Features

Switching Regulator

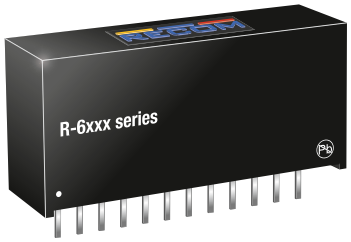
- Non-isolated
- Adjustable output voltage
- 1-2AMP adjustable positive step down integrated switching regulator
- Internal short circuit protection
- ON/OFF control (ground off)
- Efficiency up to 97%
- Positive to negative

RECOM
DC/DC Converter

R-6xxxP_D

1-2 Amp SIP12 Vertical & Horizontal Single Output

3 YEAR warranty



IEC/EN60950-1 certified

Description

The R-6xxx series is a high performance 1.5V to 15V (18V), 1.1 Amp to 2Amp, 12-Pin SIP (single in-line package) switching regulator. The Synchronous rectification yields excellent efficiencies up to 97%. Short circuit protection reduces the short circuit input current to under 50mA.

Selection Guide

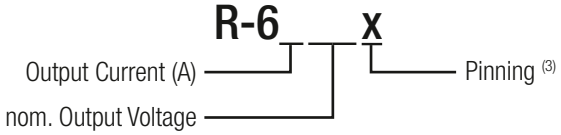
Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Vout Adjust Range (1) [VDC]	Output Current [A]	Efficiency @ min Vin [%]	Efficiency @ max. Vin [%]	Max. Capacitive Load (2) [µF]
R-611.8x	9 - 32	1.8	1.5 - 3.6	1	79	67	200/6800
R-612.5x	9 - 32	2.5	1.5 - 4.5	1	84	74	200/6800
R-613.3x	9 - 32	3.3	1.8 - 6	1	88	79	200/6800
R-615.0x	9 - 32	5	1.8 - 9	1	92	84	200/6800
R-619.0x	11 - 32	9	3.3 - 15	1	96	90	200/6800
R-6112x	14 - 32	12	3.3 - 15	1	97	92	200/6800
R-621.8x	9 - 32	1.8	1.5 - 3.6	2	76	68	200/6800
R-622.5x	9 - 32	2.5	1.5 - 4.5	2	81	74	200/6800
R-623.3x	9 - 32	3.3	1.8 - 6	2	86	80	200/6800
R-625.0x	9 - 32	5	1.8 - 9	2	90	85	200/6800
R-629.0x	11 - 32	9	3.3 - 15	2	95	91	200/6800
R-6212x	14 - 32	12	3.3 - 15	2	96	93	200/6800

Notes:

Note1: Vin-Vout ≥ 1.5V if adjust function is used

Note2: please refer to basic characteristics on page I-2

Model Numbering



Notes:

Note3: x can be „P“ = vertical through hole

x can be „D“ = bent for horizontal through hole mounting

Ordering Examples:

R-612.5P Iout= 1000mA nom. Vout= 2.5VDC P= vertical through hole

R-623.3D Iout= 2000mA nom. Vout= 3.3VDC D= bent for horizontal through hole mounting

Specifications (refer to standard application circuit, Ta= 25°C)

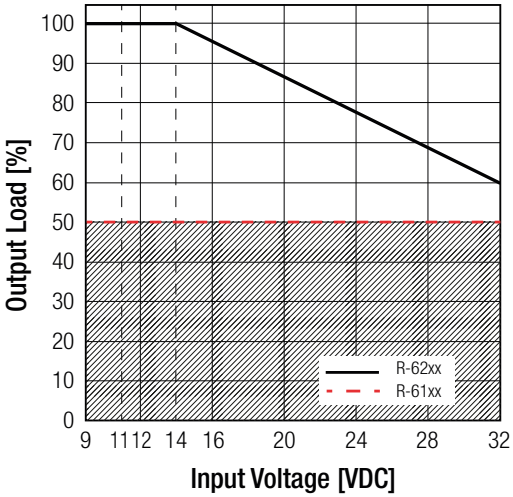
BASIC CHARACTERISTICS

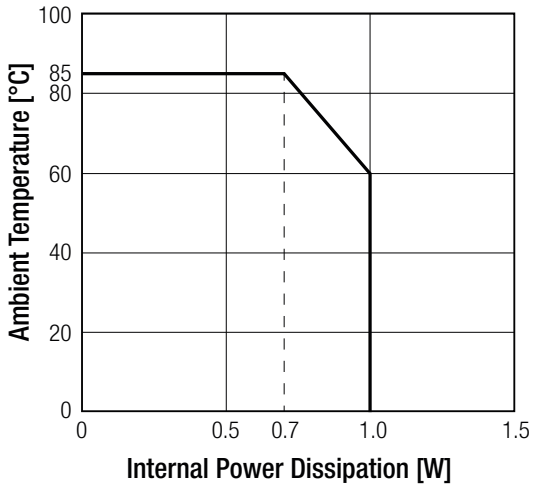
Parameter	Condition	Min.	Typ.	Max.
Quiescent Current	min. Vin to max.		6mA	10mA
Internal Power Dissipation	ta<60°C			1.0W
Output Current Limit		4A	4.5A	5A
Minimum Load		10%		
ON/OFF CTRL [4]	DC-DC ON DC-DC OFF	Open or high (Power ON), 2V min. / 10V max. Low (Power OFF) 0.8V max.		
Input Current of CTRL Pin	DC-DC OFF		100µA	
Internal Operating Frequency		200kHz	250kHz	300kHz
Output Ripple and Noise	R-61xxx R-62xxx		40mVp-p 40mVp-p	100mVp-p 120mVp-p
Maximum Capacitive Load	normal start-up time, no external diodes			200µF
	<1 second start-up time + diode protection circuit			6800µF

Notes:

Note4: ON/OFF pin driven by TTL (logic gate), open-collector bipolar transistor or open-drain MOSFET

Line Derating





How to calculate the max output current

The internal power dissipiation (P_D) follows the equation:

$$P_D = Iout \times Vout \times (1-Eff_{max\ Vin}) \qquad Iout = \frac{P_D}{Vout \times (1-Eff_{max\ Vin})}$$

Example: **R-6212P**

Calculation 1:

Vin = 32V
Vout = 12V
$Eff_{max\ Vin}$ = 93%
P_D = 1W
$T_{Ambient}$ = 60°C

$$Iout = \frac{1W}{12V \times (1-0.93)} = \mathbf{1.19A}$$

Calculation 2:

Vin = 14V
Vout = 12V
$Eff_{max\ Vin}$ = 96%
P_D = 1W
$T_{Ambient}$ = 60°C

$$Iout = \frac{1W}{12V \times (1-0.96)} = \mathbf{2.08A}$$

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