HB04UC

4.0W Unregulated High Isolation DC/DC Converter

FEATURES

- RoHS compliant
- High Isolation - 3000v Rating
- 8000v Isolation Test Voltage
- Barrier 100% Production Tested
- Low Barrier Capacitance - 10pf
- Low Leakage Current - 2ma Max
- Internal Filtering

Applications

- Biomedical Data Acquisition
- Industrial Process Control
- Analytical Measurements
- Ground Loop Elimination
- Intrinsic Safety Systems

PRODUCT OVERVIEW

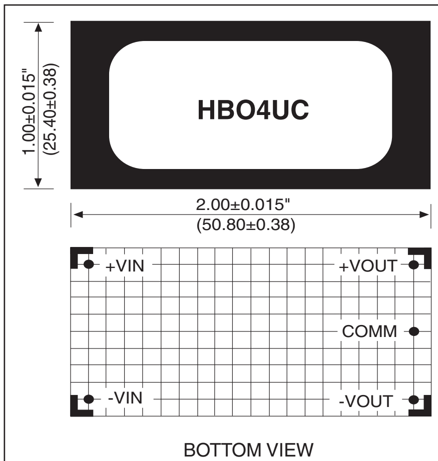
The HB04UC Series is a low-cost, high-isolation voltage, unregulated, single and dual output DC/DC converter. The dielectric withstand characteristics of each converter is tested in production to ensure barrier integrity.

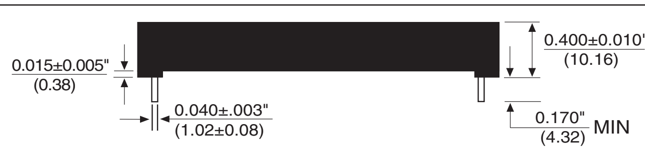
The HB04UC Series uses advanced circuit design and packaging technology to realize superior reliability and performance. A 100kHz driven push-pull oscillator is used to ensure stable frequency and non-saturating operation of the input stage. This means there are no high peak voltages or currents like other design topologies, which can reduce unit reliability. Reduced parts count adds to the reliability of the HB04UC Series.

The high efficiency of the HB04UC Series means less internal power dissipation. With less heat to dissipate, the HB04UC Series can operate over a wider ambient temperature range with no degradation of reliable operation.

The HB04UC 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





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; lead finish is a 100-300 micro-inch layer of matte tin over a 40-80 micro-inch barrier layer of nickel.

For full details go to www.murata-ps.com/rohs

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

ELECTRICAL SPECIFICATIONS

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

Status	Model	Nominal Input Voltage (VDC)	Rated Output Voltage (VDC)	Rated Output Current (mA)	Input Current No Load (mA)	Input Current Rated Load (mA)	Efficiency(%)
Discontinued *	HB04U05S05QC	5	5	800	60	1000	80
Discontinued *	HB04U05S12QC	5	12	333	60	1000	80
Discontinued *	HB04U05S15QC	5	15	267	60	1000	80
Discontinued *	HB04U12S05QC	12	5	800	25	380	87
Available	HB04U12S12QC*	12	12	333	25	380	87
Discontinued *	HB04U12S15QC	12	15	267	25	380	87
Discontinued *	HB04U15S05QC	15	5	800	20	310	87
Discontinued *	HB04U15S12QC	15	12	333	20	310	87
Discontinued *	HB04U15S15QC	15	15	267	20	310	87
Discontinued *	HB04U05D05QC	5	±5	±400	60	944	85
Discontinued *	HB04U05D12QC	5	±12	±167	60	944	85
Discontinued *	HB04U05D15QC	5	±15	±134	60	944	85
Discontinued *	HB04U12D05QC	12	±5	±400	25	375	88
Discontinued *	HB04U12D12QC	12	±12	±167	25	375	88
To Be Discontinued*	HB04U12D15QC	12	±15	±134	25	375	88
Discontinued *	HB04U15D05QC	15	±5	±400	20	300	88
Discontinued *	HB04U15D12QC	15	±12	±167	20	300	88
Discontinued *	HB04U15D15QC	15	±15	±134	20	300	88

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

* ±6.25% Max for Voltage Setpoint Accuracy.

*** LAST TIME BUY: April 1, 2017. CLICK HERE FOR DISCONTINUANCE NOTICES.**

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[1]		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

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

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

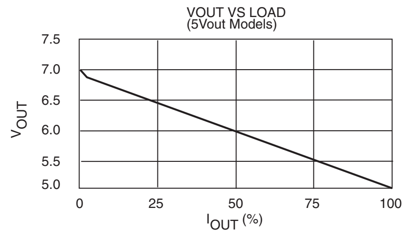
Internal Power Dissipation	1W
Short Circuit Duration	Momentary
Lead Temperature (soldering, 10 seconds max)	+300°C

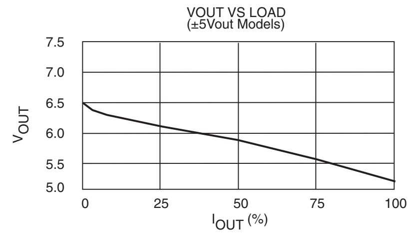
ORDERING INFORMATION

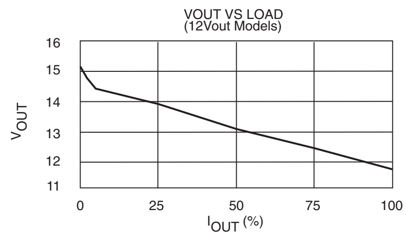
HB04U xxyzz Q C

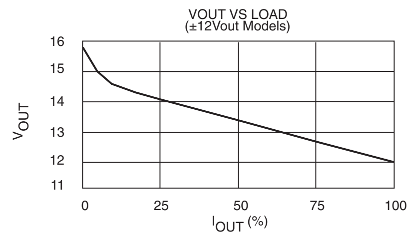
Device Family (HB04U)
HB04U Indicates DC/DC Converter
Model Number (xxyzz)
Where:
xx = Input Voltage
y = Number or Outputs (Single "S", Dual "D")
zz = Output Voltage
Package Option (Q)
RoHS Compliant (C)

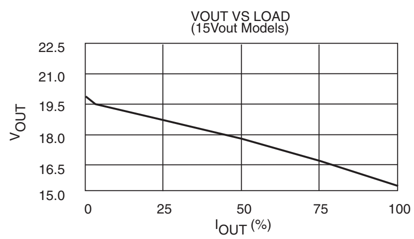
TYPICAL PERFORMANCE CURVES

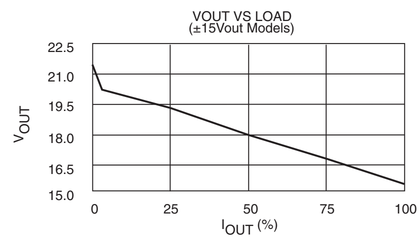


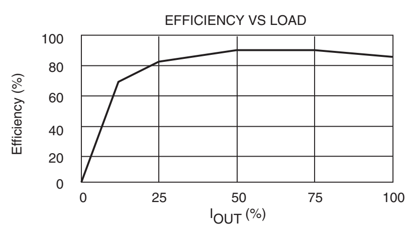












Murata Power Solutions, Inc.
11 Cabot Boulevard, Mansfield, MA 02048-1151 U.S.A.
ISO 9001 and 14001 REGISTERED

This product is subject to the following operating requirements and the Life and Safety Critical Application Sales Policy: Refer to: http://www.murata-ps.com/requirements/