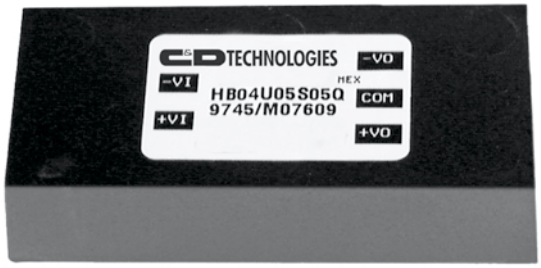
C&D TECHNOLOGIES

Product Data Sheet

4.0 WATT UNREGULATED HIGH ISOLATION DC/DC CONVERTER

HB04U



DESCRIPTION

The HB04U Series is a low-cost, high-isolation voltage, unregulated, single and dual output DC/DC converter. The dielectric withstand characteristics of each converter is tested in production to ensure barrier integrity.

The HB04U Series uses advanced circuit design and packaging technology to realize superior reliability and performance. A 100kHz driven push-pull oscillator is used to ensure stable frequency and non-saturating operation of the input stage. This means there are no high peak voltages or currents like other design topologies, which can reduce unit reliability. Reliability is further enhanced by the use of MOSPOWER transistors. These rugged devices permit higher frequency operation with less complicated drive circuitry than is possible with bipolar power transistors. Reduced parts count adds to the reliability of the HB04U Series.

The high efficiency of the HB04U Series means less internal power dissipation. With less heat to dissipate, the HB04U Series can operate over a wider ambient temperature range with no degradation of reliable operation.

The HB04U Series offers the user low cost without sacrificing reliability. The use of surface mounted devices and manufacturing technologies make it possible to offer premium performance at low cost.

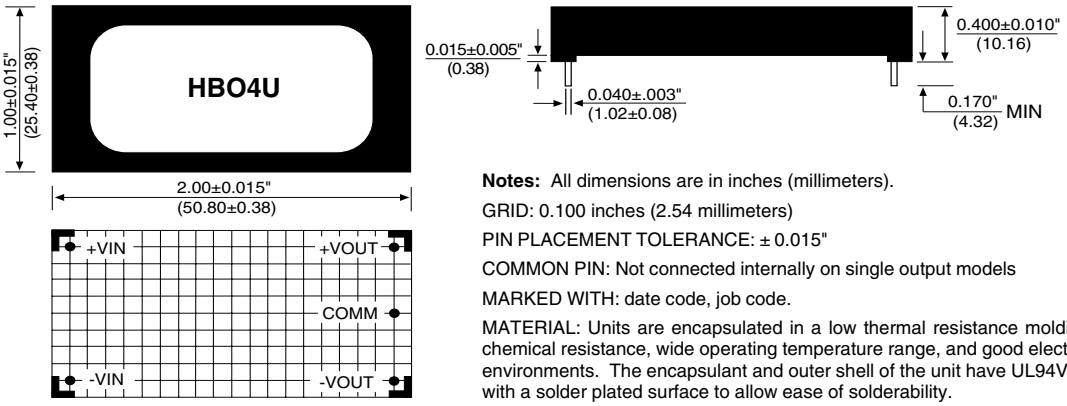
FEATURES

- HIGH ISOLATION - 3000V RATING
- 8000V ISOLATION TEST VOLTAGE
- BARRIER 100% PRODUCTION TESTED
- LOW BARRIER CAPACITANCE - 10PF
- LOW LEAKAGE CURRENT - 2µA MAX
- INTERNAL FILTERING

APPLICATIONS

- BIOMEDICAL DATA ACQUISITION
- INDUSTRIAL PROCESS CONTROL
- ANALYTICAL MEASUREMENTS
- GROUND LOOP ELIMINATION
- INTRINSIC SAFETY SYSTEMS

MECHANICAL



Notes: All dimensions are in inches (millimeters).

GRID: 0.100 inches (2.54 millimeters)

PIN PLACEMENT TOLERANCE: ± 0.015"

COMMON PIN: Not connected internally on single output models

MARKED WITH: date code, job code.

MATERIAL: Units are encapsulated in a low thermal resistance molding compound which has excellent chemical resistance, wide operating temperature range, and good electrical properties under high humidity environments. The encapsulant and outer shell of the unit have UL94V-0 ratings. Lead material is brass with a solder plated surface to allow ease of solderability.

More product information and application notes are available on our website at www.cdpowerelectronics.com

Power Electronics Division, United States
3400 E Britannia Drive, Tucson, Arizona 85706
Phone: 520.295.4100 Fax: 520.770.9369

Power Electronics Division, Europe
C&D Technologies (Power Electronics) Ltd.
132 Shannon Industrial Estate, Shannon, Co. Clare, Ireland
Tel: +353.61.474.133 Fax:+353.61.474.141

ELECTRICAL SPECIFICATIONS

Specifications typical at T_A = +25°C, nominal input voltage, rated output current unless otherwise noted.

MODEL	NOMINAL INPUT VOLTAGE (V_{DC})	RATED OUTPUT VOLTAGE (V_{DC})	RATED OUTPUT CURRENT (mA)	INPUT CURRENT		EFFICIENCY (%)
				NO LOAD (mA)	RATED LOAD (mA)	
HB04U05S05	5	5	800	60	1000	80
HB04U05S12	5	12	333	60	1000	80
HB04U05S15	5	15	267	60	1000	80
HB04U12S05	12	5	800	25	380	87
HB04U12S12	12	12	333	25	380	87
HB04U12S15	12	15	267	25	380	87
HB04U15S05	15	5	800	20	310	87
HB04U15S12	15	12	333	20	310	87
HB04U15S15	15	15	267	20	310	87
HB04U05D05	5	±5	±400	60	944	85
HB04U05D12	5	±12	±167	60	944	85
HB04U05D15	5	±15	±134	60	944	85
HB04U12D05	12	±5	±400	25	375	88
HB04U12D12	12	±12	±167	25	375	88
HB04U12D15	12	±15	±134	25	375	88
HB04U15D05	15	±5	±400	20	300	88
HB04U15D12	15	±12	±167	20	300	88
HB04U15D15	15	±15	±134	20	300	88

Note: Other input to output voltage options may be available. Please consult factory.

COMMON SPECIFICATIONS

Specifications typical at T_A = +25°C, nominal input voltage, rated output current unless otherwise noted.

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT					
Voltage Range		4.5	5	5.5	V_{DC}
		10.8	12	13.2	
		13.5	15	16.5	
Reflected Ripple Current			35		mAp-p
ISOLATION					
Rated Voltage		3000			V_{DC}
Test Voltage	60 Hz, 10 Seconds	8000			Vpk
Resistance			10		GΩ
Capacitance			10		pF
Leakage Current	V_{ISO}= 240V_{AC}, 60Hz		1.2	2	µArms
OUTPUT					
Rated Power			4		W
Voltage Setpoint Accuracy			±3	±5	%
Temperature Coefficient			±0.02		%/°C
Ripple & Noise	BW = DC to 10MHz		100		mVp-p
BW = 10Hz to 2MHz			20		mVrms
Line Regulation	High Line to Low Line		±1.5		%/% Vin
Load Regulation	See performance curves				
GENERAL					
Switching Frequency			100		kHz
Package Weight			22		g
MTTF per MIL-HDBK-217, Rev. E	Circuit Stress Method				
Ground Benign	T_A = +25°C		200,000		Hr
TEMPERATURE					
Specification		-25		+70	°C
Operation		-40		+85	°C
Storage		-40		+110	°C

ABSOLUTE MAXIMUM RATINGS

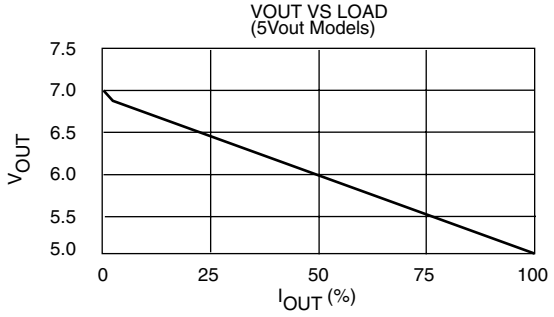
Internal Power Dissipation.....1W
Short Circuit Duration.....Momentary
Lead Temperature (soldering, 10 seconds max).....+300°C

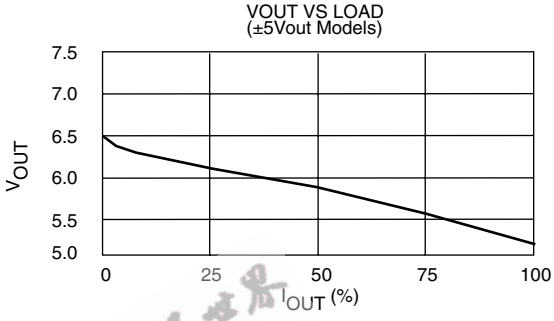
ORDERING INFORMATION

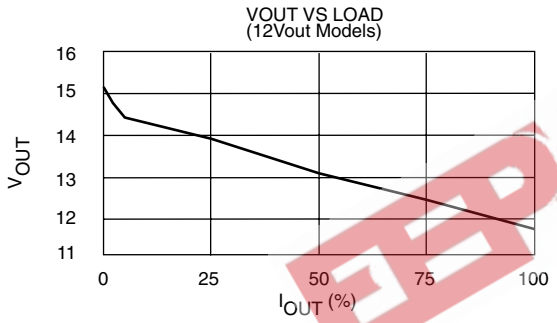
HB04U xxyzz Q

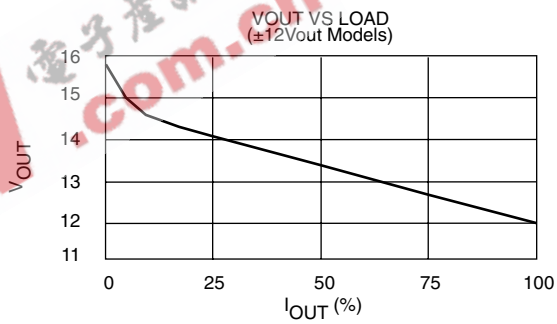
Device Family
HB04U Indicates DC/DC Converter
Model Number
Where:
xx = Input Voltage
y = Number or Outputs (Single "S", Dual "D")
zz = Output Voltage
Package Option

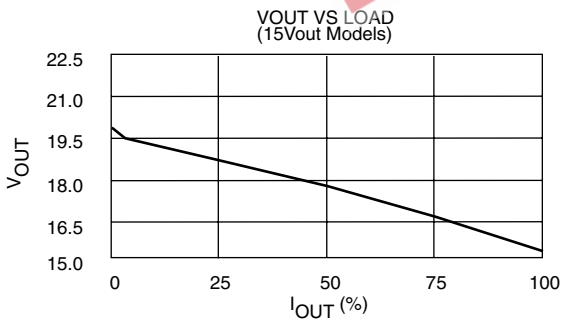
TYPICAL PERFORMANCE CURVES

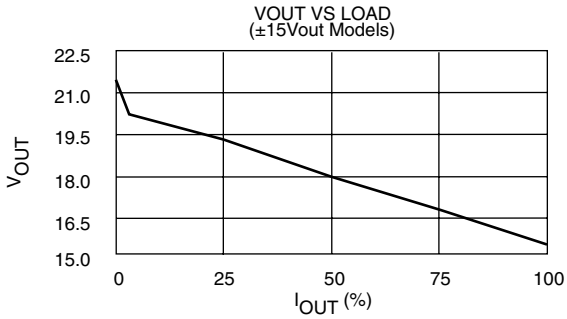


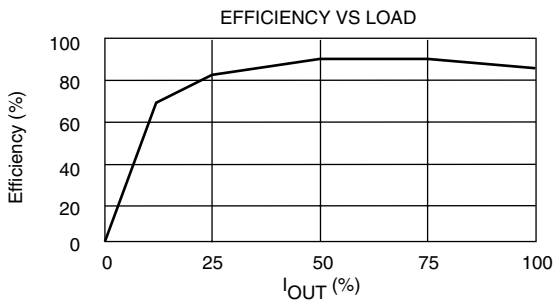












ENGINEERING NOTES