

FEATURES

- LOW COST
- NON-CONDUCTIVE CASE
- INTERNAL INPUT AND OUTPUT FILTERING
- SHORT CIRCUIT PROTECTED
- BUILT-IN STANDOFFS
- INDUSTRY STANDARD PINOUT
- ROHS COMPLIANT

DESCRIPTION

The HL01RYC Series uses advanced circuit design and packaging technology to realize superior reliability and performance. A 125kHz push-pull oscillator is used in the input stage. Beat-frequency oscillator problems are reduced when using the HL01RYC Series with high frequency isolation amplifiers.

Reduced parts count and all surface mount construction add to the reliability of the HL01RYC Series. The use of surface mount devices and magnetics eliminate hand soldering operations. This "hands-free" construction increases quality and reliability while keeping cost low.

ABSOLUTE MAXIMUM RATINGS

| | |
|---|-------------|
| Internal Power Dissipation..... | 1.2W |
| Short Circuit Duration..... | Continuous* |
| Lead Temperature (soldering, 10 seconds max)..... | +300°C* |

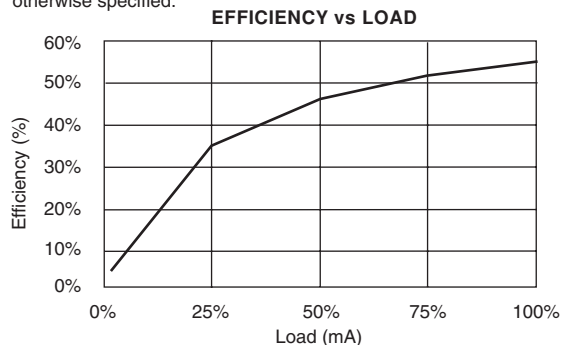
* Note: Refer to Reflow Profile for SMD Models.

ORDERING INFORMATION

| | | | | | | |
|--|-------|----|----|----|---|---|
| Device Family | HL01R | xx | yy | zz | Y | C |
| HL Indicates DC/DC Converter | | | | | | |
| Model Number | | | | | | |
| Where: | | | | | | |
| xx = Input Voltage | | | | | | |
| y = 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.



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

ELECTRICAL SPECIFICATIONS

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

| MODEL | NOMINAL INPUT VOLTAGE (VDC) | RATED OUTPUT VOLTAGE (VDC) | RATED OUTPUT CURRENT (mA) | INPUT CURRENT | | EFFICIENCY (%) |
|--------------|-----------------------------|----------------------------|---------------------------|---------------|-----------------|----------------|
| | | | | MIN LOAD (mA) | RATED LOAD (mA) | |
| HL01R05S05YC | 5 | 5 | 200 | 50 | 400 | 58 |
| HL01R05S12YC | 5 | 12 | 83 | 50 | 400 | 52 |
| HL01R05S15YC | 5 | 15 | 67 | 50 | 400 | 52 |
| HL01R12S05YC | 12 | 5 | 200 | 40 | 160 | 58 |
| HL01R12S12YC | 12 | 12 | 83 | 40 | 160 | 52 |
| HL01R12S15YC | 12 | 15 | 67 | 40 | 160 | 52 |
| HL01R15S05YC | 15 | 5 | 200 | 30 | 130 | 58 |
| HL01R15S12YC | 15 | 12 | 83 | 30 | 130 | 52 |
| HL01R15S15YC | 15 | 15 | 67 | 30 | 130 | 52 |
| HL01R24S05YC | 24 | 5 | 200 | 20 | 80 | 58 |
| HL01R24S12YC | 24 | 12 | 83 | 20 | 80 | 52 |
| HL01R24S15YC | 24 | 15 | 67 | 20 | 80 | 52 |
| HL01R05D05YC | 5 | ± 5 | ± 100 | 50 | 425 | 45 |
| HL01R05D12YC | 5 | ± 12 | ± 41 | 50 | 400 | 53 |
| HL01R05D15YC | 5 | ± 15 | ± 33 | 50 | 400 | 53 |
| HL01R12D05YC | 12 | ± 5 | ± 100 | 40 | 185 | 45 |
| HL01R12D12YC | 12 | ± 12 | ± 41 | 40 | 160 | 53 |
| HL01R12D15YC | 12 | ± 15 | ± 33 | 40 | 160 | 53 |
| HL01R15D05YC | 15 | ± 5 | ± 100 | 30 | 145 | 45 |
| HL01R15D12YC | 15 | ± 12 | ± 41 | 30 | 130 | 53 |
| HL01R15D15YC | 15 | ± 15 | ± 33 | 30 | 130 | 53 |
| HL01R24D05YC | 24 | ± 5 | ± 100 | 20 | 90 | 45 |
| HL01R24D12YC | 24 | ± 12 | ± 41 | 20 | 80 | 53 |
| HL01R24D15YC | 24 | ± 15 | ± 33 | 20 | 80 | 53 |

Note: Other input to output voltages may be available. Please contact factory.

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 |
|----------------------------------|--|-------|------------|------------|-----------------------|
| INPUT | | | | | |
| Voltage Range | | 4.75 | 5 | 5.25 | VDC |
| | | 11.4 | 12 | 12.6 | VDC |
| | | 14.25 | 15 | 15.75 | VDC |
| Reflected Ripple Current | | 22.8 | 24 | 25.2 | VDC |
| | | | 30 | 100 | mArms-p |
| ISOLATION | | | | | |
| Rated Voltage | | 500 | | | VDC |
| Test Voltage | 60 Hz, 10 Seconds | 500 | | | Vpk |
| Resistance | | | 1 | | G Ω |
| Capacitance | | | 25 | | pF |
| Leakage Current | $V_{ISO} = 240\text{VAC}, 60\text{Hz}$ | | 2 | 10 | μArms |
| OUTPUT | | | | | |
| Rated Power | | | 1 | | W |
| Voltage Setpoint Accuracy | | | ± 3 | ± 5 | % |
| Temperature Coefficient | | | ± 0.01 | ± 0.02 | %/ $^{\circ}\text{C}$ |
| Ripple & Noise | BW = DC to 10MHz | | 30 | 100 | mVp-p |
| | BW = 10Hz to 2MHz | | 1 | 10 | mVrms |
| Line Regulation | High Line to Low Line | | ± 0.1 | ± 1 | % |
| Load Regulation | Rated Load to No Load | | ± 0.5 | ± 1 | % |
| GENERAL | | | | | |
| Switching Frequency | | | 125 | | kHz |
| Package Weight | | | 10 | | g |
| MTTF per MIL-HDBK-217, Rev. F | Circuit Stress Method | | 675 | | kHr |
| Ground Benign | | | 2 | | |
| Moisture Sensitivity Level (MSL) | IPC/JEDEC J-STD-20 | | 2 | | |
| TEMPERATURE | | | | | |
| Specification | | -25 | | +70 | $^{\circ}\text{C}$ |
| Operation | | -40 | | +85 | $^{\circ}\text{C}$ |
| Storage | | -40 | | +110 | $^{\circ}\text{C}$ |

MECHANICAL Package/Pinout "Y"

TOP VIEW

SIDE VIEW

END VIEW

DIP PACKAGE

NU = Do Not Use.
 NC = No Internal Connection.
 Duplicate pin functions are internally connected.
 All dimensions are in inches (millimeters).
 GRID: 0.100 inches (2.54 millimeters)
 Typically Marked with: specific model ordered, date code, job code and Logo.
 Pin base metal is phosphor bronze. Pin finish is matte tin (100-300 microinches) over a nickel barrel layer (5-40 microinches).

| PIN CONNECTIONS | | |
|-----------------|---------|--------|
| PIN# | SINGLES | DUALS |
| 1 | +VIN | +VIN |
| 2 | NU | -VOUT |
| 3 | NU | Common |
| 10 | -VOUT | Common |
| 11 | +VOUT | +VOUT |
| 12 | -VIN | -VIN |
| 13 | -VIN | -VIN |
| 14 | +VOUT | +VOUT |
| 15 | -VOUT | Common |
| 22 | NU | Common |
| 23 | NU | -VOUT |
| 24 | +VIN | +VIN |

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.