

1 WATT REGULATED DC/DC CONVERTER

FEATURES

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



DESCRIPTION

The HL01RZC 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 HL01RZC Series with high frequency isolation amplifiers.

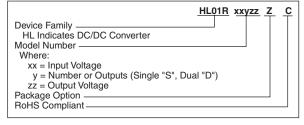
ABSOLUTE MAXIMUM RATINGS

Internal Power Dissipation1.2W	
Short Circuit DurationContinuous	
Short Circuit DurationContinuous Lead Temperature (soldering, 10 seconds max)+300°C*	

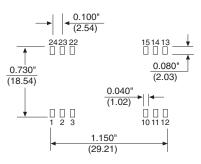
*Note: Refer to Reflow Profile for SMD Models.

Reduced parts count and all surface mount construction add to the reliability of the HL01RZC 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.

ORDERING INFORMATION



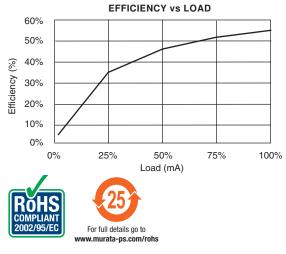
RECOMMENDED LAND PATTERN



TYPICAL PERFORMANCE CURVES

www.murata-ps.com

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



Technical enquiries email: sales@murata-ps.com, tel: +1 508 339 3000

muRata Ps Murata Power Solutions

1 WATT REGULATED DC/DC CONVERTER

ELECTRICAL SPECIFICATIONS

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

	NOMINAL	RATED	RATED	INPUT	INPUT CURRENT	
	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	MIN LOAD	RATED LOAD	EFFICIENCY
MODEL	(VDC)	(VDC)	(mA)	(mA)	(mA)	(%)
HL01R05S05ZC	5	5	200	50	400	58
HL01R05S12ZC	5	12	83	50	400	52
HL01R05S15ZC	5	15	67	50	400	52
HL01R12S05ZC	12	5	200	40	160	
HL01R12S12ZC	12	12	83	40	160	52
HL01R12S15ZC	12	15	67	40	160	52
HL01R15S05ZC	15	5	200	30	130	58
HL01R15S12ZC	15	12	83	30	130	52
HL01R15S15ZC	15	15	67	30	130	
HL01R24S05ZC	24	5	200	20	80	58
HL01R24S12ZC	24	12	83	20	80	52
HL01R24S15ZC	24	15	67	20	80	52
HL01R05D05ZC	5	±5	±100	50	425	45
HL01R05D12ZC	5	±12	±41	50	400	53
HL01R05D15ZC	5	±15	±33	50	400	53
HL01R12D05ZC	12	±5	±100	40	185	45
HL01R12D12ZC	12	±12	±41	40	160	53
HL01R12D15ZC	12	±15	±33	40	160	53
HL01R15D05ZC	15	±5	±100	30	145	45
HL01R15D12ZC	15	±12	±41	30	130	53
HL01R15D15ZC	15	±15	±33	30	130	53
HL01R24D05ZC	24	±5	±100	20	90	45
HL01R24D12ZC	24	±12	±41	20	80	
HL01R24D15ZC	24	±15	±33	20	80	53

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

COMMON SPECIFICATIONS

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

PARAMETER	CONDITIONS	MIN	ТҮР	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	10	µArms
OUTPUT					
Rated Power			1		W
Voltage Setpoint Accuracy			±3	±5	%
Temperature Coefficent			±0.01	±0.02	%/°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		-		5
Ground Benign			675		kHr
Moisture Sensitivity Level (MSL)	IPC/JEDEC J-STD-20		2		
TEMPERATURE					
Specification		-25		+70	°C
Operation		-40		+85	°C
Storage		-40		+110	°C

Technical enquiries email: sales@murata-ps.com, tel: +1 508 339 3000

muRata P. Murata Power Solutions

1 WATT REGULATED DC/DC CONVERTER MECHANICAL Package/Pinout "Z" 1.285±0.010" (32.64±0.25) 242322 151413 TOP VIEWS 0 0 0 0 0 0 0.695±0.015" 0.525±0.010" (17.65±0.38) (13.34±0.25) HL01RxxyzzZC 23 101112 SIDE VIEWS 0.375±0.005" (9.52±0.13) 0.015±0.005" 0.100±0.010" 0.020±0.002" (0.38±0.13) (0.51±0.05) (2.54±0.25) END VIEWS 0.014±0.002" (0.36±0.05) 1.015±.010 $(.38\pm.25)$ NU = Do Not Use. **PIN CONNECTIONS** NC = No Internal Connection. **SMD PACKAGE** PIN# SINGLES DUALS Duplicate pin functions are internally connected. +VIN +VIN All dimensions are in inches (millimeters). 2 3 NU -VOUT NU Common GRID: 0.100 inches (2.54 millimeters) -VOUT Common +VOUT Typically Marked with: specific model ordered. 10 11 +VOUT date code, job code and Logo. 12 -VIN -VIN Pin base metal is phosphor bronze. Pin finish 13 -VIN -VIN is matte tin (100-300 microinches) over a nickel 14 +VOUT +VOUT

SMT SOLDERING INFORMATION

barrier layer (5-40 microinches).

The surface mount versions of the HL01RZC 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.

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.

muRata Ps Murata Power Solutions

Murata Power Solutions, Inc. 11 Cabot Boulevard, Mansfield, MA 02048-1151 U.S.A. Tel: (508) 339-3000 (800) 233-2765 Fax: (508) 339-6356

www.murata-ps.com

www.murata-ps.com email: sales@murata-ps.com ISO 9001 REGISTERED 10/10/08 Murata Power Solutions, Inc. makes no representation that the use of its products in the circuits described herein, or the use of other

technical information contained herein, will not infringe upon existing or future patent rights. The descriptions contained herein do not imply the granting of licenses to make, use, or sell equipment constructed in accordance therewith. Specifications are subject to change without notice. © 2008 Murata Power Solutions, Inc. 10/10/08

USA:	Mansfield (MA), Tel: (508) 339-3000, email: sales@murata-ps.com			
Canada:	Toronto, Tel: (866) 740-1232, email: toronto@murata-ps.com			
UK:	Milton Keynes, Tel: +44 (0)1908 615232, email: mk@murata-ps.com			
France:	Montigny Le Bretonneux, Tel: +33 (0)1 34 60 01 01, email: france@murata-ps.com			
Germany:	München, Tel: +49 (0)89-544334-0, email: munich@murata-ps.com			
Japan:	Tokyo, Tel: 3-3779-1031, email: sales_tokyo@murata-ps.com Osaka, Tel: 6-6354-2025, email: sales_osaka@murata-ps.com			
China:	Shanghai, Tel: +86 215 027 3678, email: shanghai@murata-ps.com Guangzhou, Tel: +86 208 221 8066, email: guangzhou@murata-ps.com			
Singapore:	Parkway Centre, Tel: +65 6348 9096, email: singapore@murata-ps.com			

15

22

23 24 -VOUT

NU

NU +VIN Common

Common

-VOUT

+VIN

Technical enquiries email: sales@murata-ps.com, tel: +1 508 339 3000

HL01RZC