

OBSOLETE PRODUCT
Contact Factory for Replacement Model

FEATURES

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

DESCRIPTION

The HL02RZC 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.

The HL02RZC 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*

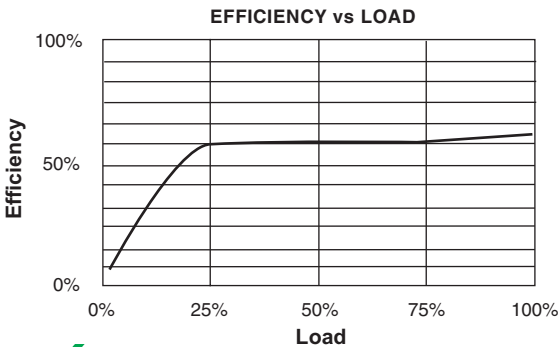
*Note: Refer to Reflow Profile for SMD Models.

ORDERING INFORMATION

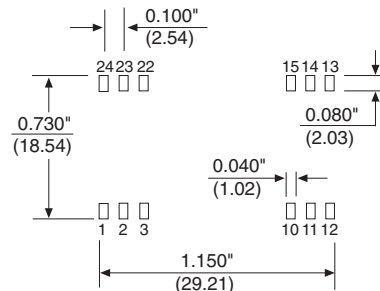
	HL02R	xyzz	Z	C
Device Family				
HL Indicates DC/DC Converter				
Model Number				
Where:				
xx = Input Voltage				
y = Number of Outputs (Single "S", Dual "D")				
zz = Output Voltage				
Package Option				
RoHS Compliant				

TYPICAL PERFORMANCE CURVES

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



RECOMMENDED LAND PATTERN



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)	
HL02R05S05ZC HL02R05S12ZC HL02R05S15ZC	5	5 12 15	400 166 134	70 70 70	640 580 580	62 69 69
HL02R12S05ZC HL02R12S12ZC HL02R12S15ZC	12	5 12 15	400 166 134	40 40 40	280 250 250	60 67 67
HL02R15S05ZC HL02R15S12ZC HL02R15S15ZC	15	5 12 15	400 166 134	30 30 30	230 200 200	58 67 67
HL02R24S05ZC HL02R24S12ZC HL02R24S15ZC	24	5 12 15	400 166 134	15 15 15	135 120 120	62 67 67
HL02R05D12ZC HL02R05D15ZC	5	± 12 ± 15	± 83 ± 67	70 70	640 640	62 62
HL02R12D12ZC HL02R12D15ZC	12	± 12 ± 15	± 83 ± 67	40 40	270 270	62 62
HL02R15D12ZC HL02R15D15ZC	15	± 12 ± 15	± 83 ± 67	30 30	220 220	61 61
HL02R24D12ZC HL02R24D15ZC	24	± 12 ± 15	± 83 ± 67	15 15	135 135	62 62

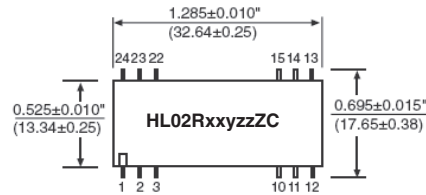
Note: Other input to output voltages may be available. Please contact factory.

COMMON SPECIFICATIONS

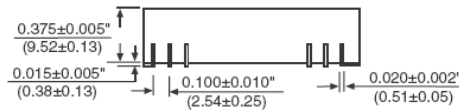
Specifications typical at $T_A = +25^\circ\text{C}$, nominal input voltage, rated output current unless otherwise specified.

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT					
Voltage Range		4.75 11.4 14.25	5 12 15	5.25 12.6 15.75	VDC VDC VDC
Reflected Ripple Current		22.8	24 30	25.2 100	VDC mAp-p
ISOLATION					
Rated Voltage		500			VDC
Test Voltage	60 Hz, 10 Seconds	500			Vpk
Resistance			1		GΩ
Capacitance			25		pF
Leakage Current	$V_{ISO} = 240\text{VAC}, 60\text{Hz}$		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 10	100	mVp-p mVrms
5V Output -- Singles Only			250	350	mVp-p
Line Regulation	High Line to Low Line		± 0.5	± 1	%
Load Regulation	Rated Load to No Load		± 0.5	± 1	%
GENERAL					
Switching Frequency			110		kHz
Package Weight			12		g
MTTF per MIL-HDBK-217, Rev. F	Circuit Stress Method		1100		kHr
Ground Benign	$T_A = +25^\circ\text{C}$ $T_A = +70^\circ\text{C}$		20		kHr
TEMPERATURE					
Specification		-25		+70	$^\circ\text{C}$
Operation		-40		+85	$^\circ\text{C}$
Storage		-40		+110	$^\circ\text{C}$

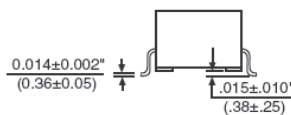
MECHANICAL Package/Pinout "Z"



TOP VIEWS



SIDE VIEWS



END VIEWS

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 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

SMT SOLDERING INFORMATION

The surface mount versions of the HL02RZC series are designed for SMT reflow soldering. During this standard process devices should be heated at a rate not to exceed 3 degrees C per second. The peak reflow temperature is 260 degrees C. The device should not be exposed to the peak temperature ±10 degrees C for more than 12 seconds. The cool down rate for this device should not exceed 3 degrees C per second.