

POWERLINE - DC/DC-Converter

AW-Series, 5W, 1.6 kV Isolation, Regulated, 4:1 Wide Input Range (Single & Dual Output)

RECOM

Features

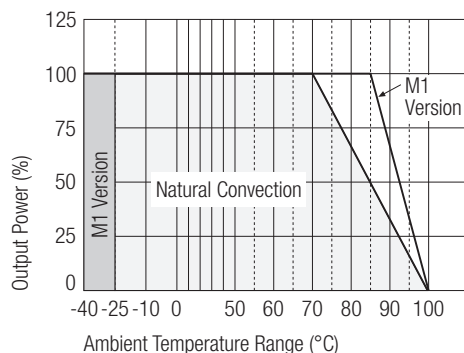
- 5 Watts Regulated Output Power
- 4:1 Wide Input Voltage Range
- Five-Sided Shield
- Standard 24 Pin DIP & SMD Type Package
- High Efficiency up to 82%
- UL 1950 Component Recognised
- International Safety Standard Approvals



Selection Guide 24V and 48V Input Types

Part Number	SMD Suffix	Input Range	Output Voltage	Output Current	Input Current (see note 4)	Efficiency (see note 5)	Capacitive Load max. μ F
DIP		VDC	VDC	mA	mA	%	
RP05-243.3SAW	(SMD)	9-36	3.3	1000	191	76	2200
RP05-2405SAW	(SMD)	9-36	5	1000	285	77	1000
RP05-2412SAW	(SMD)	9-36	12	470	309	80	220
RP05-2415SAW	(SMD)	9-36	15	400	329	80	150
RP05-2405DAW	(SMD)	9-36	\pm 5	\pm 500	282	78	\pm 680
RP05-2412DAW	(SMD)	9-36	\pm 12	\pm 230	295	82	\pm 100
RP05-2415DAW	(SMD)	9-36	\pm 15	\pm 190	313	80	\pm 68
RP05-483.3SAW	(SMD)	18-75	3.3	1000	100	73	2200
RP05-4805SAW	(SMD)	18-75	5	1000	145	76	1000
RP05-4812SAW	(SMD)	18-75	12	470	155	80	220
RP05-4815SAW	(SMD)	18-75	15	400	167	79	150
RP05-4805DAW	(SMD)	18-75	\pm 5	\pm 500	145	76	\pm 680
RP05-4812DAW	(SMD)	18-75	\pm 12	\pm 230	151	80	\pm 100
RP05-4815DAW	(SMD)	18-75	\pm 15	\pm 190	159	79	\pm 68

RP05-4805SAW: Derating Curve



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

Output Power		5W max.
Voltage Accuracy (full Load and nominal Vin)		±2%
Minimum Load (see note 1)		10% of FL
Line Regulation (LL-HL at full load)		±0.2%
Load Regulation (25% to 100% FL)	Single Dual	±0.5% ±1%
Cross Regulation (asymmetrical load 25%/100% FL)		±5%
Ripple and Noise (20MHz bandwidth)		50mVp-p
Temperature Coefficient		±0.02%/°C, max.
Transient Response (25% load step change)		200µsec
Over Load Protection (% of full load at nominal Vin)		170% typ.
Short Circuit Protection		Continuous, automatic recovery
Input Voltage Range	RP05 24V nominal input RP05 48V nominal input	9-36VDC 18-75VDC
Input Filter		Pi Type
Input Surge Voltage (100 ms max.)	24V Input 48V Input	50VDC 100VDC
Input Reflected Ripple (nominal Vin and full load)		20mA _{p-p}
Start Up Time (nominal Vin and constant resistor load)		600ms typ.
Efficiency		see „Selection Guide“ table
Isolation Voltage	In to out I/O to case I/O to case	1600VDC min. DIP type 1600VDC min. SMD type 1000VDC 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	DIP SMD	16g 18g
Dimensions		See „Package Style and Pinning“ on next page
MTBF (see note 2)		3.165 x 10 ⁶ Hours
Operating Temperature Range	Standard M1 (see note 3) M2 (W series)	-25°C to +85°C (with derating) -40°C to +85°C (non-derating) -40°C to +85°C (with derating)
Maximum Case Temperature		+100°C
Storage Temperature Range		-55°C to +105°C

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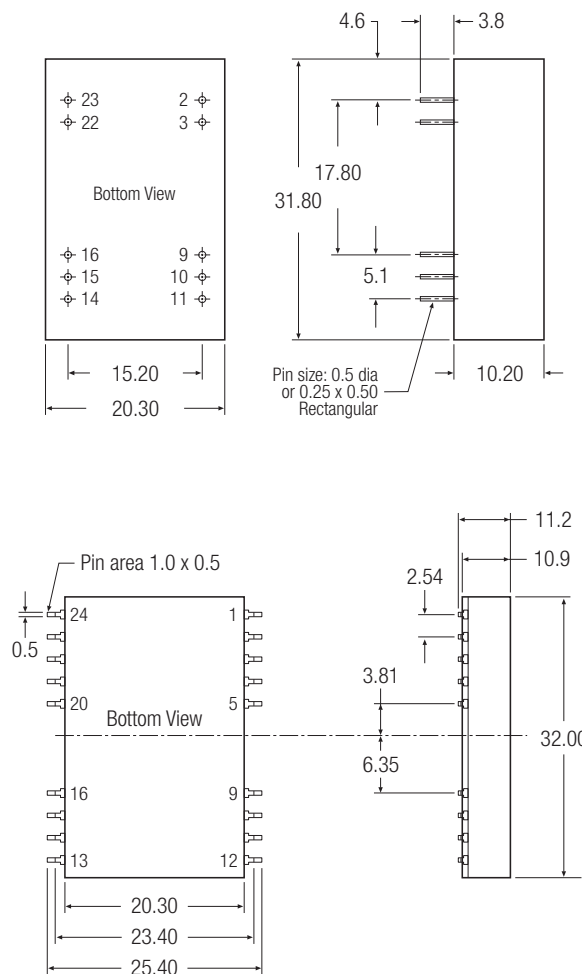
Specifications continued (typical at nominal input and 25°C unless otherwise noted)

Thermal Impedance	Natural convection	20°C/Watt
Thermal Shock		MIL-STD-810D
Vibration		10-55Hz, 2G, 3 Min. Period, 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
Fast Transient	EN61000-4-4	Perf. Criteria 2
ESD	EN61000-4-2	Perf. Criteria 2

Notes

1. The RP05 AW- 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. BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40 °C (Ground fixed and controlled environment).
3. M1 version is more efficient, therefore, it can be operated in a more extensive temperature range than the standard and the M2 version.
4. Maximum value at nominal input voltage and full load of standard type.
5. Typical value at nominal input voltage and full load.
6. There is no pin at pin 10 & pin 15 for the RP05-W series.

Package Style and Pinning (mm)



DIP Pin Connections

Pin #	Single	Dual
2	-Vin	-Vin
3	-Vin	-Vin
9	NC	Common
10	NC (see note 6)	NC (see note 6)
11	NC	-Vout
14	+Vout	+Vout
15	NC (see note 6)	NC (see note 6)
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin

SMD Pin Connections

Pin #	Single	Dual
2	-Vin	-Vin
3	-Vin	-Vin
9	NC	Common
10	NC	NC
11	NC	-Vout
14	+Vout	+Vout
15	NC	NC
16	-Vout	Common
22	+Vin	+Vin
23	+Vin	+Vin
Others	NC	NC

Pin Pitch Tolerance ± 0.35 mm