



UL
TUV
CB
CE MARK
(Pending)

- OUTPUT CURRENT UP TO 15A
- 4:1 WIDE INPUT VOLTAGE RANGE
- HIGH EFFICIENCY UP TO 89%
- NO MINIMUM LOAD REQUEST
- SOFT-START
- ADJUSTABLE OUTPUT VOLTAGE
- UNDER-VOLTAGE LOCKOUT
- INPUT REVERSE PROTECTION
- INDUSTRY STANDARD HALF-BRICK FOOTPRINT
- SIX-SIDED CONTINUOUS SHIELD
- INPUT TO OUTPUT BASIC ISOLATION
- BUS TERMINAL BLOCK OPTION

HAE75W series DC/DC converters offer 75 watts of output power in an industry standard half-brick package and footprint. 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 HAE75W 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			GENERAL SPECIFICATIONS		
Output power		75 Watts, max	Efficiency		See table
Voltage accuracy	Full load and Vin, nom	±1%	Isolation voltage	Input to Output (Basic insulation)	2250 VDC, min
Voltage adjustability (Note 1)		+10%, -20%		Input (Output) to Case	1600 VDC, min
Minimum load		0%	Isolation resistance		109ohms, min
Line regulation	LL to HL at FL	See table	Isolation capacitance		2500pF, max
Load regulation	No Load to Full Load	See table	Switching frequency		300KHz, typ(TBD)
Remote sense (Note 1)		10% of Vout, nom	Design meet safety standard		IEC60950-1, UL60950-1, EN60950-1
Ripple and noise	20MHz bandwidth (Note 2)	See table	Case material (TBD)		Metal
Temperature coefficient		±0.02% / °C, max	Base material		Non-conductive black FR4
Transient response recovery time	25% load step change	200uS	Potting material		Epoxy (UL94-V0)
Over voltage protection threshold (Hiccup)	115% ~ 130% of Vout, nom		Dimensions		2.40 X 2.28 X 0.50 Inches (61.0×57.9×12.7 mm)
Over current protection threshold	110% ~ 140% of Iout Rated		Weight		TBD
Short circuit protection	Hiccup, automatics recovery		MTBF (Note 5)	Bellcore TR-NWT-000332 MIL-STD-217F	TBD TBD
INPUT SPECIFICATIONS			ENVIRONMENTAL SPECIFICATIONS		
Input voltage range	24V nominal input 48V nominal input	9 – 36VDC 18 – 75VDC	Operating ambient temperature (Note 6)	Without Heat-sink With Heat-sink 7G-0022, 7G-0023	-40°C ~ +25°C (without derating) +25°C ~ +105°C (with derating) -40°C ~ +45°C (without derating) +45°C ~ +105°C (with derating)
UVLO start-up voltage	24V input 48V input	8.5V, typ 17V, typ	Maximum case temperature		105°C
UVLO shutdown voltage	24V input 48V input	7.5V, typ 15V, typ	Over temperature protection		115°C
Input filter		Pi type	Storage temperature range		-55°C to +125°C
Input voltage variation dv/dt		5V/mS, max (Complies with ETS300 132 part 4.4)	Thermal impedance (Note 7)	Metal case without Heat-sink Metal case with Heat-sink	7.5°C/watt 5.4°C/watt
Input surge voltage 100mS max	24V input 48V input	50VDC 100VDC	Thermal shock		MIL-STD-810D
Input reverse protection (Note 3)		Parallel diode	Vibration		10~55Hz, 2G, 30minutes along X,Y and Z
Start up time Vin, nom and constant resistive load	Power up Remote ON/OFF	TBD TBD	Relative humidity		5% to 95% RH
Remote ON/OFF (Note 4) (Negative logic) (Standard)	DC-DC ON DC-DC OFF	Short or 0V < Vr < 1.2V Open or 3V < Vr < 12V	EMC CHARACTERISTICS		
(Positive logic) (Option)	DC-DC ON DC-DC OFF	Open or 3V < Vr < 12V Short or 0V < Vr < 1.2V	EMI (Note 8)	EN55022	Class A
Input current of Remote control pin	Nominal Vin	-0.5mA ~ 1mA	ESD	EN61000-4-2	Perf. CriteriaA
Remote off input current	Nominal Vin	TBD	Radiated immunity	EN61000-4-3	Perf. CriteriaA
			Fast transient	EN61000-4-4	Perf. CriteriaB
			Surge	EN61000-4-5	Perf. CriteriaA
			Conducted immunity	EN61000-4-6	Perf. CriteriaA



METAL CASE

Model Number	Input Range	Output Voltage	Output Current	Output Ripple & Noise	Line Regulation	Load Regulation	Input Current		Eff ⁽¹⁰⁾ (%)
							No Load	Full Load ⁽⁹⁾	
HAE75-24S05W	9 – 36 VDC	5 VDC	15 A	75mVp-p	10mV	15mV	TBD	3.613 A	88
HAE75-24S12W	9 – 36 VDC	12 VDC	6.3 A	100mVp-p	24mV	30mV	TBD	3.642 A	88
HAE75-24S15W	9 – 36 VDC	15 VDC	5 A	100mVp-p	30mV	38mV	TBD	3.613 A	88
HAE75-24S24W	9 – 36 VDC	24 VDC	3.2 A	200mVp-p	48mV	48mV	TBD	3.699 A	88
HAE75-24S28W	9 – 36 VDC	28 VDC	2.7 A	200mVp-p	56mV	56mV	TBD	3.642 A	88
HAE75-24S48W	9 – 36 VDC	48 VDC	1.6 A	350mVp-p	96mV	72mV	TBD	3.699 A	88
HAE75-48S05W	18 – 75 VDC	5 VDC	15 A	75mVp-p	10mV	15mV	TBD	1.786 A	89
HAE75-48S12W	18 – 75 VDC	12 VDC	6.3 A	100mVp-p	24mV	30mV	TBD	1.800 A	89
HAE75-48S15W	18 – 75 VDC	15 VDC	5 A	100mVp-p	30mV	38mV	TBD	1.786 A	89
HAE75-48S24W	18 – 75 VDC	24 VDC	3.2 A	200mVp-p	48mV	48mV	TBD	1.829 A	89
HAE75-48S28W	18 – 75 VDC	28 VDC	2.7 A	200mVp-p	56mV	56mV	TBD	1.800 A	89
HAE75-48S48W	18 – 75 VDC	48 VDC	1.6 A	350mVp-p	96mV	72mV	TBD	1.829 A	89

Note

1. 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.
2. Measured with a 1uF M/C and a 10uF T/C.
3. Internal fusing is not included, so we suggest to use an input line fuse.
4. The negative / positive logic and pin length are optional, as table 1. The pin voltage is referenced to -Vin.
To order negative logic ON/OFF control add the suffix-P (Ex: HAE75-48S05W-P)
5. BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C. (Ground fixed and controlled environment)
MIL-STD-217F Notice2 @Ta=25 °C, Full load(Ground, Benign, controlled environment)
6. Test condition with vertical direction by natural convection.
7. Heat sink is optional and P/N: 7G-0021 , 7G-0022 , 7G-0023 , 7G-0024 , as table 2 and figure 2, figure 3.
8. The HAE75W series meets EN55022 class A only with external components connected before the input pin to the converter, as figure 4.
9. Maximum value at nominal input voltage and full load.
10. Typical value at nominal input voltage and full load.
11. CASE GROUNDING : When you connect the case pin and the four screw bolts to ground, the EMI could be better reduced.

Preliminary



Natural convection Derating Curve of HAE75-48S05W

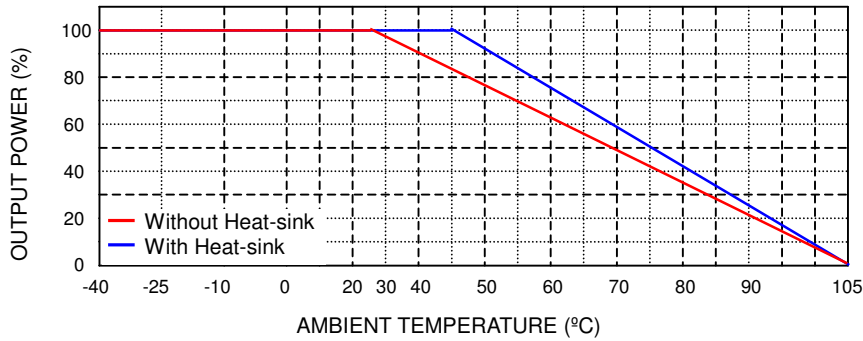


Figure 1

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

Table 1

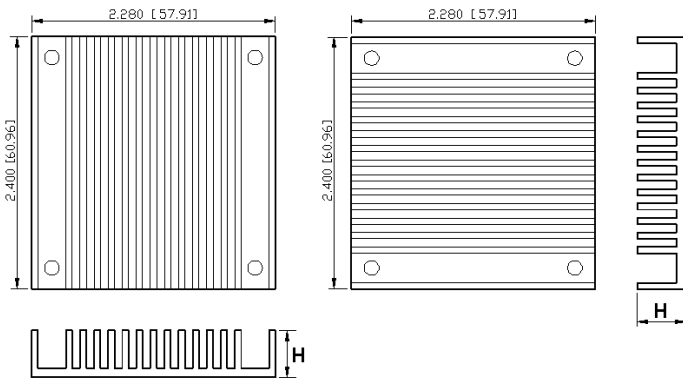


Figure 2

MODEL NUMBER	FIN HEIGHT	FIN ORIENTATION
7G-0021, as Figure 3	H=0.45inches	Vertical
7G-0022, as Figure 4	H=0.24inches	Horizontal
7G-0023, as Figure 3	H=0.24inches	Vertical
7G-0024, as Figure 4	H=0.45inches	Horizontal

Table 2

Figure 3

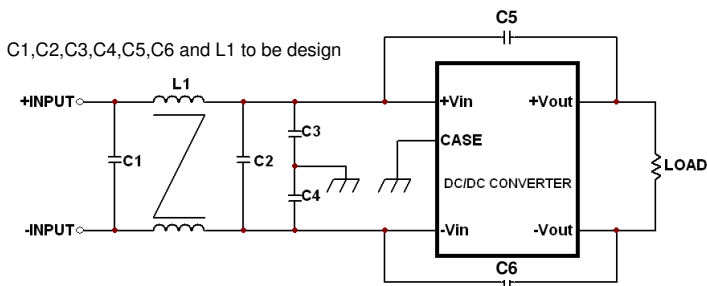


Figure 4

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

Table 3

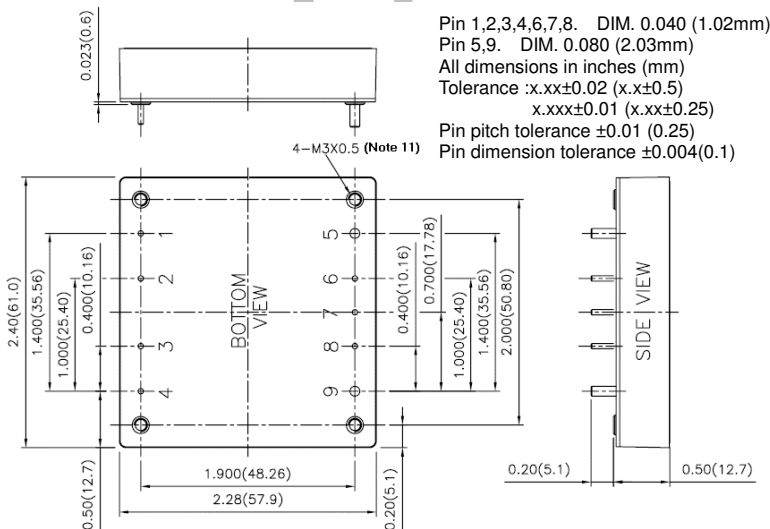


Figure 5

EXTERNAL OUTPUT TRIMMING

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

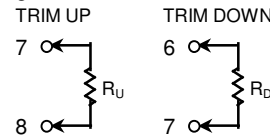


Table 4