

## Features

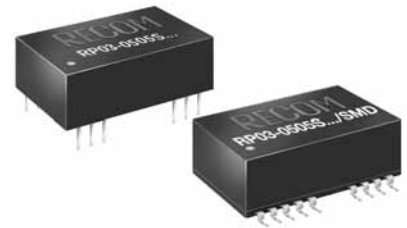
### Regulated Converters

- 2:1 Wide Input Voltage Range
- 3 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
- International Safety Standard Approvals
- Standard DIP24 and SMD-Pinning
- High Efficiency to 80%

## POWERLINE DC/DC-Converter

# RP03- S\_DG Series

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



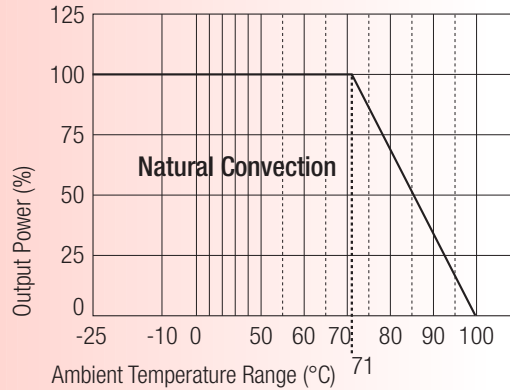
### Selection Guide 5V, 12V, 24V and 48V Input Types

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
RP03-053.3SG**	4.5-6	3.3	600	649	66	2200
RP03-0505SG**	4.5-6	5	600	909	70	1000
RP03-0512SG**	4.5-6	12	250	835	76	170
RP03-0515SG**	4.5-6	15	200	845	75	110
RP03-123.3SG**	9-18	3.3	600	266	70	2200
RP03-1205SG**	9-18	5	600	353	75	1000
RP03-1212SG**	9-18	12	250	333	79	170
RP03-1215SG**	9-18	15	200	343	77	100
RP03-243.3SG**	18-36	3.3	600	123	71	2200
RP03-2405SG**	18-36	5	600	174	76	1000
RP03-2412SG**	18-36	12	250	164	80	170
RP03-2415SG**	18-36	15	200	164	80	100
RP03-483.3SG**	36-75	3.3	600	61	72	2200
RP03-4805SG**	36-75	5	600	88	75	1000
RP03-4812SG**	36-75	12	250	84	79	170
RP03-4815SG**	36-75	15	200	84	79	100
RP03-0505DG**	4.5-6	±5	±300	870	73	±500
RP03-0512DG**	4.5-6	±12	±125	845	75	±96
RP03-0515DG**	4.5-6	±15	±100	870	73	±47
RP03-1205DG**	9-18	±5	±300	348	76	±500
RP03-1212DG**	9-18	±12	±125	338	78	±96
RP03-1215DG**	9-18	±15	±100	333	79	±47
RP03-2405DG**	18-36	±5	±300	172	77	±500
RP03-2412DG**	18-36	±12	±125	167	79	±96
RP03-2415DG**	18-36	±15	±100	167	79	±47
RP03-4805DG**	36-75	±5	±300	86	77	±500
RP03-4812DG**	36-75	±12	±125	84	79	±96
RP03-4815DG**	36-75	±15	±100	84	79	±47

\*\* add Suffix SMD for SMD package

**Derating-Graph** (Ambient Temperature)

**RP03-4805SG**



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 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	5V nominal input	4.5-6VDC
	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.)	5V Input	15VDC
	12V Input	36VDC
	24V Input	50VDC
	48V Input	100VDC
Input Reflected Ripple (nominal Vin and full load)		120mA <sub>p-p</sub>
Start Up Time (nominal Vin and constant resistor load)		30ms typ.
Output Power		3W 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	±0.2%
	Dual	±2%
Cross Regulation (asymmetrical load 25%/100% FL)		±5%
Ripple and Noise (20MHz bandwidth)	3.3V, 5V	75mV <sub>p-p</sub>
	others	1%/p-p of V <sub>out</sub> max.
Temperature Coefficient		±0.02%/°C, max.
Transient Response (25% load step change)		500µS

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

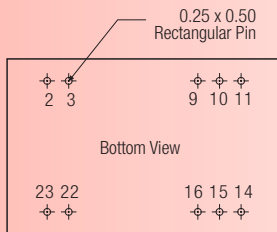
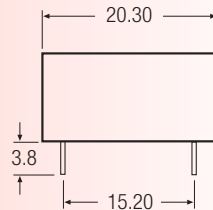
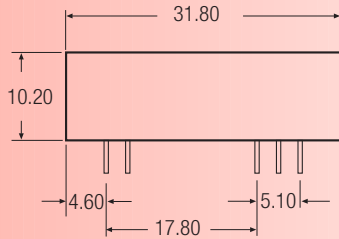
Over Load Protection (% of full load at nominal Vin)		180% typ
Short Circuit Protection		Continuous, automatic recovery
Efficiency		see „Selection Guide“ table
Isolation Voltage	In to out Standard Suffix /H	1.600VDC min. 3.000VDC min.
Isolation Resistance		10 <sup>9</sup> Ω min.
Isolation Capacitance		300pF max.
Operating Frequency		100kHz min.
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)		3.690 x 10 <sup>6</sup> Hours

**Notes :**

1. The RP03 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**



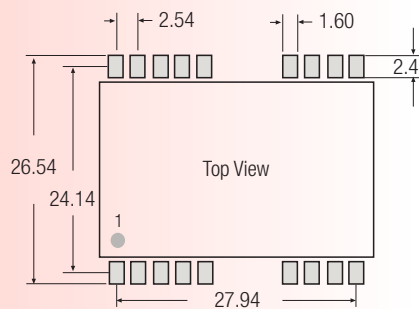
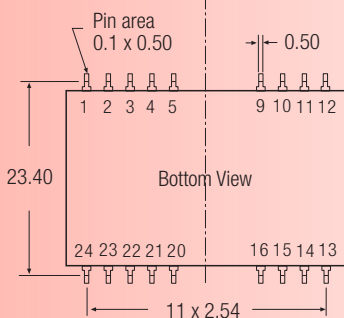
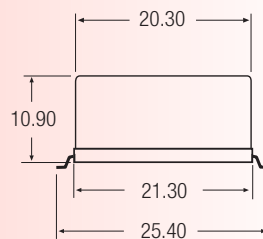
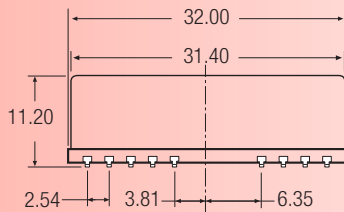
**Pin Connections**

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