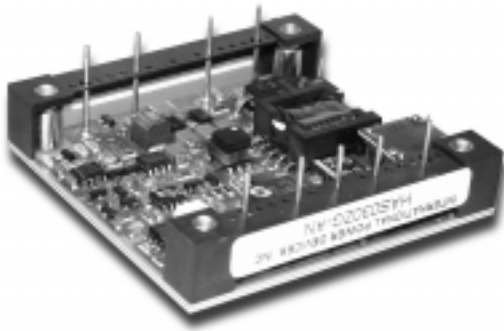


key features

- industry standard half-brick
- low cost design
- 100C baseplate operation
- open frame packaging
- 24V and 48V Inputs
- optional enable logic
- 1500 VDC isolation
- input pi filter



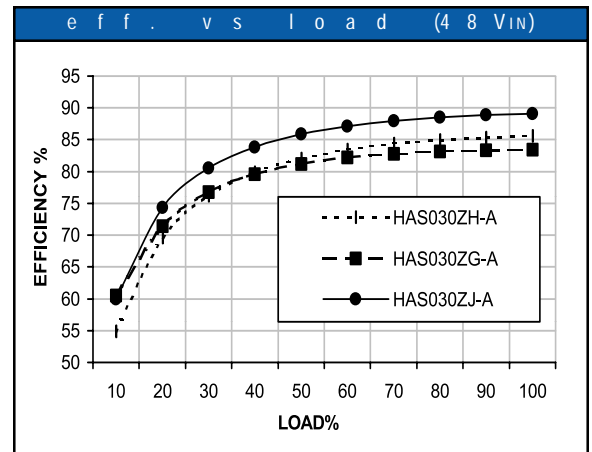
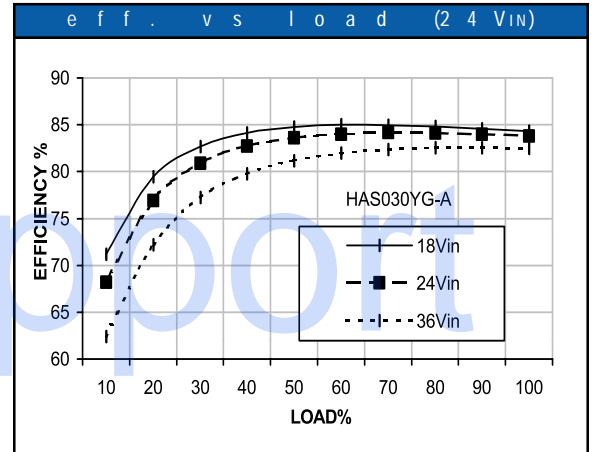
The HAS series is IPD's low cost industry standard half-brick converter. The HAS features a wide 2:1 input voltage, excellent efficiency, and IPD's open frame packaging technology. Operation is guaranteed from -40C to 100C, a built in input Pi filter insures low noise operation. Available in several input and output combinations, the HAS is perfect for industrial, telecom, and networking applications.

technical specifications

input	
voltage range	18 - 36 VDC
24 VDC nominal	34 - 75 VDC
48 VDC nominal	25 mA
reflected ripple	shunt diode
input reverse voltage protection	

output	
setpoint accuracy	±1%
line regulation V_{in} min. - V_{in} max., I_{out} rated	0.2% V_o
load regulation I_{out} min. - I_{out} max., V_{in} nom.	0.2% V_o
remote sense headroom	0.5VDC
minimum output current	10 %
dynamic regulation, loadstep	25% I_o
Pk deviation	4% V_o
settling time	500 μ S
voltage trim range	±10%
short circuit / overcurrent protection	hiccup
current limit threshold range, % I_o rated	110 - 140%
OVP trip range	115 - 140% V_{out} nom.
remote shutdown reference	V_{in} negative
shutdown pin current, sourced at off	10mA max.

general	
turn-on time	10 ms
remote shutdown	positive or negative logic
switching frequency	250 KHz
isolation	
input - output	1500 VDC
input - case	1050 VDC
output - case	500 VDC
temperature coefficient	0.03%/°C
case temperature	
operating range	-40 to +100°C
storage range	-40 to +125°C
thermal shutdown range	105 to 115°C
humidity max, non-condensing	95%
vibration, 3 axes, 5 min each	5 g, 10-55 Hz
MTBF† (Bellcore TR-NWT-000332)	2.5×10^6 hrs
safety	UL/CSA/EN60950
weight (approx.)	1.4 oz.



notes

† MTBF predictions may vary slightly from model to model.
 Specifications typically at 25°C, normal line, and full load - unless otherwise stated.
 Specifications subject to change without notice.

m o d e l s

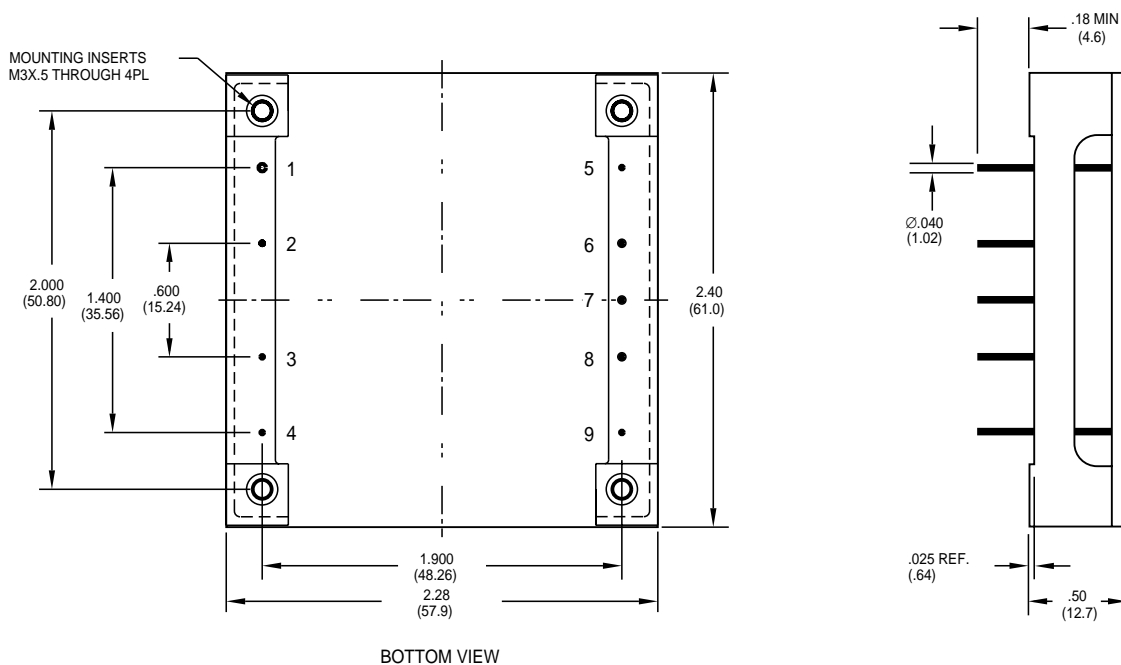
V _{IN} (volts)	V _{IN} range (volts)	I _{IN} max. (amps)	V _{OUT} (volts)	I _{OUT} rated (amps)	ripple & noise pk-pk (mV)	efficiency typ.**	model
24	18 - 36	1.2	2.50	6.00	100	77%	HAS015YD-A
24	18 - 36	1.5	3.30	6.00	100	78%	HAS020YE-A
24	18 - 36	2.2	5.00	6.00	100	82%	HAS030YG-A
24	18 - 36	2.2	12.00	2.50	150	85%	HAS030YH-A
24	18 - 36	2.2	15.00	2.00	150	87%	HAS030YJ-A
48	34 - 75	0.6	2.50	6.00	100	78%	HAS015ZD-A
48	34 - 75	1.0	3.30	6.00	100	79%	HAS020ZE-A
48	34 - 75	1.3	5.00	6.00	100	84%	HAS030ZG-A
48	34 - 75	1.3	12.00	2.50	150	86%	HAS030ZH-A
48	34 - 75	1.3	15.00	2.00	150	87%	HAS030ZJ-A

* max input current at minimum input voltage, maximum rated output power

** at nominal V_{IN}, rated output

for negative logic, add suffix "N" to model number

m e c h a n i c a l d r a w i n g



t h e r m a l i m p e d a n c e	
natural convection	7.9 C/W
100 LFM	6.8 C/W
200 LFM	4.9 C/W
300 LFM	3.6 C/W
400 LFM	3.0 C/W

Thermal impedance data is dependant on many environmental factors. The exact thermal performance should be validated for specific application.

p i n	f u n c t i o n
1	-V _{IN}
2	Case
3	On/Off
4	+V _{IN}
5	-V _{OUT}
6	-Sense
7	Trim
8	+Sense
9	+V _{OUT}

t o l e r a n c e s (unless otherwise specified)	
Inches	(Millimeters)
.XX ± .020	.X ± 0.5
.XXX ± .010	.XX ± .25
Pin:	
± .002	± .05