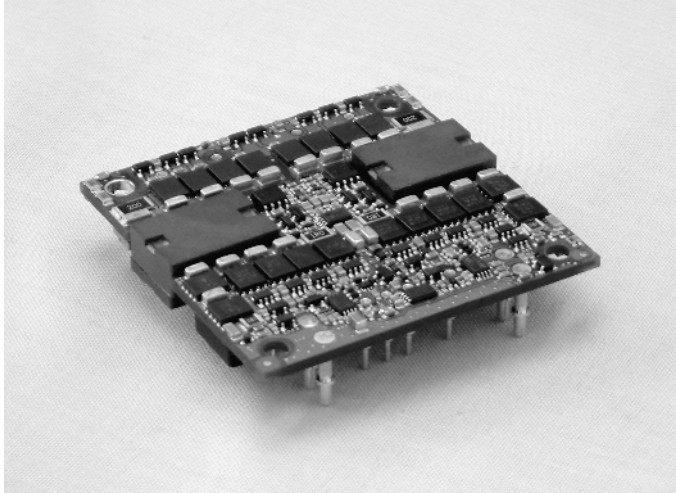


# Half Brick DC/DC Converters

## 70 Amps KHH070 Series

**XPiQ inc.**

Intelligent Design Quality Product



High Current Up To 70 A Output

Industry Standard Footprint

High Efficiency - Up to 90%

Low Voltage Outputs to 1.2 V

International Safety Approvals

## Specification

### Input

- Input Voltage Range • 36-75 VDC
- Input Current • 2.13 A to 5.35 A, See Table
- No Load Input Current • 250 mA at no load
- Input Reflected Ripple Current • 100 mA pk-pk
- Remote ON/OFF • Shorted to -Vin (Logic Low) = ON  
Open (Logic high) = OFF  
Positive logic is available (see note 3)
- Input Reverse Voltage Protection • External components required (See Note 5)
- Input Transient • Units capable of withstanding 100 V for 100 ms
- Undervoltage Lockout • Above 32 to 34.5 V = ON  
below 29.9 to 32.3 V = OFF

### Output

- Output Voltage • 1.2 VDC to 5.0 VDC
- Voltage Adjustment •  $\pm 10\%$
- Minimum Load • No minimum load required
- Line Regulation •  $\pm 10$  mV or 0.5%, whichever is greater
- Load Regulation •  $\pm 10$  mV or 0.5%, whichever is greater
- Setpoint Accuracy •  $\pm 50$  mV
- Ripple & Noise • 100 mV pk-pk max
- Transient Response • 170 mV deviation,  
100  $\mu$ s recovery time for a 25% load change at 1.0 A/ $\mu$ s slew rate
- Temperature Coefficient • 0.01%/°C
- Remote Sense • Compensates for up to 10% of Vout drop
- Overvoltage Protection • 120-135%, recycle input to reset

### Overcurrent Protection

### Short Circuit Protection

### Overtemperature Protection

### Current Share

- 74 to 94 A typical (56 to 66 A for 5 V model)
- Protected to short circuit conditions
- Thermal shutdown at 110°C, measured on board, auto restart
- Optional, add suffix '-IS' to model number

### General

### Efficiency

### Isolation

### Size

### Package Style

### Weight

### MTBF

- 90% for 3.3 V - See Table
- 1500 VDC Input to Output
- 2.40" x 2.42" x 0.411" (0.50" with baseplate)
- Open frame, baseplate option
- 90g approx for open frame
- 2,000,000 hours calculated to Bellcore

### Environmental

### Operating Temperature (with 400 LFM)

### Storage Temperature

### Humidity

- -40° C to +85 °C ambient - See Derating Curve  
Full power to +50 °C
- -55° C to +125 °C
- 5-95% RH non-condensing

### EMC & Safety

### Safety Approvals

### EMI/EMC

- UL 60950, IEC 60950, CSA 950 per cUL, CE Marked for LVD
- FCC level B Part 15 with external filtering - Contact Technical Sales for details

# OUTPUT VOLTAGE & CURRENT RATINGS

**KHH070**

Output Power	Output Voltage	Output Current Maximum	Input Current <sup>(6)</sup>	Efficiency	Model Number <sup>(3)</sup>
84 W	1.2 V	70 A	2.13 A	81%	KHH07048S1V2
105 W	1.5 V	70 A	2.57 A	84%	KHH07048S1V5
126 W	1.8 V	70 A	3.02 A	86%	KHH07048S1V8
175 W	2.5 V	70 A	4.10 A	88%	KHH07048S2V5
231 W	3.3 V	70 A	5.35 A	90%	KHH07048S3V3
225 W	5.0 V	45 A	5.27 A	89%	KHH07048S5V0

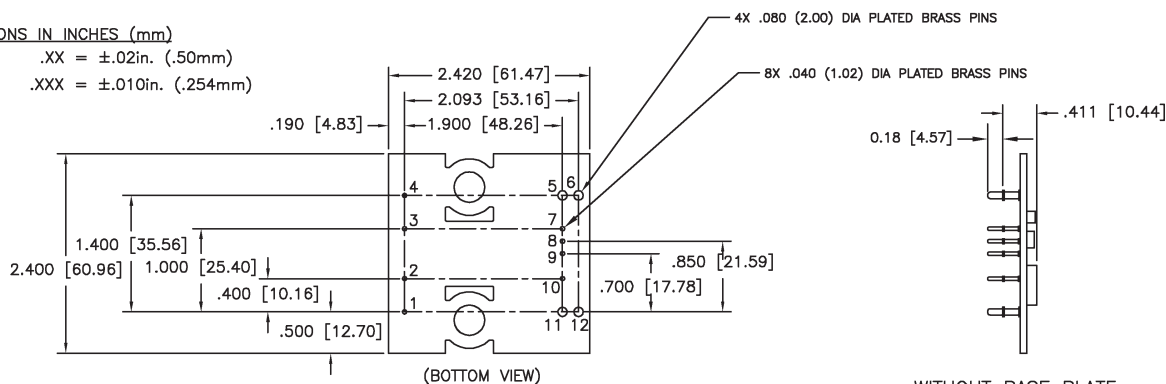
**Notes**

1. Standard product is open frame with negative logic.
2. Baseplate versions are built to order.
3. Please add one of the following suffix codes to the model number when ordering: 'AL' = Open Frame/Negative logic, 'AH' = Open Frame/Positive logic, 'BL' = Baseplate/Negative logic, 'BH' = Baseplate/Positive logic.
4. Current share is optional and built to order. Add suffix '-IS' to model number, example KHH07048S3V3AL-IS.
5. For input reverse voltage protection, use a parallel diode across the input terminals preceded by a 10 A fuse.
6. For details on external filtering, contact technical sales.

**Mechanical Details**

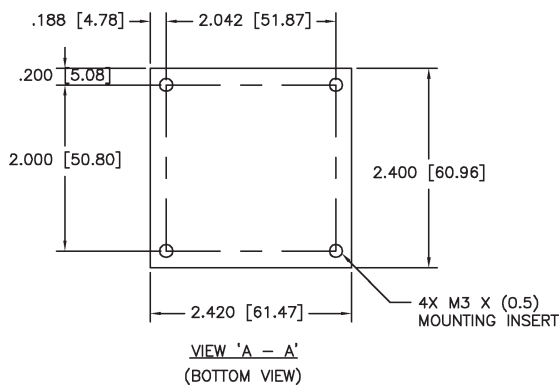
ALL DIMENSIONS IN INCHES (mm)

TOLERANCE: .XX = ±.02in. (.50mm)  
.XXX = ±.010in. (.254mm)

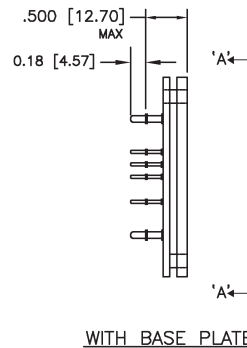


WITHOUT BASE PLATE

PIN CONNECTIONS	
Pin	Function
1	+ INPUT
2	ON/OFF
3	CHASSIS
4	- INPUT
5	-OUTPUT
6	-OUTPUT
7	-SENSE
8	I SHARE + (OPT)
9	TRIM
10	+SENSE
11	+OUTPUT
12	+OUTPUT



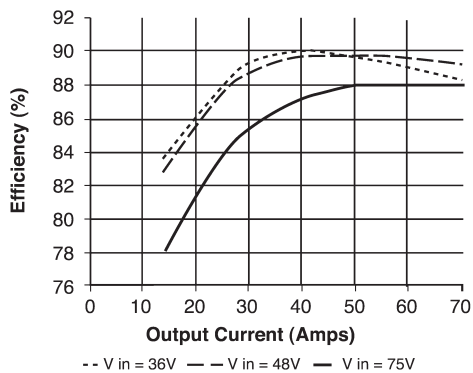
VIEW 'A - A'  
(BOTTOM VIEW)



WITH BASE PLATE

**Derating Curves**

Efficiency vs Output Current for 3.3 V



Derating Curves for 3.3 V  
(No Baseplate)

