DUAL 60 WATT

HBD SERIES

key features

- independent dual outputs
- flexible load sharing
- high efficiency topology
- open frame design
- planar magnetics
- independent trims for each output
- 1500 VDC isolation
- 100 C baseplate operation

The HBD series are dual output fully isolated converters featuring high efficiency topologies and IPD's open frame packaging. The HBD family allows board designers complete freedom to deliver any combination of power off either output rail, up to each outputs maximum rating. The HBD family is available in 5V/3.3V or 3.3V/2.5V combinations, with both 24V and 48V inputs. The HBD family use planar magnetics, cool operating open frame packaging, have 1500VDC isolation, and over 1 million hours MTBF.

technical specifications

input

voltage range	
24 VDC nominal	18 - 36 VDC
48 VDC nominal	34 - 75 VDC
reflected ripple	80 mA
input reverse voltage protection	shunt diode

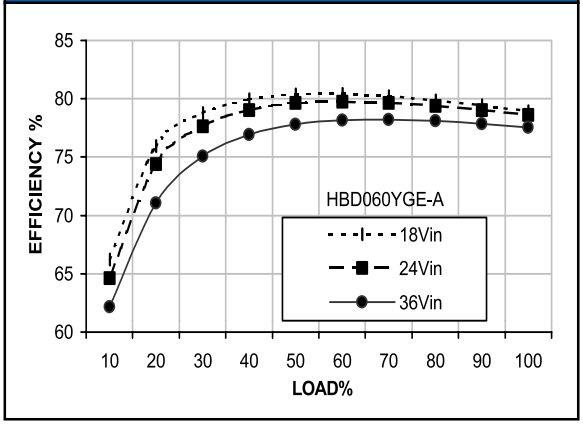
output

setpoint accuracy	±1%
line regulation V_{IN} min. - V_{IN} max., I_{OUT} rated, output 1	0.2% Vo
line regulation V_{IN} min. - V_{IN} max., I_{OUT} rated, output 2	1.0% Vo
load regulation I_{OUT} min. - I_{OUT} max., V_{IN} nom., output 1	0.5% Vo
load regulation I_{OUT} min. - I_{OUT} max., V_{IN} nom., output2	1.0% Vo
minimum output current	10% Io
dynamic regulation, loadstep	25% Io
Pk deviation	4% Vo
settling time	500 uS
voltage trim range (5V/3.3V units)	±10%
power limit threshold range, %Io rated	110 - 140%
OVP trip range (main ouput)	115 - 140%V_{OUT} nom.

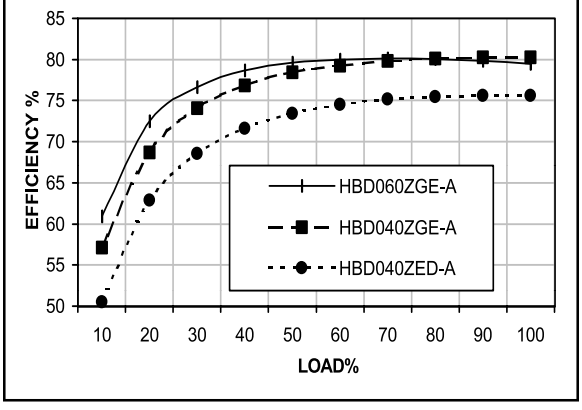
general

turn-on time	10 ms
remote shutdown[1]	positive logic
switching frequency	500 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
MTBF† (Bellcore TR-NWT-000332)	1.3 x 10^6 hrs
safety	UL, CSA, EN60950
weight (approx.)	2.4 oz.

eff. vs load - 24V



eff. vs load (48 V IN)



notes

[1] For negative logic, add suffix "N" to model number.

† MTBF predictions may vary slightly from model to model.

Specifications typically at 25°C, normal line, and full load - unless otherwise stated.

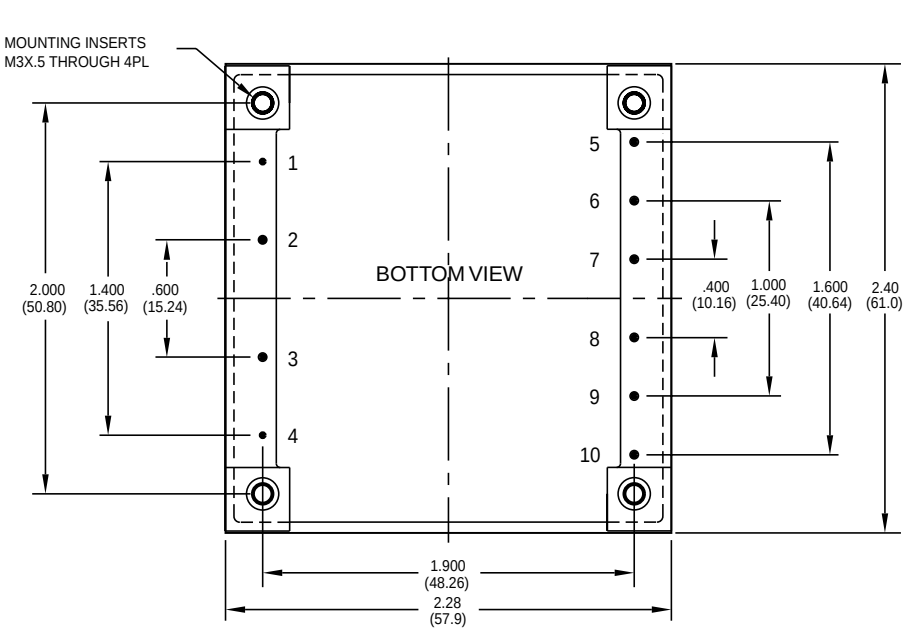
Specifications subject to change without notice.

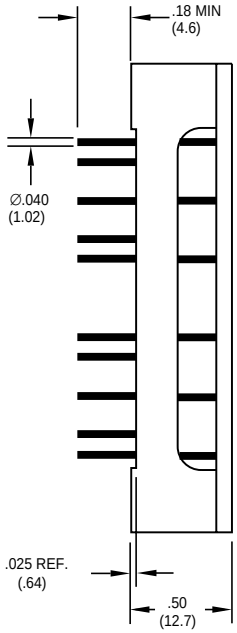
models

VIN (volts)	VIN range (volts)	IIN max.* (amps)	VOUT (volts)	IOUT rated (amps)	ripple & noise pk-pk (mV)	efficiency typ.**	model
24	18 - 36	2.89	+3.3/+2.5	12/15	75/75	75%	HBD040YED-A
24	18 - 36	4.54	+5.0/+3.3	12/15	100/75	78%	HBD060YGE-A
24	18 - 36	4.54	+5.0/+3.3	8/12	100/75	80%	HBD040YGE-A
48	34 - 75	2.27	+5.0/+3.3	8/12	100/75	80%	HBD040ZGE-A
48	34 - 75	1.62	+3.3/+2.5	12/15	75/75	75%	HBD040ZED-A
48	34 - 75	2.27	+5.0/+3.3	12/15	100/75	79%	HBD060ZGE-A

* max input current an minimum input voltage, maximum rated output power
** current can be drawn from either output to its maximun value, or from both outputs to a combined total of 15A
*** at nominal VIN, rated output.
specifications are subject to change without notice.
for negative logic, add suffix "N" to model number

mechanical drawing





thermal impedance

natural convection	6.6 °C/W
100 LFM	5.7 °C/W
200 LFM	4.2 °C/W
300 LFM	3.1 °C/W
400 LFM	2.6 °C/W

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

pin function

pin	function
1	-VIN
2	case
3	on/off
4	+VIN
5	+VOUT 2
6	- Vout 2
7	trim 2
8	+Vout 1
9	-VOUT 1
10	trim 1

tolerances (unless otherwise speci-

Inches	(Millimeters)
.XX ± .020	.X ± 0.5
.XXX ± .010	.XX ± .25
Pin:	
± .002	± .05