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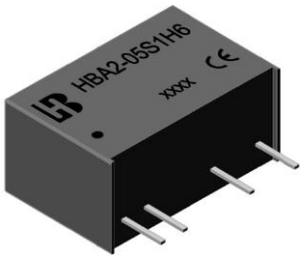
HBA2 Series

2W, Isolated DC-DC Converters

Pulse
a YAGEO company



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 HBA2H6 HBA2H8	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		
HBA2-05S0H6 HBA2-05S0H8	4.5 - 5.5 5V nominal	3.3	600	70	550	76	3300
HBA2-05S1H6 HBA2-05S1H8		5	400	70	541	78	1200
HBA2-05SBH6 HBA2-05SBH8		7.2	278	70	526	80	1200
HBA2-05SAH6 HBA2-05SAH8		9	222	70	513	82	1200
HBA2-05S2H6 HBA2-05S2H8		12	167	70	513	82	680
HBA2-05S3H6 HBA2-05S3H8		15	132	70	513	82	680
HBA2-05D0H6 HBA2-05D0H8		±3.3	±300	70	535	78	1500 / 1500
HBA2-05D1H6 HBA2-05D1H8		±5	±200	70	526	80	470 / 470
HBA2-05DBH6 HBA2-05DBH8		±7.2	±139	70	526	80	470 / 470
HBA2-05DAH6 HBA2-05DAH8		±9	±111	70	519	81	470 / 470
HBA2-05D2H6 HBA2-05D2H8		±12	±85	70	519	81	330 / 330
HBA2-05D3H6 HBA2-05D3H8		±15	±66	70	513	82	330 / 330

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Model Number HBA2H6 HBA2H8	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		
HBA2-12S0H6 HBA2-12S0H8	10.8 - 13.2 12V nominal	3.3	600	30	223	78	3300
HBA2-12S1H6 HBA2-12S1H8		5	400	30	219	80	1200
HBA2-12SBH6 HBA2-12SBH8		7.2	278	30	213	82	1200
HBA2-12SAH6 HBA2-12SAH8		9	222	30	211	83	1200
HBA2-12S2H6 HBA2-12S2H8		12	167	30	211	83	680
HBA2-12S3H6 HBA2-12S3H8		15	132	30	211	83	680
HBA2-12D0H6 HBA2-12D0H8		±3.3	±300	30	217	80	1500 / 1500
HBA2-12D1H6 HBA2-12D1H8		±5	±200	30	213	82	470 / 470
HBA2-12DBH6 HBA2-12DBH8		±7.2	±139	30	211	83	470 / 470
HBA2-12DAH6 HBA2-12DAH8		±9	±111	30	208	84	470 / 470
HBA2-12D2H6 HBA2-12D2H8		±12	±85	30	208	84	330 / 330
HBA2-12D3H6 HBA2-12D3H8		±15	±66	30	206	85	330 / 330
HBA2-15S0H6 HBA2-15S0H8	13.5 - 16.5 15V nominal	3.3	600	25	178	78	3300
HBA2-15S1H6 HBA2-15S1H8		5	400	25	175	80	1200
HBA2-15SBH6 HBA2-15SBH8		7.2	278	25	171	82	1200
HBA2-15SAH6 HBA2-15SAH8		9	222	25	169	83	1200
HBA2-15S2H6 HBA2-15S2H8		12	167	25	167	84	680
HBA2-15S3H6 HBA2-15S3H8		15	132	25	165	85	680

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Models and Ratings

Model Number HBA2H6 HBA2H8	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		
HBA2-15D0H6 HBA2-15D0H8	10.8 - 13.2 12V nominal	±3.3	±300	25	174	80	1500 / 1500
HBA2-15D1H6 HBA2-15D1H8		±5	±200	25	171	82	470 / 470
HBA2-15DBH6 HBA2-15DBH8		±7.2	±139	25	169	83	470 / 470
HBA2-15DAH6 HBA2-15DAH8		±9	±111	25	167	84	470 / 470
HBA2-15D2H6 HBA2-15D2H8		±12	±85	25	167	84	330 / 330
HBA2-15D3H6 HBA2-15D3H8		±15	±66	25	165	85	330 / 330
HBA2-24S0H6 HBA2-24S0H8	21.6 - 26.4 24V nominal	3.3	600	20	111	78	3300
HBA2-24S1H6 HBA2-24S1H8		5	400	20	110	80	1200
HBA2-24SBH6 HBA2-24SBH8		7.2	278	20	113	78	1200
HBA2-24SAH6 HBA2-24SAH8		9	222	20	113	78	1200
HBA2-24S2H6 HBA2-24S2H8		12	167	20	113	78	680
HBA2-24S3H6 HBA2-24S3H8		15	132	20	111	79	680
HBA2-24D0H6 HBA2-24D0H8		±3.3	±300	20	113	77	1500 / 1500
HBA2-24D1H6 HBA2-24D1H8		±5	±200	20	110	80	470 / 470
HBA2-24DBH6 HBA2-24DBH8		±7.2	±139	20	114	77	470 / 470
HBA2-24DAH6 HBA2-24DAH8		±9	±111	20	113	78	470 / 470
HBA2-24D2H6 HBA2-24D2H8		±12	±85	20	110	80	330 / 330
HBA2-24D3H6 HBA2-24D3H8		±15	±66	20	111	79	330 / 330

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Asymmetric Outputs Models

Models and Ratings							
Model Number HBA2H6 HBA2H8	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		
HBA2-12Y1H6 HBA2-12Y1H8	10.8 - 13.2 12V nominal	+15 / -5	+80 / -40	30	143	82	220 / 220
HBA2-12Y2H6 HBA2-12Y2H8		+15 / -8	+100 / -80	30	213	84	220 / 220
HBA2-002H6 HBA2-002H8		+15 / -3	+93 / -185	20	195	80	220 / 220
HBA2-005H6 HBA2-005H8		+18 / -3	+80 / -80	30	170	80	100 / 100
HBA2-15Y0H6 HBA2-15Y0H8	13.5 - 16.5 15V nominal	+15 / -3	+93 / -185	25	157	83	220 / 220
HBA2-15Y1H6 HBA2-15Y1H8		+15 / -5	+80 / -40	25	162	82	220 / 220
HBA2-15Y2H6 HBA2-15Y2H8		+15 / -8	+100 / -80	25	213	84	220 / 220
HBA2-15Y3H6 HBA2-15Y3H8		+20 / -5	+50 / -200	25	157	85	220 / 220
HBA2-006H6 HBA2-006H8		+15 / -9	+100 / -80	25	213	84	220 / 220
HBA2-007H6 HBA2-007H8		+18 / -3	+100 / -100	25	161	83	220 / 220
HBA2-24Y1H6 HBA2-24Y1H8	21.6 - 26.4 24V nominal	+15 / -5	+80 / -40	10	71	82	220 / 220
HBA2-24Y3H6 HBA2-24Y3H8		+20 / -5	+50 / -200	20	99	83	220 / 220
HBA2-003H6 HBA2-003H8		+15 / -3	+66 / -333	20	102	82	150 / 680
HBA2-004H6 HBA2-004H8		+18 / -2.5	+80 / -80	20	80	86	100 / 1000

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Input Specifications		
Input voltage		See Models and Ratings table
Input filter		Capacitor
Output Specifications		
Output power		2 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 and ±3.3Vout models	20% max.
	5Vout and ±5Vout models	15% max.
	Other models	10% max.
Ripple and noise	20MHz bandwidth and full load	200 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 kHz typ.
		250 kHz max.
Isolation voltage	Input to output, 1 s	
	Suffix “ H6 ”	6400 VDC min.
	Suffix “ H8 ”	8000 VDC min.
Isolation resistance	500 VDC	10 GΩ min.
Partial discharge inception voltage	Asymmetric outputs models only	
	HBA2-002H6/H8	2.0kV min. / 15pC max.
	HBA2-005H6/H8	2.0kV min. / 15pC max.
	HBA2-05D1H6/H8	1.5kV min. / 15pC max.
	HBA2-004H6/H8	2.4kV min. / 20pC max.
	Other asymmetric outputs models	1.5kV min. / 20pC max.
Isolation capacitance	100KHz / 1V	
	Asymmetric outputs models	10 pF max.
	Other models	50 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		+115°C max.

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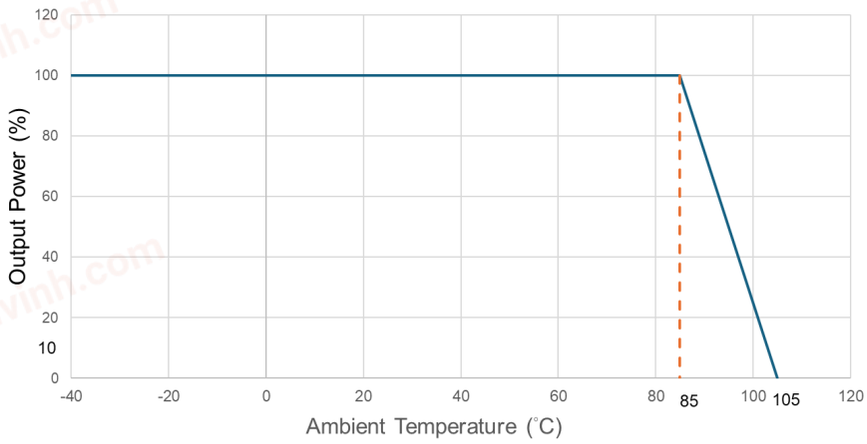
Storage temperature range	-55°C to +125°C
Relative humidity	95% RH max.
Cooling	Natural convection
Physical Specifications	
Case material	Plastic (UL 94 V-0)
Pin material	Copper alloy
Pin Foundation Plating	Nickel
Pin Surface Plating	Tin
Potting material	Epoxy (UL 94 V-0)
Dimensions	0.77 × 0.50 × 0.39 inch 19.5 × 12.5 × 9.8 mm
Weight	4.3 g typ.

Characteristic Curves

Power Derating Curve



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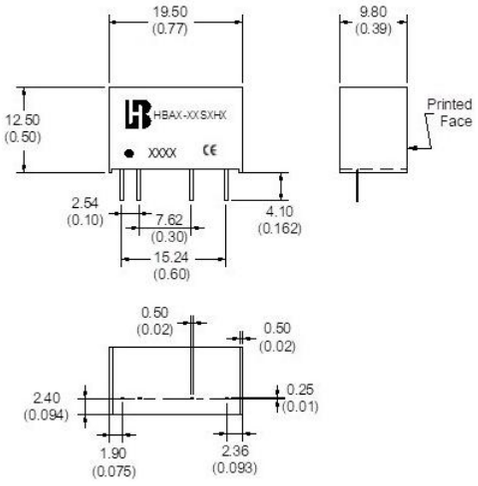
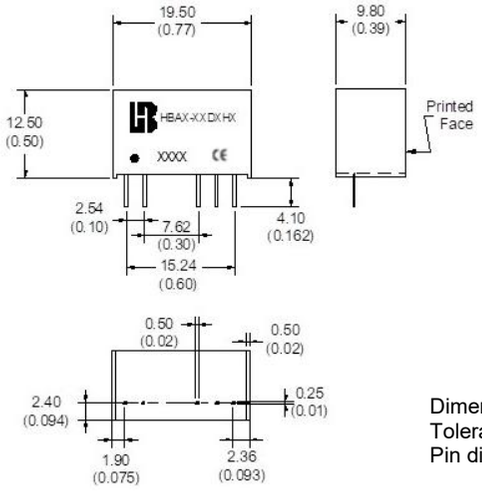
Mechanical

Single Output



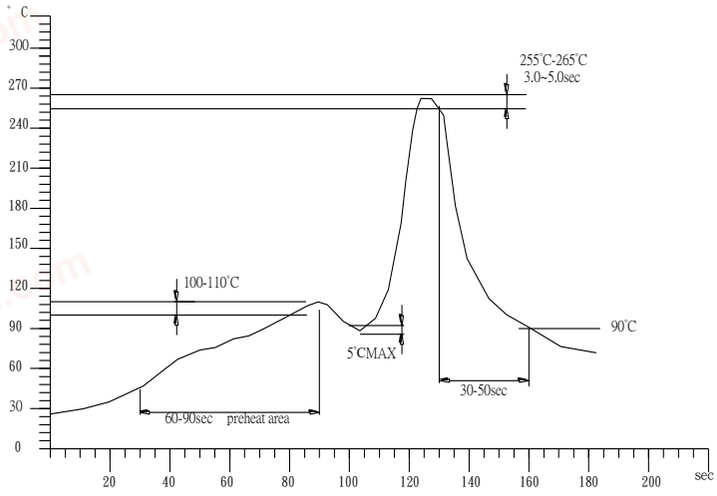
Dual Output



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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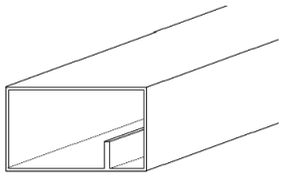
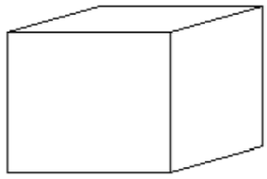
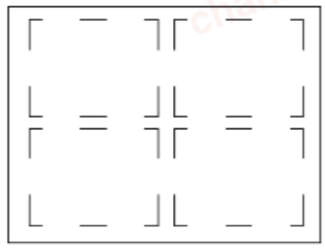
Carton Package



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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