POWER MATE TECHNOLOGY CO.,LTD.

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**

UL E193009
TUV R50020744
CB JPTUV-5363
CE MARK

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 25ºC 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% / ºC, 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 shuntdown voltage	24V input 48V input	15V typ. 32V typ.
Input filter (Note 3)		L-C type
Input voltage variation	dv/dt	5V/ms,max (Complies with ETS300 132 part 4.4)
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 (5Hz to 20 MHz, 12uH source impedance)	24V input 48V input	50mAp-p 20mAp-p

Remote ON/OFF(Note 4)

(Positive logic)	ON=Open or 3.5V < Vr < 15V, I_{IN}=50μA max. OFF=Short or 0V < Vr < 1.2V, I_{IN}=1mA max.
(Negative logic)	ON=Short or 0V < Vr < 1.2V, I_{IN}=1mA max. OFF=Open or 3.5V < Vr < 15V, I_{IN}=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℃, Io=80%, max.	3 x 10^6 hrs

ENVIRONMENTAL SPECIFICATIONS

Operating base-plate temperature range (Note 6)	-40ºC to +100ºC
Over temperature protection	110ºC
Humidity max, Non-condensing	95%
Storage temperature range	-55ºC to +125ºC
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

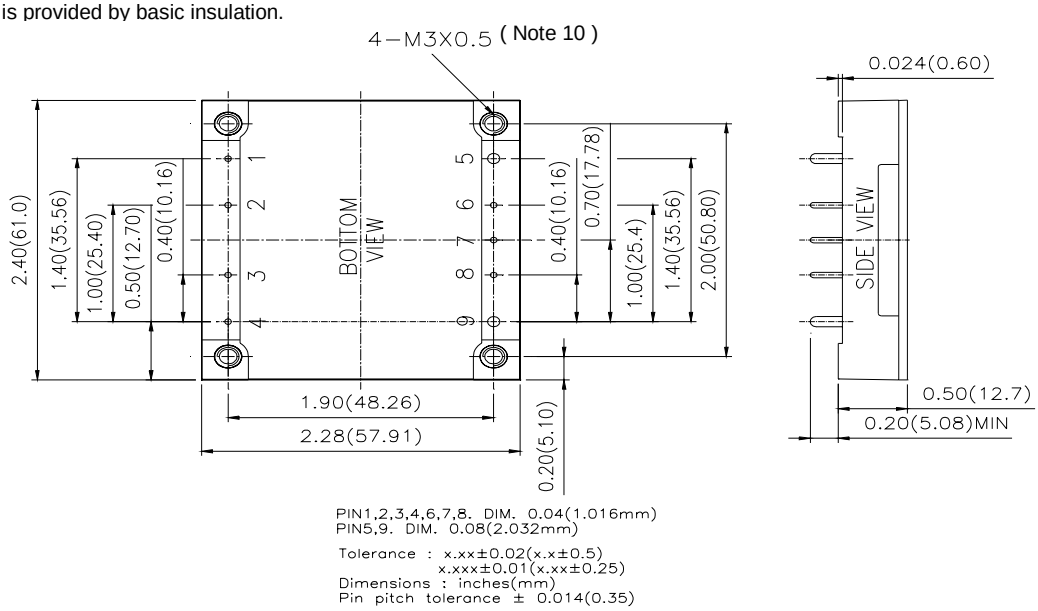
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50WATTS SINGLE OUTPUT DC-DC CONVERTER

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

1. 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.
2. Measured with a 1uF M/C and a 10uF T/C.
3. An external filter capacitor is required for normal operation. The capacitor should be capable of handing 1A ripple current for 48V/24V models. Power mate suggest: Nippon chemi-con KMF series, 220μF/100V, ESR 90mΩ.
4. The negative/ positive logic and pin length are optional (see table). The pin voltage is referenced to negative input.
5. 24V input models safety approval pending.
6. Heat sink is optional and P/N: 7G-0021, 7G-0022, 7G-0023, 7G-0024.
7. The HEC50 meets level A and level B conducted emissions only with external components connected before the input pin to the converter.
8. Maximum value at nominal input voltage and full load.
9. Typical value at nominal input voltage and full load.
10. BASEPLATE GROUNDING：Base-plate should be grounded at one of the four screw bolts prior to operation.
11. The converter is provided by basic insulation.

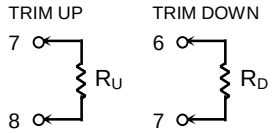


PIN1,2,3,4,6,7,8. DIM. 0.04(1.016mm)
PIN5,9. DIM. 0.08(2.032mm)

Tolerance : x.xx±0.02(x.x±0.5)
x.xxx±0.01(x.xx±0.25)
Dimensions : inches(mm)
Pin pitch tolerance ± 0.014(0.35)

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