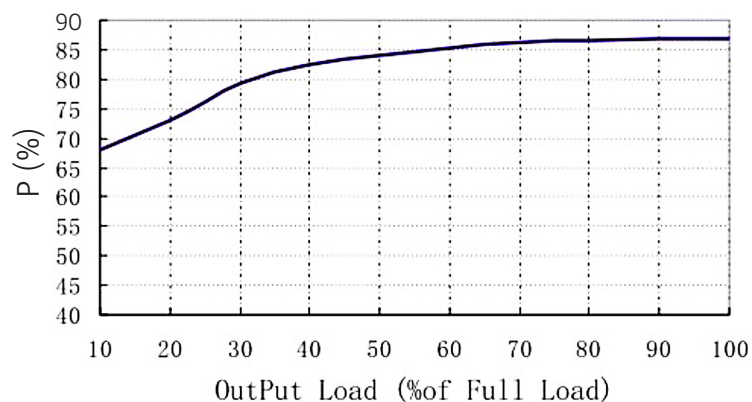
Input-voltage - Efficiency



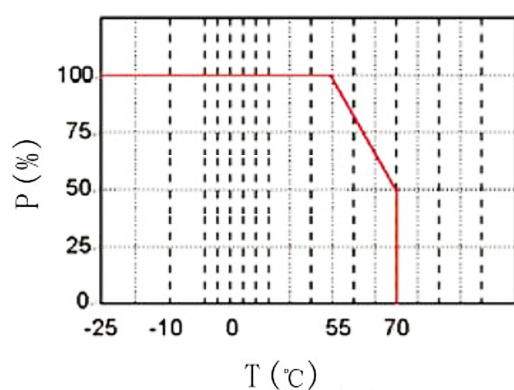
150HB4 Series

150W Half-Brick - Single Output DC-DC Converter - Wide Input - Isolated & Regulated

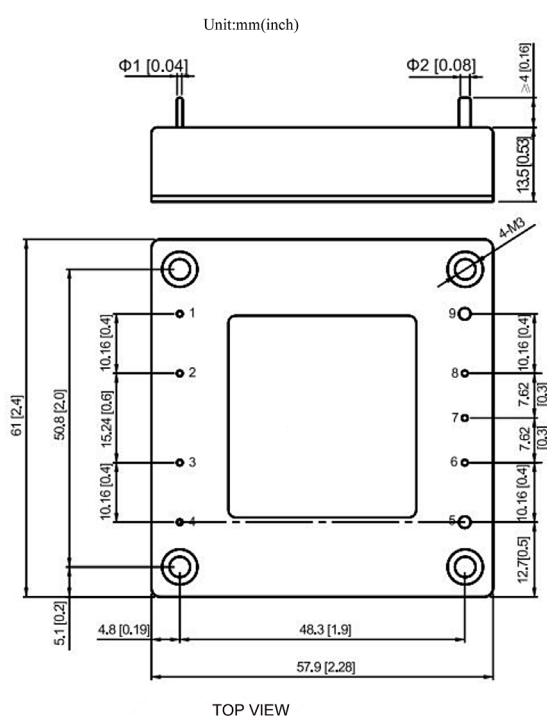
Recommended circuit



Temperature curve



Mechanical dimensions



Note:

Unit: mm[inch]

Tolerances: $\pm 0.20\text{mm}$ [$\pm 0.008\text{inch}$]

Pin assignment

Pin	S
1	-Vin
2	CASE
3	CTL
4	+Vin
5	+Vout
6	+S
7	TRIM
8	-S
9	-Vout