



APPLICATIONS

Wireless Network
Telecom/Datacom
Industry Control System
Distributed Power Architectures
Semiconductor Equipment

FEATURES

- 50 WATTS MAXIMUM OUTPUT POWER
- SINGLE OUTPUT UP TO 15A
- COMPACT 2.40 X 2.28 X 0.50 INCH PACKAGE
- HIGH EFFICIENCY UP TO 91%
- INPUT RANGE FROM 18VDC TO 36VDC AND 36VDC TO 75VDC
- FIXED SWITCHING FREQUENCY(300KHz)
- HALT TESTED
- INDUSTRY STANDARD FOOTPRINT
- ADJUSTABLE OUTPUT VOLTAGE
- NO MINIMUM LOAD
- UNDER-VOLTAGE LOCKOUT
- INPUT TO OUTPUT ISOLATION (BASIC INSULATION)
- CE MARK MEETS 2006/95/EC, 93/68/EEC AND 2004/108/EC
- UL60950-1, EN60950-1 AND IEC60950-1 LICENSED
- ISO9001 CERTIFIED MANUFACTURING FACILITIES
- COMPLIANT TO RoHS EU DIRECTIVE 2002/95/EC

OPTIONS

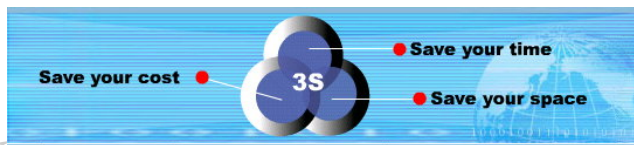
Negative & Positive logic Remote on/off, Pin length

DESCRIPTION

HEC50-S single output DC/DC converters provide up to 50 watts of output power in an industry standard half-brick package and footprint. These units are specifically designed to meet the power needs of low-voltage silicon. All models feature a wide input range, trimmable output voltage and a 15A current rating.

TECHNICAL SPECIFICATION All specifications are typical at nominal input, full load and 25°C otherwise noted

OUTPUT SPECIFICATIONS			INPUT SPECIFICATIONS		
Output power		50 Watts, max.	Input voltage range	24V nominal input	18 – 36VDC
Voltage accuracy	Full load and nominal Vin	± 1.5%		48V nominal input	36 – 75VDC
Minimum load		0%	Input filter		L-C type
Voltage adjustability (Note 5)		+ 10% , -20%	Input surge voltage 100mS max	24V input	50VDC
Line regulation	LL to HL at Full Load	See table		48V input	100VDC
Load regulation	No load to Full load	See table	Start up time	Nominal Vin and constant resistive load	Power up 25mS, typ. Remote ON/OFF 25mS, typ.
Remote sense (Note 5)		10% of Vout	Input reflected ripple current	24V input	50mAp-p
Ripple and noise (Note 6) 20MHz bandwidth		100mVp-p		48V input	20mAp-p
Temperature coefficient		±0.02% / °C, max.	Start-up voltage	24V input	17VDC
Transient response recovery time 25% load step change		200µS		48V input	34VDC
Over voltage protection threshold (Hiccup)		115% ~ 130% of Vout	Shutdown voltage	24V input	15VDC
Over current protection threshold		110% ~ 140% of Iout Rated		48V input	32VDC
Short circuit protection		Hiccup, automatics recovery	Remote ON/OFF (Note 7)		
GENERAL SPECIFICATIONS			(Negative logic)	ON=Short or 0V < Vr < 1.2V, IIN=1mA max. OFF=Open or 3V < Vr < 15V, IIN=50µA max.	
Efficiency		See table	(Positive logic)	ON=Open or 3V < Vr < 15V, IIN=50µA max. OFF=Short or 0V < Vr < 1.2V, IIN=1mA max.	
Isolation voltage	Input to Output	1600 VDC, min.	Input current of remote control pin	Nominal Vin	-0.5mA ~ 0.5mA
	Input to Case	1000 VDC, min.	Remote off state input current	Nominal Vin	20mA
	Output to Case	1000 VDC, min.	ENVIRONMENTAL SPECIFICATIONS		
Isolation resistance		10 ⁷ ohms, min.	Operating base-plate temperature range (Note 8)		-40°C to +100°C (with derating)
Isolation capacitance		2500 pF, max.	Over temperature protection		110°C
Switching frequency		300 KHz, typ.	Humidity max, Non-condensing		95%
Approvals and standard		IEC60950-1, UL60950-1, EN60950-1	Storage temperature range		-55°C to +125°C
Case material		Open with Aluminum base-plate	Thermal shock		MIL-STD-810F
Weight		50g (1.76oz)	Vibration		MIL-STD-810F
MTBF (Note 1)	BELLCORE TR-NWT-000332	3.000 x 10 ⁶ hrs	EMC CHARACTERISTICS		
	MIL-HDBK-217F	2.560 x 10 ⁵ hrs	EMI (Note 9)	EN55022	Class A
			Radiated immunity	EN61000-4-3	10 V/m Perf. Criteria A
			Fast transient (Note 10)	EN61000-4-4	± 2KV Perf. Criteria B
			Surge (Note 10)	EN61000-4-5	± 1KV Perf. Criteria B
			Conducted immunity	EN61000-4-6	10 Vr.m.s Perf. Criteria A

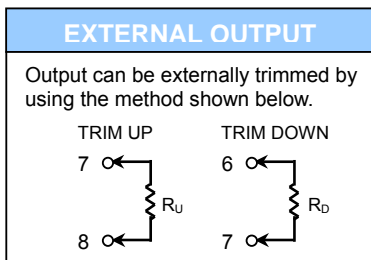
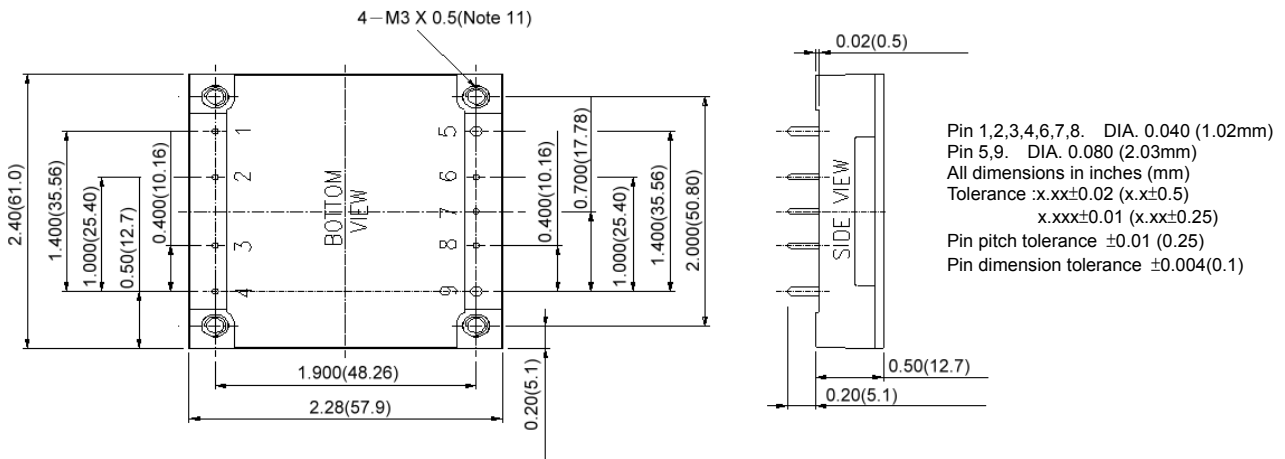




**50WATTS SINGLE OUTPUT
DC-DC CONVERTER**

Model Number	Input Range	Output Voltage	Output Current		Line regulation	Load regulation	Input Current		Eff ⁽⁴⁾ (%)
			Min. load	Full load			No load ⁽³⁾	Full load ⁽²⁾	
HEC50-24S1P8	18 – 36 VDC	1.8 VDC	0mA	15 A	4 mV	6 mV	120mA	1.36 A	86
HEC50-24S2P5	18 – 36 VDC	2.5 VDC	0mA	15 A	5 mV	8 mV	100mA	1.86 A	87
HEC50-24S3P3	18 – 36 VDC	3.3 VDC	0mA	15 A	7 mV	10 mV	120mA	2.40 A	89
HEC50-24S05	18 – 36 VDC	5 VDC	0mA	10 A	10 mV	15 mV	120mA	2.40 A	90
HEC50-24S15	18 – 36 VDC	15 VDC	0mA	3.3 A	30 mV	45 mV	190mA	2.40 A	89
HEC50-48S1P8	36 – 75 VDC	1.8 VDC	0mA	15 A	4 mV	6 mV	80mA	0.67 A	87
HEC50-48S2P5	36 – 75 VDC	2.5 VDC	0mA	15 A	5 mV	8 mV	80mA	0.93 A	88
HEC50-48S3P3	36 – 75 VDC	3.3 VDC	0mA	15 A	7 mV	10 mV	110mA	1.19 A	90
HEC50-48S05	36 – 75 VDC	5 VDC	0mA	10 A	10 mV	15 mV	90mA	1.19 A	91
HEC50-48S15	36 – 75 VDC	15 VDC	0mA	3.3 A	30 mV	45 mV	130mA	1.20 A	90

- Note**
- BELLCORE TR-NWT-000332. Case 1: 50% Stress, Temperature at 40°C. MIL-HDBK-217F Notice2 @Ta=25 °C, Full load(Ground, Benign, controlled environment).
 - Maximum value at nominal input voltage and full load.
 - Typical value at nominal input voltage and no load.
 - Typical value at nominal input voltage and full load.
 - Maximum output deviation is 10% inclusive of remote sense. If remote sense is not being used, the + sense should be connected to its corresponding +OUTPUT and likewise the -sense should be connected to its corresponding -OUTPUT.
 - Measured with a 1µF M/C and a 10µF T/C.
 - The negative/ positive logic and pin length are optional (see table). The pin voltage is referenced to -Vin.
 - Heat sink is optional and P/N: 7G-0021A-F, 7G-0022A-F, 7G-0023A-F, 7G-0024A-F.
 - The HEC50 meets EN55022 class A and class B only with external components connected with the input pins.
 - An external input filter capacitor is required if the module has to meet EN61000-4-4, EN61000-4-5.
 - The filter capacitor Power Mate suggest: Nippon chemi-con KY series, 220µF/100V, ESR 48mΩ .
 - BASEPLATE GROUNDING : Base-plate should be grounded at one of the four screw bolts prior to operation.
 - The converter is provided by basic insulation.

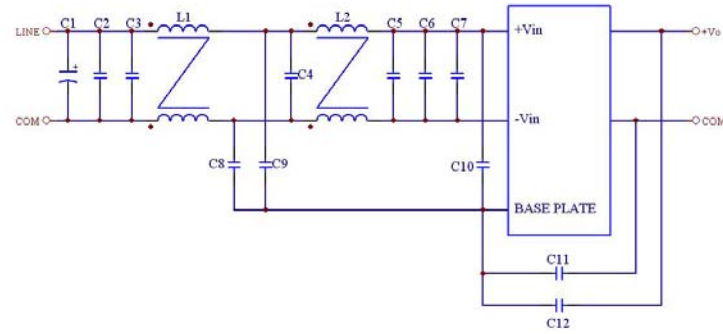
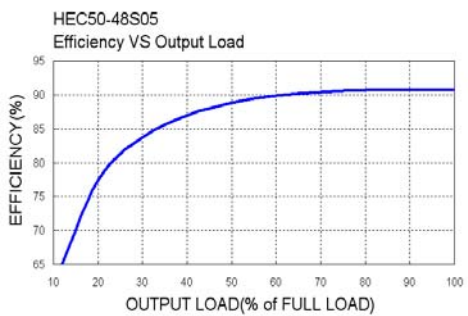
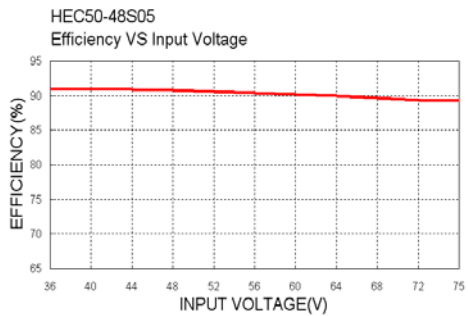
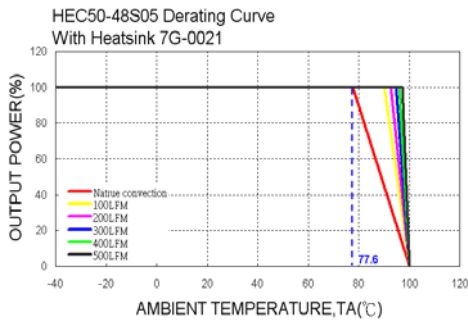
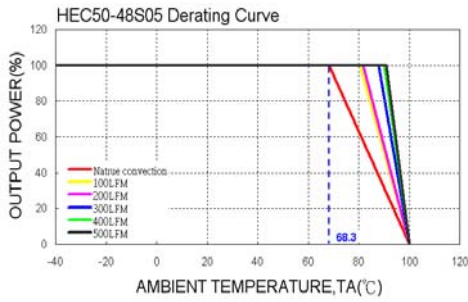


PIN CONNECTION		
PIN	Define	Diameter
1	- INPUT	0.04 Inches
2	CASE	0.04 Inches
3	CTRL	0.04 Inches
4	+ INPUT	0.04 Inches
5	- OUTPUT	0.08 Inches
6	- SENSE	0.04 Inches
7	TRIM	0.04 Inches
8	+ SENSE	0.04 Inches
9	+ OUTPUT	0.08 Inches

PRODUCT OPTIONS TABLE	
Option	Suffix
Negative remote ON/OFF logic, 0.20" pin length (standard)	-
Negative remote ON/OFF logic, 0.145" pin length	-L
Negative remote ON/OFF logic, 0.11" pin length	-K
Positive remote ON/OFF logic, 0.20" pin length	-P
Positive remote ON/OFF logic, 0.145" pin length	-S
Positive remote ON/OFF logic, 0.11" pin length	-M

Example : HEC50-48S3P3-P

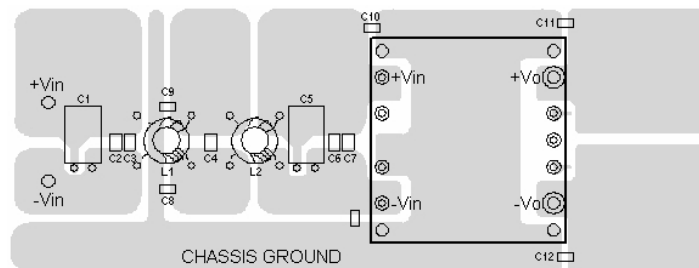




Recommended Filter for EN55022 Class B Compliance

The components used in the above figure, together with the manufacturers' part numbers for these components, are as follows:

	C1	C2	C3	C4	C5
HEC50-xxx	220μF /100V	2.2μF /100V	2.2μF /100V	2.2μF /100V	100μF/100V
	C6	C7	C8	C9	C10
	2.2μF /100V	2.2μF /100V	1.5nF /3KV	1.5nF /3KV	1.5nF /3KV
	C11	C12	L1	L2	
	1.5nF /3KV	1.5nF /3KV	1400.4μH	304.98μH	



Recommended EN55022 Class B Filter Circuit Layout

