HEC100 SERIES

100 WATTS DC-DC CONVERTER

FEATURES

- **100 WATTS MAXIMUM OUTPUT POWER**
- **OUTPUT CURRENT UP TO 25A**
- **COMPACT 2.40 X 2.28 X 0.50 INCH PACKAGE**
- **HIGH EFFICIENCY UP TO 90%**
- **INPUT RANGE FROM 36VDC TO 75VDC**
- **FIXED SWITCHING FREQUENCY(300kHz)**
- **HALT TESTED**
- **INDUSTRY STANDARD FOOTPRINT**
- **ADJUSTABLE OUTPUT VOLTAGE**
- **INPUT TO OUTPUT BASIC INSULATION: 1600 VDC**
- **UL60950-1, EN60950-1, & IEC60950-1 SAFETY APPROVALS**
- **CE MARKED**
- **COMPLIANT TO RoHS II & REACH**

APPLICATIONS

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

OPTIONS

Positive and Negative remote on/off, pin length

DESCRIPTION

HEC100-SERIES DC/DC converters provide up to 100 watts of output power in an industry standard half-brick package and footprint. All models feature a wide input range, adjustable output voltage and a 25A current rating.

TECHNICAL SPECIFICATION

All specifications are typical at nominal input, full load and 25ºC otherwise noted

OUTPUT SPECIFICATIONS		
Output power	Total output power	100 Watts, max.
Voltage accuracy		± 1.5%
Minimum load		0%
Voltage adjustability(Note 5)		+ 10% , -20%
Line regulation	LL to HL at FL	See table
Load regulation	No Load to Full Load	See table
Remote sense (Note 5)		10% of Vout(nom)
Ripple and noise(Note 6)	20MHz bandwidth	100mVp-p
Temperature coefficient		±0.02% / ºC, max.
Transient response recovery time	25% load step change	200µs
Over voltage protection threshold	Hiccup	115% ~ 130% of Vout(nom)
Over current protection threshold		110% ~ 140% of Iout Rated
Short circuit protection		Continuous, automatics recovery

GENERAL SPECIFICATIONS		
Efficiency		See table
Isolation voltage	Input to Output	1600 VDC, min. 1minute
	Input(Output) to Case	1000 VDC, min. 1minute
Isolation resistance	500VDC	10^7 ohms, min.
Isolation capacitance		2500pF, max.
Switching frequency		300kHz±10%
Safety approvals		IEC60950-1, UL60950-1, & EN60950-1
Base material		Aluminum base-plate
Weight		65g (2.29oz)
MTBF (Note 1)	MIL-HDBK-217F	4.353×10^5 hrs

INPUT SPECIFICATIONS		
Input voltage range		36 ~ 75VDC
Input filter		L-C type
Input surge voltage		100VDC 100mS, max.
Start up time	Nominal input and constant resistive load	Power up 25ms Remote ON/OFF 25ms
UVLO Start-up voltage		34VDC
UVLO Shutdown voltage		32VDC
Input reflected ripple current		20mAp-p
Remote ON/OFF (Note 7)		
(Negative logic)		ON=Short or 0V < Vr < 1.2V, I_{IN}=1mA max. OFF=Open or 3V < Vr < 15V, I_{IN}=50µA max.
(Positive logic)		ON=Open or 3V < Vr < 15V, I_{IN}=50µA max. OFF=Short or 0V < Vr < 1.2V, I_{IN}=1mA max.
Input current of remote control pin	Nominal input	-0.5mA ~ 0.5mA
Remote off state input current	Nominal input	20mA

ENVIRONMENTAL SPECIFICATIONS	
Operating base-plate temperature range (Note 8)	-40ºC ~ +100ºC
Over temperature protection	110ºC
Humidity max, Non-condensing	95%
Storage temperature range	-55ºC ~ +125ºC
Thermal shock	MIL-STD-810F
Vibration	MIL-STD-810F

EMC CHARACTERISTICS			
EMI (Note 9)	EN55022		Class A, Class B
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

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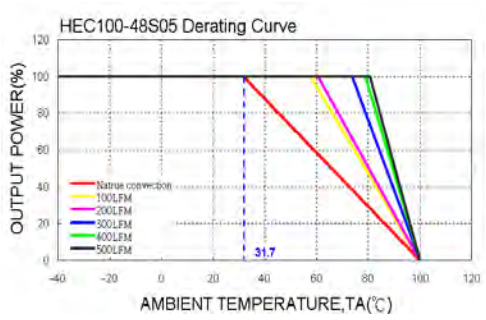
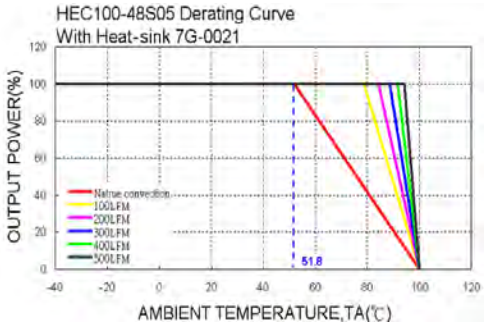
Model Number	Input Range	Output Voltage	Output Current		Line Regulation	Load Regulation	No load[3] Input Current	Eff [4] (%)
			Min. load	Full load				
HEC100-48S1P8	36 ~ 75 VDC	1.8 VDC	0mA	25 A	4 mV	6 mV	110mA	85
HEC100-48S2P5	36 ~ 75 VDC	2.5 VDC	0mA	25 A	5 mV	8 mV	80mA	87
HEC100-48S3P3	36 ~ 75 VDC	3.3 VDC	0mA	25 A	7 mV	10 mV	100mA	89
HEC100-48S05	36 ~ 75 VDC	5.0 VDC	0mA	20 A	10 mV	15 mV	100mA	90
HEC100-48S15	36 ~ 75 VDC	15 VDC	0mA	6.66 A	30 mV	45 mV	200mA	90

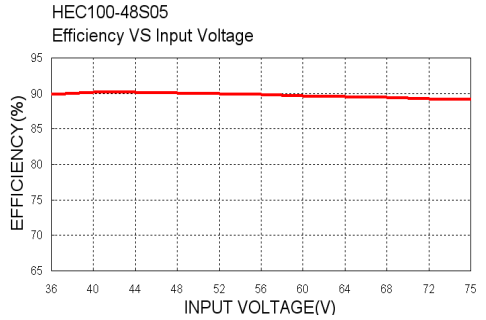
Note

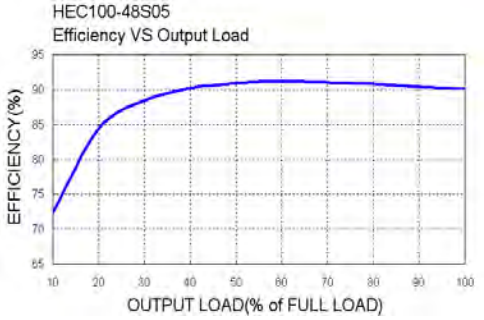
1. MIL-HDBK-217F @Tc=70 ºC, Full load.
2. The converter is provided by basic insulation.
3. Typical value at nominal input voltage and no load.
4. Typical value at nominal input voltage and full load.
5. Maximum output deviation is 10% inclusive of remote sense. If remote sense is not being used, the +SENSE should be connected to its corresponding +OUTPUT and likewise the -SENSE should be connected to its corresponding –OUTPUT.
6. Measured with a 1μF M/C and a 10μF T/C.
7. The negative / positive logic and pin length (DIM) are optional. The pin voltage is referenced to –INPUT, Please see product options table.
8. Heat-sink is optional and P/N: 7G-0021A-F, 7G-0022A-F, 7G-0023A-F, 7G-0024A-F.
9. The HEC100 series standard module meets EN55022 Class A and Class B with external components. For more detail information, please contact with P-DUKE.
10. 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.
11. CASE GROUNDING：When connect the case pin and four screw bolts to shield plane, the EMI could be reduced.

CAUTION: This power module is not internally fused. An input line fuse must always be used.









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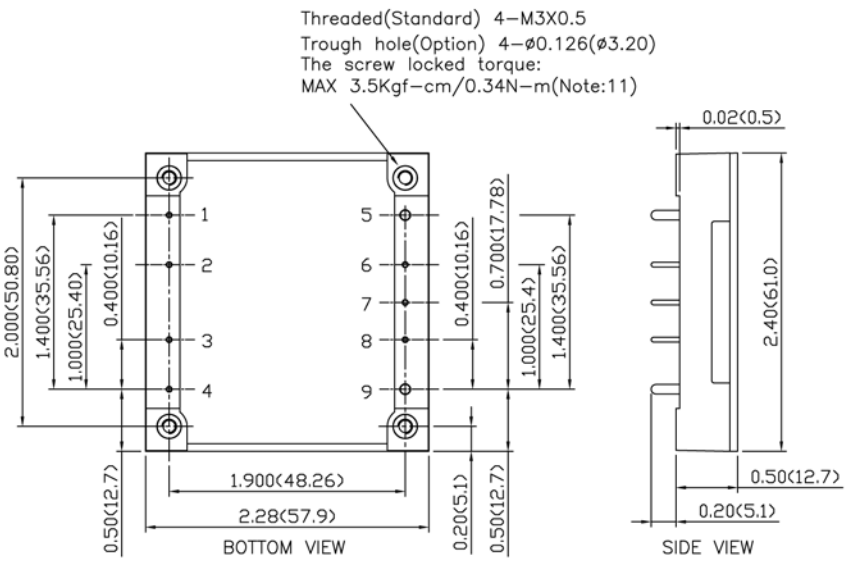
MECHANICAL DRAWING ：

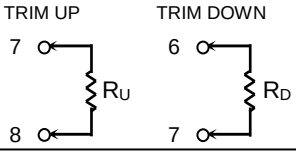


1. All dimensions in Inch (mm)
   Tolerance: X.XX±0.02 (X.X±0.5)
   X.XXX±0.01 (X.XX±0.25)
2. Pin pitch tolerance ±0.01(0.25)
3. Pin dimension tolerance ±0.004 (0.1)

PIN CONNECTION		
PIN	DEFINE	DIAMETER
1	-Vin	0.040 Inch（1.02mm）
2	Case	0.040 Inch（1.02mm）
3	Ctrl	0.040 Inch（1.02mm）
4	+Vin	0.040 Inch（1.02mm）
5	-Vout	0.080 Inch（2.03mm）
6	-Sense	0.040 Inch（1.02mm）
7	Trim	0.040 Inch（1.02mm）
8	+Sense	0.040 Inch（1.02mm）
9	+Vout	0.080 Inch（2.03mm）

EXTERNAL OUTPUT TRIMMING

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



Remote On/Off and Pin Options	Suffix
Negative remote ON/OFF logic, 0.20” pin length (standard)	-
Negative remote ON/OFF logic, 0.145” pin length	-L
Positive remote ON/OFF logic, 0.20” pin length	-P
Positive remote ON/OFF logic, 0.145” pin length	-S

Heat-Sink and Mounting Hole Tread Options	Suffix
Without heat-sink	-
7G-0021A-F	-HS
7G-0022A-F	-HS1
7G-0023A-F	-HS2
7G-0024A-F	-HS3
Through hole (No thread)	-TH

Example：HEC100-48S3P3-PHS

* The module can’t equip heat-sink with TH option.