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HBA1 Series

1W, Isolated DC-DC Converters



Features

- 7pin SIP Package
- Input / Output Isolation: 6400VDC or 8000VDC
- High Efficiency
- Operating Temperature: -40°C to +85°C
- Lead Free Design, RoHS Compliant
- Designed according to IEC/EN/UL 62368-1

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.

Models and Ratings

Model Number HBA1H6 HBA1H8	Input Voltage Range (VDC)	Output Voltage (VDC)	Output Current (mA)	Input Current (mA) typ.		Efficiency (%) typ.	Capacitive Load (µF) max.
			Full Load	No Load	Full Load		
HBA1-05S0H6 HBA1-05S0H8	4.5 - 5.5 5V nominal	3.3	303	55	278	76	3300
HBA1-05S1H6 HBA1-05S1H8		5	200	55	271	78	2200
HBA1-05SBH6 HBA1-05SBH8		7.2	140	55	273	78	1000
HBA1-05SAH6 HBA1-05SAH8		9	111	55	263	80	1000
HBA1-05S2H6 HBA1-05S2H8		12	84	55	265	80	470
HBA1-05S3H6 HBA1-05S3H8		15	66	55	253	82	470
HBA1-05D0H6 HBA1-05D0H8		±3.3	±151	55	281	75	2200 / 2200
HBA1-05D1H6 HBA1-05D1H8		±5	±100	55	271	78	1000 / 1000
HBA1-05DBH6 HBA1-05DBH8		±7.2	±70	55	273	78	470 / 470
HBA1-05DAH6 HBA1-05DAH8		±9	±55	55	264	79	470 / 470
HBA1-05D2H6 HBA1-05D2H8		±12	±41	55	263	79	220 / 220
HBA1-05D3H6 HBA1-05D3H8		±15	±33	55	258	81	220 / 220

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Models and Ratings (continued)

Model Number HBA1H6 HBA1H8	Input Voltage Range (VDC)	Output Voltage (VDC)	Output Current (mA)	Input Current (mA) typ.		Efficiency (%) typ.	Capacitive Load (µF) max.
			Full Load	No Load	Full Load		
HBA1-12S0H6 HBA1-12S0H8	10.8 - 13.2 12V nominal	3.3	303	30	116	76	3300
HBA1-12S1H6 HBA1-12S1H8		5	200	30	113	78	2200
HBA1-12SBH6 HBA1-12SBH8		7.2	140	30	114	78	1000
HBA1-12SAH6 HBA1-12SAH8		9	111	30	110	80	1000
HBA1-12S2H6 HBA1-12S2H8		12	84	30	110	81	470
HBA1-12S3H6 HBA1-12S3H8		15	66	30	106	82	470
HBA1-12D0H6 HBA1-12D0H8		±3.3	±151	30	117	75	2200 / 2200
HBA1-12D1H6 HBA1-12D1H8		±5	±100	30	113	78	1000 / 1000
HBA1-12DBH6 HBA1-12DBH8		±7.2	±70	30	114	78	470 / 470
HBA1-12DAH6 HBA1-12DAH8		±9	±55	30	110	79	470 / 470
HBA1-12D2H6 HBA1-12D2H8		±12	±41	30	108	80	220 / 220
HBA1-12D3H6 HBA1-12D3H8		±15	±33	30	108	81	220 / 220
HBA1-15S0H6 HBA1-15S0H8	13.5 - 16.5 15V nominal	3.3	303	25	93	76	3300
HBA1-15S1H6 HBA1-15S1H8		5	200	25	91	78	2200
HBA1-15SBH6 HBA1-15SBH8		7.2	140	25	91	78	1000
HBA1-15SAH6 HBA1-15SAH8		9	111	25	88	80	1000
HBA1-15S2H6 HBA1-15S2H8		12	84	25	88	81	470
HBA1-15S3H6 HBA1-15S3H8		15	66	25	85	82	470

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Models and Ratings (continued)

Model Number HBA1H6 HBA1H8	Input Voltage Range (VDC)	Output Voltage (VDC)	Output Current (mA)	Input Current (mA) typ.		Efficiency (%) typ.	Capacitive Load (µF) max.
			Full Load	No Load	Full Load		
HBA1-15D0H6 HBA1-15D0H8	13.5 - 16.5 15V nominal	±3.3	±151	25	94	75	2200 / 2200
HBA1-15D1H6 HBA1-15D1H8		±5	±100	25	91	78	1000 / 1000
HBA1-15DBH6 HBA1-15DBH8		±7.2	±70	25	91	78	470 / 470
HBA1-15DAH6 HBA1-15DAH8		±9	±55	25	88	79	470 / 470
HBA1-15D2H6 HBA1-15D2H8		±12	±41	25	87	80	220 / 220
HBA1-15D3H6 HBA1-15D3H8		±15	±33	25	86	81	220 / 220
HBA1-24S0H6 HBA1-24S0H8	21.6 - 26.4 24V nominal	3.3	303	20	58	76	3300
HBA1-24S1H6 HBA1-24S1H8		5	200	20	57	78	2200
HBA1-24SBH6 HBA1-24SBH8		7.2	140	20	57	78	1000
HBA1-24SAH6 HBA1-24SAH8		9	111	20	55	80	1000
HBA1-24S2H6 HBA1-24S2H8		12	84	20	55	81	470
HBA1-24S3H6 HBA1-24S3H8		15	66	20	56	78	470
HBA1-24D0H6 HBA1-24D0H8		±3.3	±151	20	59	75	2200 / 2200
HBA1-24D1H6 HBA1-24D1H8		±5	±100	20	57	78	1000 / 1000
HBA1-24DBH6 HBA1-24DBH8		±7.2	±70	20	57	78	470 / 470
HBA1-24DAH6 HBA1-24DAH8		±9	±55	20	55	79	470 / 470
HBA1-24D2H6 HBA1-24D2H8		±12	±41	20	54	80	220 / 220
HBA1-24D3H6 HBA1-24D3H8		±15	±33	20	56	78	220 / 220

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Input Specifications		
Input voltage		See Models and Ratings table
Input filter		Capacitor
Output Specifications		
Output power		1 Watts max.
Voltage accuracy	Nominal Vin and full load	±5% max.
Minimum load		10% load of full load
Line regulation	1% Vin step	±1.5% max.
Load regulation	10% to 100% load	
	3.3Vout, 5Vout, ±3.3Vout and ±5Vout models	15% max.
	Other models	10% max.
Ripple and noise	20MHz bandwidth and full load	150 mVp-p max.
Capacitive load	Nominal Vin and constant resistive load	See Models and Ratings table
Short circuit protection		1 s max.
Temperature coefficient	Full Load	±0.03%/°C typ.
General Specifications		
Efficiency	Nominal Vin and full load	See Models and Ratings table
Switching frequency	Nominal Vin and full load	80 - 350 kHz
Isolation voltage	Input to output, 1 s	
	Suffix “ H6 ”	6400 VDC min.
	Suffix “ H8 ”	8000 VDC min.
Isolation resistance	500 VDC	10 GΩ min.
Isolation capacitance		10 pF max.
Reliability, calculated MTBF	MIL-HDBK-217F, Ground Benign	2×10^6 h
Operating ambient temperature	With derating	-40°C to +105°C
Case temperature		+105°C max.
Storage temperature range		-55°C to +125°C
Relative humidity		95% RH max.
Cooling		Natural convection
Physical Specifications		
Case material		Plastic (UL 94 V-0)
Pin material		Copper alloy
Pin Foundation Plating		Nickel
Pin Surface Plating		Tin

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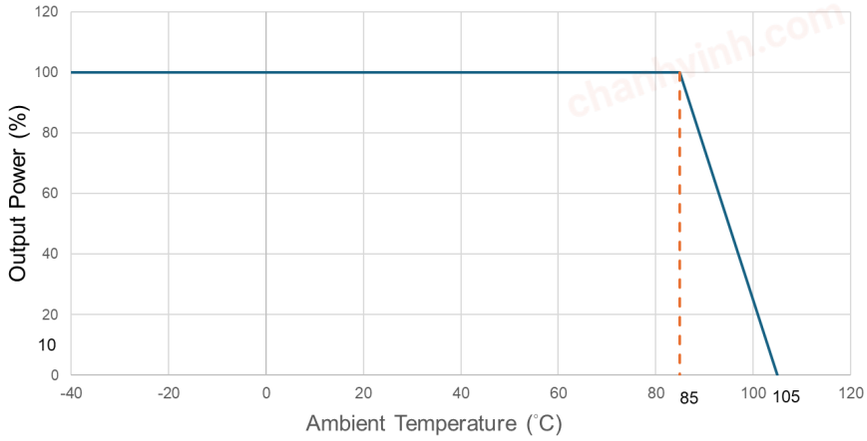
Potting material	Epoxy (UL 94 V-0)
Dimensions	0.77 × 0.50 × 0.39 inch 19.5 × 12.5 × 9.8 mm
Weight	4.3 g typ.

Characteristic Curves

Power Derating Curve



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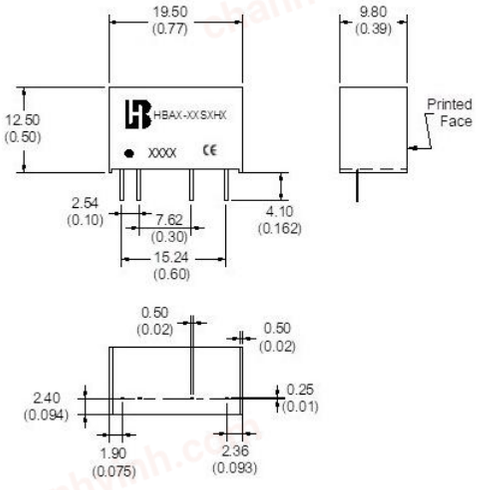
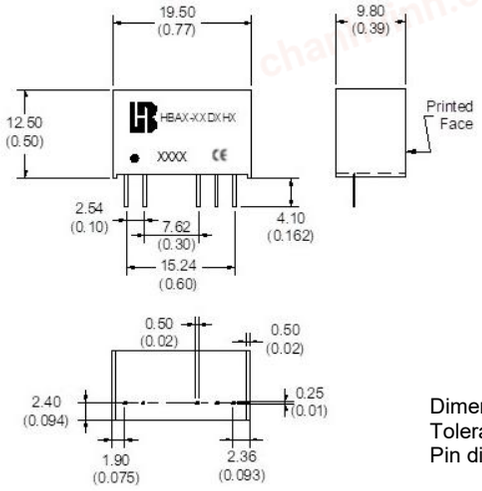
Mechanical

Single Output



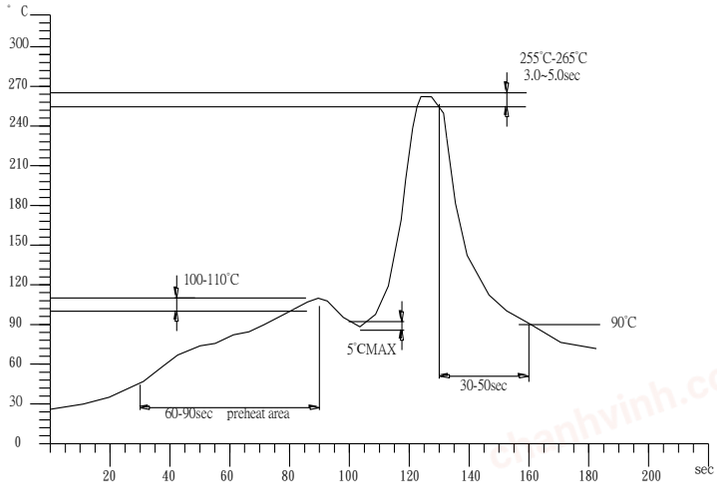
Dual Output



Pinout		
PIN	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	No Pin	Common
7	+Vout	+Vout

Dimensions in mm (inch)
Tolerances: ±0.5 (±0.02)
Pin dimension tolerances: ±0.10 (±0.004)

Wave Soldering Temperature Curve



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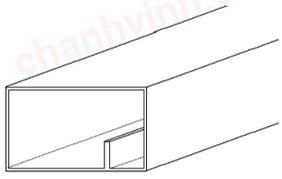
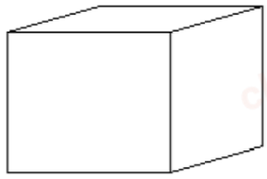
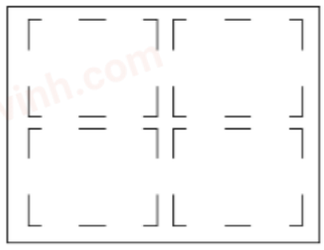
Carton Package



TUBE



INNER CARTON:388*158.5*115



EXPORT CARTON:405*334*263

TUBE = 15PCS
INNER CARTON = 36 TUBE = 36*15 = 540PCS
EXPORT CARTON = 4 INNER CARTON = 4*540 = 2160PCS

For More Information:

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