



# **OBSOLETE**

# **Contact us for replacement model**



#### **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

#### DESCRIPTION

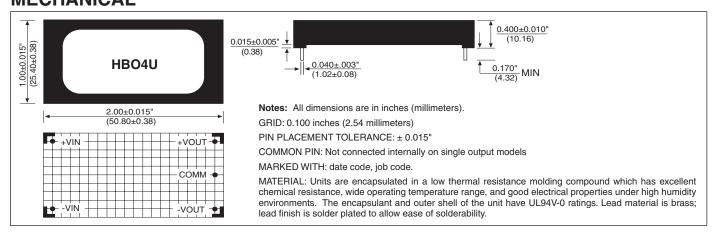
The HB04U Series is a low-cost, high-isolation voltage, unregulated, single and dual output DC/DC converter. The dielectric withstand characteristics of each converter is tested in production to ensure barrier integrity.

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. 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.

# **MECHANICAL**





More product information and application notes are available on our website at www.murata-ps.com

# 4.0W Unregulated High Isolation DC/DC Converter

## **ELECTRICAL SPECIFICATIONS**

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

	NOMINAL INPUT	RATED OUTPUT	RATED OUTPUT	INPUT		
MODEL	VOLTAGE	VOLTAGE	CURRENT	NO LOAD	RATED LOAD	EFFICIENCY
	(VDC)	(VDC)	(mA)	(mA)	(mA)	(%)
HB04U05S05Q	5	5	800	60	1000	80
HB04U05S12Q	5	12	333	60	1000	80
HB04U05S15Q	5	15	267	60	1000	80
HB04U12S05Q HB04U12S12Q HB04U12S15Q	12 12 12	5 12 15	800 333 267	25 25 25 25	380 380 380	87 87 87
HB04U15S05Q	15	5	800	20	310	87
HB04U15S12Q	15	12	333	20	310	87
HB04U15S15Q	15	15	267	20	310	87
HB04U05D05Q	5	±5	±400	60	944	85
HB04U05D12Q	5	±12	±167	60	944	85
HB04U05D15Q	5	±15	±134	60	944	85
HB04U12D05Q	12	±5	±400	25	375	88
HB04U12D12Q	12	±12	±167	25	375	88
HB04U12D15Q	12	±15	±134	25	375	88
HB04U15D05Q	15	±5	±400	20	300	88
HB04U15D12Q	15	±12	±167	20	300	88
HB04U15D15Q	15	±15	±134	20	300	88

Note: Other input to output voltage options may be available. Please consult factory. Models with strikethrough have been discontinued.

# **COMMON SPECIFICATIONS**

Specifications typical at TA = +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	VDC
		10.8	12	13.2	
		13.5	15	16.5	
Reflected Ripple Current			35¹		mAp-p
ISOLATION					
Rated Voltage		3000			VDC
Test Voltage	60 Hz, 10 Seconds	8000			Vpk
Resistance			10		GΩ
Capacitance			10		pF
Leakage Current	VISO= 240VAC, 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	Ta = +25°C		200,000		Hr
TEMPERATURE					
Specification		-25		+70	°C
Operation		-40		+85	°C
Storage		-40		+110	°C

<sup>1.</sup> Reflected ripple current is measured at 50% load with a 33uF capacitor across the input of the UUT.



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## THROUGH-HOLE SOLDERING INFORMATION

These devices are intended for wave soldering or manual soldering.

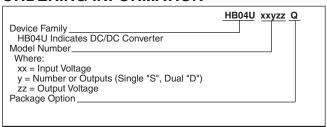
They are not intended to be subject to surface mount processes under any circumstances.

The normal wave soldering process can be used with these devices where the device is subjected to a maximum wave temperature of 260°C for a period of no more than 10 seconds. Within this time and temperature range, the integrity of the device's plastic body will not be compromised and internal temperatures within the converter will not exceed 175°C. Care should be taken to control manual soldering limits identical to that of wave soldering.

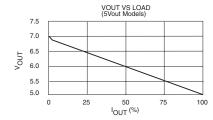
### **ABSOLUTE MAXIMUM RATINGS**

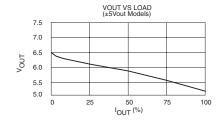
Internal Power Dissipation	1W
Short Circuit Duration	
Lead Temperature (soldering, 10 seconds max)	+300°C

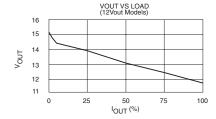
#### **ORDERING INFORMATION**

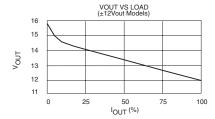


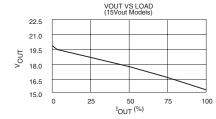
#### TYPICAL PERFORMANCE CURVES

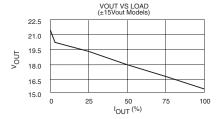


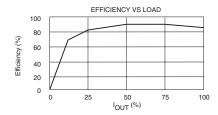
















4.0W Unregulated High Isolation DC/DC Converter



Murata Power Solutions, Inc.

11 Cabot Boulevard, Mansfield, MA 02048-1151 U.S.A. Tel: (508) 339-3000 (800) 233-2765 Fax: (508) 339-6356

www.murata-ps.com email: sales@murata-ps.com ISO 9001 REGISTERED

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 USA:
 Mansfield (Ma), Tel: (508) 339-3000, email: sales@murata-ps.com

 Canada:
 Toronto, Tel: (866) 740 1232, email: toronto@murata-ps.com

 UK:
 Milton Keynes, Tel: +44 (0)1908 615232, email: mk@murata-ps.com

France: Montigny Le Bretonneux, Tel: +33 (0)1 34 60 01 01, email: france@murata-ps.com

**Germany:** München, Tel: +49 (0)89-544334-0, email: munich@murata-ps.com **Japan:** Tokyo, Tel: 3-3779-1031, email: sales\_tokyo@murata-ps.com

Osaka, Tel: 6-6354-2025, email: sales\_osaka@murata-ps.com Website: www.murata-ps.jp

China: Shanghai, Tel: +86 215 027 3678, email: shanghai@murata-ps.com Guangzhou, Tel: +86 208 221 8066, email: guangzhou@murata-ps.com