Features

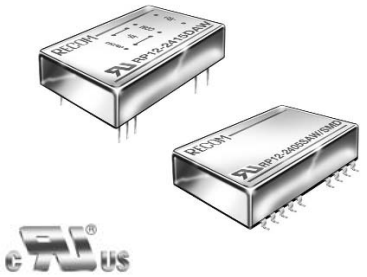
Regulated Converters

- 4:1 Wide Input Voltage Range
- 12 Watts Regulated Output Power
- 1.6kVDC Isolation
- Over Current and Over Voltage Protection
- Five-Sided Shield
- No Derating to 61°C
- Standard DIP24 Pinning
- Efficiency to 88%

POWERLINE
DC/DC-Converter

RP12-S_DAW Series

12 Watt DIP24 & SMD, Single & Dual Output



UL-60950-1 Certified

RECOM

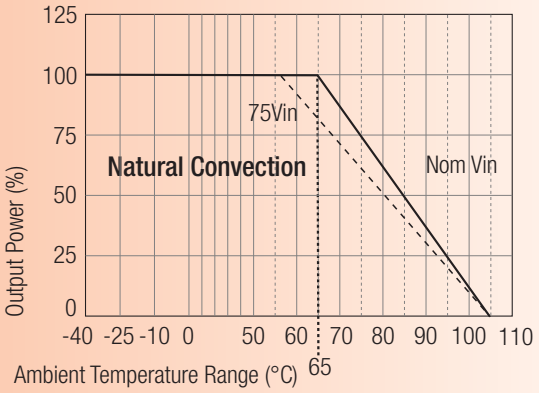
Selection Guide 24V and 48V Wide Input Types

Part Number	Input Range	Output Voltage	Output Current	Input [4,5] Current	Efficiency[6]	Capacitive[7] Load max.
DIP24 (SMD)	VDC	VDC	mA	mA	%	µF
RP12-243.3SAW**	9-36	3.3	3500	55/602	84	2000
RP12-2405SAW**	9-36	5.1	2400	55/614	87	2000
RP12-2412SAW**	9-36	12	1000	25/610	86	430
RP12-2415SAW**	9-36	15	800	25/610	86	300
RP12-483.3SAW**	18-75	3.3	3500	20/301	84	2000
RP12-4805SAW**	18-75	5.1	2400	20/307	87	2000
RP12-4812SAW**	18-75	12	1000	13/302	87	430
RP12-4815SAW**	18-75	15	800	13/298	88	300
RP12-2405DAW**	9-36	±5	±1200	20/625	84	±1250
RP12-2412DAW**	9-36	±12	±500	25/610	86	±200
RP12-2415DAW**	9-36	±15	±400	25/610	86	±120
RP12-4805DAW**	18-75	±5	±1200	10/309	85	±1250
RP12-4812DAW**	18-75	±12	±500	13/301	87	±200
RP12-4815DAW**	18-75	±15	±400	13/301	87	±120

** add Suffix SMD for SMD package

Derating Graph (Ambient Temperature)

RP12-4805SAW



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

Input Voltage Range	24V nominal input	9-36VDC
	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)		20mAp-p

continued on next page

RP12-S_DAW Series

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

Start Up Time (nominal Vin and constant resistor load)		450ms typ.
Remote ON/OFF (see note 1)	DC-DC ON DC-DC OFF	Open or 3.0V < Vr < 12V Short or 0V < Vr < 1.2V
Remote OFF input current	Nominal input	2.5mA
Output Power		12W max.
Output Voltage Accuracy (full Load and nominal Vin)		±1.2%
Minimum Load		0%
Line Regulation (low line, high line at full load)		±0.2%
Load Regulation (0% to 100% full load)	Single Dual	±0.5% ±1%
Cross Regulation Dual Output (asymmetrical load 25%/100% full load)		±5%
Ripple and Noise (20MHz bandwith)		85mVp-p
Temperature Coefficient		±0.02%/°C max.
Transient Response (25% load step change)		250µs
Input Voltage Variation, dv/dt	complies with ETS300 132, part 4.4	5V/ms
Over Load Protection (% of full load at nominal Vin)		150% typ
Overvoltage Protection (Single)		Zener Diode Clamp
Undervoltage Protection	24V Input 48V Input	DC-DC ON = 9VDC, DC-DC OFF = 8VDC DC-DC ON = 18VDC, DC-DC OFF = 16VDC
Short Circuit Protection		Continuous, automatic recovery
Efficiency		see „Selection Guide“ table
Isolation Voltage	In to Out and I/O to case	1600VDC min.
Isolation Resistance		10 GΩ min.
Isolation Capacitance		1500pF max.
Operating Frequency		400kHz typ.
Operating Temperature Range	5.1, 12, 15, ±12, ±15V 3.3, ±5V with derating	-40°C to +65°C -40°C to +61°C -40°C to +105°C
Maximum Case Temperature		+105°C
Storage Temperature Range		-55°C to +125°C
Thermal Impedance	Natural convection	20°C/Watt
Case Material		Nickel plated copper
Base Material		Non-conductive black plastic
Potting Material		Epoxy (UL94-V0)
Weight	DIP SMD	18g 20g
Conducted Emissions (see note 3)	EN55022	Class A
Radiated Emissions (see note 3)	EN55022	Class A
ESD	EN61000-4-2	Perf. Critera B
Radiated Immunity	EN61000-4-3	Perf. Critera A
Fast Transient	EN61000-4-4	Perf. Critera B
Surge	EN61000-4-5	Perf. Critera B
Conducted Immunity	EN61000-4-6	Perf. Critera A
Thermal Shock		MIL-STD-810D
Vibration		10-55Hz, 2G, 30 Min. along X, Y and Z
Relative Humidity		5% to 95% RH
MTBF (see note 2)	Bellcore-TR-NWT-000332	2350 x 10^3 hours

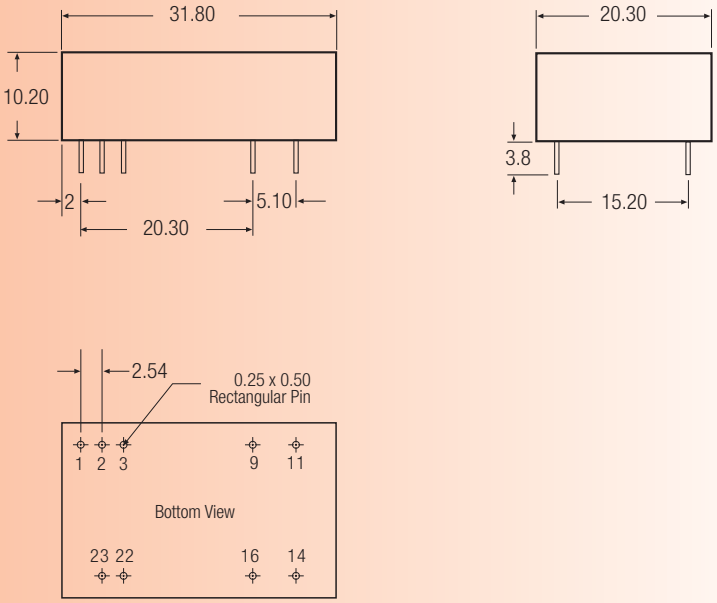
Notes :

1. The ON/OFF control pin voltage is referenced to negative input.
2. BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C (Ground fixed and controlled environment).
3. Requires external filter to meet EN55022 Class A
4. Typical value at nominal input voltage and no load.
5. Maximum value at nominal input voltage and full load
6. Typical value at nominal input voltage and full load.
7. Test by minimum Vin and constant resistor load.

Package Style and Pinning (mm)

DIP24 Package Style

3rd angle projection



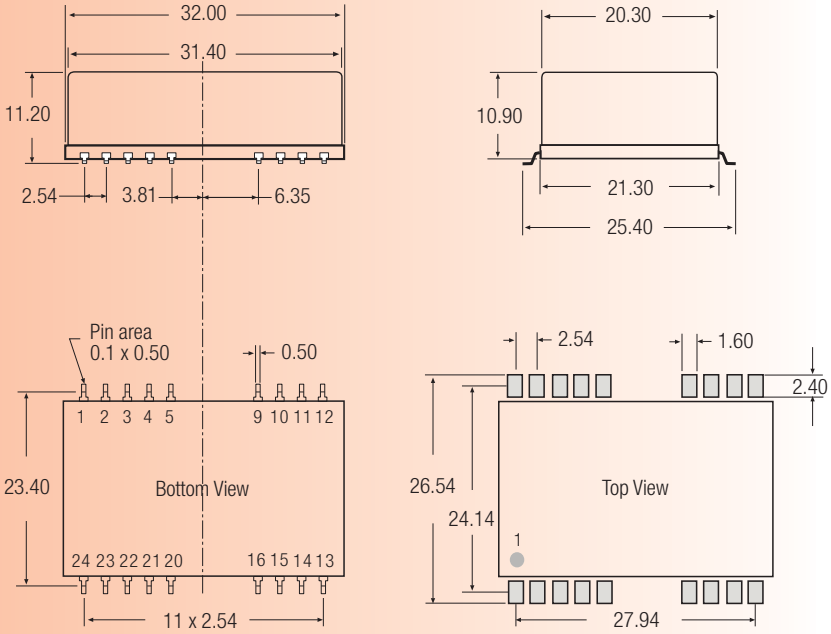
Pin Connections

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