



**THE DATASHEET OF  
R0.5Z-0505**



# 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 <sup>(1)</sup>
R0.5Z-xx05*	5, 12, 15, 24	5	100	50	1000 $\mu\text{F}$
R0.5Z-xx12*	5, 12, 15, 24	12	42	60	220 $\mu\text{F}$
R0.5Z-xx15*	5, 12, 15, 24	15	33	62	220 $\mu\text{F}$

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% <sup>(2)</sup>
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 $\Omega$ min.
Short Circuit Protection		1 Second
P-Suffix		Continuous
Operating Temperature Range (natural convection)		-40°C to +85°C (see Graph)
Storage Temperature Range		-55°C to +125°C
Reflow Temperature	ROHS compliant	245°C (30 sec) max.
Vapor Phase Process		230°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°C)	} Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F 3947 x 10 <sup>3</sup> hours
(+85°C)		using MIL-HDBK 217F 841 x 10 <sup>3</sup> hours

continued on next page

# ECONOLINE

## DC/DC-Converter

with 3 year Warranty

# RECOM

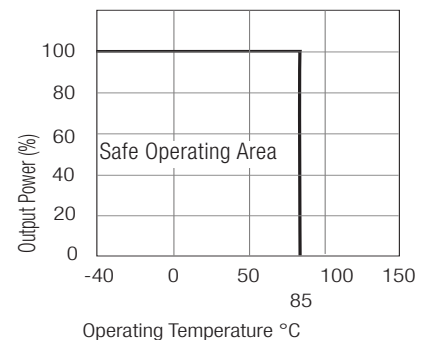
## 0.5 Watt SMD Isolated Single Output



**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)

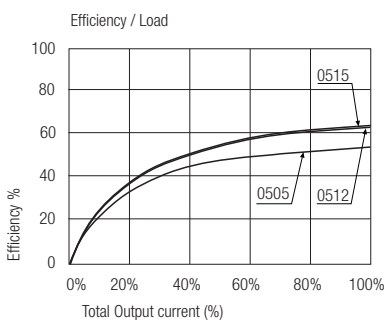
Conducted / Radiated Emissions	EN55022	Level A
Certifications		
EN General Safety	Report-No.: SPCLVD1211033-3	EN60950-1:2006 + A12:2011
EN Medical Safety	Report: MDD1205098-2 + RM1205098-2 Medical Report + ISO14971 Risk Assessment	IEC/EN 60601-1 3rd Edition
UL General Safety	Report-No.: E358085	UL60950-1,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

### Notes

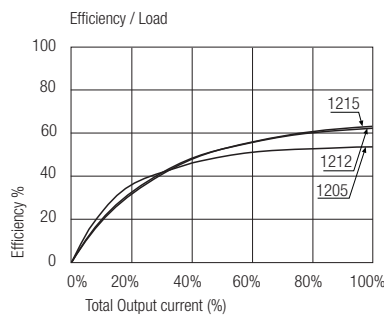
- Note 1: Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter
- Note 2: The R0.5Z series requires a minimum of 10% load on the output to maintain specified regulation. Operating under no-load conditions will not damage these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

## Typical Characteristics

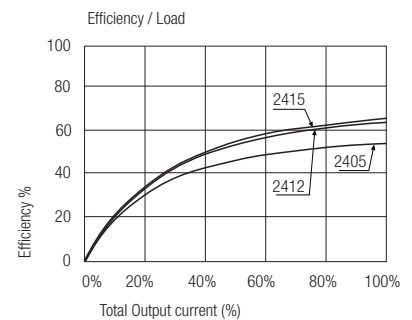
### R0.5Z-xx05



### R0.5Z-xx12

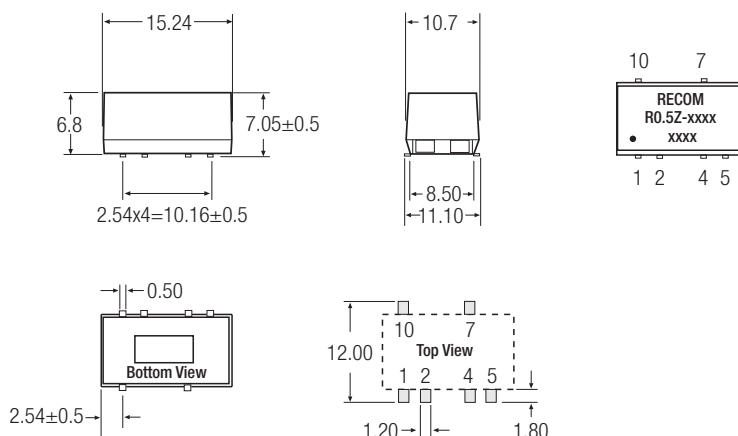


### R0.5Z-xx15



## 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

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View R0.5Z-0505 on WIN SOURCE](#)
-  [Recom Power Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

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-  Shortage Management
-  Alternative Solution
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