

FEATURES

- LOW COST
- INTERNAL FILTERING
- SURFACE MOUNT CONSTRUCTION
- TEMPERATURE RANGE:
-25°C TO +70°C
- INDUSTRY STANDARD PINOUT
- ROHS COMPLIANT

DESCRIPTION

The HL02RYC Series offers an extensive selection of input and output voltage combinations to choose from. These miniature, regulated DC/DC converters come in 24 pin DIP and SMD packages. This small size is possible through the use of surface mount manufacturing technologies.

OBSOLETE PRODUCT

Contact Factory for Replacement Model

The HL02RYC Series utilizes a 110 KHz push-pull oscillator in the input stage with low-drop regulators on the outputs, reducing the output noise and maintaining good efficiency.

The use of surface mount construction and automated manufacturing processes increase consistency and reliability while reducing overall cost.

ABSOLUTE MAXIMUM RATINGS

Internal Power Dissipation.....	1.5W
Short Circuit Duration.....	30 Sec
Lead Temperature (soldering, 10 seconds max).....	+300°C*

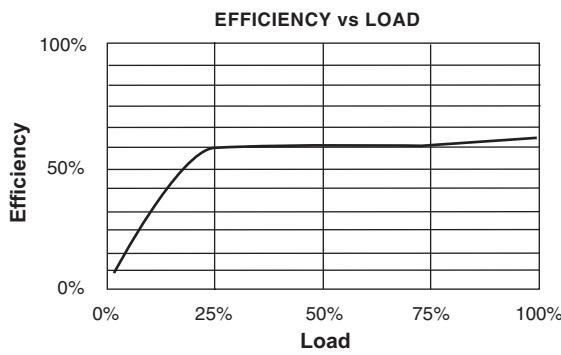
*Note: Refer to Reflow Profile for SMD Models.

ORDERING INFORMATION

Device Family	HL02R	xx	yy	zz	Y	C
HL 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.



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)	
HL02R05S05YC	5	5	400	70	640	62
HL02R05S12YC	5	12	166	70	580	69
HL02R05S15YC	5	15	134	70	580	69
HL02R12S05YC	12	5	400	40	280	60
HL02R12S12YC	12	12	166	40	250	67
HL02R12S15YC	12	15	134	40	250	67
HL02R15S05YC	15	5	400	30	230	58
HL02R15S12YC	15	12	166	30	200	67
HL02R15S15YC	15	15	134	30	200	67
HL02R24S05YC	24	5	400	15	135	62
HL02R24S12YC	24	12	166	15	120	67
HL02R24S15YC	24	15	134	15	120	67
HL02R05D12YC	5	± 12	± 83	70	640	62
HL02R05D15YC	5	± 15	± 67	70	640	62
HL02R12D12YC	12	± 12	± 83	40	270	62
HL02R12D15YC	12	± 15	± 67	40	270	62
HL02R15D12YC	15	± 12	± 83	30	220	61
HL02R15D15YC	15	± 15	± 67	30	220	61
HL02R24D12YC	24	± 12	± 83	15	135	62
HL02R24D15YC	24	± 15	± 67	15	135	62

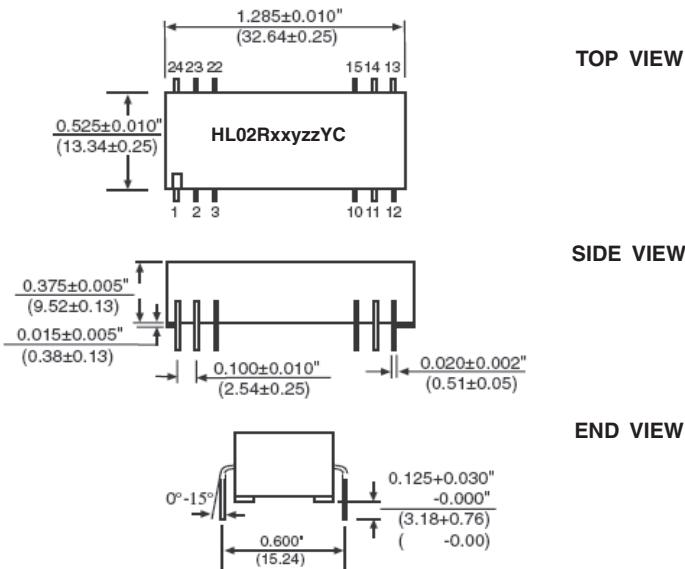
Note: Other input to output voltages may be available. Please contact factory.

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	mAp-p
ISOLATION					
Rated Voltage	60 Hz, 10 Seconds	500			VDC
Test Voltage		500			Vpk
Resistance			1		$\text{G}\Omega$
Capacitance			25		pF
Leakage Current	$V_{\text{ISO}} = 240\text{VAC}, 60\text{Hz}$		2		μArms
OUTPUT					
Rated Power			2		W
Voltage Setpoint Accuracy		± 0.5		± 5	%
Temperature Coefficient		± 0.02			%/ $^\circ\text{C}$
Ripple & Noise	BW = DC to 10MHz BW = 10Hz to 2MHz	25		100	mVp-p
5V Output -- Singles Only		10			mVrms
Line Regulation		250		350	mVp-p
Load Regulation	High Line to Low Line Rated Load to No Load	± 0.5	± 1	± 1	%
± 0.5		± 0.5			%
GENERAL					
Switching Frequency		110			kHz
Package Weight		12			g
MTTF per MIL-HDBK-217, Rev. F	Circuit Stress Method				
Ground Benign	$T_A = +25^\circ\text{C}$				
	$T_A = +70^\circ\text{C}$	1100			
		20			
TEMPERATURE					
Specification		-25		$+70$	$^\circ\text{C}$
Operation		-40		$+85$	$^\circ\text{C}$
Storage		-40		$+110$	$^\circ\text{C}$

MECHANICAL Package/Pinout "Y"



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 barrier 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.

Mouser Electronics

Authorized Distributor

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[Murata](#):

[HL02R05S12YC](#) [HL02R12S15YC](#) [HL02R12D12YC](#) [HL02R15D15YC](#) [HL02R24S05ZC](#) [HL02R05S05YC](#)
[HL02R12S12YC](#) [HL02R15D12YC](#) [HL02R15S15YC](#) [HL02R24D15YC](#) [HL02R05D15YC](#) [HL02R12S05YC](#)
[HL02R15S12YC](#) [HL02R24D12YC](#) [HL02R24S15ZC](#) [HL02R05D12YC](#) [HL02R05S15YC](#) [HL02R12D15YC](#)
[HL02R15S05YC](#) [HL02R24S12ZC](#)