

## Features

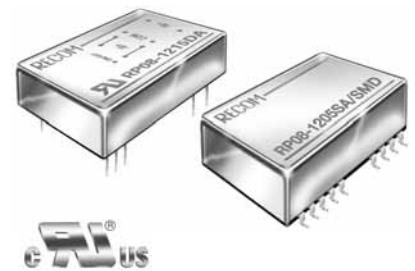
### Regulated Converters

- 2:1 Wide Input Voltage Range
- 8 Watts Regulated Output Power
- 1.6kVDC Isolation
- Low Profile, 10.2 mm Height
- Over Current Protection
- Five-Sided Shield
- No Derating to 71°C
- Non-Conductive Black Plastic
- UL 1950 Component Recognized
- Standard DIP24 and SMD-Pinning
- 2 Year Warranty
- Efficiency to 85%

## POWERLINE DC/DC-Converter

# RP08- S\_DA Series

## 8 Watt DIP24 & SMD, Single & Dual Output



RECOM

### Selection Guide 5V, 12V, 24V and 48V Input Types

| Part Number    | Input Range | Output Voltage | Output Current | Input <sup>(4)</sup> Current | Efficiency <sup>(5)</sup> | Capacitive <sup>(6)</sup> Load max. |
|----------------|-------------|----------------|----------------|------------------------------|---------------------------|-------------------------------------|
| DIP24 (SMD)    | VDC         | VDC            | mA             | mA                           | %                         | µF                                  |
| RP08-123.3SA** | 9-18        | 3.3            | 2000           | 724                          | 80                        | 3300                                |
| RP08-1205SA**  | 9-18        | 5              | 1500           | 801                          | 82                        | 1600                                |
| RP08-1212SA**  | 9-18        | 12             | 666            | 833                          | 84                        | 350                                 |
| RP08-1215SA**  | 9-18        | 15             | 533            | 843                          | 83                        | 240                                 |
| RP08-243.3SA** | 18-36       | 3.3            | 2000           | 362                          | 80                        | 3300                                |
| RP08-2405SA**  | 18-36       | 5              | 1500           | 396                          | 83                        | 1600                                |
| RP08-2412SA**  | 18-36       | 12             | 666            | 416                          | 84                        | 350                                 |
| RP08-2415SA**  | 18-36       | 15             | 533            | 416                          | 84                        | 240                                 |
| RP08-483.3SA** | 36-75       | 3.3            | 2000           | 181                          | 80                        | 3300                                |
| RP08-4805SA**  | 36-75       | 5              | 1500           | 198                          | 83                        | 1600                                |
| RP08-4812SA**  | 36-75       | 12             | 666            | 208                          | 84                        | 350                                 |
| RP08-4815SA**  | 36-75       | 15             | 533            | 208                          | 84                        | 240                                 |
| RP08-1205DA**  | 9-18        | ±5             | ±800           | 843                          | 83                        | ±1000                               |
| RP08-1212DA**  | 9-18        | ±12            | ±333           | 833                          | 84                        | ±160                                |
| RP08-1215DA**  | 9-18        | ±15            | ±267           | 834                          | 84                        | ±100                                |
| RP08-2405DA**  | 18-36       | ±5             | ±800           | 427                          | 82                        | ±1000                               |
| RP08-2412DA**  | 18-36       | ±12            | ±333           | 422                          | 83                        | ±160                                |
| RP08-2415DA**  | 18-36       | ±15            | ±267           | 411                          | 85                        | ±100                                |
| RP08-4805DA**  | 36-75       | ±5             | ±800           | 211                          | 83                        | ±1000                               |
| RP08-4812DA**  | 36-75       | ±12            | ±333           | 206                          | 85                        | ±160                                |
| RP08-4815DA**  | 36-75       | ±15            | ±267           | 206                          | 85                        | ±100                                |

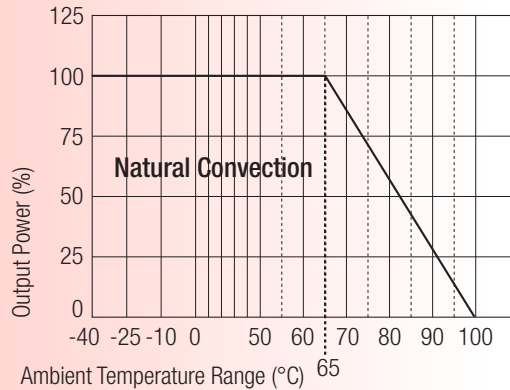
\*\* add Suffix SMD for SMD package

### Description

The A-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. They also meet UL 1950 and CSA 950 standards.

**Derating-Graph (Ambient Temperature)**

**RP08-4805SA**



Derating graphs are valid only for the shown part numbers. If you need detailed derating-information about a part-number not shown here please contact our technical customer service at [info@recom-development.at](mailto:info@recom-development.at)

**Specifications** (typical at nominal input and 25°C unless otherwise noted)

|  |                   |                         |
|--|-------------------|-------------------------|
| Input Voltage Range                                    | 12V nominal input | 9-18VDC                 |
|  | 24V nominal input | 18-36VDC                |
|  | 48V nominal input | 36-75VDC                |
| Input Filter   |                   | Pi Type                 |
| Input Surge Voltage (100 ms max.)                      | 12V Input         | 36VDC                   |
|  | 24V Input         | 50VDC                   |
|  | 48V Input         | 100VDC                  |
| Input Reflected Ripple (nominal Vin and full load)     |                   | 20mAp-p                 |
| Start Up Time (nominal Vin and constant resistor load) |                   | 600ms typ.              |
| Remote ON/OFF (see note 8)                             | DC-DC ON          | Open or 3.5V < Vr < 12V |
|  | DC-DC OFF         | Short or 0V < Vr < 1.2V |
| Remote OFF input current                               | Nominal input     | 2.5mA                   |
| Output Power   |                   | 8W max.                 |
| Output Voltage Accuracy (full Load and nominal Vin)    |                   | ±2%                     |
| Minimum Load (see Note 1)                              |                   | 10% of FL               |
| Line Regulation (LL-HL at full load)                   |                   | ±0.2%                   |
| Load Regulation (25% to 100% FL)                       | Single            | ±0.5%                   |
|  | Dual              | ±1%                     |
| Cross Regulation (asymmetrical load 25%/100% FL)       |                   | ±5%                     |
| Ripple and Noise (20MHz bandwith)                      |                   | 50mVp-p                 |
| Temperature Coefficient                                |                   | ±0.02%/°C, max.         |
| Transient Response (25% load step change)              |                   | 200µS                   |

continued on next page

**Specifications** (typical at nominal input and 25°C unless otherwise noted)

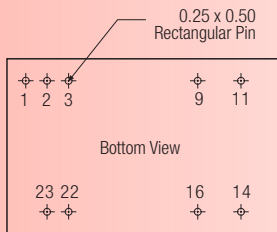
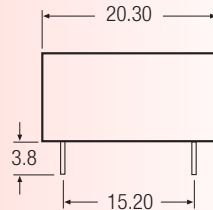
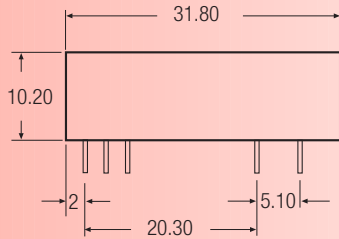
|  |                    |                                       |
|--|--------------------|---------------------------------------|
| Over Load Protection (% of full load at nominal Vin) |                    | 150% typ                              |
| Short Circuit Protection                             |                    | Continuous, automatic recovery        |
| Efficiency   |                    | see „Selection Guide“ table           |
| Isolation Voltage                                    | In to out          | 1.600VDC min.                         |
|  | I/O to case        | DIP type 1.600VDC min.                |
|  | I/O to case        | SMD type 1.000VDC min.                |
| Isolation Resistance                                 |                    | 10 <sup>9</sup> Ω min.                |
| Isolation Capacitance                                |                    | 300pF max.                            |
| Operating Frequency                                  |                    | 100kHz min.                           |
| Approved to Safety Standards                         |                    | UL 1950, EN60950                      |
| Operating Temperature Range                          |                    | -40°C to +85°C(with derating)         |
| Maximum Case Temperature                             |                    | +100°C                                |
| Storage Temperature Range                            |                    | -55°C to +105°C                       |
| Thermal Impedance                                    | Natural convection | 20°C/Watt                             |
| Thermal Shock  |                    | MIL-STD-810D                          |
| Vibration  |                    | 10-55Hz, 2G, 30 Min. along X, Y and Z |
| Relative Humidity                                    |                    | 5% to 95% RH                          |
| Case Material  |                    | Nickel-Coated copper                  |
| Base Material  |                    | Non-conductive black plastic          |
| Potting Material                                     |                    | Epoxy (UL94-V0)                       |
| Conducted Emissions                                  | EN55022            | Level A                               |
| Radiated Emissions                                   | EN55022            | Level A                               |
| ESD  | EN61000-4-2        | Perf. Criteria 2                      |
| Radiated Immunity                                    | EN61000-4-3        | Perf. Criteria 2                      |
| Fast Transient                                       | EN61000-4-4        | Perf. Criteria 2                      |
| Surge  | EN61000-4-5        | Perf. Criteria 2                      |
| Conducted Immunity                                   | EN61000-4-6        | Perf. Criteria 2                      |
| Weight   | DIP                | 16g                                   |
|  | SMD                | 18g                                   |
| Dimensions   | DIP                | 31.8 x 20.3 x 10.2mm                  |
|  | SMD                | 32.0 x 20.3 x 10.9mm                  |
| MTBF (see note 2)                                    |                    | 3.165 x 10 <sup>6</sup> Hours         |

**Notes :**

1. The RP08 series requires a minimum of 10% loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
2. BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C (Ground fixed and controlled environment).
3. Start up voltage : 10VDC
4. Maximum value at nominal input voltage and full load of standard type.
5. Typical value at nominal input voltage and full load.
6. Test by minimum Vin and constant resistor load.
7. The ON/OFF control pin voltage is referenced to negative input.
8. See application notes for EMI-filtering.

**Package Style and Pinning (mm)**

**DIP24 Package Style**



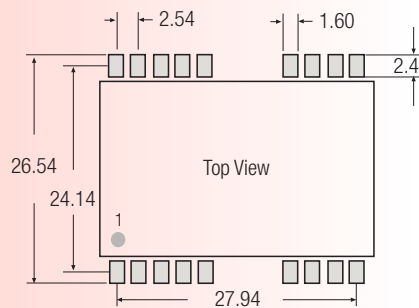
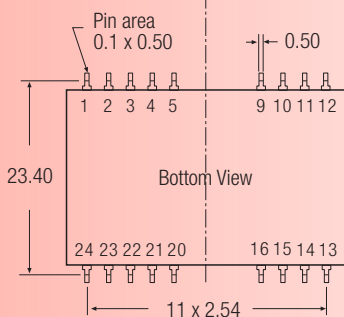
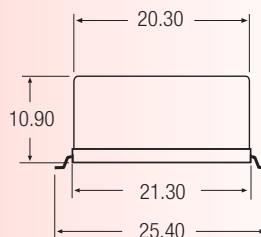
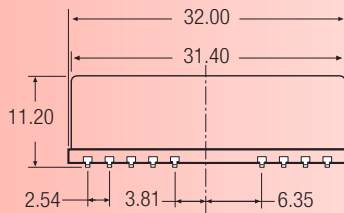
**Pin Connections**

| Pin # | Single | Dual   |
|-------|--------|--------|
| 1     | ON/OFF | ON/OFF |
| 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

Pin Pitch Tolerance  $\pm 0.35$  mm

**SMD Package Style**



**SMD Package Style**

Same spec. as the original DIP spec. and pin definition, excl. of the SMD type pin.

**Pin Connections**

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

NC = No Connection

Pin Pitch Tolerance  $\pm 0.35$  mm