

**HEC75 Dual Models are OBSOLETE PRODUCTS  
Last time buy: 1 November 2014**



## FEATURES

- 75 WATTS MAXIMUM OUTPUT POWER
- SINGLE: OUTPUT CURRENT UP TO 20A  
DUAL: TOTAL OUTPUT CURRENT UP TO 15A,  
UP TO 100% LOAD IMBALANCE
- 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,  
INDEPENDENTLY REGULATED OUTPUTS
- 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 remote on/off, pin length

## DESCRIPTION

HEC75-SERIES DC/DC converters provide up to 75 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 20A current rating (15A for dual output).

## TECHNICAL SPECIFICATION

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

OUTPUT SPECIFICATIONS		
Output power		75 Watts, max.
Voltage accuracy		± 1.5%
Minimum load		0%
Voltage adjustability	Single (Note 5) Dual	+ 10%, -20% ± 10%
Line regulation	LL to HL at FL	See table
Load regulation	No Load to Full Load	See table
Remote sense	Single (Note 5)	10% of Vout(nom)
Ripple and noise	20MHz bandwidth (Note 6)	100mVp-p
Temperature coefficient		±0.02% / °C, max.
Transient response recovery time	25% load step change	200µs
Over voltage protection threshold (Non-latching Hiccup)		115% ~ 130% of Vout(nom)
Maximum total output current	I <sub>1</sub> + I <sub>2</sub> Dual	15A
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 Input(Output) to Case	1600 VDC, min. 1minute 1000 VDC, min. 1minute
Isolation resistance	500VDC	10 <sup>7</sup> ohms, min.
Isolation capacitance		2500pF, max.
Switching frequency		300kHz±10%
Safety approvals		IEC60950-1, UL60950-1, & EN60950-1 (Single output)
Case material		Open with Aluminum base-plate
Weight	Single Dual	63g (2.22oz) 70g (2.47oz)
MTBF (Note 1)	MIL-HDBK-217F	3.593 x 10 <sup>5</sup> 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
Input reflected-ripple current		20mA p-p
Start-up voltage		34VDC
Shutdown voltage		32VDC
Remote ON/OFF (Note 7)		
(Negative logic)	ON=Short or 0V < Vr < 1.2V, OFF=Open or 3V < Vr < 15V,	I <sub>IN</sub> =1mA max. I <sub>IN</sub> =50µA max.
(Positive logic)	ON=Open or 3V < Vr < 15V, OFF=Short or 0V < Vr < 1.2V,	I <sub>IN</sub> =50µA max. I <sub>IN</sub> =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)		-40°C ~ +100°C
Over temperature protection		+110°C
Humidity max, Non-condensing		95%
Storage temperature range		-55°C ~ +125°C
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

Model Number	Input Range	Output Voltage	Output Current		Line Regulation	Load Regulation	No load <sup>(3)</sup> Input Current	Eff <sup>(4)</sup> (%)
			Min. load	Full load				
HEC75~48S1P8	36 ~ 75 VDC	1.8 VDC	0mA	20 A	4 mV	6 mV	120mA	85
HEC75~48S2P5	36 ~ 75 VDC	2.5 VDC	0mA	20 A	5 mV	8 mV	90mA	87
HEC75~48S3P3	36 ~ 75 VDC	3.3 VDC	0mA	20 A	7 mV	10 mV	120mA	90
HEC75~48S05	36 ~ 75 VDC	5.0 VDC	0mA	15 A	10 mV	15 mV	130mA	90
HEC75~48S15	36 ~ 75 VDC	15 VDC	0mA	5 A	30 mV	45 mV	160mA	90

## OBSOLETE PRODUCT

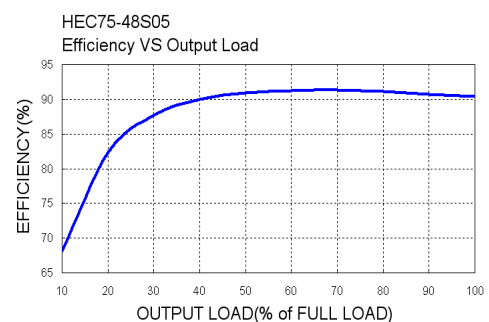
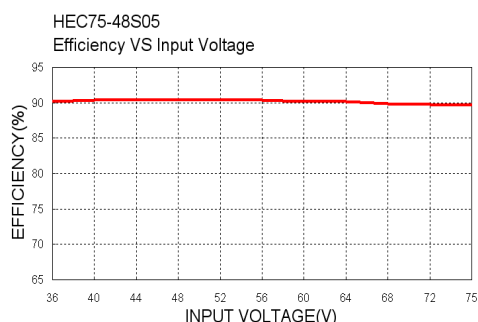
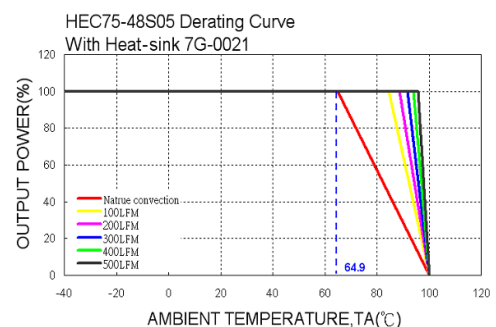
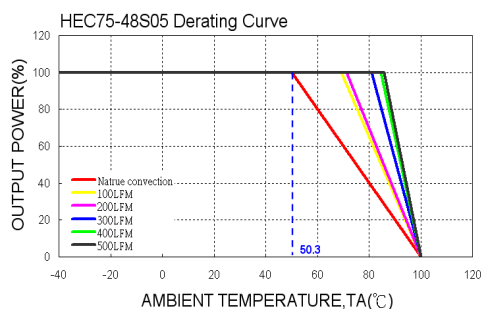
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Model Number	Input Range	Output Voltage		Output Current		Line Regulation	Load Regulation	Eff <sup>(4)</sup> (%)
		V1	V2	I 1	I 2			
HEC75-48D3305	36 ~ 75 VDC	5 VDC	3.3 VDC	15 A	15 A	10/7 mV	15/10 mV	88
HEC75-48D3325	36 ~ 75 VDC	3.3 VDC	2.5 VDC	15 A	15 A	7/5 mV	10/8 mV	81
HEC75-48D0518	36 ~ 75 VDC	5 VDC	1.8 VDC	15 A	15 A	10/4 mV	15/6 mV	85
HEC75-48D3318	36 ~ 75 VDC	3.3 VDC	1.8 VDC	15 A	15 A	7/4 mV	10/6 mV	81

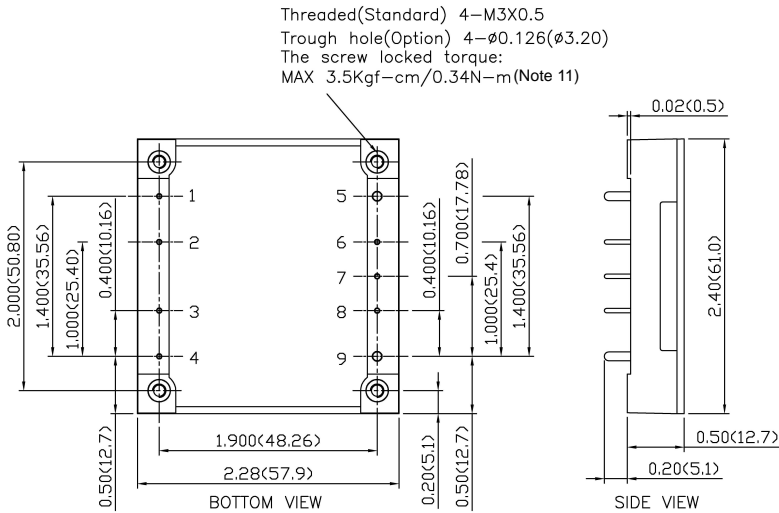
### Note

- MIL-HDBK-217F @Tc=70 °C, Full load.
- The converter is provided by basic insulation.
- Typical value at nominal input voltage and no load.
- Single : Typical value at nominal input voltage and full load.  
Dual : Typical value at nominal input voltage and both outputs current are 7.5A.
- 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 M/C(for dual outputs) or 1μF M/C and a 10μF T/C(for single outputs)
- The negative / positive logic and pin length are optional. The pin voltage is referred to -Vin.  
Single : Please see single output product options table.  
Dual : Please see dual output product options table.
- Heat-sink is optional and P/N: 7G-0021A-F, 7G-0022A-F, 7G-0023A-F, 7G-0024A-F.
- The HEC75 series standard module meets EN55022 Class A and Class B with external components.  
For more detail information, please contact with P-DUKE.
- 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.
- 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.



**MECHANICAL DRAWING :**  
**SINGLE OUTPUT:**



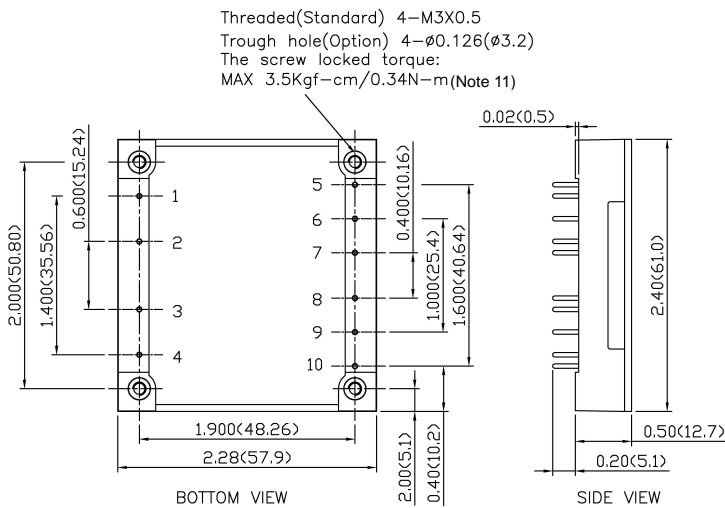
- All dimensions in Inch (mm)  
Tolerance: X.XX $\pm$ 0.02 (X.X $\pm$ 0.5)  
X.XXX $\pm$ 0.01 (X.XX $\pm$ 0.25)
- Pin pitch tolerance  $\pm$ 0.01(0.25)
- Pin dimension tolerance  $\pm$ 0.004 (0.1)

Remote On/Off and Pin Options	Suffix
Negative remote ON/OFF logic, 0.200" pin length (standard)	-
Negative remote ON/OFF logic, 0.145" pin length	-L
Positive remote ON/OFF logic, 0.200" pin length	-P
Positive remote ON/OFF logic, 0.145" pin length	-S

Example : HEC75-48S3P3-PHS

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

**DUAL OUTPUT:**



- All dimensions in Inch (mm)  
Tolerance: X.XX $\pm$ 0.02 (X.X $\pm$ 0.5)  
X.XXX $\pm$ 0.01 (X.XX $\pm$ 0.25)
- Pin pitch tolerance  $\pm$ 0.01(0.25)
- Pin dimension tolerance  $\pm$ 0.004 (0.1)

Remote On/Off and Pin Options	Suffix
Negative remote ON/OFF logic, 0.200" pin length (standard)	-
Negative remote ON/OFF logic, 0.145" pin length	-L
Negative remote ON/OFF logic, 0.200" pin length	-N
Positive remote ON/OFF logic, 0.145" pin length	-S

Example : HEC75-48D3305-PHS

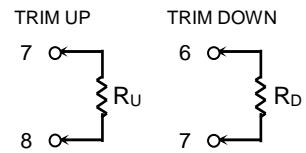
\* The module can't equip heat-sink with TH option.

**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.



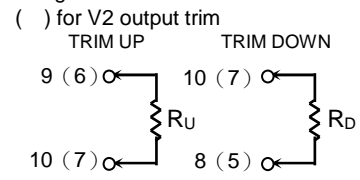
Heat-Sink and Mounting Hole Tread Options	Suffix
Without heat-sink	-
7G-0021A-F	-HS
7G-0022A-F	-HS1
7G-0023A-F	-HS2
7G-0024A-F	-HS3
Through hole (No thread)	-TH

**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	+V2	0.040 Inch (1.02mm)
6	-V2 (Com)	0.040 Inch (1.02mm)
7	V2 Trim	0.040 Inch (1.02mm)
8	+V1	0.040 Inch (1.02mm)
9	-V1 (Com)	0.040 Inch (1.02mm)
10	V1 Trim	0.040 Inch (1.02mm)

**EXTERNAL OUTPUT TRIMMING**

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



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