



**Features**

- 7 pin SIP package
- Input / Output Isolation Voltage: 6.4kVDC
- High Efficiency
- Lead Free Design, RoHS Compliant
- Operating temperature: -40°C to +85°C
- Optional Reinforced Isolation 8kVDC
- IEC / EN 60950-1
- Medical Safety EN60601-1-2



**Applications**

These converters are well suitable for battery operated equipment, measurement equipment, telecom, wireless network, Industry control system, everywhere where isolated, tightly regulated voltages and compact size are required.

**Technical Specification** All specifications are typical at nominal input, full load and 25°C unless otherwise stated.

Model Number	Reinforced Isolation 8kVDC	Input Voltage Range(V)	Output Voltage (V)	Output Current (mA)	Input Current (mA)		Eff. <sup>(2)</sup> (%)	Capacitive Load, max. <sup>(3)</sup> (uF)
				Full Load	No Load	Full Load		
HBA2-05S0H6	HBA2-05S0H8	4.5 ~ 5.5 Nominal: 5	3.3	600	70	563	75	3300
HBA2-05S1H6	HBA2-05S1H8		5	400		541	78	1200
HBA2-05SBH6	HBA2-05SBH8		7.2	278		541	78	1200
HBA2-05SAH6	HBA2-05SAH8		9	222		526	80	1200
HBA2-05S2H6	HBA2-05S2H8		12	167		519	81	680
HBA2-05S3H6	HBA2-05S3H8		15	132		513	82	680
HBA2-05D0H6	HBA2-05D0H8		±3.3	±300		571	74	±1500
HBA2-05D1H6	HBA2-05D1H8		±5	±200		548	77	±470
HBA2-05DBH6	HBA2-05DBH8		±7.2	±139		548	77	±470
HBA2-05DAH6	HBA2-05DAH8		±9	±111		533	79	±470
HBA2-05D2H6	HBA2-05D2H8		±12	±85		526	80	±330
HBA2-05D3H6	HBA2-05D3H8		±15	±66		519	81	±330
HBA2-12S0H6	HBA2-12S0H8		10.8 ~ 13.2 Nominal: 12	3.3		600	30	235
HBA2-12S1H6	HBA2-12S1H8	5		400	225	78		1200
HBA2-12SBH6	HBA2-12SBH8	7.2		278	225	78		1200
HBA2-12SAH6	HBA2-12SAH8	9		222	219	80		1200
HBA2-12S2H6	HBA2-12S2H8	12		167	216	81		680
HBA2-12S3H6	HBA2-12S3H8	15		132	214	82		680
HBA2-12D0H6	HBA2-12D0H8	±3.3		±300	238	74		±1500
HBA2-12D1H6	HBA2-12D1H8	±5		±200	228	77		±470



HBA2-12DBH6	HBA2-12DBH8		±7.2	±139		228	77	±470
HBA2-12DAH6	HBA2-12DAH8		±9	±111		222	79	±470
HBA2-12D2H6	HBA2-12D2H8		±12	±85		219	80	±330
HBA2-12D3H6	HBA2-12D3H8		±15	±66		216	81	±330

Model Number	Reinforced Isolation 8kVDC	Input Voltage Range(V)	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff. <sup>(2)</sup> (%)	Capacitive Load, max. <sup>(3)</sup> (uF)
				Full Load	No Load	No Load	Full Load		
HBA2-15S0H6	HBA2-15S0H8	13.5 ~ 16.5 Nominal: 15	3.3	600	25		188	75	3300
HBA2-15S1H6	HBA2-15S1H8		5	400			180	78	1200
HBA2-15SBH6	HBA2-15SBH8		7.2	278			180	78	1200
HBA2-15SAH6	HBA2-15SAH8		9	222			175	80	1200
HBA2-15S2H6	HBA2-15S2H8		12	167			173	81	680
HBA2-15S3H6	HBA2-15S3H8		15	132			171	82	680
HBA2-15D0H6	HBA2-15D0H8		±3.3	±300			190	74	±1500
HBA2-15D1H6	HBA2-15D1H8		±5	±200			183	77	±470
HBA2-15DBH6	HBA2-15DBH8		±7.2	±139			183	77	±470
HBA2-15DAH6	HBA2-15DAH8		±9	±111			178	79	±470
HBA2-15D2H6	HBA2-15D2H8		±12	±85			175	80	±330
HBA2-15D3H6	HBA2-15D3H8		±15	±66			173	81	±330
HBA2-24S0H6	HBA2-24S0H8	21.6 ~ 26.4 Nominal: 24	3.3	600	20		117	75	3300
HBA2-24S1H6	HBA2-24S1H8		5	400			113	78	1200
HBA2-24SBH6	HBA2-24SBH8		7.2	278			113	78	1200
HBA2-24SAH6	HBA2-24SAH8		9	222			110	80	1200
HBA2-24S2H6	HBA2-24S2H8		12	167			108	81	680
HBA2-24S3H6	HBA2-24S3H8		15	132			107	82	680
HBA2-24D0H6	HBA2-24D0H8		±3.3	±300			119	74	±1500
HBA2-24D1H6	HBA2-24D1H8		±5	±200			114	77	±470
HBA2-24DBH6	HBA2-24DBH8		±7.2	±139			114	77	±470
HBA2-24DAH6	HBA2-24DAH8		±9	±111			111	79	±470
HBA2-24D2H6	HBA2-24D2H8		±12	±85			110	80	±330
HBA2-24D3H6	HBA2-24D3H8		±15	±66			108	81	±330

### Input Specifications

Input voltage	5V nominal input	4.5~5.5V
	12V nominal input	10.8~13.2V
	15V nominal input	13.5~16.5V
	24V nominal input	21.6~26.4V
Input filter	Capacitor	

### Environmental Specifications

Operating ambient temperature	-40°C to +85°C
Maximum case temperature	+95°C
Storage temperature range	-55°C to +125°C
Relative humidity	95% RH max.



Output Specifications		
Output power		2 Watts max.
Voltage accuracy	Nominal Vin and full load	±5% max.
Voltage balance	Dual output	±1% max.
Minimum load		0A
Line regulation	For Vin change of 1%	±1.5% max.
Load Regulation	10% load to full load	10% max. 15% max. (3.3&5Vout models)
Ripple and Noise (20MHz Bandwidth)		200mVp-p max.
Maximum capacitive load		See table
Output short circuit protection		1 second
General Specifications		
Efficiency	Nominal input and full load	See table
Isolation voltage	Input to output	6400VDC (1 second)
Isolation resistance	500VDC	10GΩ min.
Isolation capacitance		10pF max.
Switching frequency		80kHz max.
Reliability, calculated MTBF		2×10 <sup>6</sup> Hrs
Physical Specifications		
Case material		Plastic (UL94 V-0)
Potting material		Epoxy (UL94 V-0)
Dimensions		0.77 × 0.50 × 0.39 Inch (19.5 × 12.5 × 9.8 mm)
Weight		4.3g (0.15oz) typ.

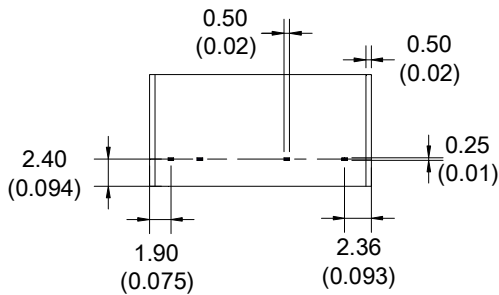
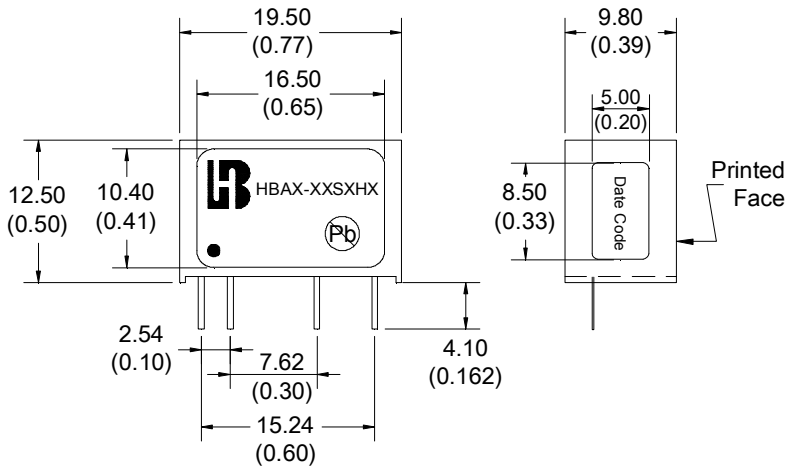
**Note**

1. Io below this value will not damage these converters, however, they may not meet all listed specifications.
2. Typical value, tested at nominal input and full load.
3. For each output.



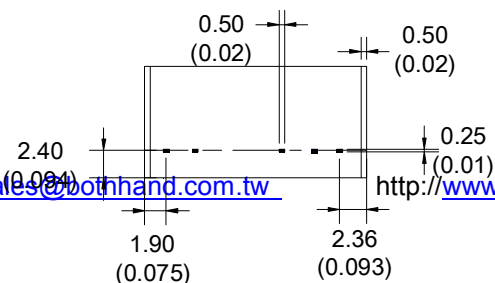
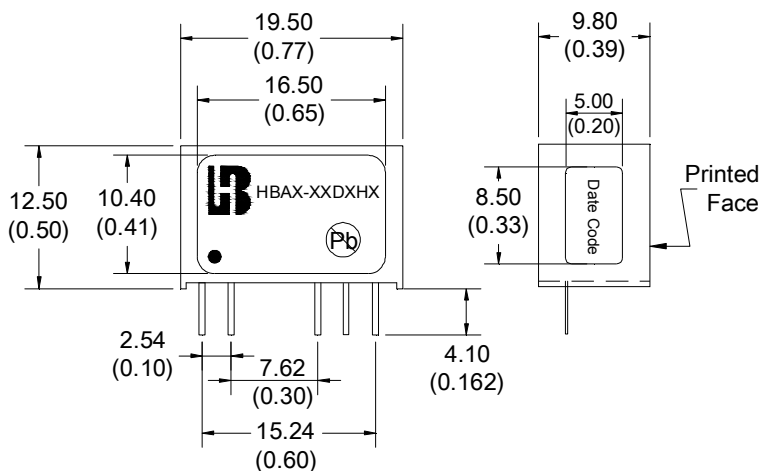
**Mechanical Dimensions**

**Single output**



Pin Assignment		
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	No pin	Common
7	+Vout	+Vout

**Dual output**



Unit: mm (inch)  
Tolerance: XX.XX ±0.25 (±0.01)



Specifications subject to change without notice.