

## Features

### Unregulated Converters

- Safety standards and approvals:  
EN 60950 certified, rated for 250VAC (LVD test report)
- UL-60950-1 / CSA C22.2 certified
- 6kVDC Isolation
- UL94V-0 Package Material
- Internal SMD Construction
- Fully Encapsulated
- Efficiency to 82%

**ECONOLINE**

DC/DC-Converter

## RV Series

### Selection Guide

Part Number	Input Voltage (VDC)	Rated Output Voltage (VDC)	Output Current Full Load (mA)
DIP24 Miniature			
RV-xx3.3S	3.3, 5, 9, 12, 15, 24	3.3	600
RV-xx05S	3.3, 5, 9, 12, 15, 24	5	400
RV-xx09S	3.3, 5, 9, 12, 15, 24	9	222
RV-xx12S	3.3, 5, 9, 12, 15, 24	12	167
RV-xx15S	3.3, 5, 9, 12, 15, 24	15	133
RV-xx24S	3.3, 5, 9, 12, 15, 24	24	83
RV-xx3.3D	3.3, 5, 12, 15, 24	±3.3	±300
RV-xx05D	3.3, 5, 12, 15, 24	±5	±200
RV-xx09D	3.3, 5, 12, 15, 24	±9	±111
RV-xx12D	3.3, 5, 12, 15, 24	±12	±83
RV-xx15D	3.3, 5, 12, 15, 24	±15	±67
RV-xx24D	3.3, 5, 12, 15, 24	±24	±42

xx = Input Voltage Range

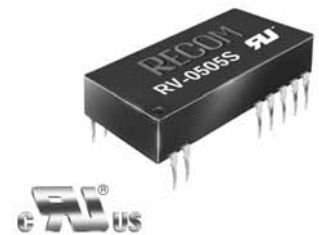
### Description

The RV Series of DC/DC Converters are fully certified to EN 60950: 2000. This makes them ideal for all Telecom and safety applications where approved isolation is required and UL-60950-1 / CSA C22.2.

### Specifications (Core Operating Area)

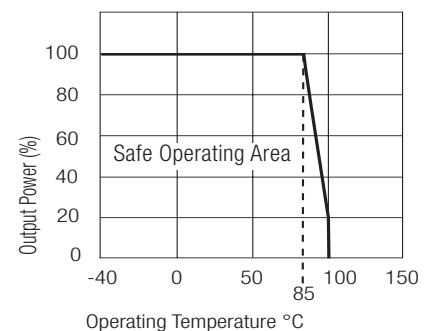
Input Voltage Range	±10%	
Output Voltage Accuracy	±5%	
Line Voltage Regulation	1.2%/1% of Vin max.	
Load Voltage Regulation (10% to 100% full load)	3.3V output types	20% max.
	5V output type	15% max.
	9V, 12V, 15V, 24V output types	10% max.
Output Ripple and Noise (20MHz limited)	200mVp-p max.	
Operating Frequency	20kHz min. / 50kHz typ. / 85kHz max.	
Efficiency at Full Load	70% min. / 75% typ.	
No Load Power Consumption	282mW min. / 338mW typ. / 400mW max.	
Isolation Voltage (tested for 1 second)	6.000VDC min.	
Rated Working Voltage (long term isolation)	see Application Notes	
Isolation Capacitance	2pF min. / 12pF max.	
Isolation Resistance	15 GΩ min.	
Short Circuit Protection	1 Second	
Operating Temperature Range (free air convection)	-40°C to +85°C (see Graph)	
Storage Temperature Range	-55°C to +125°C	
Relative Humidity	MSL Level 1	95% RH
Package Weight	9g	
MTBF (+25°C)	Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F 1154 x 10 <sup>3</sup> hours
(+85°C)		using MIL-HDBK 217F 168 x 10 <sup>3</sup> hours

## 2 Watt DIP24 Miniature Single & Dual Output



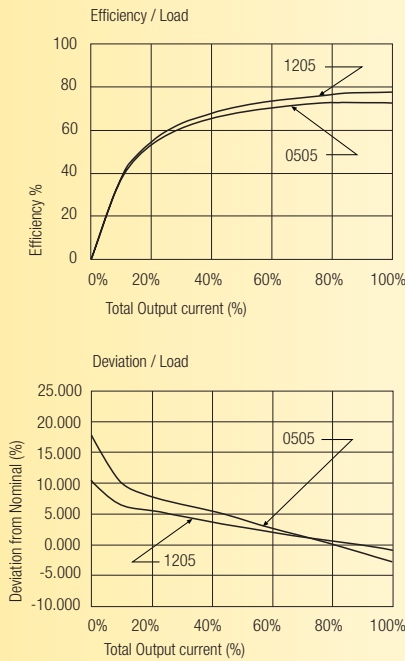
**RECOM**

## Derating-Graph (Ambient Temperature)

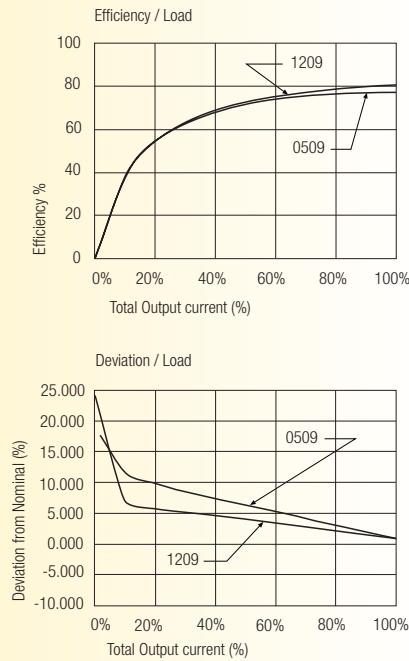


**Typical Characteristics**

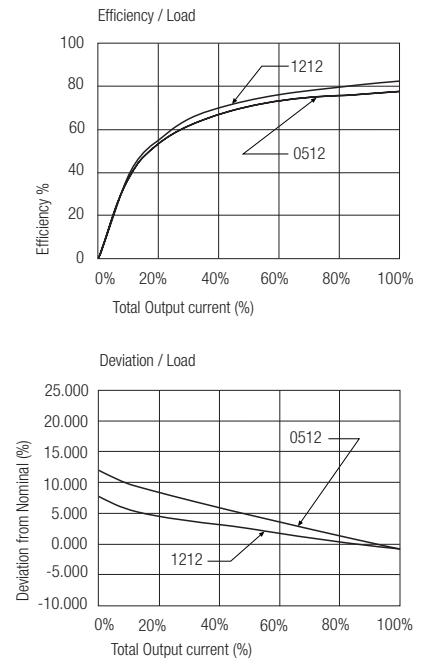
## RV-xx05S



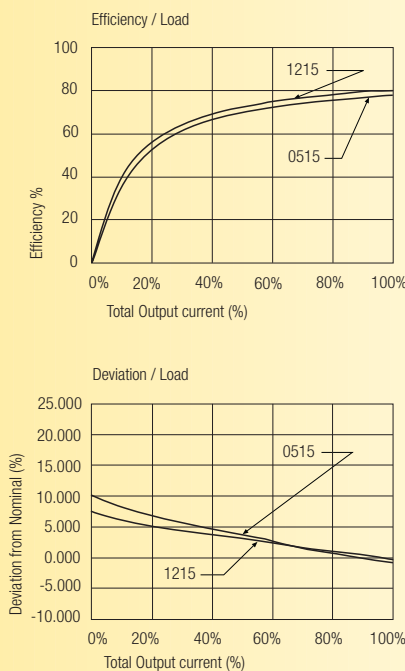
## RV-xx09S



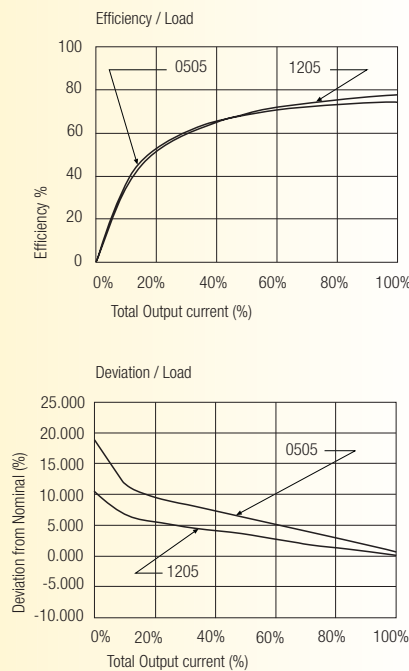
## RV-xx12S



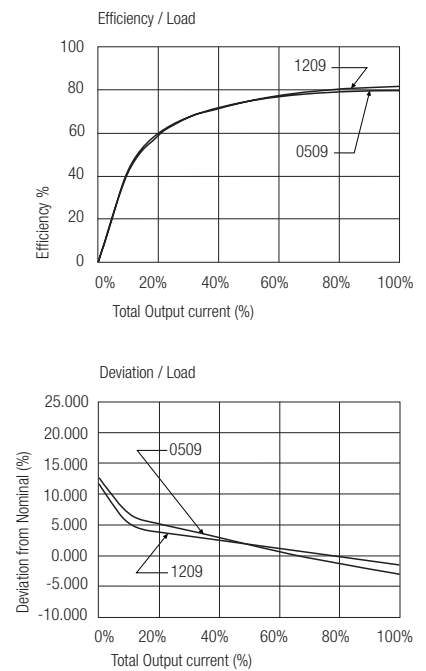
## RV-xx15S



## RV-xx05D

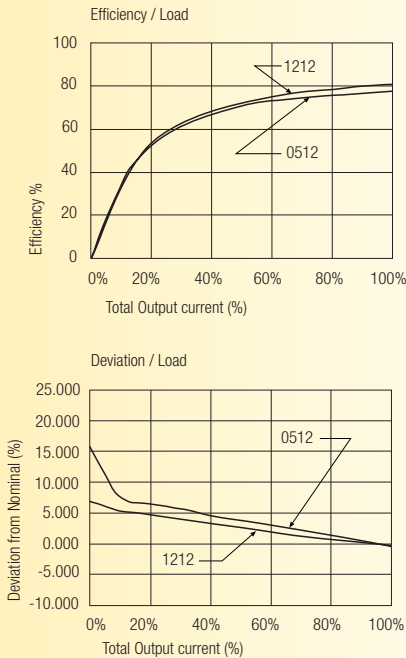


## RV-xx09D

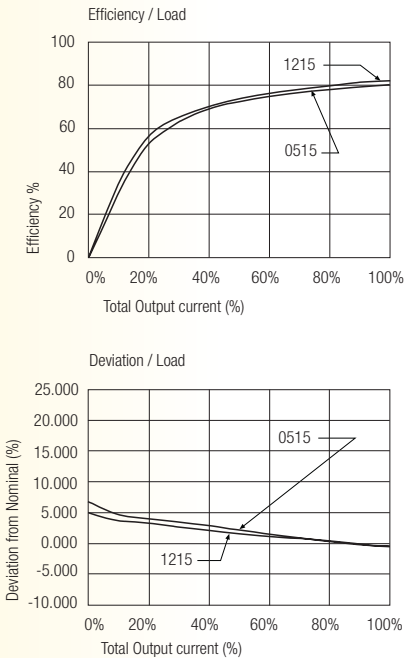


Typical Characteristics

RV-xx12D

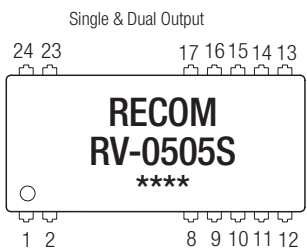
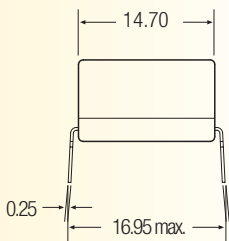
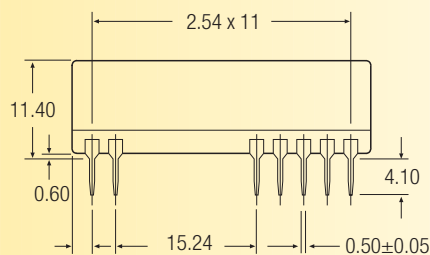


RV-xx15D

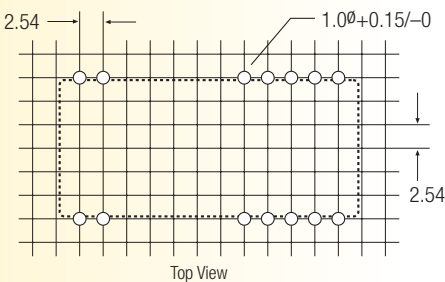
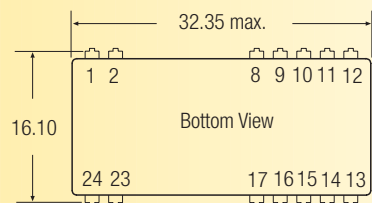


Package Style and Pinning (mm)

24 PIN DIP Miniature Package Style



Recommended Footprint Details



Pin Connections	
Pin #	Single
1	+Vin
2	-Vin
8, 9, 11, 14,	NC
10 & 15	-Vout
12 & 13	+Vout
16, 17, 23 & 24	NC
NC = No Connection	

Pin Connections	
Pin #	Dual
1	+Vin
2	-Vin
8 & 17	-Vout
9, 11, 14, 16, 23 & 24	NC
10 & 15	Com
12 & 13	+Vout
NC = No Connection	

XX.X ± 0.5 mm  
XX.XX ± 0.25 mm