

# POWERLINE - DC/DC-Converter

EW-Series, 15W, 1.6 kV Isolation, 4:1 Wide Input Range (Single & Dual Output)

# RECOM

## Features

- 15 Watts Output Power
- 4:1 Wide Input Voltage Range
- International Safety Standard Approvals
- Six-Sided Continuous Shield
- High Efficiency up to 82%
- Standard 50.8 x 40.6 x 10.2 Package
- Fixed Switching Frequency
- UL 1950 Component Recognised

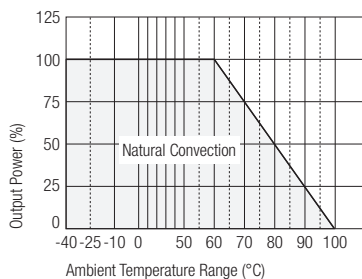


## Selection Guide 24V and 48V Input Types

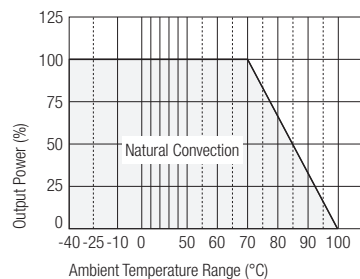
Part Number	Input Voltage VDC	Output Voltage VDC	Output Current mA	Input Current (see note 6) mA	Efficiency (see note 7) %	Capacitive Load max. μF
RP15-2405SEW	9-36	5	3000	822	80	6800
RP15-2412SEW	9-36	12	1250	801	82	890
RP15-2415SEW	9-36	15	1000	801	82	570
RP15-2405DEW	9-36	±5	±1500	822	80	±1700
RP15-2412DEW	9-36	±12	±625	801	82	±300
RP15-2415DEW	9-36	±15	±500	801	82	±200
RP15-4805SEW	18-75	5	3000	411	80	6800
RP15-4812SEW	18-75	12	1250	401	82	890
RP15-4815SEW	18-75	15	1000	401	82	570
RP15-4805DEW	18-75	±5	±1500	411	80	±1700
RP15-4812DEW	18-75	±12	±625	401	82	±300
RP15-4815DEW	18-75	±15	±500	401	82	±200

## RP15-4805SEW: Derating & Efficiency Curves

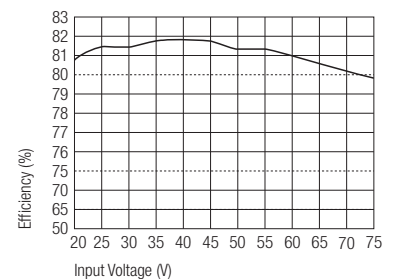
RP15-4805SEW Derating Curve



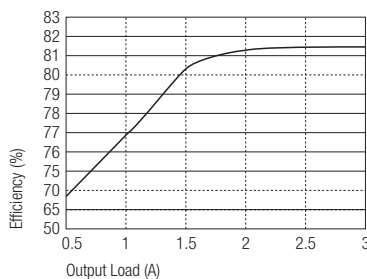
RP15-4805SEW Derating Curve with Heat Sink (see note 3)



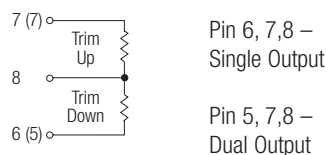
RP15-4805SEW Efficiency vs Input Voltage



RP15-4805SEW Efficiency vs Output



External Output Trimming



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

Output Power		15W max.
Voltage Accuracy (full Load and nominal Vin)		±2%
Voltage Adjustability		±10%
Minimum Load (see note 1)		10% of FL
Line Regulation (LL-HL at full load)		±0.5%
Load Regulation (10% to 100% FL)	Single	±1%
	Dual	±5%
Cross Regulation (asymmetrical load 25%/100% FL)	Dual	±5%
Ripple and Noise (20MHz bandwidth)	Single	75mVp-p
Temperature Coefficient		±0.02%/°C, max.
Transient Response (25% load step change)		500µsec
Over Voltage Protection (with zener diode clamp)	5V output	6.2V
	12V output	15V
	15V output	18V
Over Load Protection (% of full load at nominal Vin)		150% max.
Short Circuit Protection		Hiccup, automatic recovery
Input Voltage Range	RP15 24V nominal input	9-36VDC
	RP15 48V nominal input	18-75VDC
Input Filter		Pi Type
Input Surge Voltage (100 ms max.)	24V input	50VDC
	48V input	100VDC
Input Reflected Ripple (nominal Vin and full load, see note 2)		20mAp-p
Start Up Time (nominal Vin and constant resistor load)		20ms typ.
Remote ON/OFF (see note 3)	DC-DC ON	Open or 3.5V < Vr < 12V
	DC-DC OFF	Short or 0V < Vr < 1.2V
Remote off input current	Nominal input	20mA
Efficiency		see „Selection Guide“ table
Isolation Voltage		1600VDC min.
Isolation Resistance		10 <sup>9</sup> Ω min.
Isolation Capacitance		300pF max.
Switching Frequency		270kHz typ.
Approved to Safety Standards		UL 1950, EN60950
Case Material		Nickel-coated copper
Base Material		Non-conducted black plastic
Potting Material		Epoxy (UL94-V0)
Weight		48g
Dimensions		50.8 x 40.6 x 10.2 mm
MTBF (see note 4)		2.041 x 10 <sup>6</sup> Hours
Operating Temperature Range (see derating curves on previous page)		-40°C to +85°C (with derating)
Maximum Case Temperature		+100°C
Storage Temperature Range		-55°C to +105°C

continued on next page

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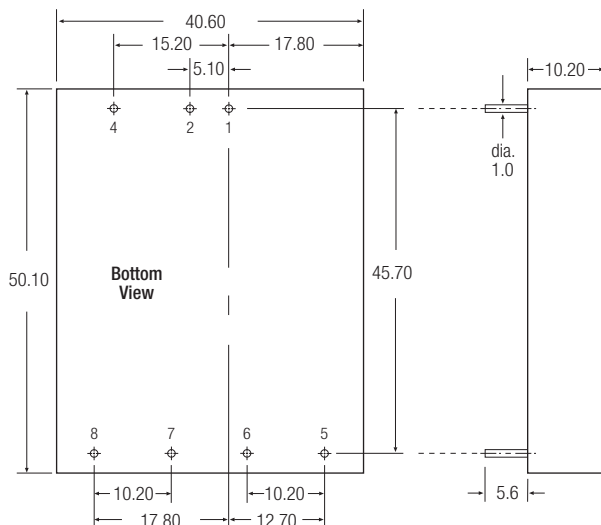
## Specifications continued (typical at nominal input and 25°C unless otherwise noted)

Thermal Impedance (see note 5)	Natural convection	10°C/Watt
Thermal Shock		MIL-STD-810D
Vibration		10-55Hz, 2G, 30 Min. along X, Y and Z
Relative Humidity		5% to 95% RH
Conducted Emissions	EN55022	Level A
Radiated Emissions	EN55022	Level A
Conducted Immunity	EN61000-4-6	Perf. Criteria 2
Radiated Immunity	EN61000-4-3	Perf. Criteria 2
Surge	EN61000-4-5	Perf. Criteria 2
Fast Transient	EN61000-4-4	Perf. Criteria 2
ESD	EN61000-4-2	Perf. Criteria 2

### Notes

- The RP15 E 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.
- Simulated source impedance of 12uH. 12uH inductor in series with +Vin.
- The ON/OFF control is referenced to negative input.
- BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40 °C. (Ground fixed and controlled environment).
- Heat sink is optional. Thermal impedance is 8.24°C/Watt for natural convection and the P/N is 7G-0011A.
- Maximum value at nominal input voltage and full load.
- Typical value at nominal input voltage and full load.

## Package Style and Pinning (mm)



### Pin Connections

Pin #	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
4	CTRL	CTRL
5	No Pin	+Vout
6	+Vout	Common
7	-Vout	-Vout
8	Trim	Trim

Pin Pitch Tolerance  $\pm 0.35$  mm