

POWERLINE - DC/DC-Converter

EW-Series, 10W, 1.6 kV Isolation, 4:1 Wide Input Range (Single & Dual Output)

RECOM

Features

- 10 Watts Output Power
- 4:1 Wide Input Voltage Range
- International Safety Standard Approvals
- Six-Sided Continuous Shield
- High Efficiency up to 86%
- Standard 50.8 x 25.4 x 10.2mm Package
- Fixed Switching Frequency
- UL 1950 Component Recognised

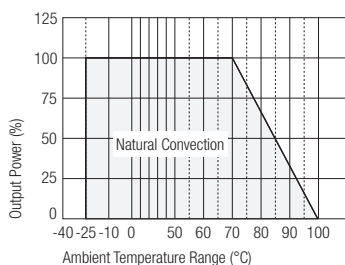


Selection Guide 24V and 48V Input Types

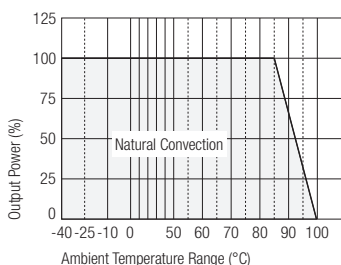
Part Number	Input Voltage VDC	Output Voltage VDC	Output Current mA	Input Current (see note 7) mA	Efficiency (see note 8) %	Capacitive Load max. μF
RP10-2405SEW	9-36	5	2000	548	80	4700
RP10-2412SEW	9-36	12	830	532	82	690
RP10-2415SEW	9-36	15	670	551	80	470
RP10-2405DEW	9-36	±5	±1000	548	80	±680
RP10-2412DEW	9-36	±12	±416	547	80	±330
RP10-2415DEW	9-36	±15	±333	548	80	±110
RP10-4805SEW	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
RP10-4805DEW	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

RP10-4805SE: Derating & Efficiency Curves

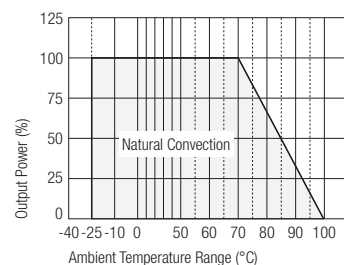
RP10-4805S Derating Curve



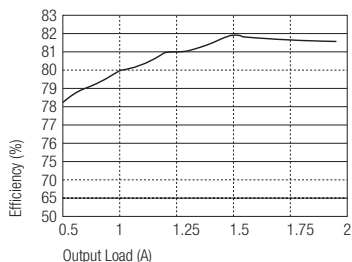
RP10-4805S-M1 Derating Curve



RP10-4805S-M2



RP10-4805S Efficiency vs Output Load



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

Output Power		10W max.
Voltage Accuracy (full Load and nominal Vin)		±2%
Minimum Load (see note 1)		10% of FL
Line Regulation (LL-HL at full load)		±1%
Load Regulation (10% to 100% FL)	Single	±1%
	Dual	±2%
Cross Regulation (asymmetrical load 25%/100% FL)	Dual	±5%
Ripple and Noise (20MHz bandwidth)	Single	50mVp-p
	Dual	75mVp-p
Temperature Coefficient		±0.02%/°C, max.
Transient Response (25% load step change)		500µsec
Over Voltage (with zener diode clamp)	5V output	6.2V
	12V output	15V
	15V output	18V
Over Load (% of full load at nominal Vin)		150% max.
Short Circuit Protection		Hiccup, automatic recovery
Input Voltage Range	RP10 24V nominal input	9-36VDC
	RP10 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)		30mA _{p-p}
Start Up Time (nominal Vin and constant resistor load)		20ms typ.
Remote ON/OFF (see note 3)	Positive logic	DC-DC ON DC-DC OFF
	Negative logic	DC-DC ON DC-DC OFF
Remote Off Input Current	Nominal input	Open or 3.5V < Vr < 12V Short or 0V < Vr < 1.2V Open or 3.5V < Vr < 12V 2.5mA
Efficiency		see „Selection Guide“ table
Isolation Voltage		1600VDC min.
Isolation Resistance		10 ⁹ Ω min.
Isolation Capacitance		300pF max.
Switching Frequency		300kHz 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		27g
Dimensions		50.8 x 25.4 x 10.2 mm
MTBF (see note 4)		1.976 x 10 ⁶ Hours
Operating Temperature Range (see derating curves on previous page)	Standard	-25°C to +85°C (with derating)
	M1 (see note 5)	-40°C to +85°C (non-derating)
	M2	-40°C to +85°C (with derating)

continued on next page

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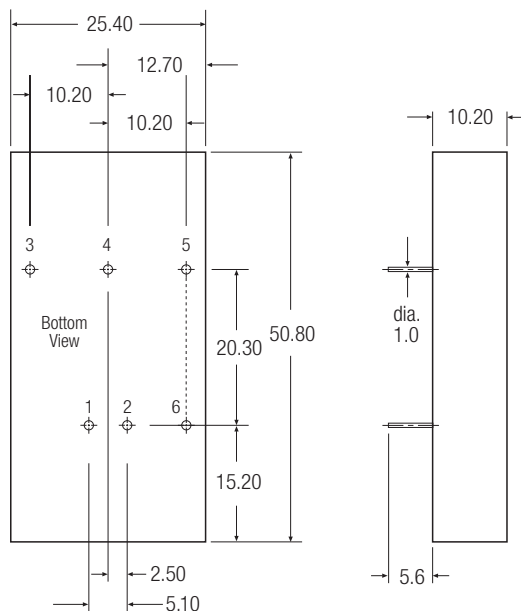
Specifications continued (typical at nominal input and 25°C unless otherwise noted)

Maximum Case Temperature		+100°C
Storage Temperature Range		-55°C to +105°C
Thermal Impedance (see note 6)	Natural convection	12°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

1. The RP10 EW 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. Simulated source impedance of 12uH. 12uH inductor in series with +Vin.
3. The ON/OFF control is option function. There are positive logic and negative logic. The pin voltage is referenced to negative input. To order positive logic ON-OFF control add the suffix ' P ' (Ex: RP10-2405SEW/P)
To order negative logic ON-OFF control add the suffix ' N ' (Ex: RP10-2405SEW/N)
4. BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40 °C. (Ground fixed and controlled environment).
5. M1 version is more efficient, therefore, it can be operated in a more extensive temperature range than standard and M2 version.
6. Heat sink is optional and P/N: 7G -0020A, Thermal impedance is 10°C/Watt for natural convection.
7. Maximum value at nominal input Voltage and full load of standard type.
8. 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
3	+Vout	+Vout
4	No Pin	Common
5	-Vout	-Vout
6	CTRL (Optional)	CTRL (Optional)

Pin Pitch Tolerance ± 0.35 mm