

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 (μ F) max. |
| | | | Full Load | No 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 | | \pm 3.3 | \pm 300 | 70 | 535 | 78 | 1500 / 1500 | |
| HBA2-05D1H6 HBA2-05D1H8 | | \pm 5 | \pm 200 | 70 | 526 | 80 | 470 / 470 | |
| HBA2-05DBH6 HBA2-05DBH8 | | \pm 7.2 | \pm 139 | 70 | 526 | 80 | 470 / 470 | |
| HBA2-05DAH6 HBA2-05DAH8 | | \pm 9 | \pm 111 | 70 | 519 | 81 | 470 / 470 | |
| HBA2-05D2H6 HBA2-05D2H8 | | \pm 12 | \pm 85 | 70 | 519 | 81 | 330 / 330 | |
| HBA2-05D3H6 HBA2-05D3H8 | | \pm 15 | \pm 66 | 70 | 513 | 82 | 330 / 330 | |

| 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 (μ F) max. |
| | | | Full Load | No 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 | | \pm 3.3 | \pm 300 | 30 | 217 | 80 | 1500 / 1500 | |
| HBA2-12D1H6 HBA2-12D1H8 | | \pm 5 | \pm 200 | 30 | 213 | 82 | 470 / 470 | |
| HBA2-12DBH6 HBA2-12DBH8 | | \pm 7.2 | \pm 139 | 30 | 211 | 83 | 470 / 470 | |
| HBA2-12DAH6 HBA2-12DAH8 | | \pm 9 | \pm 111 | 30 | 208 | 84 | 470 / 470 | |
| HBA2-12D2H6 HBA2-12D2H8 | | \pm 12 | \pm 85 | 30 | 208 | 84 | 330 / 330 | |
| HBA2-12D3H6 HBA2-12D3H8 | | \pm 15 | \pm 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 | |

| 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 (μ F) max. |
| | | | Full Load | | No Load | Full Load | | |
| HBA2-15D0H6 HBA2-15D0H8 | 10.8 - 13.2 12V nominal | \pm 3.3 | \pm 300 | | 25 | 174 | 80 | 1500 / 1500 |
| HBA2-15D1H6 HBA2-15D1H8 | | \pm 5 | \pm 200 | | 25 | 171 | 82 | 470 / 470 |
| HBA2-15DBH6 HBA2-15DBH8 | | \pm 7.2 | \pm 139 | | 25 | 169 | 83 | 470 / 470 |
| HBA2-15DAH6 HBA2-15DAH8 | | \pm 9 | \pm 111 | | 25 | 167 | 84 | 470 / 470 |
| HBA2-15D2H6 HBA2-15D2H8 | | \pm 12 | \pm 85 | | 25 | 167 | 84 | 330 / 330 |
| HBA2-15D3H6 HBA2-15D3H8 | | \pm 15 | \pm 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 | | \pm 3.3 | \pm 300 | | 20 | 113 | 77 | 1500 / 1500 |
| HBA2-24D1H6 HBA2-24D1H8 | | \pm 5 | \pm 200 | | 20 | 110 | 80 | 470 / 470 |
| HBA2-24DBH6 HBA2-24DBH8 | | \pm 7.2 | \pm 139 | | 20 | 114 | 77 | 470 / 470 |
| HBA2-24DAH6 HBA2-24DAH8 | | \pm 9 | \pm 111 | | 20 | 113 | 78 | 470 / 470 |
| HBA2-24D2H6 HBA2-24D2H8 | | \pm 12 | \pm 85 | | 20 | 110 | 80 | 330 / 330 |
| HBA2-24D3H6 HBA2-24D3H8 | | \pm 15 | \pm 66 | | 20 | 111 | 79 | 330 / 330 |

Asymmetric Outputs Models

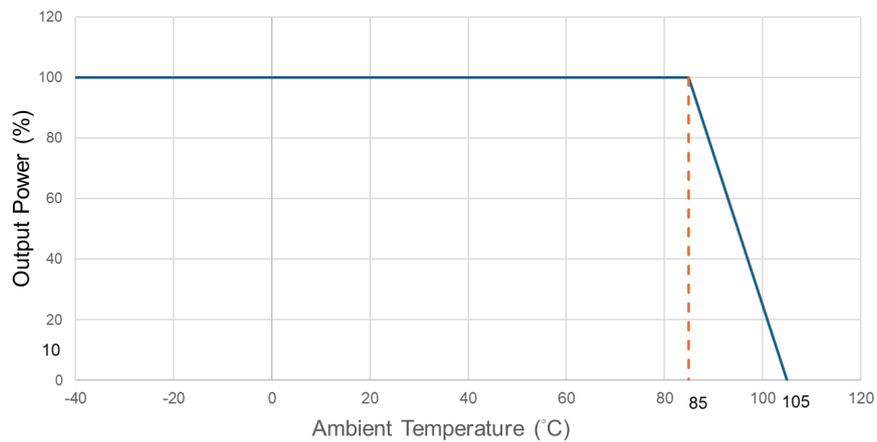
| Models and Ratings | | | | | | | |
|----------------------------------|------------------------------|-------------------------|---------------------|-------------------------|-----------|------------------------|------------------------------------|
| Model Number HBA2H6 HBA2H8 | Input Voltage Range (VDC) | Output Voltage (VDC) | Output Current (mA) | Input Current (mA) typ. | | Efficiency (%) typ. | Capacitive Load (μ F) 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 |

| 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. |

| | |
|--------------------------------|-------------------------|
| 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. |

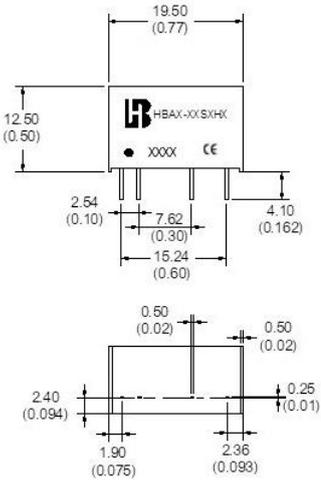
Characteristic Curves

Power Derating Curve

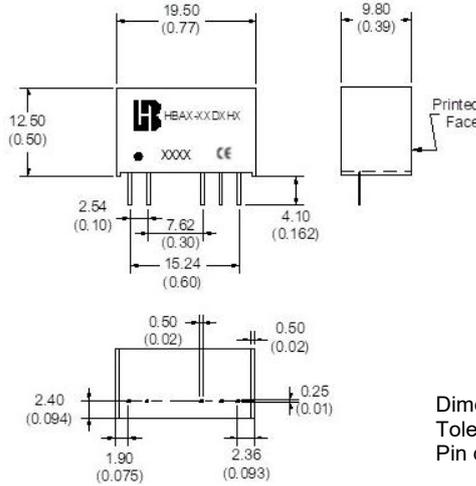


Mechanical

Single Output



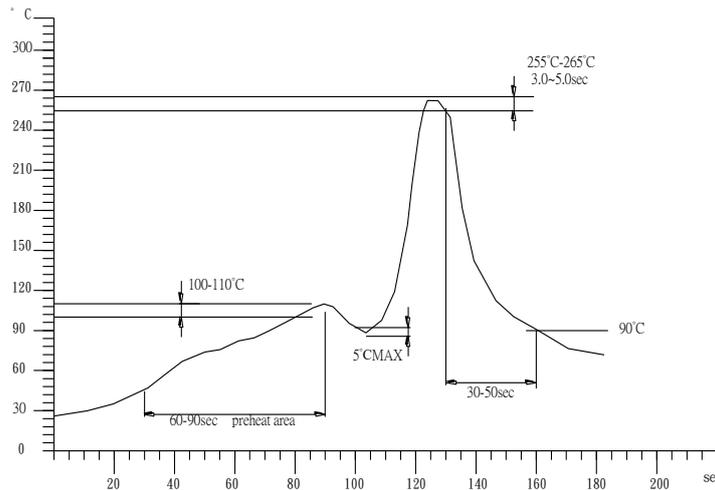
Dual Output



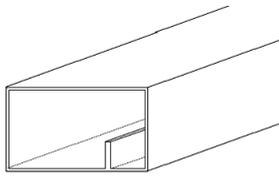
| Pinout | | |
|--------|--------|--------|
| PIN | Single | Dual |
| 1 | +Vin | +Vin |
| 2 | -Vin | -Vin |
| 5 | -Vout | -Vout |
| 6 | No Pin | Common |
| 7 | +Vout | +Vout |

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

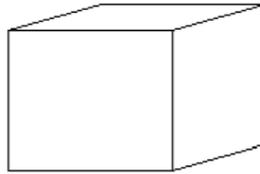
Wave Soldering Temperature Curve



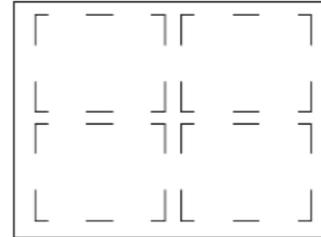
Carton Package



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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