RT6-RS30Wv3

3.0W Regulated Single Output DC/DC Converter

Picture similar

RoHS

- **14 Pin (7) SMD Package**
- **Wide 4:1 Input Range**
- **1500VDC Isolation**
- **Design meets IEC/UL/EN60950-1**
- **Efficiency up to 84%**
- **Operating Temperature Range -40°C ~ +85°C**
- **Over Current Protection, Short Circuit Protection**
- **No Load power consumption as low as 0.1W**
- **Non Conductive Black Plastic Case**
- **Remote On/Off Control**

Output Specifications	
Voltage Accuracy	±1% typ., ±3% max.
Output Voltage Adjustability (Trim)	–
Maximum Output Current	See table
Line Regulation	±0.2% typ. ±0.5% max.
Load Regulation	from 0% to 100% Load: ±0.5% typ. ±1% max. –
Cross Regulation (Dual Output)	–
Over Voltage Protection	–
Over Current Protection	150% typ., 250% max
Short Circuit Protection	Hiccup protection
Ripple & Noise (20 MHz bandwidth)	30mV typ., 120mV pk-pk max.
Temperature Coefficient	±0.03%/°C
Transient Recovery Time	300µs typ.
Transient Response Deviation	±3% ~ ±5% max.

Input Specifications	
Voltage Range	See table
Start-up Time	10ms typ.
No-Load/Full-Load Input Current	See table
Input Filter	C/L (see filter details on following pages)
Input Reflected Ripple Current	60 ~ 120mA pk-pk typ.
Remote ON	3.5 ~ 12VDC or open circuit
Remote OFF	0 ~ 1.2VDC or short circuit pin 2 and 1
OFF Idle Current	6mA typ.
Surge Voltage (100 ms) †)	
24V Models 48V Models	50VDC max. 100VDC max.

General Specifications	
I/O Isolation Voltage (60 sec)	1500VDC
Isolation Voltage Metal Case/Input&Output	–
I/O Isolation Capacitance	1000pF typ.
I/O Isolation Resistance	1000M Ohm, min
Switching Frequency	350kHz typ.
Humidity	95% rel H
Reliability Calculated MTBF	>1.0MHrs (MIL-HDBK-217 f)
Safety Standard(s)	IEC/EN60950-1 (designed to meet)

Environmental Specifications	
Operating Temperature Range	-40°C ~ +85°C (see Derating Curve)
Maximum Case Temperature	–
Storage Temperature	-55°C ~ +125°C
Cooling	Natural Convection
Soldering Profile and Peak Temperature	Pb-free Reflow: 245°C, 10s, max. / 217°C <60s (IPC/JEDEC J-STD-020D.1, MSL 1)

Physical Specifications	
Case Material	Black flame-retardant heat-proof plastic –
Pin Material	–
Potting Material	flame retardant heat-proof plastic
Weight	3.5g typ.
Case Dimensions	19.20 x 18.10 x 10.16mm

EMC Specifications	
Radiated / Conducted Emissions	EN55032 Class B see EMI Filter
ESD	IEC 61000-4-2 Perf.Criteria B
Rad. RF	IEC 61000-4-3 Perf.Criteria A
EFT	IEC 61000-4-4 Perf.Criteria B
Surge	IEC 61000-4-5 Perf.Criteria B
Cond. RF	IEC 61000-4-6 Perf.Criteria A
PFMF	–
VD/SI/VV	IEC 61000-4-29 Perf.Criteria B

†) These are stress ratings; exposure of devices to any of these conditions may adversely affect long-term reliability.
All specifications typical at T_A = 25 °C, nominal input voltage and full load, unless otherwise specified.
The information and specification contained in this data sheet are believed to be correct at time of publication. However RSG accepts no responsibility for consequences arising from printing errors or inaccuracies. Specifications are subject to change without notice.

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Product Characteristic Curve

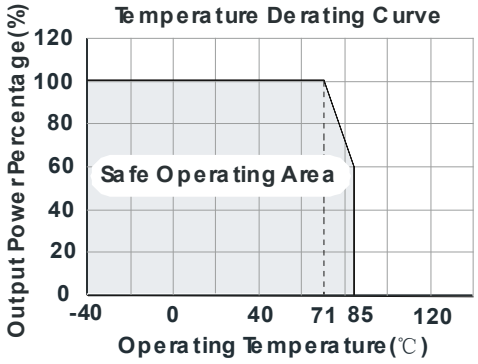
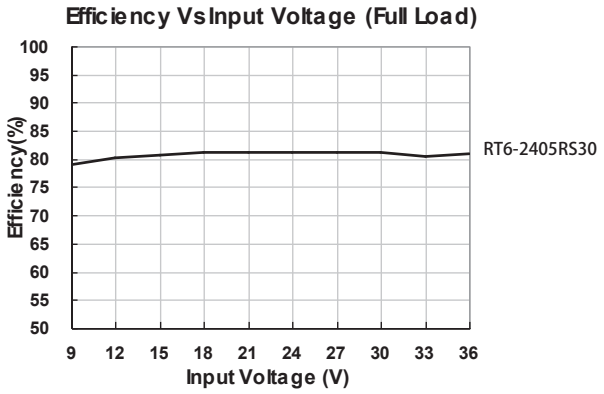
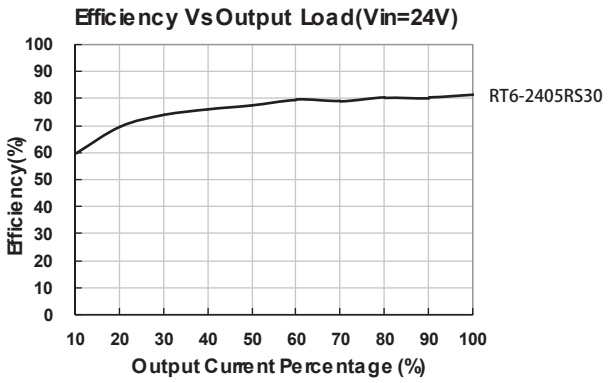
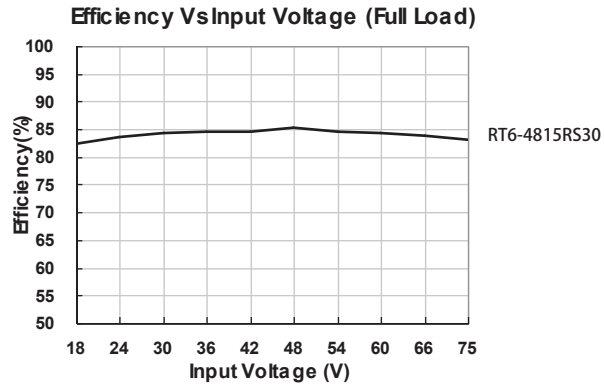
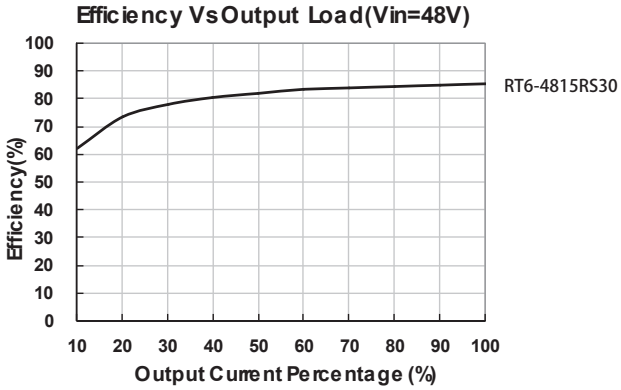


Fig. 1









Selection Guide

Certification	Part No.	Input Voltage (VDC)		Output		Efficiency② (%, Min./Typ.) @ Full Load	Max. Capacitive Load(μF)
		Nominal (Range)	Max. ①	Output Voltage (VDC)	Output Current (mA) (Max./Min.)		
--	RT6-2403RS30D1Wv3	24 (9-36)	40	3.3	728/0	73/75	2200
CE	RT6-2405RS30D1Wv3			5	600/0	78/80	2200
--	RT6-2409RS30D1Wv3			9	333/0	78/80	1000
CE	RT6-2412RS30D1Wv3			12	250/0	80/82	680
	RT6-2415RS30D1Wv3			15	200/0	81/83	470
	RT6-2424RS30D1Wv3			24	125/0	80/82	100
CE	RT6-4803RS30D1Wv3	48 (18-75)	80	3.3	728/0	73/75	2200
	RT6-4805RS30D1Wv3			5	600/0	77/79	2200
	RT6-4812RS30D1Wv3			12	250/0	80/82	680
	RT6-4815RS30D1Wv3			15	200/0	82/84	470
	RT6-4824RS30D1Wv3			24	125/0	80/82	100

Notes: ①Exceeding maximum input voltages may cause permanent damage. ②Efficiency values are measured at nominal input voltage and full load.

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Design Reference

1. Typical application

All the DC/DC converters of this series are tested according to the recommended circuit (see Fig. 2) before delivery.
If it is required to further reduce input and output ripple, properly increase the input & output of additional capacitors Cin and Cout or select capacitors of low equivalent impedance provided that the capacitance is no larger than the max. capacitive load of the product.

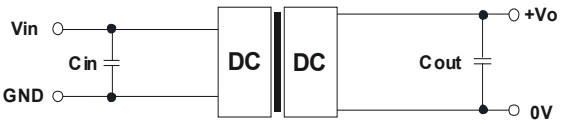

Fig. 2

Vn	Cin	Cout
24VDC	100μF	10μF
48VDC	10μF ~47μF	10μF

2. EMC solution-recommended circuit

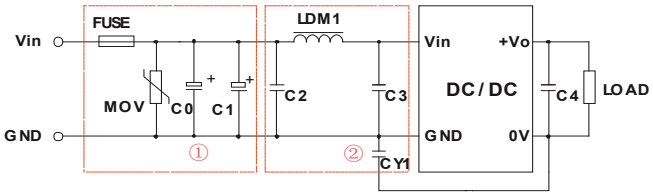

Fig. 3

Parameter description

Model	Vin:24V	Vin:48V
FUSE	Choose according to actual input current	
MOV	S14K35	S14K60
C0,C1	330μF/50V	330μF/100V
C2,C3	4.7μF/50V	4.7μF/100V
C4	Refer to the Cout in Fig.2	
LDM1	12μH	
CY1	1nF/2KV	

Notes: Part ① in the Fig. 3 is used for EMS test and part ② for EMI filtering; selected based on needs.

EMC solution-recommended circuit PCB layout

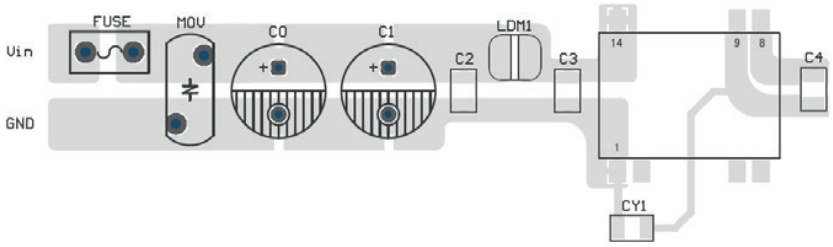

Fig. 4

Note: the min. distance of the bonding pads between input & output isolation capacitors (CY1) shall be ⩾ 2mm.

3. It is not allowed to connect modules output in parallel to enlarge the power

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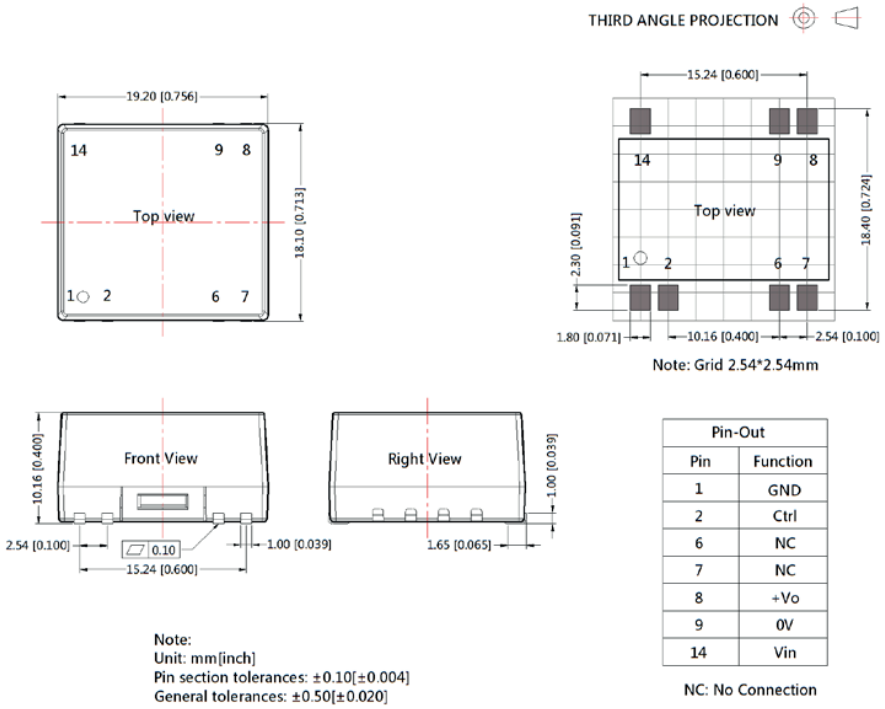
Dimensions and Recommended Layout



Pin-Out	
Pin	Function
1	GND
2	Ctrl
6	NC
7	NC
8	+Vo
9	0V
14	Vin

NC: No Connection

Recommended used in more than 5% load, if the load is lower than 5%, then the ripple index of the product may exceed the specification, but does not affect the reliability of the product;
The max. capacitive load should be tested within the input voltage range and under full load conditions;
If the product needs to be cleaned after welding, please wait to completely dried before electrical use it;
Unless otherwise specified, data in this datasheet should be tested under the conditions of Ta=25℃, humidity<75% when inputting nominal voltage and outputting rated load;
All index testing methods in this datasheet are based on our Company's corporate standards;
The performance indexes of the product models listed in this datasheet are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, and please directly contact our technicians for specific information;
We can provide product customization service;
Specifications of this product are subject to changes without prior notice.

The models listed above are standard types. If you need special specifications or have questions regarding packing (Tube or Tape&Reel) or need application support, please contact our specialists: sales@rsg-electronic.de or +49 69-984047-0

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