

## Features

### Regulated Converters

- 8W DIP24 Package
- 2KVDC and 3kVDC Isolation Options
- 2:1 and 4:1 Versions
- Continuous Short Circuit Protection (power limiting)
- Synchronous Rectification on 3.3, 5V outputs
- Full SMD internal design
- Through Hole or SMD Pinning Options
- Remote Control Pin
- Efficiency to 87%

### Description

The REC8-xxxxSRW/DRW-series offer single and dual regulated outputs in a DIP24 package with 2kV or 3kV isolation options and are suitable for higher power industrial or medical applications. Remote on/off control is standard and SMD pinning is offered with the /SMD option. The converters can deliver 150% rated power for short periods of time to cope with applications with large capacitive loads or high start up currents.

### Selection Guide

| Part Number           | Input Voltage (VDC)       | Output Voltage (VDC) | Output Current (mA) | Efficiency (%) | Max. Capacitive Load |
|-----------------------|---------------------------|----------------------|---------------------|----------------|----------------------|
| REC8-xx3.3SRW/H*/A/M  | 4.5-9, 9-18, 18-36, 36-75 | 3.3                  | 1600                | 83-85          | 2200µF               |
| REC8-xx05SRW/H*/A/M   | 4.5-9, 9-18, 18-36, 36-75 | 5                    | 1600                | 85-87          | 2200µF               |
| REC8-xx12SRW/H*/A/M   | 4.5-9, 9-18, 18-36, 36-75 | 12                   | 666                 | 84-86          | 470µF                |
| REC8-xx15SRW/H*/A/M   | 4.5-9, 9-18, 18-36, 36-75 | 15                   | 533                 | 84-86          | 220µF                |
| REC8-xx05DRW/H*/A/M   | 9-18, 18-36, 36-75        | ±5                   | ±800                | 84             | ±1000µF              |
| REC8-xx12DRW/H*/A/M   | 4.5-9, 9-18, 18-36, 36-75 | ±12                  | ±333                | 84-86          | ±220µF               |
| REC8-xx15DRW/H*/A/M   | 4.5-9, 9-18, 18-36, 36-75 | ±15                  | ±267                | 84-86          | ±100µF               |
| REC8-xx3.3SRWZ/H*/A/M | 9-36, 18-75               | 3.3                  | 1600                | 84             | 2200µF               |
| REC8-xx05SRWZ/H*/A/M  | 9-36, 18-75               | 5                    | 1600                | 86             | 2200µF               |
| REC8-xx12SRWZ/H*/A/M  | 9-36, 18-75               | 12                   | 666                 | 85             | 470µF                |
| REC8-xx15SRWZ/H*/A/M  | 9-36, 18-75               | 15                   | 533                 | 85             | 220µF                |
| REC8-xx05DRWZ/H*/A/M  | 9-36, 18-75               | ±5                   | ±800                | 83             | ±1000µF              |
| REC8-xx12DRWZ/H*/A/M  | 9-36, 18-75               | ±12                  | ±333                | 85             | ±220µF               |
| REC8-xx15DRWZ/H*/A/M  | 9-36, 18-75               | ±15                  | ±267                | 85             | ±100µF               |

\* Standard is /H2 for 2kVDC isolation, use /H3 for 3kVDC Isolation (not SMD)

\* add suffix "/SMD" for SMD package, e.g. REC8-2405SRW/H2/A/M/SMD

#### 2:1

xx = 4.5-9Vin = 05,  
xx = 9-18Vin = 12,  
xx = 18-36Vin = 24,  
xx = 36-75Vin = 48

#### 4:1

xx = 9-36Vin = 24,  
xx = 18-75Vin = 48

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

|                                                                   |                                      |
|-------------------------------------------------------------------|--------------------------------------|
| Input Voltage Range                                               | 2:1 & 4:1                            |
| Input Filter                                                      | PI Network                           |
| Output Voltage Accuracy                                           | ±1.5% max.                           |
| Line Voltage Regulation ( $V_L$ to $V_H$ at full load)            | ±0.5% max.                           |
| Load Voltage Regulation (25% to 100% full load)                   | Single ±0.5% max.<br>Dual ±1.2% max. |
| Cross Regulation (100%: 25% to 100% full load)                    | ±5% max.                             |
| Output Ripple and Noise (with 100n output capacitor and 20MHz BW) | 50mVp-p max.                         |
| Start-up time                                                     | 300ms typ.                           |
| Operating Frequency (Full Load)                                   | 330kHz typ.                          |
| Efficiency at Full Load                                           | see Selection Guide                  |
| Minimum Load                                                      | 0%                                   |

continued on next page

## ECONOLINE

### DC/DC-Converter

with 3 year Warranty

RECOM

## 8 Watt DIP24 & SMD Single & Dual Output



**EN-60950-1 Certified**  
**UL-60950-1 Certified**  
**EN-60601-1 Certified**

# REC8

Refer to Application Notes

www.recom-power.com

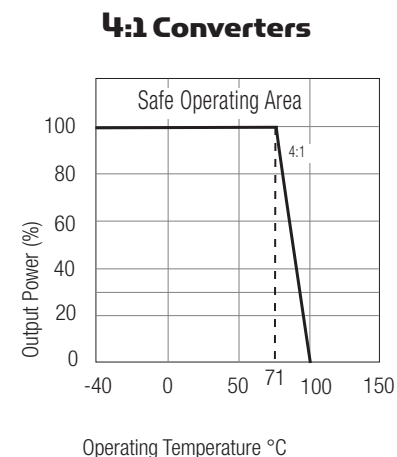
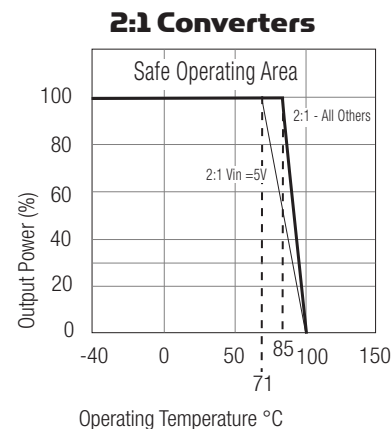
**Specifications cont.** (measured at  $T_A = 25^\circ\text{C}$ , nominal input voltage, full load and after warm-up)

|                                                      |                                                              |                                              |                              |
|------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------|------------------------------|
| Input Surge Voltage (100ms max.)                     |                                                              | 5V Input                                     | 15VDC                        |
|                                                      |                                                              | 12V Input                                    | 36VDC                        |
|                                                      |                                                              | 24V Input                                    | 50VDC                        |
|                                                      |                                                              | 48V Input                                    | 100VDC                       |
| Isolation Voltage                                    | H2-Suffix and SMD                                            | (tested for 1 second)                        | 2000VDC                      |
|                                                      |                                                              | (rated for 1 minute**)                       | 1000VAC / 60Hz               |
|                                                      | H3-Suffix                                                    | (tested for 1 second)                        | 3000VDC                      |
|                                                      |                                                              | (rated for 1 minute**)                       | 1500VAC / 60Hz               |
| Isolation Capacitance                                |                                                              | 1200pF typ.                                  |                              |
| Isolation Resistance                                 |                                                              | 1 G $\Omega$ min.                            |                              |
| Overload Protection                                  |                                                              | 150% typ.                                    |                              |
| Short Circuit Protection                             |                                                              | Continuous, Auto Restart                     |                              |
| Operating Temperature Range<br>(free air convection) | 4:1                                                          | -40°C to +71°C (see Graph)                   |                              |
|                                                      | 2:1 - Vin=5V                                                 | -40°C to +71°C (see Graph)                   |                              |
|                                                      | 2:1 - All Others                                             | -40°C to +85°C (see Graph)                   |                              |
| Remote On/Off                                        | DC/DC ON                                                     | Open or 3.5V < Vr < 12V                      |                              |
|                                                      | DC/DC OFF                                                    | Short or 0V < Vr < 1.2V                      |                              |
| Storage Temperature Range                            |                                                              | -55°C to +105°C                              |                              |
| Temperature Coefficient                              |                                                              | $\pm 0.05\%$ max.                            |                              |
| Relative Humidity                                    |                                                              | 95% RH max.                                  |                              |
| Case Material                                        |                                                              | Nickel Plated Metal with Non-Conductive Base |                              |
| Thermal Impedance                                    |                                                              | Natural convection                           | 12°C/W                       |
| Maximum Case Temperature                             |                                                              | 100°C                                        |                              |
| Vibration                                            |                                                              | 10-55Hz, 2G, 30mins along X,Y & Z            |                              |
| Package Weight                                       |                                                              | 18g                                          |                              |
| Packing Quantity                                     |                                                              | 15 pcs per Tube                              |                              |
| MTBF (+25°C)<br>(+71°C)                              | Detailed Information see<br>Application Notes chapter "MTBF" | using MIL-HDBK 217F                          | 1200 x 10 <sup>3</sup> hours |
|                                                      |                                                              | using MIL-HDBK 217F                          | >300 x 10 <sup>3</sup> hours |

#### Certifications

|                   |                                 |                                                                         |
|-------------------|---------------------------------|-------------------------------------------------------------------------|
| EN General Safety | Report: SPCLVD1211033-2         | EN60950-1:2006 +A12:2011                                                |
| UL General Safety | Report: E224736                 | UL 60950-1 1st Ed.<br>C22.2 No. 60950-1-03                              |
| EN Medical Safety | Report: MDD12060585 + RM1206085 | IEC/EN 60601-1 3rd Edition<br>Medical Report + ISO14971 Risk Assessment |

## Derating-Graph (Ambient Temperature)

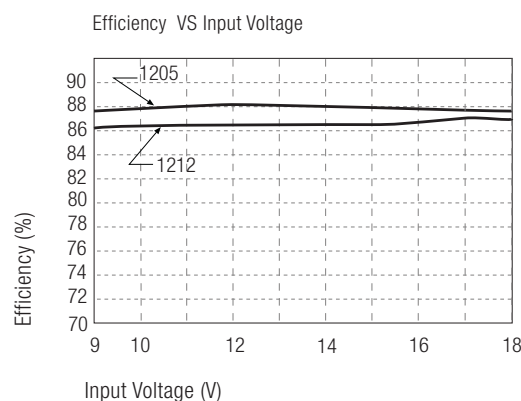
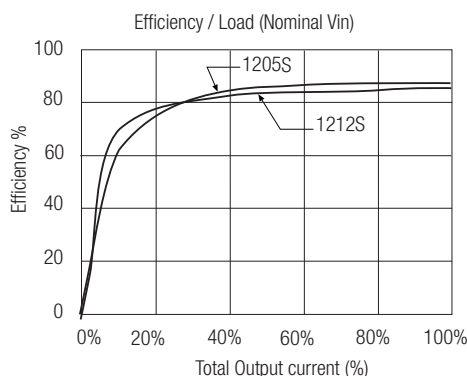


\*\*Any data referred to in this datasheet are of indicative nature and based on our practical experience only.

For further details, please refer to our Application Notes.

## Typical Characteristics

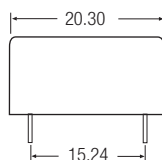
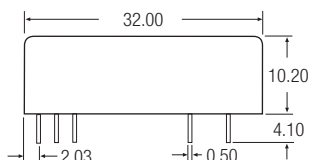
### REC8-1205SRW/H2/A/M (/SMD) REC8-1212SRW/H2/A/M (/SMD)



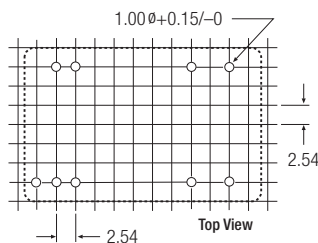
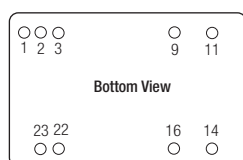
Note: Refer to Application Notes for EMC Class B Filter suggestion

## Package Style and Pinning (mm)

24 PIN DIP Package - Available with /H2 and /H3 Options



### Recommended Footprint Details



### Pin Connections DIP24

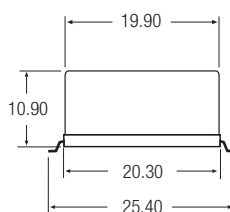
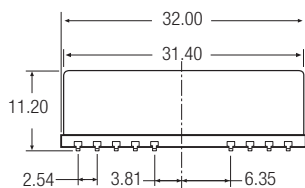
| Pin # | Single | Dual  |
|-------|--------|-------|
| 1     | CTRL   | CTRL  |
| 2     | -Vin   | -Vin  |
| 3     | -Vin   | -Vin  |
| 9     | NC     | Com   |
| 11    | NC     | -Vout |
| 14    | +Vout  | +Vout |
| 16    | -Vout  | Com   |
| 22    | +Vin   | +Vin  |
| 23    | +Vin   | +Vin  |

NC = No Connection

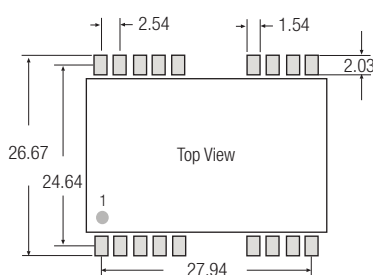
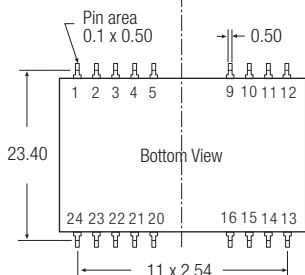
XX.X ± 0.5 mm

XX.XX ± 0.25 mm

24 PIN SMD Package - available with /H2 option only.



### Recommended Footprint Details



### Pin Connections DIP24 SMD

| Pin #          | Single | Dual  |
|----------------|--------|-------|
| 1              | CTRL   | CTRL  |
| 2              | -Vin   | -Vin  |
| 3              | -Vin   | -Vin  |
| 9              | NC     | Com   |
| 11             | NC     | -Vout |
| 14             | +Vout  | +Vout |
| 16             | -Vout  | Com   |
| 22             | +Vin   | +Vin  |
| 23             | +Vin   | +Vin  |
| 4,5,10,12      | NC     | NC    |
| 13,15,20,21,24 | NC     | NC    |

NC = No Connection

XX.X ± 0.5 mm

XX.XX ± 0.25 mm