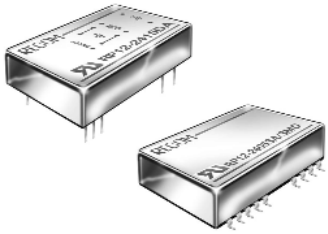
Features

- 2:1 Wide Input Voltage Range
- 12 Watts Output Power
- 1.6kVDC Isolation
- UL Certified
- Over Current Protection
- Five-Sided Shield
- Standard DIP24 and SMD-Pinning
- Efficiency to 88%

POWERLINE
DC/DC-Converter
with 3 year Warranty

RECOM

12 Watt DIP24/SMD Single & Dual Output



RoHS 2002/95/EC 6/6

UL-60950-1 Certified
E196683

RP12-A

Description

The RP12-A series DC/DC converterc are certified to UL 60950-1 and cUL 60950-1. This makes them ideal for all telecom and industrial applications where approved safety standards are required.
The DIP24 package is available in both pinned and SMD case styles and meets military standards for thermal shock and vibration tolerance.

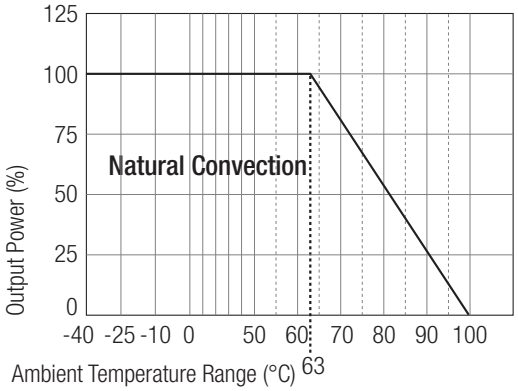
Selection Guide 12V, 24V and 48V Input Types

Part Number DIP24 (SMD)	Input Range VDC	Output Voltage VDC	Output Current mA	Input[4] Current mA	Efficiency[5] %	Capacitive[6] Load max.
RP12-123.3SA**	9-18	3.3	3500	1646	84	2000µF
RP12-1205SA**	9-18	5	2400	1606	86	2000µF
RP12-1212SA**	9-18	12	1000	1606	86	430µF
RP12-1215SA**	9-18	15	800	1606	86	300µF
RP12-243.3SA**	18-36	3.3	3500	823	85	2000µF
RP12-2405SA**	18-36	5	2400	803	87	2000µF
RP12-2412SA**	18-36	12	1000	803	87	430µF
RP12-2415SA**	18-36	15	800	803	87	300µF
RP12-483.3SA**	36-75	3.3	3500	411	85	2000µF
RP12-4805SA**	36-75	5	2400	401	87	2000µF
RP12-4812SA**	36-75	12	1000	401	87	430µF
RP12-4815SA**	36-75	15	800	401	87	300µF
RP12-1205DA**	9-18	±5	±1200	1687	82	±1250µF
RP12-1212DA**	9-18	±12	±500	1626	87	±200µF
RP12-1215DA**	9-18	±15	±400	1626	87	±120µF
RP12-2405DA**	18-36	±5	±1200	843	83	±1250µF
RP12-2412DA**	18-36	±12	±500	813	88	±200µF
RP12-2415DA**	18-36	±15	±400	813	88	±120µF
RP12-4805DA**	36-75	±5	±1200	422	83	±1250µF
RP12-4812DA**	36-75	±12	±500	406	88	±200µF
RP12-4815DA**	36-75	±15	±400	406	88	±120µF

** add Suffix SMD for SMD package

Derating Graph (Ambient Temperature)

RP12-4805SA



Derating graphs are valid only for the shown part numbers. If you need detailed derating-information about a part-number not shown here please contact our technical support service at info@recom-development.at

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

Input Voltage Range	12V nominal input	9-18VDC
	24V nominal input	18-36VDC
	48V nominal input	36-75VDC
Under Voltage Lockout	12V Input DC-DC ON	9VDC
	DC-DC OFF	8VDC
	24V Input DC-DC ON	18VDC
	DC-DC OFF	16VDC
	48V Input DC-DC ON	36VDC
	DC-DC OFF	33VDC
Input Filter		Pi Type
Input Voltage Variation dv/dt	(Complies with ETS300 132 part 4.4)	5V/ms max.
Input Surge Voltage (100 ms max.)	12V Input	36VDC
	24V Input	50VDC
	48V Input	100VDC
Input Reflected Ripple (nominal Vin and full load) (see Note 3)		20mAp-p
Start Up Time (nominal Vin and constant resistor load)		600ms typ.
Remote ON/OFF (see Note 7)	DC-DC ON	Open or 3.0V < Vr < 12V
	DC-DC OFF	Short or 0V < Vr < 1.2V
Remote OFF input curren	Nominal input	2.5mA
Output Power		12W max.
Output Voltage Accuracy (full Load and nominal Vin)		±1.2%
Minimum Load (see Note 1)		10% of full load

continued on next page

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

Line Regulation (low line, high line at full load)	Single	±0.2%
	Dual	±0.5%
Load Regulation (25% to 100% full load)	Single	±0.5%
	Dual	±1%
Cross Regulation (asymmetrical 25% <>100% load)		±5%
Ripple and Noise (20MHz bandwith)		85mVp-p
Temperature Coefficient		±0.02%/°C max.
Transient Response (25% load step change)		300µs
Over Voltage Protection	3.3V	3.9V
Zener diode clamp (only single)	5V	6.2V
	12V	15V
	15V	18V
Over Load Protection (% of full load at nominal Vin)		150% typ
Undervoltage Lockout		See Application Notes
Short Circuit Protection		Continuous, automatic recovery
Efficiency		see „Selection Guide“ table
Isolation Voltage	In to out	1600VDC min.
(rated for one minute)	I/O to case	1600VDC min.
Isolation Resistance		1 GΩ min.
Isolation Capacitance		1200pF max.
Operating Frequency		400kHz typ.
Operating Temperature Range		-40°C to +85°C(with derating)
Maximum Case Temperature		+100°C
Storage Temperature Range		-55°C to +125°C
Thermal Impedance	Natural convection	20°C/Watt
Thermal Shock		MIL-STD-810D
Vibration		10-55Hz, 10G, 30 Min. along X, Y and Z
Relative Humidity		5% to 95% RH
Case Material		Nickel plated copper
Base Material		Non-conductive black plastic
Potting Material		Epoxy (UL94-V0)
Conducted Emissions (see Note 8)	EN55022	Class A
Radiated Emissions	EN55022	Class A
ESD	EN61000-4-2	Perf. Criteria B
Radiated Immunity	EN61000-4-3	Perf. Criteria B
Fast Transient	EN61000-4-4	Perf. Criteria B
Surge	EN61000-4-5	Perf. Criteria B
Conducted Immunity	EN61000-4-6	Perf. Criteria B
Weight	DIP	18g
	SMD	20g
Packing Quantity	Refer to App Notes for tube dimensions	7pcs per Tube
Dimensions		31.8 x 20.3 x 10.2mm
MTBF (see Note 2)		2750 x 10^3 hours

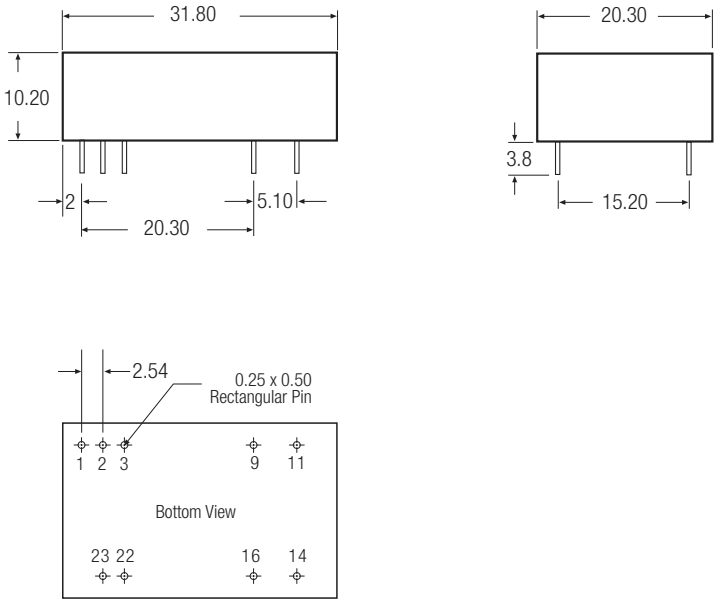
Notes :

1. The RP12 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. Simulated source impedance of 12µH. 12µH inductor in series with +Vin.
4. Maximum value at nominal input voltage and full load of standard type.
5. Typical value at nominal input voltage and full load.
6. Test by minimum Vin and constant resistor load.
7. The ON/OFF control pin voltage is referenced to negative input.
8. See application notes for EMI-filtering.

Package Style and Pinning (mm)

DIP24 Package Style

3rd angle projection



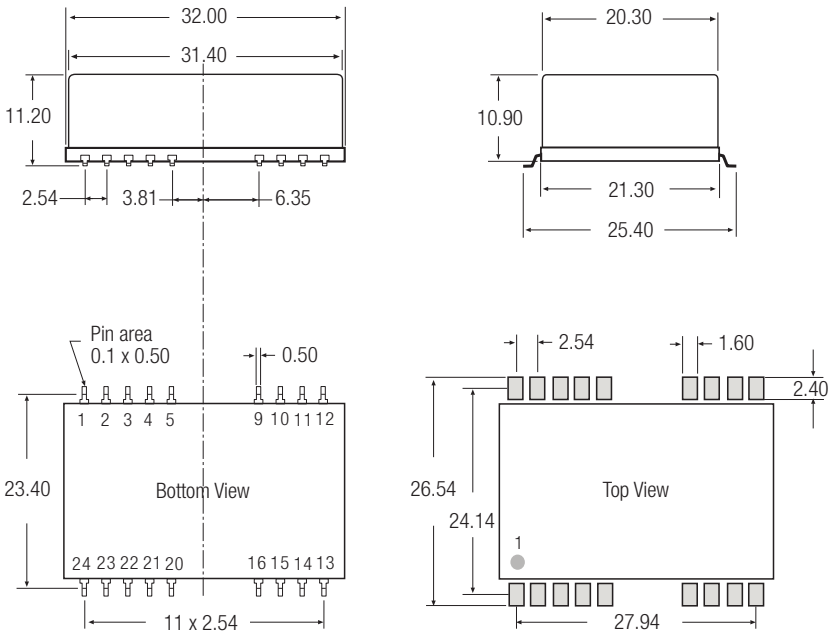
Pin Connections

Pin #	Single	Dual
1	ON/OFF	ON/OFF
2	-Vin	-Vin
3	-Vin	-Vin
9	NC	Com
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	Com
22	+Vin	+Vin
23	+Vin	+Vin

NC = No Connection

Pin Pitch Tolerance ±0.35 mm

SMD Package Style



SMD Package Style

Same spec. as the original DIP spec. and pin definition, excl. of the SMD type pin.

Pin Connections

Pin #	Single	Dual
1	ON/OFF	ON/OFF
2	-Vin	-Vin
3	-Vin	-Vin
9	NC	Com
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	Com
22	+Vin	+Vin
23	+Vin	+Vin
Others	NC	NC

NC = No Connection

Pin Pitch Tolerance ±0.35 mm

RP12-A