

### DC/DC CONVERTERS

### 3000V HIGH ISOLATION VOLTAGE RATING

#### FEATURES

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

#### 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 compli-

#### APPLICATIONS

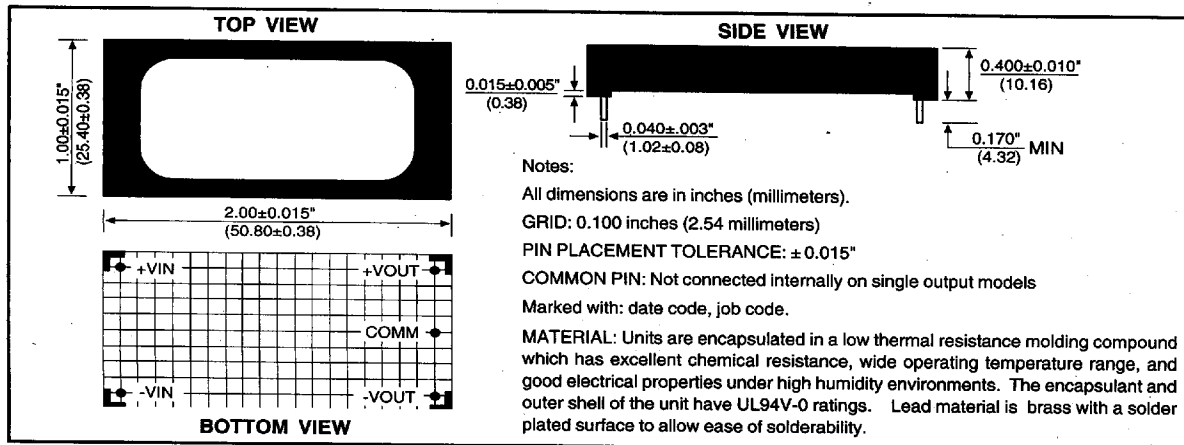
- BIOMEDICAL DATA ACQUISITION
- INDUSTRIAL PROCESS CONTROL
- ANALYTICAL MEASUREMENTS
- GROUND LOOP ELIMINATION
- INTRINSIC SAFETY SYSTEMS

cated 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 it can operate over a wider ambient temperature range with no degradation of reliable operation.

The HB04U Series offers the user a low cost without sacrificing reliability. The use of surface mounted devices and manufacturing technologies make it possible to offer premium performance and low cost. Testing of the isolation barrier is performed per the methods set forth by UL544, VDE750, CSA 22.2 and IEC 601-1.

#### MECHANICAL



# ELECTRICAL SPECIFICATIONS

Specifications typical at  $T_A = +25^\circ\text{C}$ , nominal input voltage, rated output current unless otherwise noted.

MODEL	NOMINAL INPUT VOLTAGE (VDC)	RATED OUTPUT VOLTAGE (VDC)	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	$\pm 5$	$\pm 400$	60	944	85
HB04U05D12	5	$\pm 12$	$\pm 167$	60	944	85
HB04U05D15	5	$\pm 15$	$\pm 134$	60	944	85
HB04U12D05	12	$\pm 5$	$\pm 400$	25	375	88
HB04U12D12	12	$\pm 12$	$\pm 167$	25	375	88
HB04U12D15	12	$\pm 15$	$\pm 134$	25	375	88
HB04U15D05	15	$\pm 5$	$\pm 400$	20	300	88
HB04U15D12	15	$\pm 12$	$\pm 167$	20	300	88
HB04U15D15	15	$\pm 15$	$\pm 134$	20	300	88

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

# COMMON SPECIFICATIONS

Specifications typical at  $T_A = +25^\circ\text{C}$ , nominal input voltage, rated output current unless otherwise noted.

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
<b>INPUT</b> Voltage Range		4.5 10.8 13.5	5 12 15	5.5 13.2 16.5	VDC
Reflected Ripple Current			35		mA <sub>p-p</sub>
<b>ISOLATION</b> Rated Voltage Test Voltage Resistance Capacitance Leakage Current	60 Hz, 10 Seconds    $V_{iso} = 240\text{VAC}, 60\text{Hz}$	3000 8000	10 10 1.2	2	VDC V <sub>pk</sub> G $\Omega$ pF $\mu\text{A}_{rms}$
<b>OUTPUT</b> Rated Power Voltage Setpoint Accuracy Temperature Coefficient Ripple & Noise  Line Regulation Load Regulation	   BW = DC to 10MHz BW = 10Hz to 2MHz High Line to Low Line See performance curves		4 $\pm 3$ $\pm 0.02$ 100 20 $\pm 1.5$	$\pm 5$	W % %/°C mV <sub>p-p</sub> mV <sub>rms</sub> %/V <sub>in</sub>
<b>GENERAL</b> Switching Frequency Package Weight MTTF per MIL-HDBK-217, Rev. E Ground Benign	Circuit Stress Method $T_A = +25^\circ\text{C}$		100 22 200,000		kHz g Hr
<b>TEMPERATURE</b> Specification Operation Storage		-25 -40 -40		+70 +85 +110	°C °C °C

## ABSOLUTE MAXIMUM RATINGS

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

## ORDERING INFORMATION

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

## TYPICAL PERFORMANCE CURVES

