

## 1 WATT REGULATED DC/DC CONVERTER

# HL01R

### FEATURES

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

### DESCRIPTION

The HL01R 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 HL01R Series with high frequency isolation amplifiers.

Reduced parts count and all surface mount construction add to the reliability of the HL01R 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.

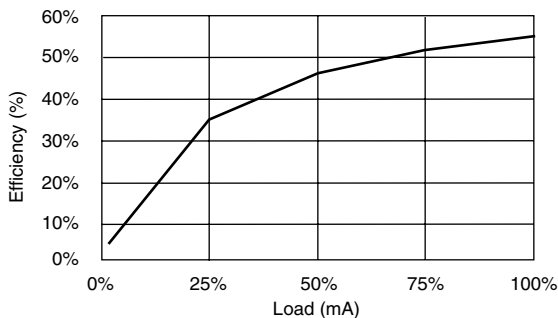
### ORDERING INFORMATION

Device Family	HL01R	xx	yy	zz	Y/Z	/H
HL Indicates DC/DC Converter						
Model Number						
Where:						
xx = Input Voltage						
y = Number of Outputs (Single "S", Dual "D")						
zz = Output Voltage						
Package Option						
Screening Option						
DIP Package only						

### TYPICAL PERFORMANCE CURVES

Specifications typical at T<sub>A</sub> = +25°C, nominal input voltage, rated output current unless otherwise specified.

EFFICIENCY vs LOAD



Internet: <http://www.cdpowerelectronics.com>

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# 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)(%)	
HL01R05S05	5	5	200	50	400	58
HL01R05S12	5	12	83	50	400	52
HL01R05S15	5	15	67	50	400	52
HL01R12S05	12	5	200	40	160	58
HL01R12S12	12	12	83	40	160	52
HL01R12S15	12	15	67	40	160	52
HL01R15S05	15	5	200	30	130	58
HL01R15S12	15	12	83	30	130	52
HL01R15S15	15	15	67	30	130	52
HL01R24S05	24	5	200	20	80	58
HL01R24S12	24	12	83	20	80	52
HL01R24S15	24	15	67	20	80	52
HL01R05D05	5	$\pm 5$	$\pm 100$	50	425	45
HL01R05D12	5	$\pm 12$	$\pm 41$	50	400	53
HL01R05D15	5	$\pm 15$	$\pm 33$	50	400	53
HL01R12D05	12	$\pm 5$	$\pm 100$	40	185	45
HL01R12D12	12	$\pm 12$	$\pm 41$	40	160	53
HL01R12D15	12	$\pm 15$	$\pm 33$	40	160	53
HL01R15D05	15	$\pm 5$	$\pm 100$	30	145	45
HL01R15D12	15	$\pm 12$	$\pm 41$	30	130	53
HL01R15D15	15	$\pm 15$	$\pm 33$	30	130	53
HL01R24D05	24	$\pm 5$	$\pm 100$	20	90	45
HL01R24D12	24	$\pm 12$	$\pm 41$	20	80	53
HL01R24D15	24	$\pm 15$	$\pm 33$	20	80	53

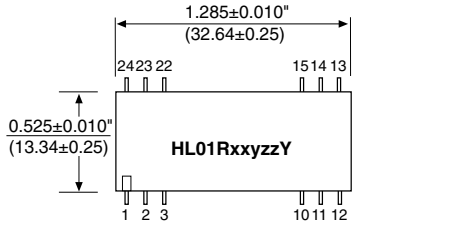
Note: Other input to output voltages may be available. Please contact factory.

# COMMON SPECIFICATIONS

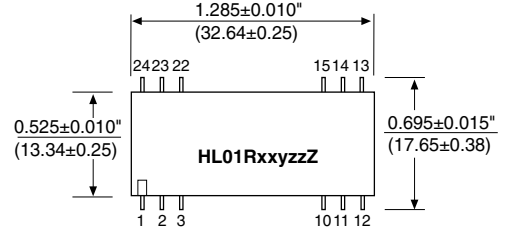
Specifications typical at  $T_A = +25^{\circ}\text{C}$ , nominal input voltage, rated output current unless otherwise specified.

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
<b>INPUT</b>					
Voltage Range		4.75	5	5.25	VDC
		11.4	12	12.6	VDC
		14.25	15	15.75	VDC
		22.8	24	25.2	VDC
Reflected Ripple Current			30	100	mAp-p
<b>ISOLATION</b>					
Rated Voltage		500			VDC
Test Voltage	60 Hz, 10 Seconds	500			Vpk
Resistance			1		G $\Omega$
Capacitance			25		pF
Leakage Current	$V_{ISO} = 240\text{VAC}, 60\text{Hz}$		2	10	$\mu\text{Arms}$
<b>OUTPUT</b>					
Rated Power			1		W
Voltage Setpoint Accuracy			$\pm 3$	$\pm 5$	%
Temperature Coefficient			$\pm 0.01$	$\pm 0.02$	$\%/^{\circ}\text{C}$
Ripple & Noise	BW = DC to 10MHz		30	100	mVp-p
	BW = 10Hz to 2MHz		1	10	mVrms
Line Regulation	High Line to Low Line		$\pm 0.1$	$\pm 0.3$	%
Load Regulation	Rated Load to No Load		$\pm 0.3$	$\pm 0.5$	%
<b>GENERAL</b>					
Switching Frequency			125		kHz
Package Weight			10		g
MTTF per MIL-HDBK-217, Rev. F	Circuit Stress Method		675		kHr
Ground Benign					
<b>TEMPERATURE</b>					
Specification		-25		+70	$^{\circ}\text{C}$
Operation		-40		+85	$^{\circ}\text{C}$
Storage		-40		+110	$^{\circ}\text{C}$

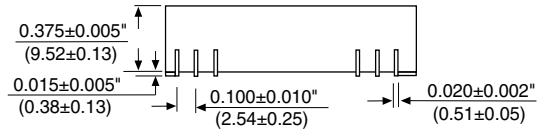
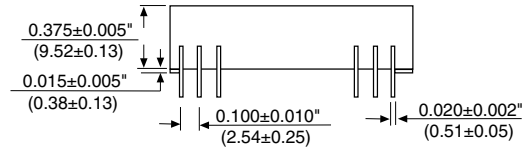
# MECHANICAL Package/Pinout "Y" and "Z"



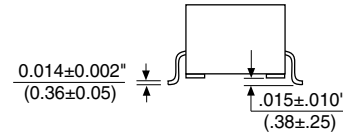
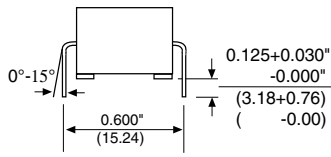
TOP VIEWS



SIDE VIEWS



END VIEWS



## DIP PACKAGE

## SMD PACKAGE

NU = Do Not Use.

NC = No Internal Connection.

Duplicate pin functions are internally connected.

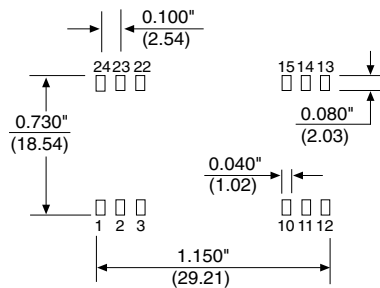
All dimensions are in inches (millimeters).

GRID: 0.100 inches (2.54 millimeters)

Typically Marked with: specific model ordered, date code, job code and Logo.

PIN 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

## RECOMMENDED LAND PATTERN



## RECOMMENDED REFLOW PROFILE

