

### OBSOLETE PRODUCT

Last time buy: August 31, 2014.

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#### PRODUCT OVERVIEW

The HB01UYC Series offers a wide selection of input and output voltages to choose from. Each model is offered in a 24-pin DIP package and has an input to output isolation rating of 2500Vrms making it ideal for applications requiring high isolation. The dielectric withstand characteristics of each converter are measured in production to ensure barrier integrity.

The HB01UYC Series is ideal for applications where the output is susceptible to high voltage transients, such as motor drive and industrial process control applications. The low barrier capacitance gives excellent input to output dV/dt characteristics thus protecting the input control circuitry from peak transients appearing on the output.

The HB01UYC Series uses a self-oscillating circuit design technology to realize low cost and high performance. The inherent current limiting capability of the high isolation design reduces high current stresses during start-up thus increasing the capacitive load capability while maintaining high reliability.

As with all of our DC/DC converters, surface mount construction combined with extensive qualification testing assures low cost without sacrificing quality and reliability.

#### FEATURES

- RoHS Compliant
- High Isolation
- 2500vrms Isolation Test Voltage
- Barrier 100% Production Tested
- Low Barrier Capacitance - 10pf
- Low Leakage Current - 2ma Max
- 24-Pin Dip
- Internal Filtering
- Non-Conductive Case
- Low Cost
- Low Profile - .375"

#### APPLICATIONS

- Industrial Process Control
- Dc Motor Drive
- Intrinsic Safety Systems
- Ground Loop Elimination
- Medical Equipment
- Portable Test Equipment
- Data Acquisition



### ELECTRICAL SPECIFICATIONS

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

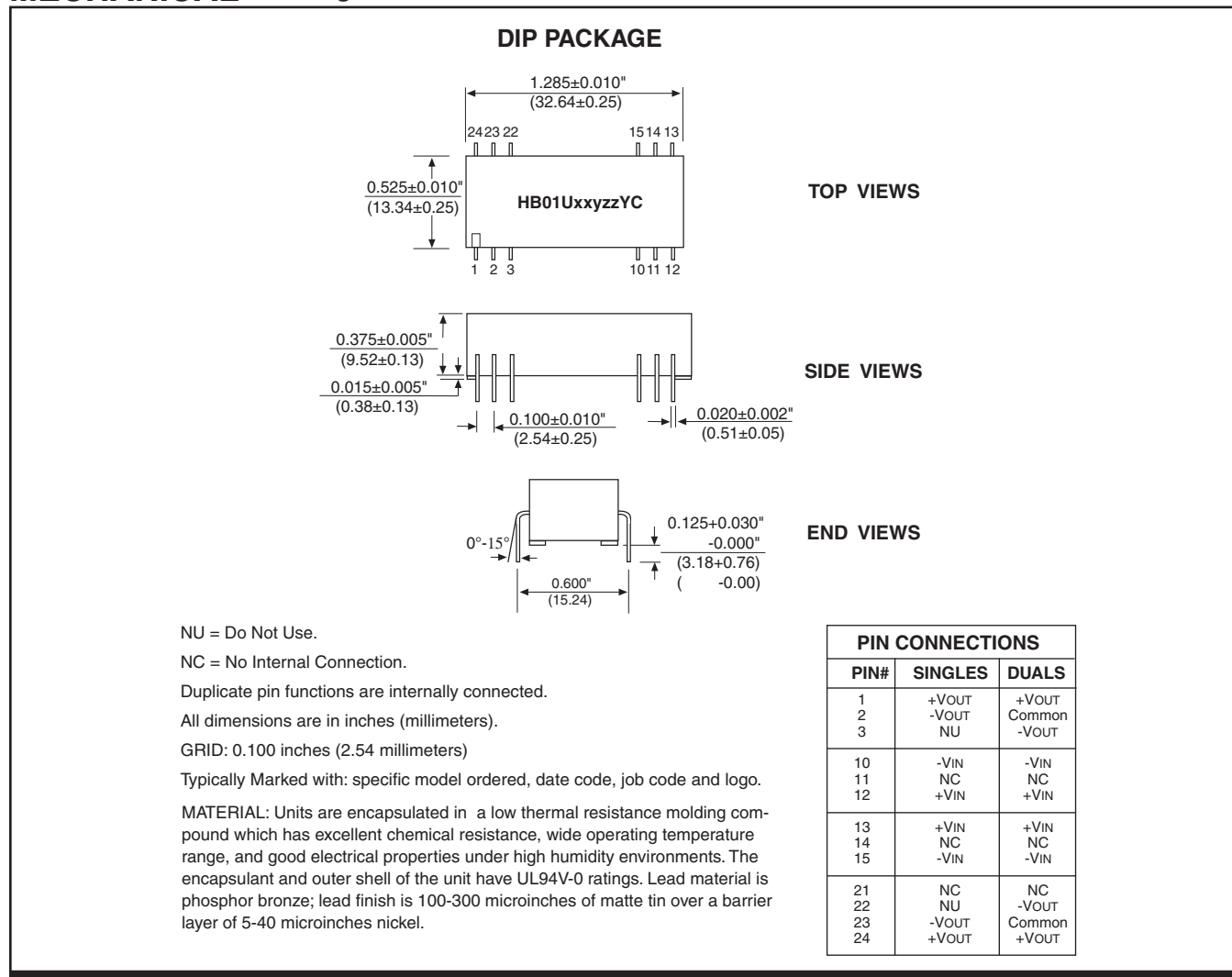
| MODEL        | NOMINAL INPUT VOLTAGE (V <sub>DC</sub> ) | RATED OUTPUT VOLTAGE (V <sub>DC</sub> ) | RATED OUTPUT CURRENT (mA) | INPUT CURRENT |                 | EFFICIENCY (%) |
|--------------|------------------------------------------|-----------------------------------------|---------------------------|---------------|-----------------|----------------|
|              |                                          |                                         |                           | MIN LOAD (mA) | RATED LOAD (mA) |                |
| HB01U05S05YC | 5                                        | 5                                       | 200                       | 63            | 290             | 68             |
| HB01U05S12YC | 5                                        | 12                                      | 83                        | 63            | 290             | 70             |
| HB01U05S15YC | 5                                        | 15                                      | 67                        | 63            | 290             | 73             |
| HB01U12S05YC | 12                                       | 5                                       | 200                       | 20            | 120             | 68             |
| HB01U12S12YC | 12                                       | 12                                      | 83                        | 20            | 120             | 70             |
| HB01U12S15YC | 12                                       | 15                                      | 67                        | 20            | 114             | 73             |
| HB01U15S05YC | 15                                       | 5                                       | 200                       | 25            | 98              | 68             |
| HB01U15S12YC | 15                                       | 12                                      | 83                        | 25            | 95              | 70             |
| HB01U15S15YC | 15                                       | 15                                      | 67                        | 25            | 90              | 73             |
| HB01U24S05YC | 24                                       | 5                                       | 200                       | 13            | 61              | 68             |
| HB01U24S12YC | 24                                       | 12                                      | 83                        | 13            | 60              | 70             |
| HB01U24S15YC | 24                                       | 15                                      | 67                        | 13            | 57              | 73             |
| HB01U05D05YC | 5                                        | ±5                                      | ±100                      | 63            | 290             | 68             |
| HB01U05D12YC | 5                                        | ±12                                     | ±42                       | 63            | 285             | 70             |
| HB01U05D15YC | 5                                        | ±15                                     | ±34                       | 63            | 275             | 73             |
| HB01U12D05YC | 12                                       | ±5                                      | ±100                      | 20            | 123             | 68             |
| HB01U12D12YC | 12                                       | ±12                                     | ±42                       | 20            | 118             | 70             |
| HB01U12D15YC | 12                                       | ±15                                     | ±34                       | 20            | 114             | 73             |
| HB01U15D05YC | 15                                       | ±5                                      | ±100                      | 25            | 98              | 68             |
| HB01U15D12YC | 15                                       | ±12                                     | ±42                       | 25            | 95              | 70             |
| HB01U15D15YC | 15                                       | ±15                                     | ±34                       | 25            | 90              | 73             |
| HB01U24D05YC | 24                                       | ±5                                      | ±100                      | 13            | 61              | 68             |
| HB01U24D12YC | 24                                       | ±12                                     | ±42                       | 13            | 60              | 70             |
| HB01U24D15YC | 24                                       | ±15                                     | ±34                       | 13            | 57              | 73             |

### COMMON SPECIFICATIONS

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

| PARAMETER                     | CONDITIONS                             | MIN                       | TYP                       | MAX                       | UNITS                                                                             |
|-------------------------------|----------------------------------------|---------------------------|---------------------------|---------------------------|-----------------------------------------------------------------------------------|
| <b>INPUT</b>                  |                                        |                           |                           |                           |                                                                                   |
| Voltage Range                 |                                        | 4.5<br>10.8<br>13.5<br>20 | 5<br>12<br>15<br>24<br>35 | 5.5<br>13.2<br>16.5<br>30 | V <sub>DC</sub><br>V <sub>DC</sub><br>V <sub>DC</sub><br>V <sub>DC</sub><br>mAp-p |
| Reflected Ripple Current      |                                        |                           |                           |                           |                                                                                   |
| <b>ISOLATION</b>              |                                        |                           |                           |                           |                                                                                   |
| Rated Voltage                 |                                        | 3535                      |                           |                           | V <sub>DC</sub>                                                                   |
| Test Voltage                  | 60 Hz, 10 Seconds                      | 2500                      |                           |                           | V <sub>rms</sub>                                                                  |
| Resistance                    |                                        |                           | 10                        |                           | GΩ                                                                                |
| Capacitance                   |                                        |                           | 10                        |                           | pF                                                                                |
| Leakage Current               | $V_{ISO} = 240\text{V}_{AC}$ , 60Hz    |                           | 1                         | 2                         | μA <sub>rms</sub>                                                                 |
| <b>OUTPUT</b>                 |                                        |                           |                           |                           |                                                                                   |
| Rated Power                   |                                        |                           | 1                         |                           | W                                                                                 |
| Voltage Setpoint Accuracy     |                                        |                           | ±3                        | ±5                        | %                                                                                 |
| Temperature Coefficient       |                                        |                           | ±0.02                     |                           | %/°C                                                                              |
| Ripple & Noise                | BW = DC to 10MHz<br>BW = 10Hz to 2MHz  |                           | 50<br>25                  |                           | mVp-p<br>mV <sub>rms</sub>                                                        |
| Line Regulation               | High Line to Low Line                  |                           | ±1.5                      |                           | %/% V <sub>in</sub>                                                               |
| Load Regulation               | See Performance Curves (Min Load = 5%) |                           |                           |                           |                                                                                   |
| <b>GENERAL</b>                |                                        |                           |                           |                           |                                                                                   |
| Switching Frequency           |                                        |                           | 160                       |                           | kHz                                                                               |
| Package Weight                |                                        |                           | 12                        |                           | g                                                                                 |
| MTTF per MIL-HDBK-217, Rev. F | Circuit Stress Method                  |                           | 2,000,000                 |                           | Hr                                                                                |
| Ground Benign                 | $T_A = +25^\circ\text{C}$              |                           |                           |                           |                                                                                   |
| <b>TEMPERATURE</b>            |                                        |                           |                           |                           |                                                                                   |
| Specification                 |                                        | -25                       |                           | +70                       | °C                                                                                |
| Operation                     |                                        | -40                       |                           | +85                       | °C                                                                                |
| Storage                       |                                        | -40                       |                           | +110                      | °C                                                                                |

## MECHANICAL Package/Pinout "Y"



## 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.....0.5 Watt  
 Short Circuit Duration.....5 Min  
 Lead Temperature (soldering, 10 seconds max).....+300°C\*

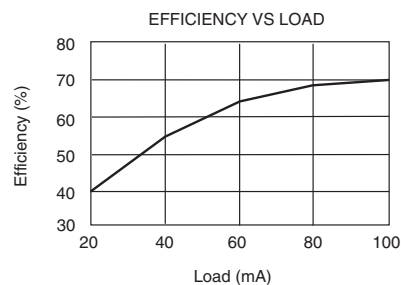
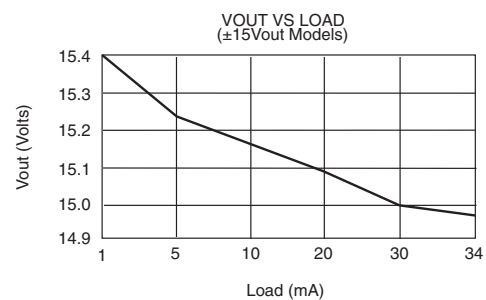
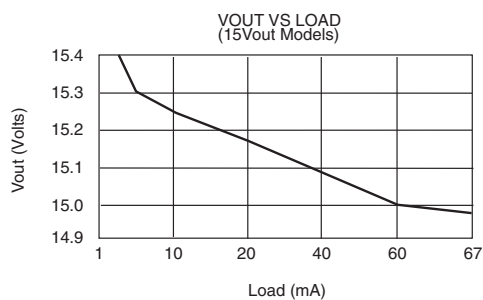
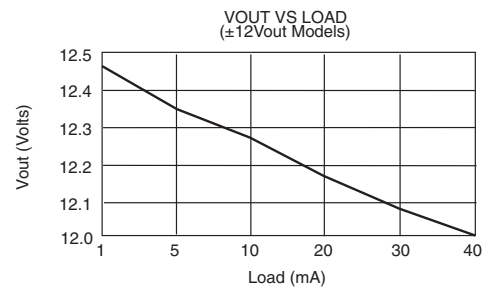
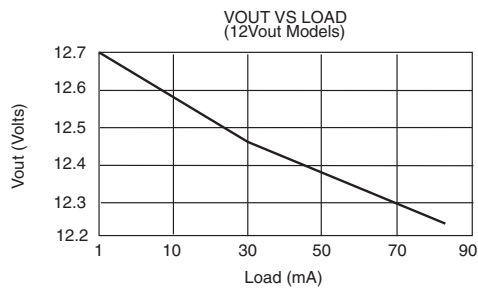
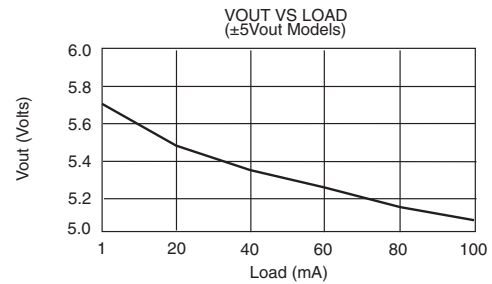
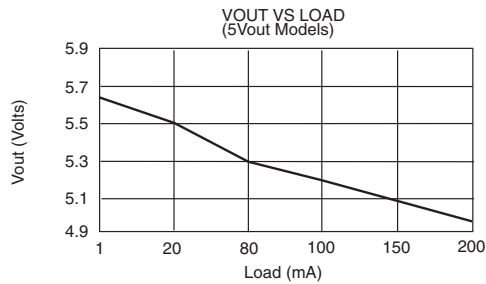
\*Note: Refer to Reflow Profile for SMD Models.

## ORDERING INFORMATION

Device Family **HB01U** **xx** **yy** **zz** **Y** **C**  
 HB Indicates DC/DC Converter  
 Model Number  
 Where:  
 xx = Input Voltage  
 yy = Number of Outputs (Single "S", Dual "D")  
 zz = Output Voltage  
 Package Option  
 RoHS Compliant

## TYPICAL PERFORMANCE CURVES

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



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ISO 9001 and 14001 REGISTERED



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and the [Life and Safety Critical Application Sales Policy](#):  
Refer to: <http://www.murata-ps.com/requirements/>

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