

Features

Regulated Converter

- 1kVDC and 2kVDC Isolation Option
- SMD Package Styles
- Single Regulated Output (Internal Linear Regulator)
- UL94V-0 Package Material
- Optional Continuous Short Circuit Protected
- Fully Encapsulated
- Efficiency to 66%

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 typ. (%)	Max Capacitive Load ⁽¹⁾
R0.5Z-xx05*	3.3, 5, 12, 15, 24	5	100	53-55	1000 μF
R0.5Z-xx12*	3.3, 5, 12, 15, 24	12	42	60-64	220 μF
R0.5Z-xx15*	3.3, 5, 12, 15, 24	15	33	61-66	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, R0.5Z-0505/H-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		-1% typ., $\pm 5\%$ max.
Line Voltage Regulation		1% max.
Load Voltage Regulation (10% to 100% full load)		1% max.
Output Ripple and Noise (20MHz limited)		50mVp-p typ., 100mVp-p max.
Operating Frequency		20kHz min. / 50kHz typ. / 90kHz max.
Efficiency at Full Load		50% min. / 60% typ.
Minimum Load		0%
No Load Power Consumption		90mW min. / 155mW typ. / 320mW max.
Isolation Voltage (tested for 1 second)	(rated for 1 minute)	500VAC / 60Hz
Isolation Voltage (tested for 1 second)	suffix "/H"	1000VDC
		2000VDC
Isolation Capacitance		25pF min. / 75pF max.
Isolation Resistance		10 G Ω min.
Short Circuit Protection P-Suffix		1 Second Continuous
Operating Temperature Range (natural convection)		-40°C to +85°C (see Graph)
Storage Temperature Range		-50°C to +125°C
Reflow Temperature	ROHS compliant	245°C (30 sec) max.
Vapour 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
(+85°C)		using MIL-HDBK 217F
		3947 x 10 ³ hours
		841 x 10 ³ hours

ECONOLINE

DC/DC-Converter

with 3 year Warranty



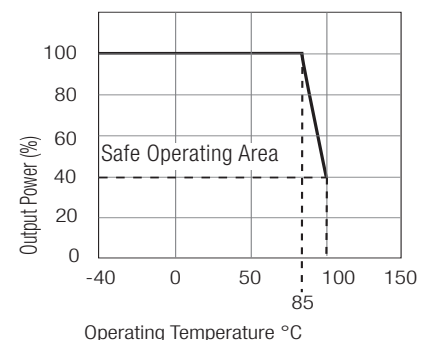
0.5 Watt SMD Isolated Single Output



EN-60950-1 Certified

R0.5Z

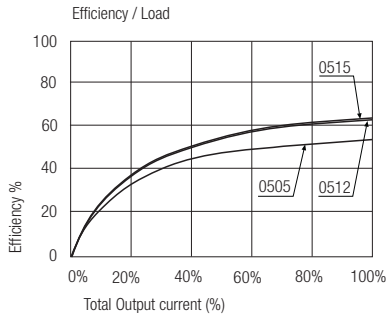
Derating-Graph (Ambient Temperature)



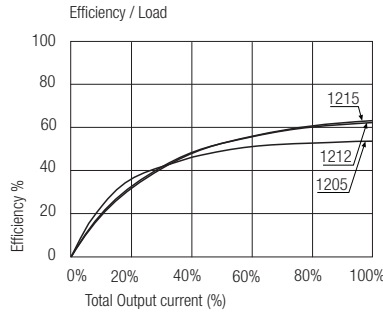
Refer to Application Notes

Typical Characteristics

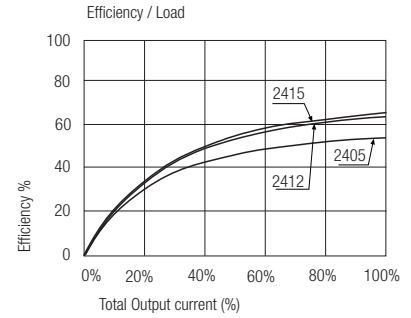
R0.5Z-05xx



R0.5Z-12xx



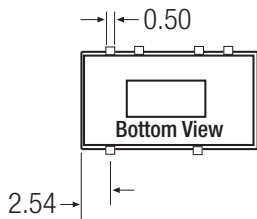
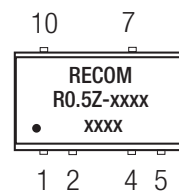
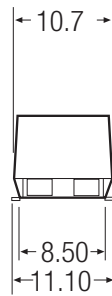
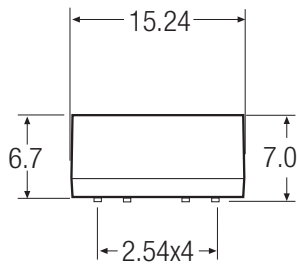
R0.5Z-24xx



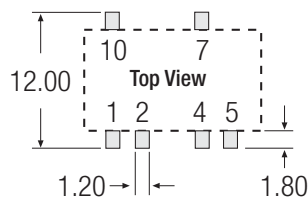
Notes
Note 1 Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage to the converter

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