

POWERLINE - DC/DC-Converter

A-Series, 5W, 1.6 kV Isolation, Regulated, 2:1 Wide Input Range (Single & Dual Output)

RECOM

Features

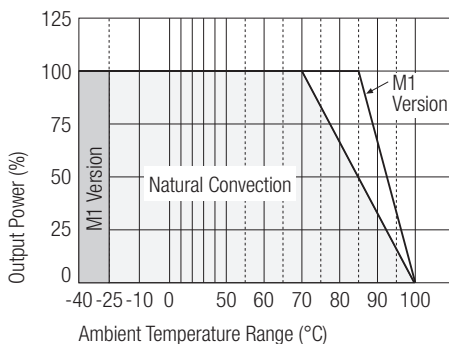
- 5 Watts Regulated Output Power
- 2:1 Wide Input Voltage Range
- Five-Sided Shield
- High Efficiency up to 84%
- Standard 24 Pin DIP & SMD Type Package
- International Safety Standard Approvals
- UL 1950 Component Recognised



Selection Guide 12V, 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	%	
RP05-123.3SA	(SMD)	9-18	3.3	1000	382	76	2200
RP05-1205SA	(SMD)	9-18	5	1000	563	78	1000
RP05-1212SA	(SMD)	9-18	12	470	603	82	220
RP05-1215SA	(SMD)	9-18	15	400	649	81	150
RP05-1205DA	(SMD)	9-18	\pm 5	\pm 500	563	78	\pm 680
RP05-1212DA	(SMD)	9-18	\pm 12	\pm 230	597	81	\pm 100
RP05-1215DA	((SMD)	9-18	\pm 15	\pm 190	617	81	\pm 68
RP05-243.3SA	(SMD)	18-36	3.3	1000	194	75	2200
RP05-2405SA	(SMD))	18-36	5	1000	285	77	1000
RP05-2412SA	(SMD)	18-36	12	470	305	81	220
RP05-2415SA	(SMD)	18-36	15	400	325	81	150
RP05-2405DA	(SMD)	18-36	\pm 5	\pm 500	274	80	\pm 680
RP053-2412DA	(SMD)	18-36	\pm 12	\pm 230	288	84	\pm 100
RP05-2415DA	(SMD)	18-36	\pm 15	\pm 190	308	81	\pm 68
RP05-483.3SA	(SMD)	36-75	3.3	1000	98	74	2200
RP05-4805SA	(SMD)	36-75	5	1000	143	77	1000
RP05-4812SA	((SMD)	36-75	12	470	151	82	220
RP05-4815SA	(SMD)	36-75	15	400	162	81	150
RP05-4805DA	(SMD)	36-75	\pm 5	\pm 500	141	78	\pm 680
RP05-4812DA	(SMD)	36-75	\pm 12	\pm 230	147	82	\pm 100
RP05-4815DA	(SMD)	36-75	\pm 15	\pm 190	154	81	\pm 68

RP05-4805SA: 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		±0.5%
	Dual		±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	12V nominal input	9-18VDC
	RP05	24V nominal input	18-36VDC
	RP05	48V nominal input	36-75VDC
Input Filter			Pi Type
Input Surge Voltage (100 ms max.)	12V Input		36VDC
	24V Input		50VDC
	48V Input		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		1600VDC min.
	I/O to case		DIP type 1600VDC min.
	I/O to case		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 (JL94-V0)
Weight	DIP		16g
	SMD		18g
Dimensions			See „Package Style and Pinning“ on next page
MTBF (see note 2)			3.165 x 10 ⁶ hours
Operating Temperature Range	Standard		-25°C to +85°C (with derating)
	M1 (see note 3)		-40°C to +85°C (non-derating)
Maximum Case Temperature			+100°C
Storage Temperature Range			-55°C to +105°C

continued on next page

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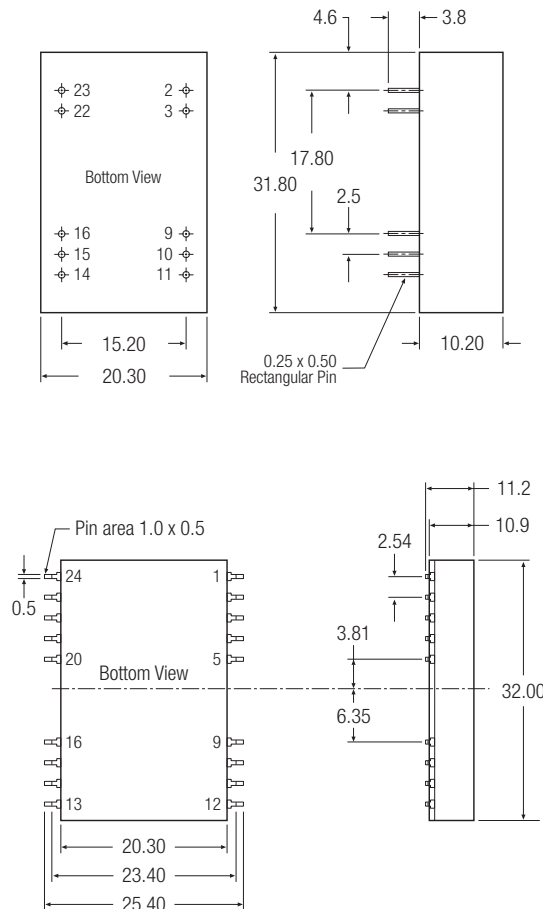
Specifications continued (typical at nominal input and 25°C unless otherwise noted)

Thermal Impedance	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 A-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