



**POWER MATE
TECHNOLOGY CO.,LTD.**



UL E193009
TUV R50020744
CB JPTUV-5363
CE MARK

HEC50 SERIES Single output

- SINGLE OUTPUT UP TO 15A
- INDUSTRY STANDARD FOOTPRINT
- ADJUSTABLE OUTPUT VOLTAGE
- NO MINIMUM LOAD
- UNDER-VOLTAGE LOCKOUT
- HIGH EFFICIENCY UP TO 91%
- COMPACT 2.40 X 2.28 X 0.50 INCH PACKAGE
- FIXED SWITCHING FREQUENCY
- HALT TESTED

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. Remote sense and remote on/off facilities are included as standard, and the converters are comprehensively protected against over-current, over-voltage and over-temperature conditions. The HEC50 converters are especially suited to telecom, networking and industrial application.

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

OUTPUT SPECIFICATIONS		
Output power		50 Watts max
Voltage accuracy	Full load and nominal Vin	± 1.5%
Voltage adjustability (Note 1)		+ 10% , -20%
Minimum load		0%
Line regulation	LL to HL at FL	See table
Load regulation	0% to 100% FL	See table
Remote sense (Note 1)		10% of Vout
Ripple and noise(Note 2) 20MHz bandwidth		100mVp-p
Temperature coefficient		±0.02% / °C, max
Transient response recovery time	25% load step change	200uS
Over voltage protection threshold (Hiccup)		115% ~ 130% of Vout
Over current protection threshold		110% ~ 140% of Iout Rated
Short circuit protection		Hiccup, automatics recovery
INPUT SPECIFICATIONS		
Input voltage range	24V input 48V input	18 – 36VDC 36 – 75VDC
UVLO start-up voltage	24V input 48V input	17V typ. 34V typ.
UVLO shutdown voltage	24V input 48V input	15V typ. 32V typ.
Input filter (Note 3)		L-C type
Input voltage variation	dv/dt (Complies with ETS300 132 part 4.4)	5V/ms,max
Input surge voltage 100ms max	24V input 48V input	50VDC 100VDC
Start up time	Nominal Vin and constant resistive load	25mS typ.
Input reflected-ripple current	24V input (5Hz to 20 MHz, 12uH source impedance) 48V input	50mA p-p 20mA p-p
Remote ON/OFF(Note 4)		
(Positive logic)	ON=Open or 3.5V < Vr < 15V, OFF=Short or 0V < Vr < 1.2V,	IIN=50μA max. IIN=1mA max.
(Negative logic)	ON=Short or 0V < Vr < 1.2V, OFF=Open or 3.5V < Vr < 15V,	IIN=1mA max. IIN=50μA max.

GENERAL SPECIFICATIONS		
Efficiency		See table
Isolation voltage	Input to Output Input to Case Output to Case	1600 VDC, min. 1000 VDC, min. 1000 VDC, min.
Isolation resistance		10 ⁷ ohms, min
Isolation capacitance		2500 pF, max
Switching frequency		300 KHz, typ
Approvals and standard (Note 5)		IEC60950, UL60950, EN60950
Case material		Open with Aluminum base-plate
Weight		50g (1.76 oz)
MTBF	Bellcore TR-NWT-000332, Tc=40°C, Io=80%, max.	3 x 10 ⁶ hrs
ENVIRONMENTAL SPECIFICATIONS		
Operating base-plate temperature range (Note 6)		-40°C to +100°C
Over temperature protection		110°C
Humidity max, Non-condensing		95%
Storage temperature range		-55°C to +125°C
Thermal shock		MIL-STD-810D
Vibration	10~55Hz, 2G, 3minutes period, 30minutes along X,Y and Z	
EMC CHARACTERISTICS		
Conducted emissions	EN55022 (Note 7) EN55022 (Note 7)	Level A Level B
Radiated emissions	EN55022	Level A
ESD	EN61000-4-2	Perf. Criteria2
Radiated immunity	EN61000-4-3	Perf. Criteria2
Fast transient	EN61000-4-4	Perf. Criteria2
Surge	EN61000-4-5	Perf. Criteria2
Conducted immunity	EN61000-4-6	Perf. Criteria2



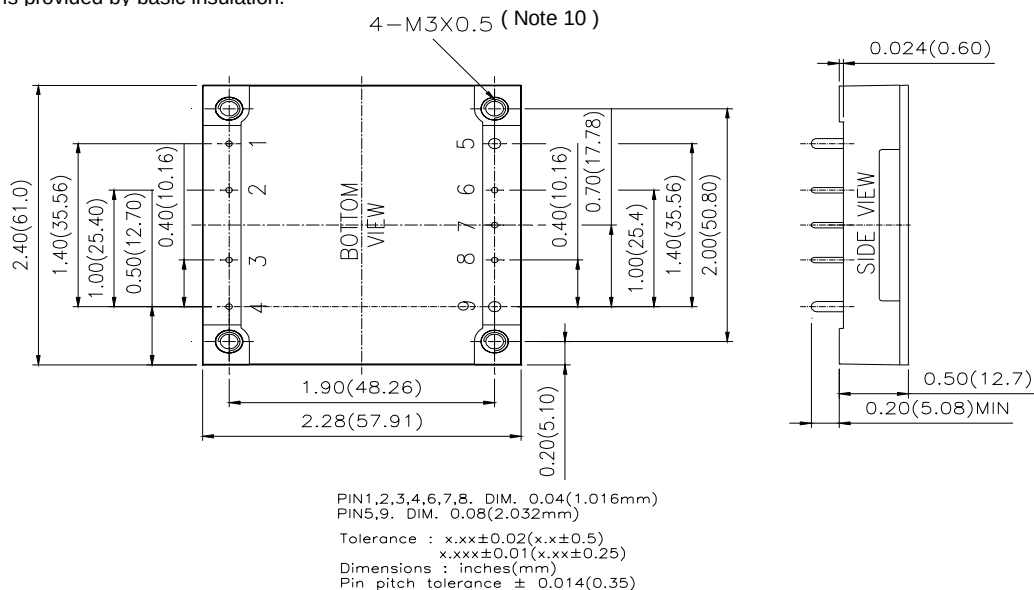
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50WATTS SINGLE OUTPUT DC-DC CONVERTER

Model Number	Input Range	Output Voltage	Output Current	Line regulation	Load regulation	Input Current ⁽⁸⁾	Eff ⁽⁹⁾ (%)
HEC50-24S1P8	18 – 36 VDC	1.8 VDC	15 A	4 mV	6 mV	1.36 A	86
HEC50-24S2P5	18 – 36 VDC	2.5 VDC	15 A	5 mV	8 mV	1.86 A	87
HEC50-24S3P3	18 – 36 VDC	3.3 VDC	15 A	7 mV	10 mV	2.40 A	89
HEC50-24S05	18 – 36 VDC	5 VDC	10 A	10 mV	15 mV	2.40 A	90
HEC50-24S15	18 – 36 VDC	15 VDC	3.3 A	30 mV	45 mV	2.40 A	89
HEC50-48S1P8	36 – 75 VDC	1.8 VDC	15 A	4 mV	6 mV	0.67 A	87
HEC50-48S2P5	36 – 75 VDC	2.5 VDC	15 A	5 mV	8 mV	0.92 A	89
HEC50-48S3P3	36 – 75 VDC	3.3 VDC	15 A	7 mV	10 mV	1.19 A	90
HEC50-48S05	36 – 75 VDC	5 VDC	10 A	10 mV	15 mV	1.19 A	91
HEC50-48S15	36 – 75 VDC	15 VDC	3.3 A	30 mV	45 mV	1.20 A	90

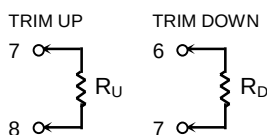
Note

- Maximum output deviation is 10% inclusive of remote sense. If remote sense is not being used, the +V sense should be connected to its corresponding +OUTPUT and likewise the –sense should be connected to its corresponding –OUTPUT.
- Measured with a 1uF M/C and a 10uF T/C.
- An external filter capacitor is required for normal operation. The capacitor should be capable of handling 1A ripple current for 48V/24V models. Power mate suggest: Nippon chemi-con KMF series, 220μF/100V, ESR 90mΩ.
- The negative/ positive logic and pin length are optional (see table). The pin voltage is referenced to negative input.
- 24V input models safety approval pending.
- Heat sink is optional and P/N: 7G-0021, 7G-0022, 7G-0023, 7G-0024.
- The HEC50 meets level A and level B conducted emissions only with external components connected before the input pin to the converter.
- Maximum value at nominal input voltage and full load.
- Typical value at nominal input voltage and full load.
- BASEPLATE GROUNDING : Base-plate should be grounded at one of the four screw bolts prior to operation.
- The converter is provided by basic insulation.



EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using the method shown below.



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