

## Features

- 4:1 Wide Input Voltage Range
- 10 Watts Output Power
- 1.6kVDC Isolation
- Fixed Operating Frequency
- Six-Sided Continuous Shield
- Standard 50.8 x25.4x10.2mm Package
- Efficiency to 84%

## POWERLINE

DC/DC-Converter

# RP10-S\_DEW Series

**10 Watt**  
**2" x 1" Package**  
**Single & Dual**  
**Output**

### Selection Guide 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. |
|--------------|-------------|----------------|----------------|------------------------------|---------------------------|-------------------------------------|
|              | VDC         | VDC            | mA             | mA                           | %                         | μF                                  |
| RP10-2405SEW | 9-36        | 5              | 2000           | 548                          | 80                        | 4700                                |
| RP10-2412SEW | 9-36        | 12             | 830            | 532                          | 82                        | 690                                 |
| RP10-2415SEW | 9-36        | 15             | 670            | 551                          | 80                        | 470                                 |
| RP10-4805SEW | 18-75       | 5              | 2000           | 274                          | 80                        | 4700                                |
| RP10-4812SEW | 18-75       | 12             | 830            | 259                          | 84                        | 690                                 |
| RP10-4815SEW | 18-75       | 15             | 670            | 262                          | 84                        | 470                                 |
| RP10-2405DEW | 9-36        | ±5             | ±1000          | 548                          | 80                        | ±680                                |
| RP10-2412DEW | 9-36        | ±12            | ±416           | 547                          | 80                        | ±330                                |
| RP10-2415DEW | 9-36        | ±15            | ±333           | 548                          | 80                        | ±110                                |
| RP10-4805DEW | 18-75       | ±5             | ±1000          | 271                          | 81                        | ±680                                |
| RP10-4812DEW | 18-75       | ±12            | ±416           | 281                          | 78                        | ±330                                |
| RP10-4815DEW | 18-75       | ±15            | ±333           | 270                          | 81                        | ±110                                |

\* add suffix **/M2** for higher efficiencies and extended temperature range.

\* add **/P** for CTRL function with Positive Logic (1=ON, 0=OFF)

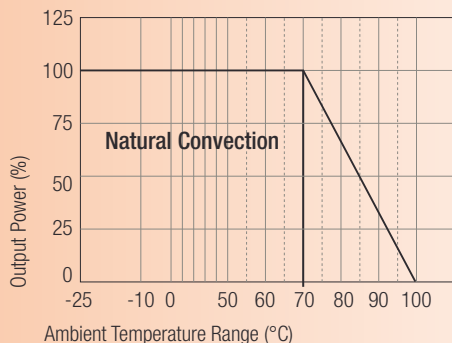
\* add **/N** for CTRL function with Negative Logic (0=ON, 1=OFF)



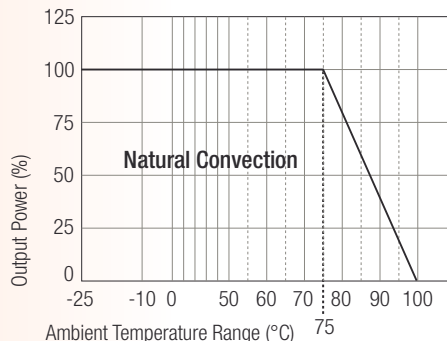
**RECOM**

## Derating-Graph (Ambient Temperature)

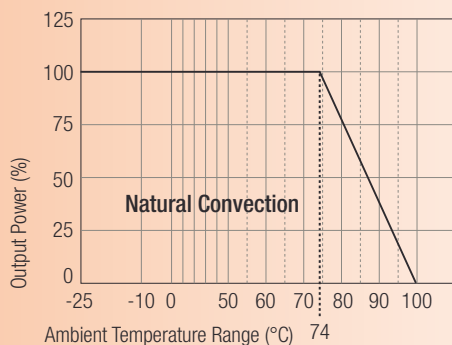
**RP10-2405SEW**



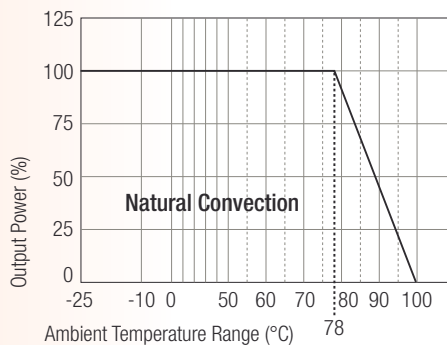
**RP10-2405SEW With Heat Sink**



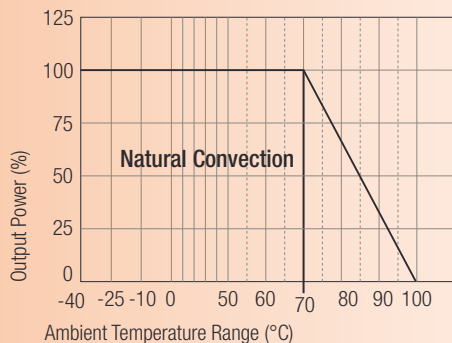
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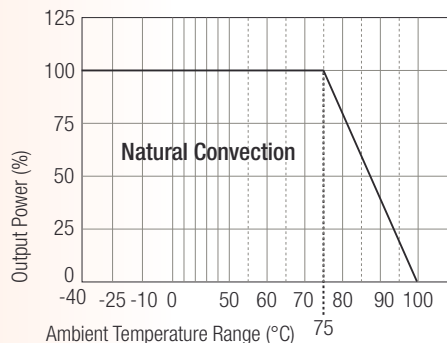
**RP10-2405DEW With Heat Sink**



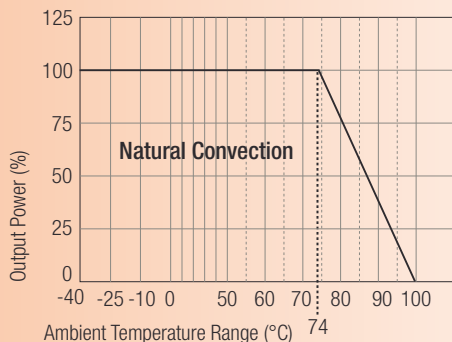
**RP10-2405SEW/M2**



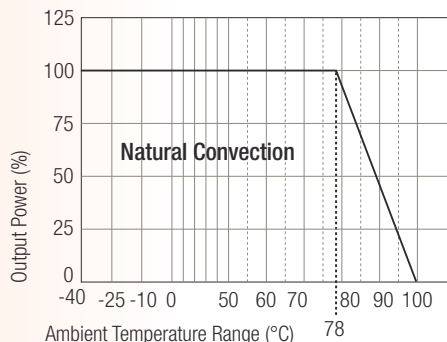
**RP10-2405SEW/M2 With Heat Sink**



**RP10-2405DEW/M2**



**RP10-2405DEW/M2 With Heat Sink**



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                                     | 24V nominal input<br>48V nominal input | 9-36VDC<br>18-75VDC                                |
| Input Filter                                            |                                        | Pi Type                                            |
| Input Surge Voltage (100 ms max.)                       | 24V Input<br>48V Input                 | 50VDC<br>100VDC                                    |
| Input Reflected Ripple (nominal Vin and full load)      |                                        | 30mA <sub>p-p</sub>                                |
| Start Up Time (nominal Vin and constant resistor load)  |                                        | 20ms typ.                                          |
| Remote ON/OFF (Optional. See Note 7)                    |                                        |                                                    |
| (Positive logic)                                        | DC-DC ON<br>DC-DC OFF                  | Open or 3.5V < Vr < 12V<br>Short or 0V < Vr < 1.2V |
| (Negative logic)                                        | DC-DC ON<br>DC-DC OFF                  | Short or 0V < Vr < 1.2V<br>Open or 3.5V < Vr < 12V |
| Remote OFF input current                                | Nominal input                          | 20mA                                               |
| Output Power                                            |                                        | 10W max.                                           |
| Output Voltage Accuracy (full Load and nominal Vin)     |                                        | ±2%                                                |
| Minimum Load (see Note 1)                               |                                        | 10% of full load                                   |
| Line Regulation (low line, high line at full load)      |                                        | ±1%                                                |
| Load Regulation (25% to 100% full load)                 | Single<br>Dual                         | ±1%<br>±2%                                         |
| Cross Regulation (asymmetrical load 25%/100% full load) |                                        | ±5%                                                |
| Ripple and Noise (20MHz bandwidth)                      | Single<br>Dual                         | 50mV <sub>p-p</sub><br>75mV <sub>p-p</sub>         |
| Temperature Coefficient                                 |                                        | ±0.02%/°C max.                                     |
| Transient Response (25% load step change)               |                                        | 500µs                                              |
| Over Voltage Protection                                 | 5V output                              | 6.2V                                               |
| Zener diode clamp                                       | 12V output<br>15V output               | 15V<br>18V                                         |
| Over Load Protection (% of full load at nominal Vin)    |                                        | 150% typ                                           |
| Short Circuit Protection                                |                                        | Hiccup, automatic recovery                         |
| Efficiency                                              |                                        | see „Selection Guide“ table                        |
| Isolation Voltage                                       |                                        | 1600VDC min.                                       |
| Isolation Resistance                                    |                                        | 1 GΩ min.                                          |
| Isolation Capacitance                                   |                                        | 300pF max.                                         |
| Operating Frequency                                     |                                        | 300kHz typ.                                        |
| Operating Temperature Range                             | Standard                               | -25°C to +85°C(with derating)                      |
| (Reference Derating Curve) (see Note 9)                 | M2                                     | -40°C to +85°C(with derating)                      |
| Maximum Case Temperature                                |                                        | +100°C                                             |
| Storage Temperature Range                               |                                        | -55°C to +105°C                                    |
| Thermal Impedance                                       | Natural convection                     | 12°C/Watt                                          |
| (see Note 8)                                            | Natural convection with Heat Sink      | 10°C/Watt                                          |
| Thermal Shock                                           |                                        | MIL-STD-810D                                       |

continued on next page

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

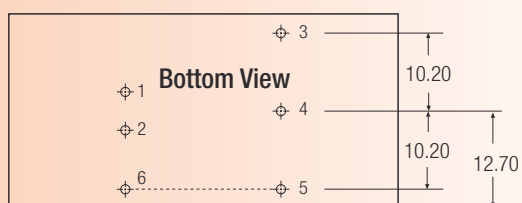
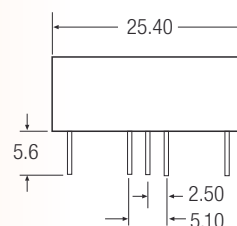
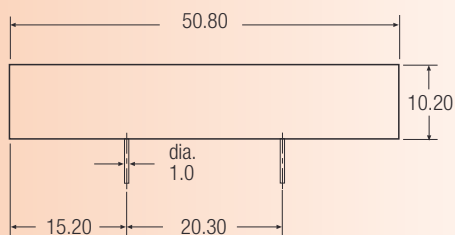
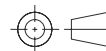
|                                   |                                       |                  |
|-----------------------------------|---------------------------------------|------------------|
| Vibration                         | 10-55Hz, 2G, 30 Min. along X, Y and Z |                  |
| Relative Humidity                 | 5% to 95% RH                          |                  |
| Case Material                     | Nickel plated copper                  |                  |
| Base Material                     | Non-conductive black plastic          |                  |
| Potting Material                  | Epoxy (UL94-V0)                       |                  |
| Conducted Emissions (see Note 10) | 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                            | 27g                                   |                  |
| Dimensions                        | 50.8 x 25.4 x 10.2mm                  |                  |
| MTBF (see Note 2)                 | 1976 x 10 <sup>3</sup> hours          |                  |

**Notes :**

1. The RP10 (W) series required a minimum 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. Simulated source impedance of 12 $\mu$ H. 12 $\mu$ H inductor in series with +Vin.
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 function can be positive or negative logic. The pin voltage is referenced to negative input.  
Positive logic ON/OFF is marked with suffix-P (eg. RP10-2405SEW/P)  
Negative logic ON/OFF is marked with suffix-N (eg. RP10-2405SEW/N).  
If no suffix is specified, the control pin will be omitted.
8. Heat sink is optional and P/N: 7G-0020A.
9. M2 version is more efficient, therefore, it can be operated in a more extensive temperature range than standard version.
10. See application notes for EMI-filtering.

## Package Style and Pinning (mm)

3rd angle  
projection



### Pin Connections

| Pin # | Single | Dual  |
|-------|--------|-------|
| 1     | +Vin   | +Vin  |
| 2     | -Vin   | -Vin  |
| 3     | +Vout  | +Vout |
| 4     | No Pin | Com   |
| 5     | -Vout  | -Vout |
| 6*    | CTRL*  | CTRL* |

\* Optional. See Note 7

Pin Pitch Tolerance  $\pm 0.35$  mm