# Features

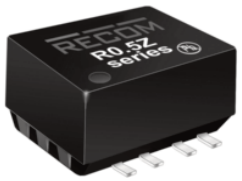
## Regulated Converter

- 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

**ECONOLINE**
DC/DC-Converter
with 3 year Warranty

RECOM

# 0.5 Watt SMD Isolated Single Output




RoHS 2011/65/EU 6/6

c UL us
E358085

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

# R0.5Z

## 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°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 | 1000µF |
| R0.5Z-xx12* | 5, 12, 15, 24 | 12 | 42 | 60 | 220µF |
| R0.5Z-xx15* | 5, 12, 15, 24 | 15 | 33 | 62 | 220µF |

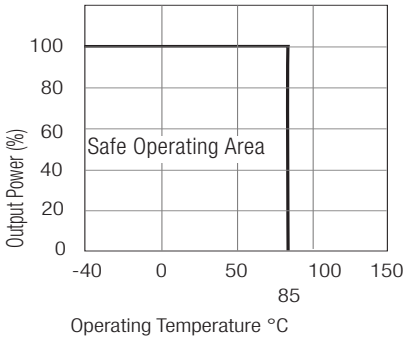
xx = Input Voltage
* add Suffix "P" for Continuous Short Circuit Protection, e.g. R0.5Z-0505/P
* add Suffix „H" for 2kVDC Isolation Voltage, e.g. R0.5Z-0505/H
* add suffix -R for tape & reel packing e.g. R0.5Z-0505-R, R0.5Z.0505/P-R
For more details and dimensions of the tapes and reels see Application Notes

## Specifications (Core Operating Area)

| | | | |
|---|---|---|---|
| Input Voltage Range | | | ±5% |
| Output Voltage Accuracy | | | ±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 GΩ 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* | | using MIL-HDBK 217F | 3947 x $10^3$ hours |
| (+85°C) *Application Notes chapter "MTBF"* | | using MIL-HDBK 217F | 841 x $10^3$ hours |

continued on next page

## 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)

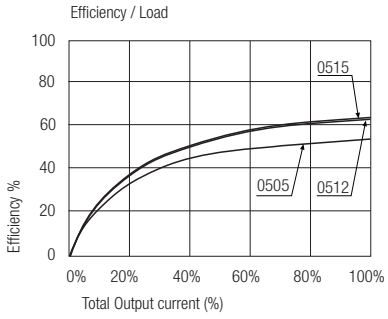
| | | |
|---|---|---|
| Conducted / Radiated Emissions | EN55022 | Level A |
| Certifications | | |
| EN General Safety | Report-No.: SPCLVD1211033-3 | EN60950-1:2006 + A12:2011 |
| EN Medical Safety | Report: MDD1205098-2 + RM1205098-2<br>Medical Report + ISO14971 Risk Assessment | IEC/EN 60601-1 3rd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

Notes

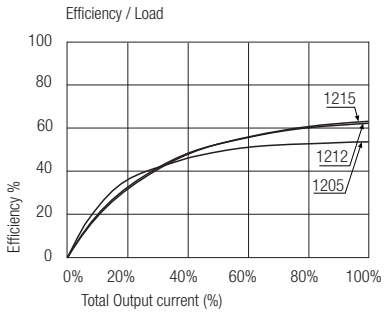
| | |
|---|---|
| Note 1: | Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter |
| Note 2: | The R0.5Z series requires a minimum of 10% load on the output to the maintain specified regulation. Operating under no-load conditions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

## Typical Characteristics

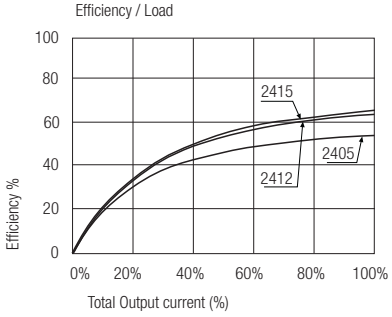
### R0.5Z-xx05




### R0.5Z-xx12

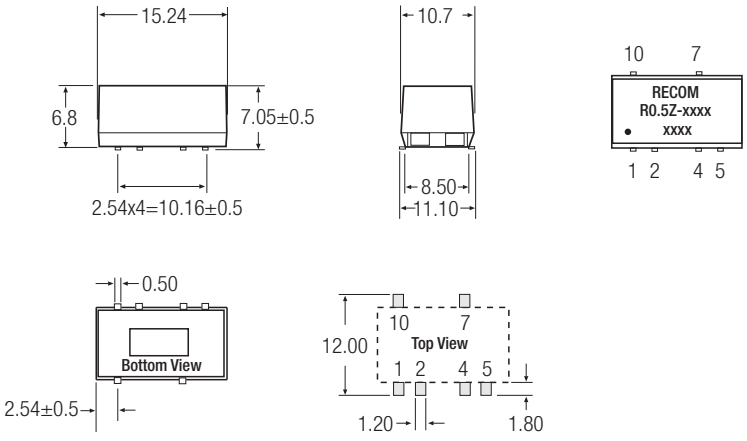



### R0.5Z-xx15




## 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

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- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
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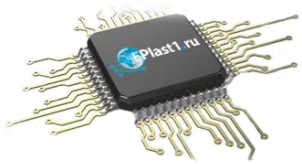
- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.




**Как с нами связаться**

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