

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 x 40.6 x 10.2mm Package
- Efficiency to 90 %
- Available as Power Module (RPM30-E)

Description

The RP30-E series DC/DC converters are certified to UL 60950-1 and cUL 60950-1. This makes them ideal for all telecom and industrial applications where approved safety standards are required. The industry standard 2" x 1.6" package meets military standards for thermal shock and vibration tolerance.

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

Part Number	Input Range VDC	Output Voltage VDC	Output Current mA	Input ⁽⁴⁾ Current mA	Efficiency ⁽⁵⁾ %	Capacitive ⁽⁶⁾ Load max.
RP30-123.3SE	9-18	3.3	6000	2037	85	19500µF
RP30-1205SE	9-18	5	6000	3012	87	10200µF
RP30-1212SE	9-18	12	2500	2976	88	3240µF
RP30-1215SE	9-18	15	2000	2976	88	1100µF
RP30-243.3SE	18-36	3.3	6000	1031	80	19500µF
RP30-2405SE	18-36	5	6000	1490	88	10200µF
RP30-2412SE	18-36	12	2500	1470	89	3300µF
RP30-2415SE	18-36	15	2000	1470	89	1100µF
RP30-483.3SE	36-75	3.3	6000	500	87	19500µF
RP30-4805SE	36-75	5	6000	740	89	10200µF
RP30-4812SE	36-75	12	2500	730	90	3300µF
RP30-4815SE	36-75	15	2000	730	90	1100µF
RP30-1212DE	9-18	±12	±1250	3012	87	±1020µF
RP30-1215DE	9-18	±15	±1000	3012	87	±675µF
RP30-2412DE	18-36	±12	±1250	1488	88	±1020µF
RP30-2415DE	18-36	±15	±1000	1488	88	±675µF
RP30-4812DE	36-75	±12	±1250	744	88	±1020µF
RP30-4815DE	36-75	±15	±1000	744	88	±675µF

* no suffix for CTRL function with Positive Logic (1=ON, 0=OFF), this is standard

* add suffix **-HC** for premounted heatsink and clips

Ordering Examples

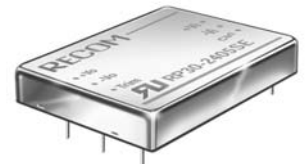
RP30-2405SE = 24V Input, 5V Output, Positive Logic CTRL pin.

RP20-4812DE-HC = 48V Input, ±12V Output, Positive Logic CTRL pin, Heatsink fitted

POWERLINE DC/DC-Converter



30 Watt Single & Dual Output

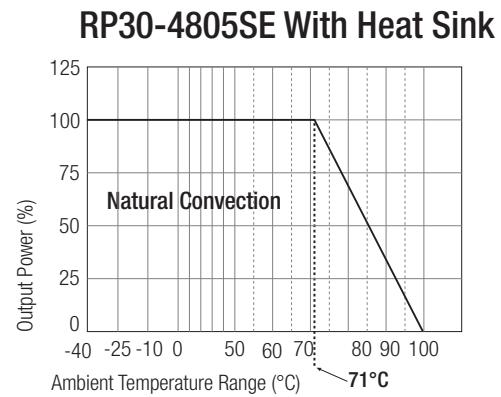
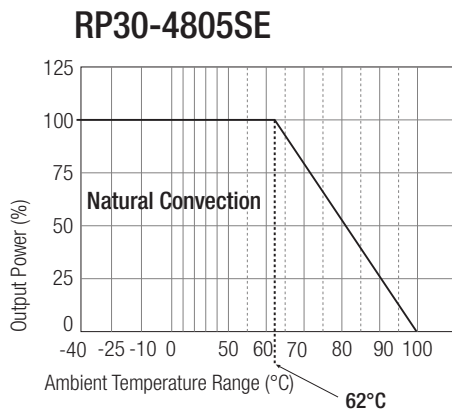


UL-60950-1 Certified
E196683

RP30-E

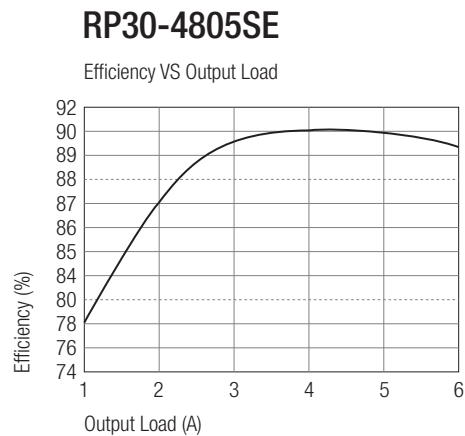
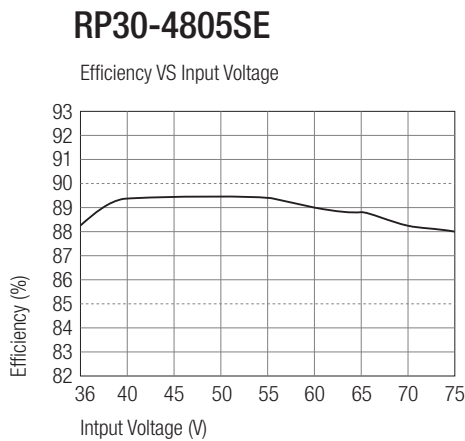
Please Read Application Notes

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

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)		30mA _{p-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 < Vr < 12V	
	DC-DC OFF	Short or 0V < Vr < 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	±0.2%
	Dual	±0.5%
Load Regulation (25% to 100% full load)	Single	±0.5%
	Dual	±1%
Cross Regulation (Asymmetrical 25% <> 100% load)	Dual	±5%
Ripple and Noise (20MHz bandwidth) (Measured with a 1004pF/50V MLCC)	Single 3.3, 5V	50mVp-p
	Single 12, 15V	75mVp-p
	Dual 5, 12, 15V	100mVp-p
Temperature Coefficient		±0.02%/°C max.
Transient Response (25% load step change)		300µs
Over Voltage Protection	3.3V	3.9V
Zener diode clamp (only single)	5V	6.2V
	12V	15V
	15V	18V
Over Load Protection (% of full load at nominal Vin)		150% typ
Undervoltage Lockout		See Application Notes
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 +125°C
Over Temperature Protection		115°C typ.
Thermal Impedance (see Note 8)	Natural convection	10°C/Watt
	Natural convection with Heat Sink	8.24°C/Watt
Thermal Shock		MIL-STD-810D
Vibration		10-55Hz, 10G, 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)
Weight		48g
Packing Quantity	Refer to App Notes for tube dimensions	5 pcs per Tube
Dimensions		50.8 x 40.6 x 10.2mm

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

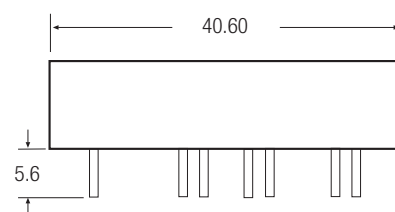
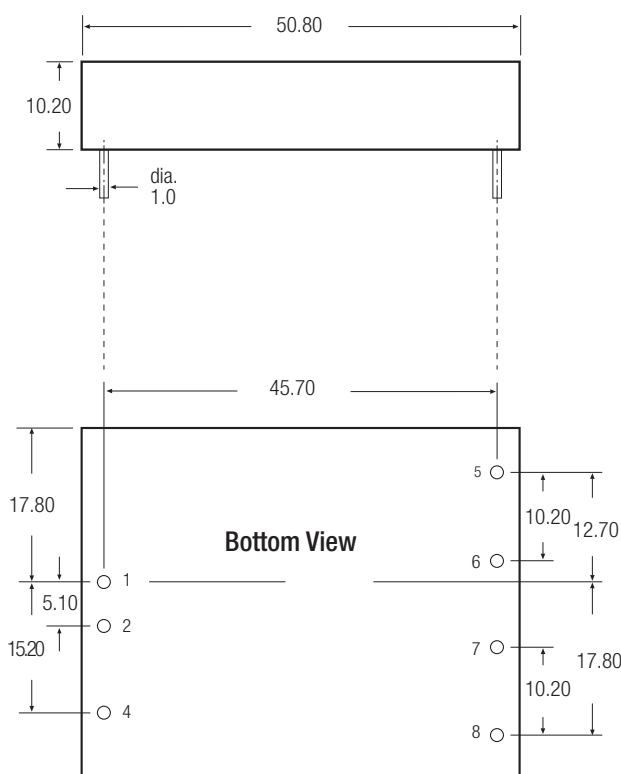
Conducted Emissions (see Note 9)	EN55022	Class A
Radiated Emissions	EN55022	Class A
ESD	EN61000-4-2	Perf. Criteria B
Radiated Immunity	EN61000-4-3	Perf. Criteria B
Fast Transient	EN61000-4-4	Perf. Criteria B
Surge	EN61000-4-5	Perf. Criteria B
Conducted Immunity	EN61000-4-6	Perf. Criteria B
MTBF (see Note 2)		1535 x 10 ³ hours

Notes :

1. An external filter capacitor is required for normal operation. The capacitor should be capable of handling 1A ripple current for 48V/24V models. RECOM suggest: Nippon chemi-con KY 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-0011-C. Powerline DC/DC Converters can be ordered with pre-mounted heatsinks including antivibration fixing clips (add suffix -HC). See Application Notes for heatsink details.
9. See application notes for Class B common mode filter suggestion.

Package Style and Pinning (mm)

RP30-E



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. See Application Notes for details.

