

## Features

- 2:1 Wide Input Voltage Range
- 30 Watts Output Power
- 1.6kVDC Isolation
- UL Certified
- Fixed Operating Frequency
- Six-Sided Continuous Shield
- International Safety Standard Approvals
- Standard 50.8 x40.6x10.2mm Package
- Efficiency to 90%

## POWERLINE DC/DC-Converter

# RP30- S\_DE Series

## 30 Watt Single & Dual Output

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

Part Number	Input Range VDC	Output Voltage VDC	Output Current mA	Input <sup>(4)</sup> Current mA	Efficiency <sup>(5)</sup> %	Capacitive <sup>(6)</sup> Load max. µF
RP30-121.5SE	9-18	1.5	6000	1014	78	85800
RP30-121.8SE	9-18	1.8	6000	1169	81	65000
RP30-122.5SE	9-18	2.5	6000	1582	83	33000
RP30-123.3SE	9-18	3.3	6000	2037	85	19500
RP30-1205SE	9-18	5	6000	3012	87	10200
RP30-1212SE	9-18	12	2500	2976	88	3240
RP30-1215SE	9-18	15	2000	2976	88	1100
RP30-241.5SE	18-36	1.5	6000	493	80	85800
RP30-241.8SE	18-36	1.8	6000	580	82	65000
RP30-242.5SE	18-36	2.5	6000	780	84	33000
RP30-243.3SE	18-36	3.3	6000	1010	86	19500
RP30-2405SE	18-36	5	6000	1490	88	10200
RP30-2412SE	18-36	12	2500	1470	89	3300
RP30-2415SE	18-36	15	2000	1470	89	1100
RP30-481.5SE	36-75	1.5	6000	244	81	85800
RP30-481.8SE	36-75	1.8	6000	290	83	65000
RP30-482.5SE	36-75	2.5	6000	390	85	33000
RP30-483.3SE	36-75	3.3	6000	500	87	19500
RP30-4805SE	36-75	5	6000	740	89	10200
RP30-4812SE	36-75	12	2500	730	90	3300
RP30-4815SE	36-75	15	2000	730	90	1100
RP30-1212DE	9-18	±12	±1250	3012	87	±1020
RP30-1215DE	9-18	±15	±1000	3012	87	±675
RP30-2412DE	18-36	±12	±1250	1488	88	±1020
RP30-2415DE	18-36	±15	±1000	1488	88	±675
RP30-4812DE	36-75	±12	±1250	744	88	±1020
RP30-4815DE	36-75	±15	±1000	744	88	±675



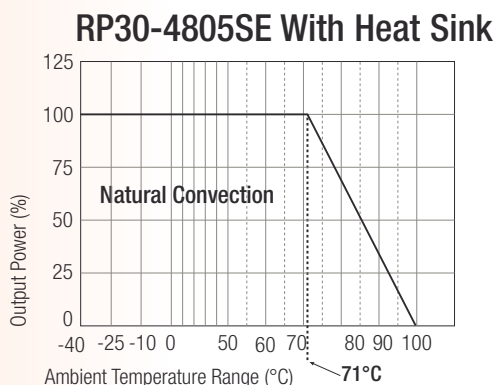
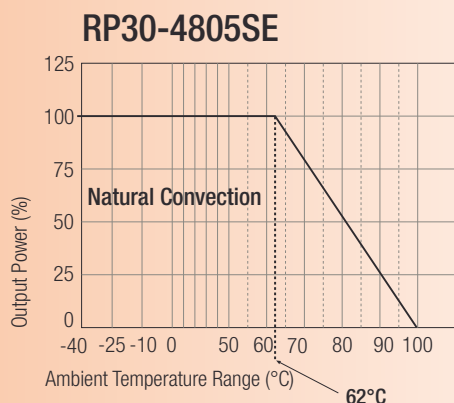
**UL-60950-1 Certified**

**RECOM**

### Description

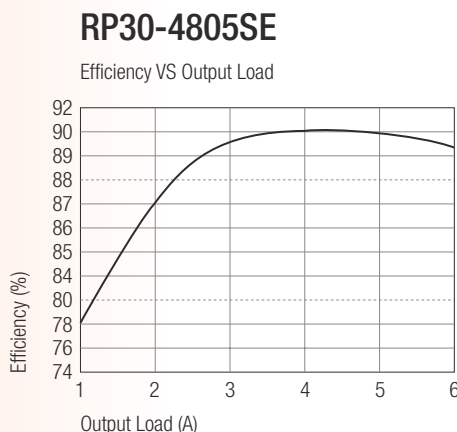
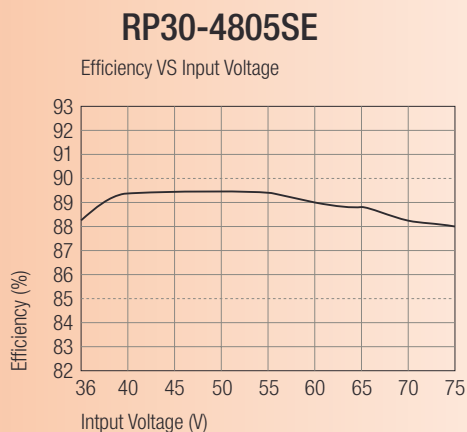
The E-series of these DC/DC-converters is designed to meet UL 60950. This makes them ideal for all telecom and safety applications where approved isolation is required. They are also designed to meet UL 1950 and CSA 950 standards.

**Derating-Graph (Ambient Temperature)**



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)

**Typical Characteristics**



**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	
Under Voltage Lockout	12V input	DC-DC ON	9VDC
		DC-DC OFF	8VDC
	24V input	DC-DC ON	17.8VDC
		DC-DC OFF	16VDC
	48V input	DC-DC ON	36VDC
		DC-DC OFF	33VDC
Input Filter (see Note 1)		L-C Type	
Input Voltage Variation dv/dt	(Complies with ETS300 132 part 4.4)	5V/ms max	
Input Surge Voltage (100 ms max.)	12V Input	36VDC	
	24V Input	50VDC	
	48V Input	100VDC	
Input Reflected Ripple (nominal Vin and full load) (see Note 3)		30mAp-p	
Start Up Time (nominal Vin and constant resistor load)		25ms typ.	
Remote ON/OFF (see Note 7)	DC-DC ON	Open or $3.0V < V_r < 12V$	
	DC-DC OFF	Short or $0V < V_r < 1.2V$	
Remote OFF input current	Nominal input	2.5mA	

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

Output Power		30W max.
Output Voltage Accuracy (full Load and nominal Vin)		±1%
Voltage Adjustability		±10%
Minimum Load	Single & Dual	0%
Line Regulation (low line, high line at full load)	Single Dual	±0.2% ±0.5%
Load Regulation (25% to 100% full load)	Single Dual	±0.5% ±1%
Cross Regulation		±5%
Ripple and Noise (20MHz bandwidth) (Measured with a 1004pF/50V MLCC)	Single 1.5, 1.8, 2.5, 3.3, 5V Single 12, 15V Dual 5, 12, 15V	50mVp-p 75mVp-p 100mVp-p
Temperature Coefficient		±0.02%/°C max.
Transient Response (25% load step change)		300µs
Over Voltage Protection	1.5, 1.8, 2.5, 3.3V	3.9V
Zener diode clamp (only single)	5V 12V 15V	6.2V 15V 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		1000pF max.
Operating Frequency		300kHz typ.
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
Over Temperature Protection		115°C typ.
Thermal Impedance (see Note 8)	Natural convection Natural convection with Heat Sink	10°C/Watt 8.24°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 plated copper
Base Material		Non-conductive black plastic
Potting Material		Epoxy (UL94-V0)
Conducted Emissions (see Note 9)	EN55022	Class A
Radiated Emissions	EN55022	Class 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

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# POWERLINE

## DC/DC-Converter

# RP30-S\_DE

## Series

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

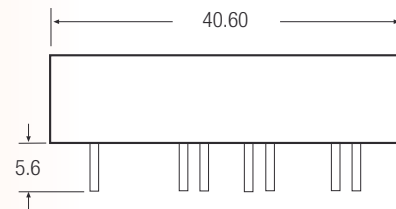
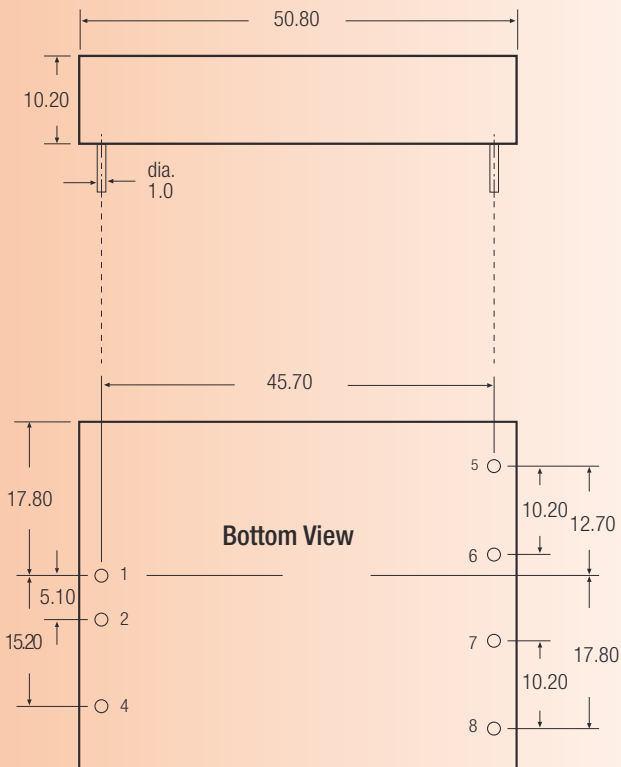
Weight	48g
Dimensions	50.8 x 40.6 x 10.2mm
MTBF (see Note 2)	1535 x 10 <sup>3</sup> hours

### Notes :

1. An external filter capacitor is required for normal operation. The capacitor should be capable of handing 1A ripple current for 48V/24V models. RECOM suggest: Nippon chemi-con KMF series, 220µF/100V, ESR 90m Ω.
2. BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C (Ground fixed and controlled environment).
3. Simulated source impedance of 12µH. 12µH 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 pin voltage is referenced to negative input
8. Heat sink is optional and P/N: 7G-0011A.
9. 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
4	CTRL	CTRL
5	No Pin	+Vout
6	+Vout	Com
7	-Vout	-Vout
8	Trim	Trim

Pin Pitch Tolerance ±0.35 mm

## External Output Trimming

Output can be externally trimmed by using the method shown below.

( ) for dual output trim

