

Features

Regulated Converter

- 1kVDC or 2kVDC Isolation
- SMD Package Styles
- Single Regulated Output (Internal Linear Regulator)
- UL94V-0 Package Material
- Optional Continuous Short Circuit Protected
- Fully Encapsulated
- Efficiency to 62 %
- Built-In EN55022 Class A Filter

Description

The R0.5Z series DC/DC converter has been designed for isolating or converting DC power rails where board space is at a premium. Although no larger than a standard unregulated SMD converter, the R0.5Z series also incorporates an internal linear regulator to deliver a stable output voltage which makes it ideal for powering logic level or supply voltage sensitive circuitry.

Specifications (measured at $T_A = 25^\circ\text{C}$, nominal input voltage, full load and after warm-up)

Part Number SMD	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)	Max Capacitive Load ⁽¹⁾
R0.5Z-xx05*	5, 12, 15, 24	5	100	50	1000 μF
R0.5Z-xx12*	5, 12, 15, 24	12	42	60	220 μF
R0.5Z-xx15*	5, 12, 15, 24	15	33	62	220 μF

xx = Input Voltage

* add Suffix "P" for Continuous Short Circuit Protection, e.g. R0.5Z-0505/P

* add Suffix „H" for 2kVDC Isolation Voltage, e.g. R0.5Z-0505/H

* add suffix -R for tape & reel packing e.g. R0.5Z-0505-R, R0.5Z.0505/P-R

For more details and dimensions of the tapes and reels see Application Notes

Specifications (Core Operating Area)

Input Voltage Range	$\pm 5\%$		
Output Voltage Accuracy	$\pm 5\%$		
Line Voltage Regulation	1% max.		
Load Voltage Regulation (10% to 100% full load)	1% max.		
Output Ripple and Noise (20MHz limited)	100mVp-p max.		
Operating Frequency	20kHz min. / 50kHz typ. / 90kHz max.		
Efficiency at Full Load	50% min. / 60% typ.		
Minimum Load	10% ⁽²⁾		
No Load Power Consumption	127mW min. / 155mW typ. / 320mW max.		
Isolation Voltage	(tested for 1 second) 1000VDC (rated for 1 minute**) 500VAC / 60Hz		
Isolation Voltage	H-Suffix	(tested for 1 second)	2000VDC
	H-Suffix	(rated for 1 minute**) 1000VAC / 60Hz	
Isolation Capacitance	25pF min. / 75pF max.		
Isolation Resistance	10 G Ω min.		
Short Circuit Protection	1 Second		
P-Suffix	Continuous		
Operating Temperature Range (natural convection)	-40°C to $+85^\circ\text{C}$ (see Graph)		
Storage Temperature Range	-55°C to $+125^\circ\text{C}$		
Reflow Temperature	ROHS compliant	245 $^\circ\text{C}$ (30 sec) max.	
Vapor Phase Process		230 $^\circ\text{C}$ (90 sec) max.	
	(for more details see Application Notes)		
Relative Humidity	95% RH		
Package Weight	1.2g		
Packing Quantity	33 pcs per tube 500 pcs per Reel'		
MTBF ($+25^\circ\text{C}$)	Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	3947 x 10 ³ hours
($+85^\circ\text{C}$)		using MIL-HDBK 217F	841 x 10 ³ hours

continued on next page

ECONOLINE

DC/DC-Converter

with 3 year Warranty

RECOM

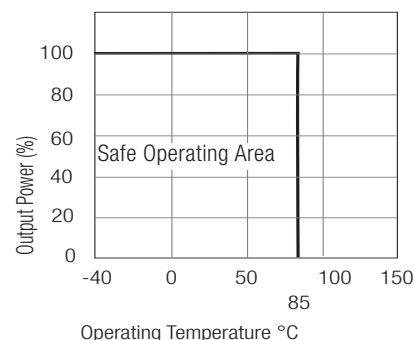
0.5 Watt SMD Isolated Single Output



EN-60950-1 Certified
EN-60601-1 Certified*
UL-60950-1 Certified
(* / H suffix)

R0.5Z

Derating-Graph (Ambient Temperature)



**Any data referred to in this datasheet are of indicative nature and based on our practical experience only. For further details, please refer to our Application Notes.

Refer to Application Notes

Specifications (Core Operating Area)

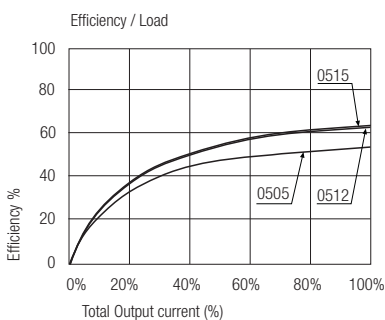
Conducted / Radiated Emissions	EN55022	Level A
Certifications		
EN General Safety	Report-No.: SPCLVD1211033-3	EN60950-1:2006 + A12:2011
EN Medical Safety	Report: MDD1205098-2 + RM1205098-2	IEC/EN 60601-1 3rd Edition
	Medical Report + ISO14971 Risk Assessment	
UL General Safety	Report-No.: E358085	UL60950-1, 2nd Edition

Notes

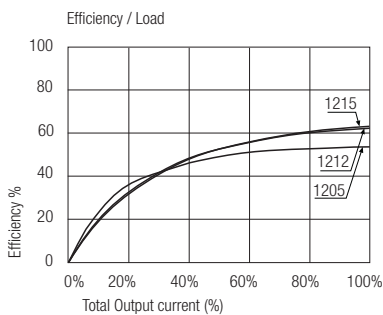
Note 1:	Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter
Note 2:	The R0.5Z series requires a minimum of 10% load on the output to maintain specified regulation. Operating under no-load conditions will not damage these devices; however, they may not meet all listed specifications.

Typical Characteristics

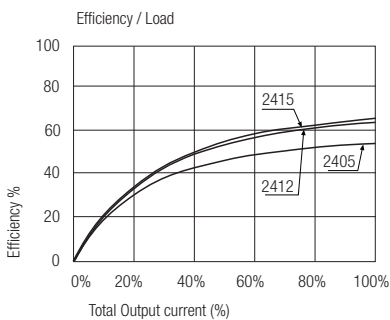
R0.5Z-xx05



R0.5Z-xx12

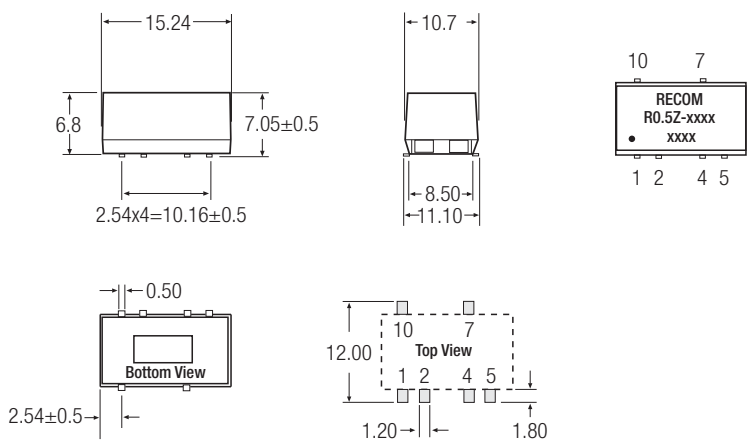


R0.5Z-xx15



Package Style and Pinning (mm)

10 PIN Single SMD Package



Recommended Footprint Details

Pin Connections

Pin #	Function
1	-Vin
2	+Vin
4	-Vout
5	-Vout
7	+Vout
10	NC

NC= No Connection

XX.X ± 0.5 mm
XX.XX ± 0.25 mm

The product information and specifications are subject to change without prior notice. RECOM products are not authorized for use in safety-critical applications (such as life support) without RECOM's explicit written consent. A safety-critical application is defined as an application where a failure of a RECOM product may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The buyer shall indemnify and hold harmless RECOM, its affiliated companies and its representatives against any damage claims in connection with the unauthorized use of RECOM products in such safety-critical applications.