Murata Power Solutions

HL02RZC

2 Watt Regulated DC/DC Converter

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.

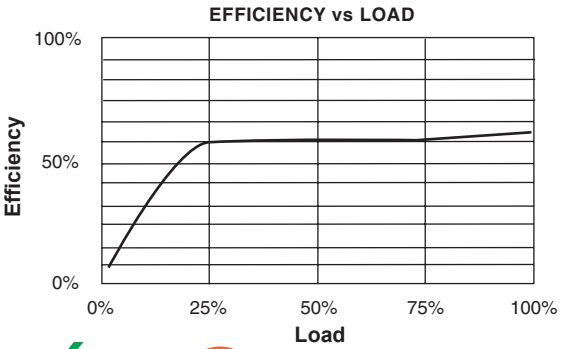
ORDERING INFORMATION

HL02R xxyzz Z C

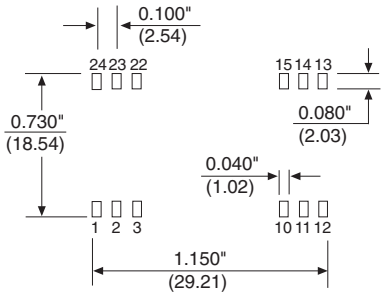
- Device Family: HL Indicates DC/DC Converter
- Model Number: Where:
  - xx = Input Voltage
  - y = Number or Outputs (Single "S", Dual "D")
  - zz = Output Voltage
- Package Option
- RoHS Compliant

TYPICAL PERFORMANCE CURVES

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



RECOMMENDED LAND PATTERN



RoHS COMPLIANT 2002/95/EC

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

ELECTRICAL SPECIFICATIONS

Specifications typical at T_A = +25°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 MIN LOAD (mA)	INPUT CURRENT RATED LOAD (mA)	EFFICIENCY (%)
HL02R05S05ZC	5	5	400	70	640	62
HL02R05S12ZC	5	12	166	70	580	69
HL02R05S15ZC	5	15	134	70	580	69
HL02R12S05ZC	12	5	400	40	280	60
HL02R12S12ZC	12	12	166	40	250	67
HL02R12S15ZC	12	15	134	40	250	67
HL02R15S05ZC	15	5	400	30	230	58
HL02R15S12ZC	15	12	166	30	200	67
HL02R15S15ZC	15	15	134	30	200	67
HL02R24S05ZC	24	5	400	15	135	62
HL02R24S12ZC	24	12	166	15	120	67
HL02R24S15ZC	24	15	134	15	120	67
HL02R05D12ZC	5	±12	±83	70	640	62
HL02R05D15ZC	5	±15	±67	70	640	62
HL02R12D12ZC	12	±12	±83	40	270	62
HL02R12D15ZC	12	±15	±67	40	270	62
HL02R15D12ZC	15	±12	±83	30	220	61
HL02R15D15ZC	15	±15	±67	30	220	61
HL02R24D12ZC	24	±12	±83	15	135	62
HL02R24D15ZC	24	±15	±67	15	135	62

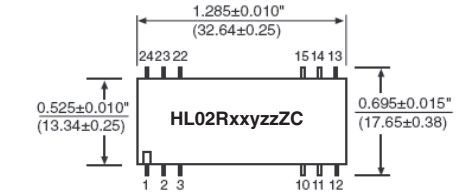
Note: Other input to output voltages may be available. Please contact factory.

COMMON SPECIFICATIONS

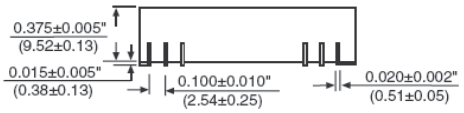
Specifications typical at T_A = +25°C, nominal input voltage, rated output current unless otherwise specified.

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
		22.8	24	25.2	VDC
Reflected Ripple Current			30	100	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}= 240VAC, 60Hz		2		µArms
OUTPUT					
Rated Power			2		W
Voltage Setpoint Accuracy			±0.5	±5	%
Temperature Coefficent			±0.02		%/°C
Ripple & Noise	BW = DC to 10MHz		25	100	mVp-p
	BW =10Hz to 2MHz		10		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				
Ground Benign	T_A = +25°C		1100		kHr
	T_A = +70°C		20		kHr
TEMPERATURE					
Specification		-25		+70	°C
Operation		-40		+85	°C
Storage		-40		+110	°C

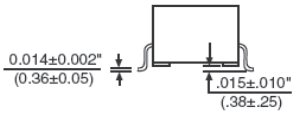
MECHANICAL Package/Pinout "Z"



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.

Murata Power Solutions

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