

Features

Regulated Converters

- 1kVDC & 2kVDC Isolation
- UL94V-0 Package Material
- RoHS 6/6
- Toroidal Magnetics
- Optional Continuous Short Circuit Protected
- Built-In EN55022 Class A Filter

Selection Guide

Part Number SMD	2kVDC	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Max Capacitive Load ⁽¹⁾
R1Z-xx3.3*	(/H)	3.3, 5, 12, 15, 24	3.3	303	2200µF
R1Z-xx05*	(/H)	3.3, 5, 12, 15, 24	5	200	1200µF
R1Z-xx09*	(/H)	3.3, 5, 12, 15, 24	9	111	680µF
R1Z-xx12*	(/H)	3.3, 5, 12, 15, 24	12	84	680µF
R1Z-xx15*	(/H)	3.3, 5, 12, 15, 24	15	66	470µF

xx= Input Voltage (other input and output voltage combinations available on request)

*add suffix -R for tape & reel packing e.g. R1Z-0505-R

*add suffix /P for continuous short circuit protection, e.g. R1Z-0505/P-R

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

Input Voltage Range			±5%	
Output Voltage Accuracy			±2%	
Line Voltage Regulation			1% max.	
Load Voltage Regulation			1% max.	
Output Ripple and Noise (at 20MHz BW)			100mVp-p max.	
Operating Frequency			20kHz min. / 40kHz typ. / 80kHz max.	
Efficiency at Full Load			50% min. / 60% typ.	
Minimum Load			0%	
No Load Power Consumption			134mW min. / 217mW typ. / 350mW max.	
Isolation Voltage		(tested for 1 second) (rated for 1 minute)	1000VDC 500VAC / 60Hz	
Isolation Voltage	H-Suffix H-Suffix	(tested for 1 second) (rated for 1 minute)	2000VDC 1000VAC / 60Hz	
Isolation Capacitance			70pF typ.	
Isolation Resistance			10 GΩ min.	
Short Circuit Protection			1 Second	
P-Suffix			Continuous	
Operating Temperature Range (natural convection)			-40°C to +70°C (see Graph)	
Storage Temperature Range			-55°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			1.6g	
Packing Quantity			33 pcs per tube 500 pcs per Reel	
MTBF	R1Z	(+25°C)	using MIL-HDBK 217F	2203 x 10³ hours
		(+70°C)	using MIL-HDBK 217F	391 x 10³ hours
	R1Z/P	(+25°C)	using MIL-HDBK 217F	2387 x 10³ hours
		(+70°C)	using MIL-HDBK 217F	641 x 10³ hours
For detailed information see Application Notes chapter "MTBF"				
Conducted / Radiated Emissions		EN55022		Level A
EN Medical Safety		Report: MDD1205098-4 + RM1205098-4		IEC/EN 60601-1 3rd Edition
Medical Report + ISO14971 Risk Assessment				

ECONOLINE

DC/DC-Converter

with 3 year Warranty

RECOM

1 Watt SMD Miniature Isolated Single Output



E224736



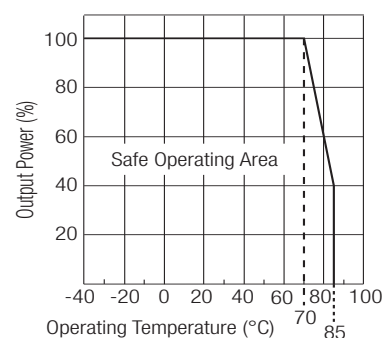
EN-60950-1 Certified
EN-60601-1 Certified*
UL-60950-1 Certified
(* /H suffix)

R1Z

Description

The R1Z series DC/DC converter has been designed for isolating or converting DC power rails where an SMD format with regulated output is required, although it is no larger than a standard unregulated SMD converter.

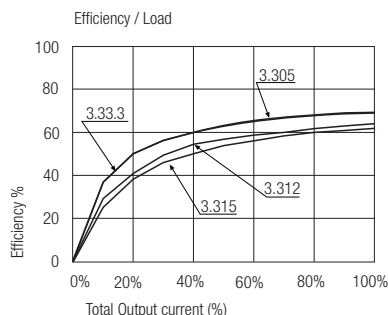
Derating-Graph (Ambient Temperature)



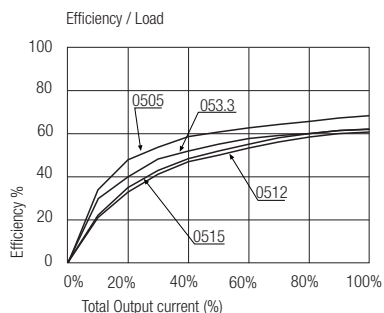
Refer to Application Notes

Typical Characteristics

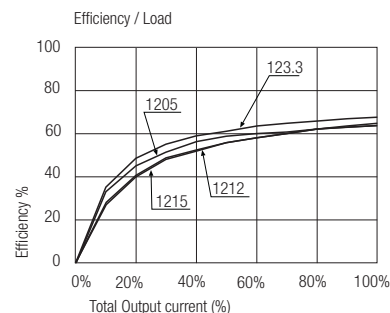
R1Z-3.3xx/P



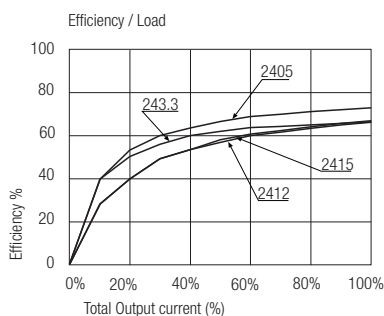
R1Z-05xx/P



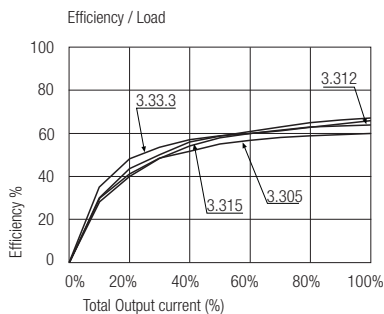
R1Z-12xx/P



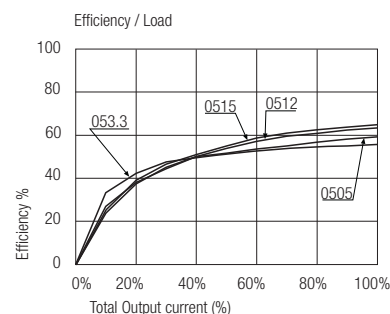
R1Z-24xx/P



R1Z-3.3xx



R1Z-05xx

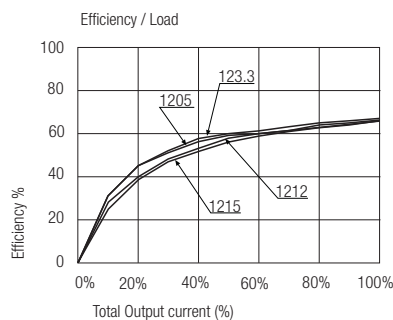


Notes

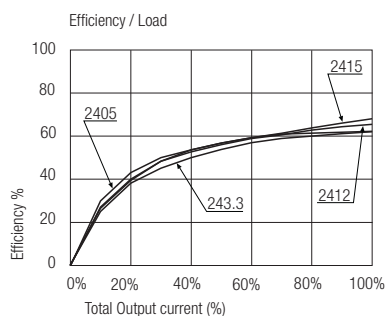
Note 1

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

R1Z-12xx



R1Z-24xx

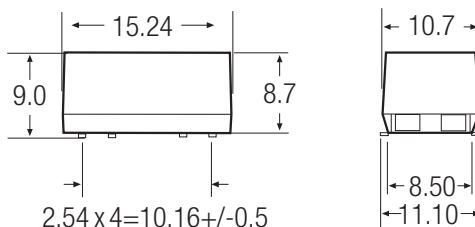


Package Style and Pinning (mm)

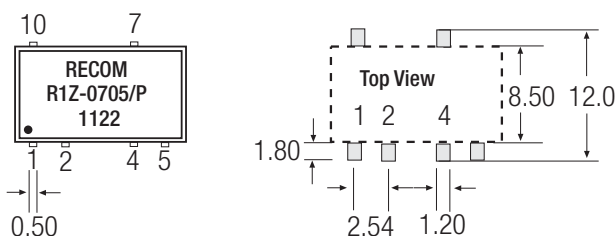
3rd angle projection

Ordering Example: R1Z-0505 (5V Input, 5V Output, not short circuit protected)
R1Z-0505/HP (5V Input, 5V Output, 2kVDC Isolation and short circuit protection)

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