

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

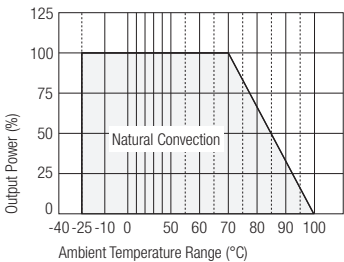


Selection Guide 24V and 48V Input Types

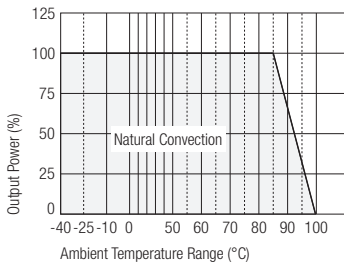
Part Number	Input Voltage	Output Voltage	Output Current	Input Current (see note 7)	Efficiency (see note 8)	Capacitive Load max. μ F
	VDC	VDC	mA	mA	%	
RP10-2405SEW	9-36	5	2000	548	80	4700
RP10-2412SEW	9-36	12	830	532	82	690
RP10-2415SEW	9-36	15	670	551	80	470
RP10-2405DEW	9-36	$\pm$ 5	$\pm$ 1000	548	80	$\pm$ 680
RP10-2412DEW	9-36	$\pm$ 12	$\pm$ 416	547	80	$\pm$ 330
RP10-2415DEW	9-36	$\pm$ 15	$\pm$ 333	548	80	$\pm$ 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	$\pm$ 5	$\pm$ 1000	271	81	$\pm$ 680
RP10-4812DEW	18-75	$\pm$ 12	$\pm$ 416	281	78	$\pm$ 330
RP10-4815DEW	18-75	$\pm$ 15	$\pm$ 333	270	81	$\pm$ 110

RP10-4805SE: Derating & Efficiency Curves

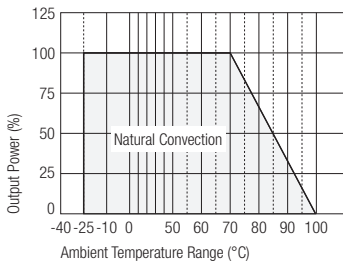
RP10-4805S Derating Curve



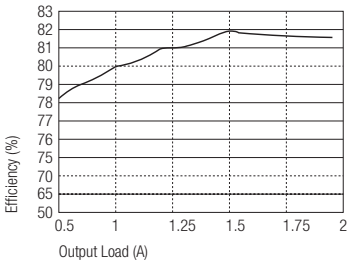
RP10-4805S-M1 Derating Curve



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	Open or 3.5V < Vr < 12V
		DC-DC OFF	Short or 0V < Vr < 1.2V
	Negative logic	DC-DC ON	Short or 0V < Vr < 1.2V
		DC-DC OFF	Open or 3.5V < Vr < 12V
Remote Off Input Current	Nominal input	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)

