

## Features

### Unregulated Converters

- Twin Independent Outputs
- Output/Output Isolation 1kVDC
- Power Sharing on Outputs
- Input/Output Isolation 1kVDC
- No Heatsink Required
- UL94V-0 Package Material
- Optional Continuous Short Circuit Protected
- No External Components Required
- Custom Solutions Available
- Efficiency to 84%

## ECONOLINE

DC/DC-Converter

# RU Series

1 Watt

SIP7

Isolated

Dual Output



### Selection Guide

Part Number	Input Voltage (VDC)	Output Voltage (V1VDC)	Output Voltage (V2VDC)	Output Current (mA)	Efficiency (%)
SIP 7	(VDC)	(V1VDC)	(V2VDC)	(mA)	(%)
RU-xx1.81.8	1.8, 3.3, 5, 9, 12, 24	1.8	1.8	278/278	70
RU-xx3.33.3	1.8, 3.3, 5, 9, 12, 24	3.3	3.3	152/152	70
RU-xx053.3	1.8, 3.3, 5, 9, 12, 24	5	3.3	100/152	70
RU-xx0505	1.8, 3.3, 5, 9, 12, 24	5	5	100/100	70-78
RU-xx0509	1.8, 3.3, 5, 9, 12, 24	5	9	100/55	75
RU-xx0512	1.8, 3.3, 5, 9, 12, 24	5	12	100/42	75
RU-xx0515	1.8, 3.3, 5, 9, 12, 24	5	15	100/33	78
RU-xx0909	1.8, 3.3, 5, 9, 12, 24	9	9	55/55	75-80
RU-xx1212	1.8, 3.3, 5, 9, 12, 24	12	12	42/42	78-80
RU-xx1515	1.8, 3.3, 5, 9, 12, 24	15	15	33/33	80-82
RU-xx2424	1.8, 3.3, 5, 9, 12, 24	24	24	21/21	80-84

xx = Input Voltage

\* add Suffix "P" for Continuous Short Circuit Protection, e.g. RU-050505/P

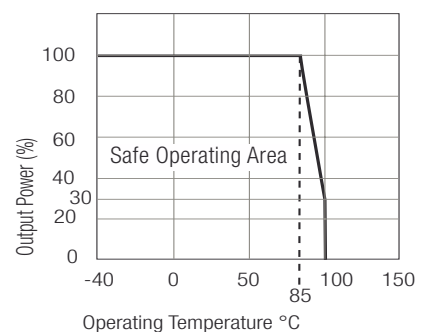
### Specifications (Core Operating Area)

Input Voltage Range	±10%		
Output Voltage Accuracy	±5%		
Line Voltage Regulation	1.2%/1% of Vin typ.		
Load Voltage Regulation (10% to 100% full load)	1.8V, 3.3V output types	20% max.	
	5V output type	15% max.	
	9V, 12V, 15V, 24V output types	10% max.	
Output Ripple and Noise (20MHz limited)	75mVp-p max.		
Operating Frequency	50kHz min. / 100kHz typ. / 105kHz max.		
Efficiency at Full Load	70% min. / 80% typ.		
No Load Power Consumption	87mW min. / 130mW typ. / 220mW max.		
Isolation Voltage	<sup>1)</sup> (tested for 1 second)	1000VDC min.	
Rated Working Voltage	<sup>1)</sup> (long term isolation)	see Application Notes	
Isolation Capacitance	20pF min. / 94pF max.		
Isolation Resistance	10 GΩ min.		
Short Circuit Protection P-Suffix	1 Second Continuous		
Operating Temperature Range (free air convection)	-40°C to +85°C (see Graph)		
Storage Temperature Range	-55°C to +125°C		
Relative Humidity	95% RH		
Package Weight	2.7g		
MTBF (+25°C)	} Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	1012 x 10 <sup>3</sup> hours
(+85°C)		using MIL-HDBK 217F	151 x 10 <sup>3</sup> hours

<sup>1)</sup> Input/Output and Output V1/Output V2

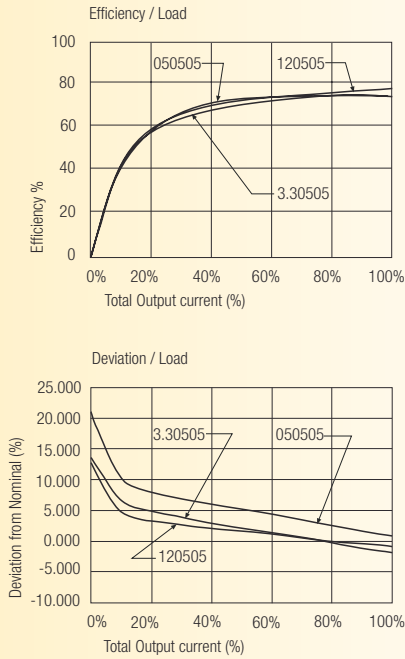
## Derating-Graph

(Ambient Temperature)

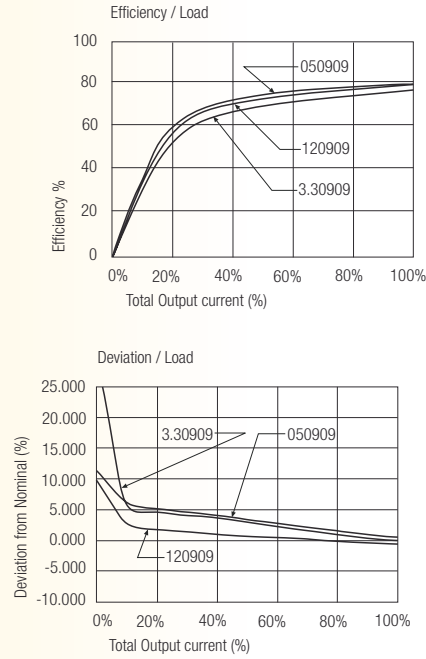


**Typical Characteristics**

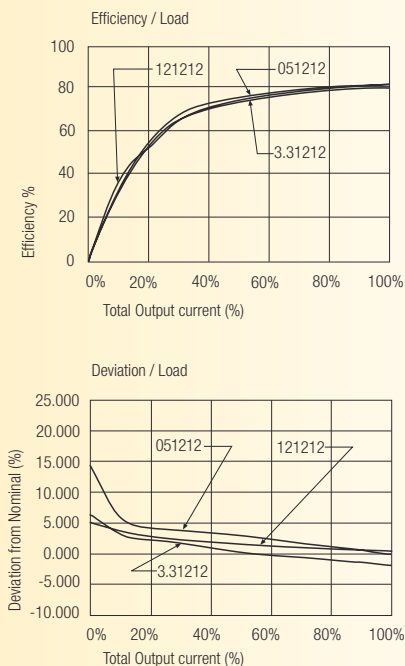
**RU-xx0505**



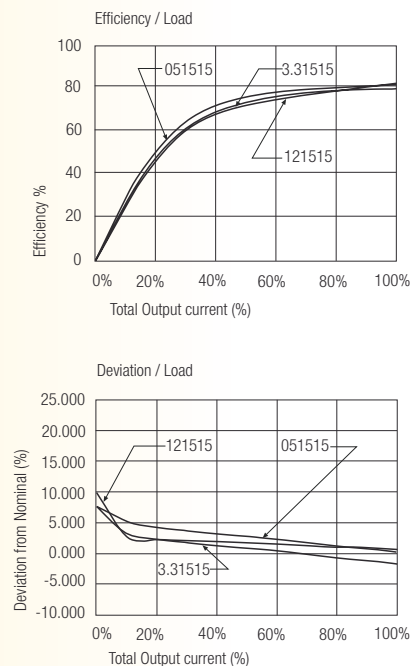
**RU-xx0909**



**RU-xx1212**

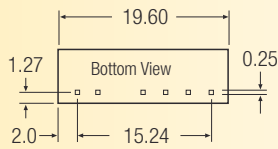
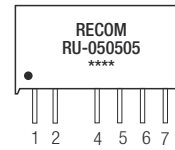
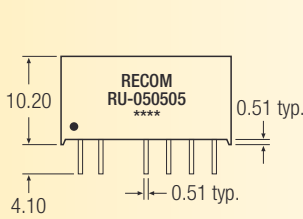


**RU-xx1515**

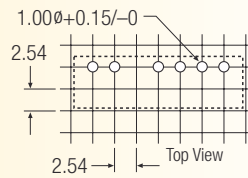


Package Style and Pinning (mm)

7 PIN SIP Package



Recommended Footprint Details



Pin Connections

Pin #	Single
1	+Vin
2	-Vin
4	+Vout 1
5	-Vout 1
6	+Vout 2
7	-Vout 2

XX.X  $\pm$  0.5 mm  
XX.XX  $\pm$  0.25 mm