

## Features

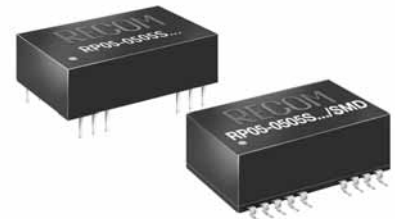
### Regulated Converters

- 2:1 Wide Input Voltage Range
- 5 Watts Regulated Output Power
- 1.6kVDC Isolation
- Suffix "H" 3kVDC Isolation
- Low Profile, 10.2 mm Height
- Over Current Protection
- Five-Sided Shield
- No Derating to 71°C
- Non-Conductive Black Plastic
- Ideal for Telecom/Networking
- Standard DIP24 and SMD-Pinning
- Efficiency to 81%

## POWERLINE DC/DC-Converter

# RP05- S\_DF Series

## 5 Watt DIP24 & SMD, Single & Dual Output



**RECOM**

### Selection Guide 5V, 12V, 24V and 48V Input Types

Part Number	Input Range	Output Voltage	Output Current	Input <sup>(4)</sup> Current	Efficiency <sup>(5)</sup>	Capacitive <sup>(6)</sup> Load max.
DIP24 (SMD)	VDC	VDC	mA	mA	%	µF
RP05-123.3SF**	9-18	3.3	1000	404	72	2200
RP05-1205SF**	9-18	5	1000	579	76	1000
RP05-1212SF**	9-18	12	470	618	80	220
RP05-1215SF**	9-18	15	400	658	80	150
RP05-243.3SF**	18-36	3.3	1000	202	72	2200
RP05-2405SF**	18-36	5	1000	278	79	1000
RP05-2412SF**	18-36	12	470	306	81	220
RP05-2415SF**	18-36	15	400	325	81	150
RP05-483.3SF**	36-75	3.3	1000	100	73	2200
RP05-4805SF**	36-75	5	1000	141	78	1000
RP05-4812SF**	36-75	12	470	153	81	220
RP05-4815SF**	36-75	15	400	162	81	150
RP05-1205DF**	9-18	±5	±500	571	77	±680
RP05-1212DF**	9-18	±12	±230	605	80	±100
RP05-1215DF**	9-18	±15	±190	625	80	±68
RP05-2405DF**	18-36	±5	±500	282	78	±680
RP05-2412DF**	18-36	±12	±230	299	81	±100
RP05-2415DF**	18-36	±15	±190	309	81	±68
RP05-4805DF**	36-75	±5	±500	143	77	±680
RP05-4812DF**	36-75	±12	±230	149	81	±100
RP05-4815DF**	36-75	±15	±190	154	81	±68

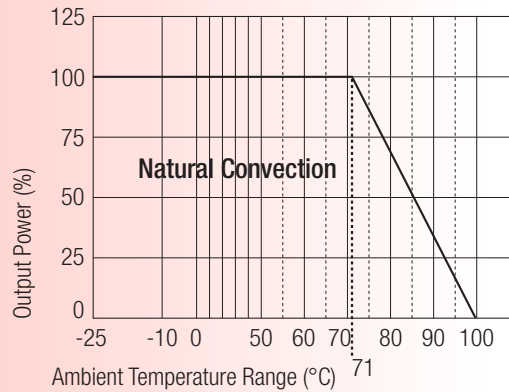
\*\* add Suffix SMD for SMD package

### Description

The F-Series of DC/DC Converters are fully certified to EN 60950: 2000. This makes them ideal for all Telecom and safety applications where approved isolation is required.

**Derating-Graph (Ambient Temperature)**

**RP05-4805SF**



Derating graphes 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 customer service at [info@recom-development.at](mailto: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
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)		150mAp-p
Start Up Time (nominal Vin and constant resistor load)		30ms typ.
Output Power		5W max.
Output 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	±2%
Cross Regulation (asymmetrical load 25%/100% FL)		±5%
Ripple and Noise (20MHz bandwidth)	3.3V, 5V	75mVp-p
	others	1%p-p of Vout max.
Temperature Coefficient		±0.02%/°C, max.
Transient Response (25% load step change)		500µS
Over Load Protection (% of full load at nominal Vin)		180% typ
Short Circuit Protection		Continuous, automatic recovery

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

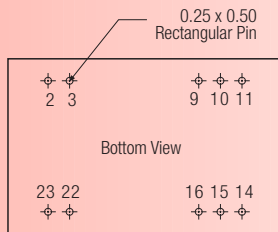
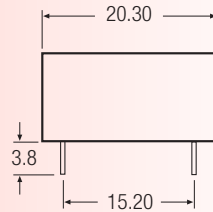
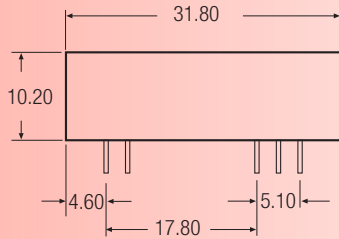
Efficiency		see „Selection Guide“ table
Isolation Voltage	In to out Standard Suffix /H	1.600VDC min. 3.000VDC min.
Isolation Resistance		10 <sup>9</sup> Ω min.
Isolation Capacitance		300pF max.
Operating Frequency		100kHz min.
Approved to Safety Standards		EN60950
Operating Temperature Range		-25°C to +71°C
Storage Temperature Range		-55°C to +105°C
Thermal Shock		MIL-STD-810D
Vibration		10-55Hz, 2G, 30 Min. along X, Y and Z
Relative Humidity		5% to 95% RH
Case Material		Non-conductive black plastic
Base Material		Non-conductive black plastic
Potting Material		Epoxy (UL94-V0)
Conducted Emissions	EN55022	Level A
Radiated Emissions	EN55022	Level A
ESD	EN61000-4-2	Perf. Criteria 2
Radiated Immunity	EN61000-4-3	Perf. Criteria 2
Fast Transient	EN61000-4-4	Perf. Criteria 2
Surge	EN61000-4-5	Perf. Criteria 2
Conducted Immunity	EN61000-4-6	Perf. Criteria 2
Weight	DIP SMD	14g 15g
Dimensions	DIP SMD	31.8 x 20.3 x 10.2mm 32.0 x 20.3 x 10.9mm
MTBF (see note 2)		3.731 x 10 <sup>6</sup> Hours

**Notes :**

1. The RP05 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. Suffix "H" for 3.000VDC Isolation
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. See application notes for EMI-filtering.

**Package Style and Pinning (mm)**

**DIP24 Package Style**



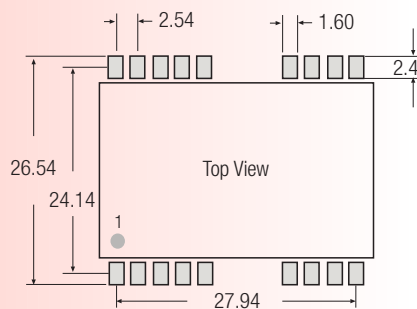
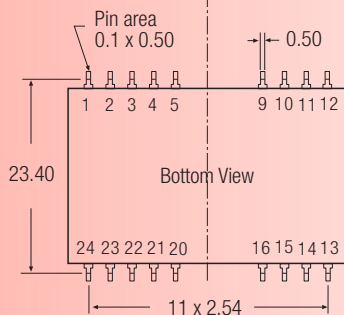
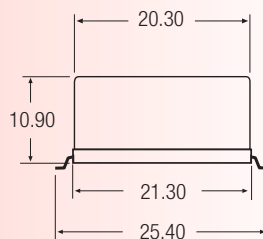
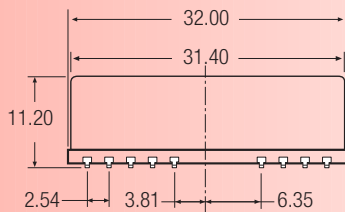
**Pin Connections**

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

NC = No Connection

Pin Pitch Tolerance  $\pm 0.35$  mm

**SMD Package Style**



**SMD Package Style**

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

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

NC = No Connection

Pin Pitch Tolerance  $\pm 0.35$  mm