

RV5-S20/D20

20 Watt 2:1 regulated
single & dual output



ELECTRONIC COMPONENTS



2"x1" package, pic. similar

- 2"x1" package, wide 2:1 input range
- Full SMD technology
- 1600 VDC isolation
- No minimum load required, adjustable output voltage
- Continuous short circuit protection, OCP, OVP
- Efficiency up to 93%
- -40°C~85°C max. extended operating temperature range
- Soft start, Remote on/off Control

OUTPUT SPECIFICATIONS

Output voltage accuracy	± 1%
Output voltage adjustability (Trim) Single output	± 10% (max.)
Maximum output current	see table
Line regulation	± 0.5% (max.)
Load regulation (I _o = 10% to 100%) (Single)	± 0.5% (max.)
	(Dual, balanced load) ± 1.0% (max.)
Cross regulation (Dual output) (1)	± 5.0%
Ripple & Noise (2)	75 mV pk-pk (max.)
Over voltage protection (Zener diode clamp)	
3.3V output	3.9V
5V output	6.2V
12V output	15V
15V output	18V
± 12V output	±15V
± 15V output	±18V
Over current protection (typ.)	140% of FL
Short circuit protection	Indefinite (hiccup) (automatic recovery)
Temperature coefficient	± 0.02%/°C
Capacitive load (3)	See table
Transient recovery time (4)	250us (typ.)
Transient response deviation (4)	± 3% (max.)

INPUT SPECIFICATIONS

Input voltage range	See table
Under voltage lockout	
12V modes Module ON/OFF	8.6VDC / 7.9VDC (typ.)
24V modes Module ON/OFF	17.8VDC / 16VDC (typ.)
48V modes Module ON/OFF	33.5VDC / 30.5VDC (typ.)
Start up time (nom. Vin and constant resistive load)	20ms (typ.)
Input filter	PI type
Input current (No Load) (typ.)	See table
Input current (Full Load) (max.)	See table
Input reflected ripple current (5) (typ.)	20mA p-p
Remote ON/OFF (CTRL) (6) ON:	3.0...12VDC or open circuit
OFF:	0...1.2VDC or short circuit pin 2 and pin 6
OFF idle current:	5mA (typ.)

GENERAL SPECIFICATIONS

Efficiency	See table (typ.)
I/O isolation voltage (3 sec.)	
Input / Output	1600 VDC
Case / Input & Output	1600 VDC
Isolation resistance (min.)	1000 M Ohm
Isolation capacitance	1200 pF (typ.)
Switching frequency	330 kHz (typ.)
Humidity	95% rel. H
Reliability calculated MTBF (MIL-HDBK-217F)	> 684 khrs.
Safety standard (designed to meet)	IEC/EN 60950-1

ENVIRONMENT SPECIFICATIONS

Operating ambient temperature (See derating)	-40°C~ 85°C
	(For 100% Load) -40°C~ 70°C
Maximum case temperature	100°C
Storage temperature	-40°C~125°C
Cooling	Nature convection

EMC CHARACTERISTICS

Radiated emissions	EN55022	Class A
Conducted emissions (7)	EN55022	Class A
ESD	EN61000-4-2	Perf. crit. B
RS	EN61000-4-3	Perf. crit. A
EFT (8)	EN61000-4-4	Perf. crit. B
Surge (8)	EN61000-4-5	Perf. crit. B
CS	EN61000-4-6	Perf. crit. A
PFMF	EN61000-4-8	Perf. crit. A

PHYSICAL SPECIFICATIONS

Case material	Nickel-coated copper
Base material	Non-conductive black plastic (UL94V-0 rated)
Pin material	Ø 1.0 mm brass solder-coated
Potting material	Epoxy (UL94V-0 rated)
Weight	30 g
Dimensions	2" x 1" x 0.4"

ABSOLUTE SPECIFICATIONS (9)

These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.

Input voltage (100 mS)	
12 modes	-0.7 ~ 36 VDC
24 modes	-0.7 ~ 50 VDC
48 modes	-0.7 ~ 100 VDC
Soldering temperature	260°C
	(1.5 mm from case 10 sec. max)

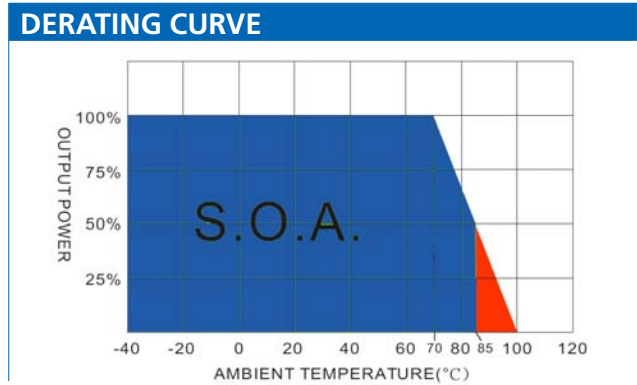
All specifications typical at 25°C, nominal input and full load unless otherwise noted.

The information and specifications contained in this data sheet are believed to be correct at time of publication. However, we accept no responsibility for consequences arising from printing errors or inaccuracies. Subject to change without notice.

RV5-S20/D20

20 Watt 2:1 regulated
single & dual output

NUMBER STRUCTURE							
RV5	-	XX	XX	S	20	A	1
Name/Package RV5=2"x1"		Output 03=3.3V 05=5V 12=12V 15=15V		Type S=Single D=Dual	Power 20=20W	Code internal	Isolation 1=1.6 kVDC
Input 12=9-18V 24=18-36V 48=36-75V							

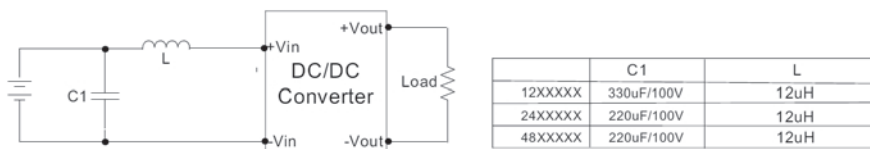


MODEL SELECTION GUIDE

Model Number	Input Range VDC	Input current (mA) No Load / Full Load	Output VDC	Output current Full Load (mA)	Efficiency @FL (%)	Capacitor Load (μF)
RV5-1203S20A1	9-18	60 / 1738	3.3	5500	90	10000
RV5-1205S20A1	9-18	60 / 1872	5	4000	92	6800
RV5-1212S20A1	9-18	30 / 1915	12	1670	90	1000
RV5-1215S20A1	9-18	30 / 1915	15	1330	90	680
RV5-1212D20A1	9-18	30 / 1937	±12	±835	89	±470
RV5-1215D20A1	9-18	30 / 1937	±15	±665	89	±330
RV5-2403S20A1	18-36	35 / 859	3.3	5500	91	10000
RV5-2405S20A1	18-36	35 / 926	5	4000	93	6800
RV5-2412S20A1	18-36	25 / 946	12	1670	91	1000
RV5-2415S20A1	18-36	25 / 947	15	1330	91	680
RV5-2412D20A1	18-36	30 / 957	±12	±835	90	±470
RV5-2415D20A1	18-36	30 / 957	±15	±665	90	±330
RV5-4803S20A1	36-75	25 / 425	3.3	5500	91	10000
RV5-4805S20A1	36-75	25 / 463	5	4000	93	6800
RV5-4812S20A1	36-75	15 / 473	12	1670	91	1000
RV5-4815S20A1	36-75	15 / 473	15	1330	91	680
RV5-4812D20A1	36-75	20 / 478	±12	±835	90	±470
RV5-4815D20A1	36-75	20 / 484	±15	±665	89	±330

NOTE

- 1) One load is 25% to 100% load, the other load is 100% load. The output voltage variable rate is within ±5%.
- 2) Ripple / Noise measured with 20 MHz bandwidth and 1.0uF ceramic capacitor.
- 3) Tested by minimal Vin and constant resistive load.
- 4) Tested by normal Vin and 25% load step change (75%-50%-25% of Io).
- 5) Measured input reflected ripple current with a simulated source inductance of 12uH.
- 6) The remote on/off control pin is referenced to -Vin (pin 2).
- 7) Input filter components (C1, L) are used to help meet conducted emissions requirement for the module. These components should be mounted as close as possible to the module and all leads should be minimized to decrease radiated noise.
- 8) An external filter capacitor is required if the module has to meet EN61000-4-4 and EN61000-4-5. The filter capacitor suggested: Nippon chemi-con KY series, 220uF / 100V.
- 9) Exceeding the absolute ratings of the unit could cause damage.

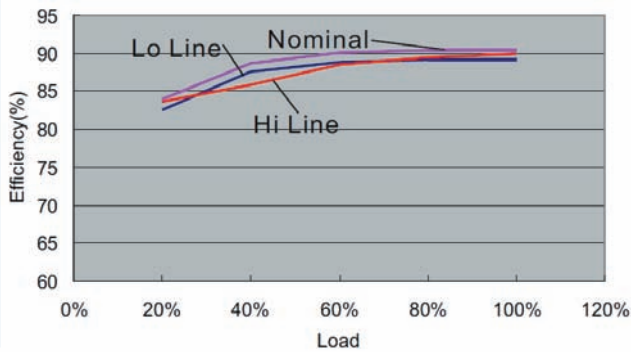


The models listed are just for standard type. If you need a special specification product, please contact our service. Phone: +49 69 984047-0, mail to: info@rsg-electronic.de or use the forms on www.rsg-electronic.de („Kontakt“).

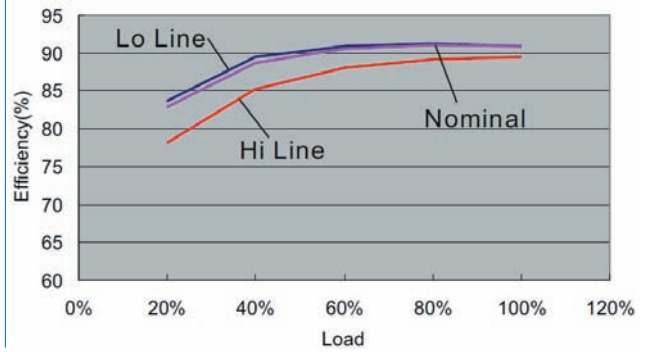
RV5-S20/D20

20 Watt 2:1 regulated
single & dual output

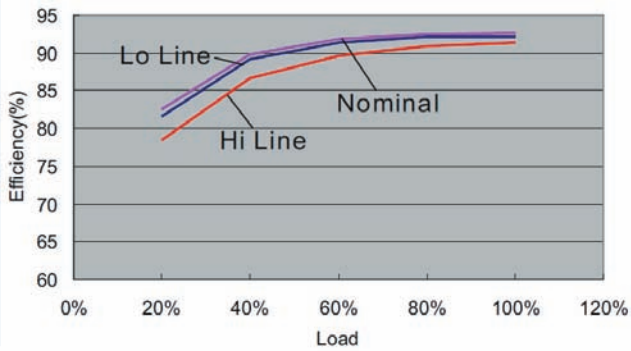
EFFICIENCY VS OUTPUT CURRENT 1215S20



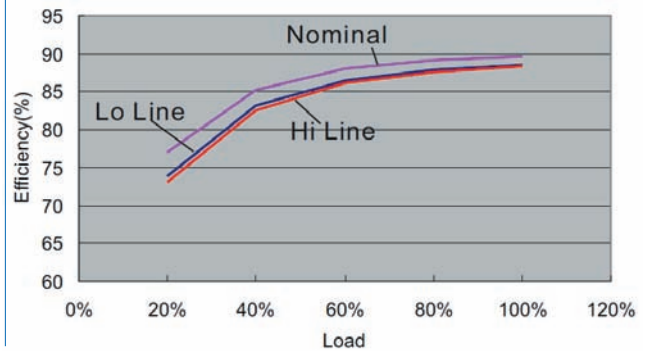
EFFICIENCY VS OUTPUT CURRENT 4803S20



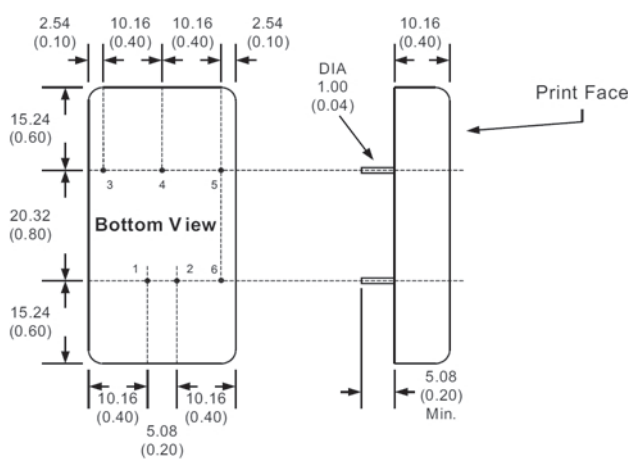
EFFICIENCY VS OUTPUT CURRENT 4805S20



EFFICIENCY VS OUTPUT CURRENT 4815D20



DIMENSIONS



All dimensions are typical
in millimeters (inches).

- 1) Pin diameter: 1.0 ± 0.05 (0.04 ± 0.002)
- 2) Pin pitch tolerance: ± 0.35 (± 0.014)
- 3) Case tolerance: ± 0.5 (± 0.02)

PIN CONNECTIONS

Pin Number	Single	Dual
1	+V Input	+V Input
2	-V Input	-V Input
3	+V Output	+V Output
4	Trim	Common
5	-V Output	-V Output
6	CTRL	CTRL

EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using the method as below (single output models only)

