Features

Switching Regulator

- Non-isolated
- Synchronous rectification design
- Adjustable output voltage
- 2, 3, 4Amp adjustable positive step down Integrated switching regulator
- Over load protection
- Continuous short circuit protection
- Efficiency up to 97%

RECOM
DC/DC Converter

R-7xxxP_D

2,3,4 Amp SIP12 Vertical & Horizontal Single Output

3 YEAR warranty

Description

The R-7xxx series is a high performance 2.5V to 17V, 2Amp to 4Amp, 12-Pin SIP (single in-line package), integrated switching regulator (ISR). The synchronous - rectified design yields excellent efficiencies up to 97%. Short circuit protection reduces the short circuit input current to under 50mA.

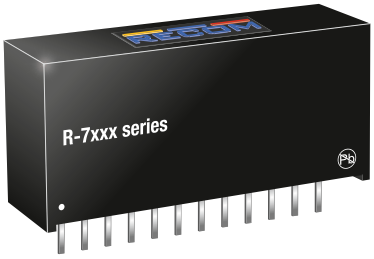
Selection Guide

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-723.3x	4.5 - 28	3.3	2.5 - 5.5	2	95	89	200/6800
R-725.0x	6.5 - 28	5.0	3.0 - 5.5	2	96	91	200/6800
R-726.5x	8.5 - 28	6.5	5.0 - 8.0	2	97	93	200/6800
R-729.0x	12 - 28	9.0	7.0 - 11	2	96	93	200/6800
R-7212x	15 - 28	12	10 - 14	2	97	95	200/6800
R-7215x	19 - 28	15	13 - 17	2	97	96	200/6800
R-733.3x	4.5 - 28	3.3	2.5 - 5.5	3	94	89	200/6800
R-735.0x	6.5 - 28	5.0	3.0 - 5.5	3	95	92	200/6800
R-736.5x	8.5 - 28	6.5	5.0 - 8.0	3	97	93	200/6800
R-739.0x	12 - 28	9.0	7.0 - 11	3	96	94	200/6800
R-7312x	15 - 28	12	10 - 14	3	97	96	200/6800
R-7315x	19 - 28	15	13 - 17	3	97	96	200/6800
R-743.3x	4.5 - 28	3.3	2.5 - 5.5	4	93	88	200/6800
R-745.0x	6.5 - 28	5.0	3.0 - 5.5	4	95	91	200/6800
R-746.5x	8.5 - 28	6.5	5.0 - 7.5	4	96	93	200/6800

Notes:

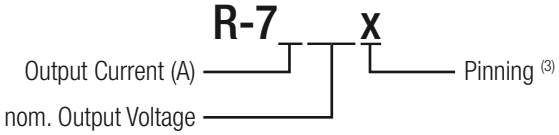
Note1: Vin-Vout ≥ 1.5V~4.0V depending on Vout if adjust function is used

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



IEC/EN60950-1 certified

Model Numbering



Notes:

Note3: x can be „P“ = vertical through hole
x can be „D“ = bent pins for horizontal through hole mounting

Ordering Examples:

R-723.3P	Iout= 2A	nom. Vout= 3.3VDC	P= vertical through hole
R-7312D	Iout= 3A	nom. Vout= 12VDC	D= horizontal through hole

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

BASIC CHARACTERISTICS

Parameter	Condition	Min.	Typ.	Max.
Quiescent Current	min. Vin to max.			30mA
Internal Power Dissipation	ta<60°C			1.4W
Output Current Limit	R-72xxx R-73xxx R-74xxx		2.5A 3.75A 5.0A	3.0A 4.25A 5.5A
Minimum Load		10%		
ON/OFF CTRL (4)	DC-DC ON DC-DC OFF	Open or high, 4.5V min. / 28V max. Low (Power OFF) 0.8V max.		
Input Current of CTRL Pin	DC-DC OFF			100µA
Internal Operating Frequency		270kHz	300kHz	330kHz
Output Ripple and Noise			40mVp-p	70mVp-p
Maximum Capacitive Load	normal start-up time, no external diodes			200µF
	<1 second start-up time + diode protection circuit			6800µF

Notes:

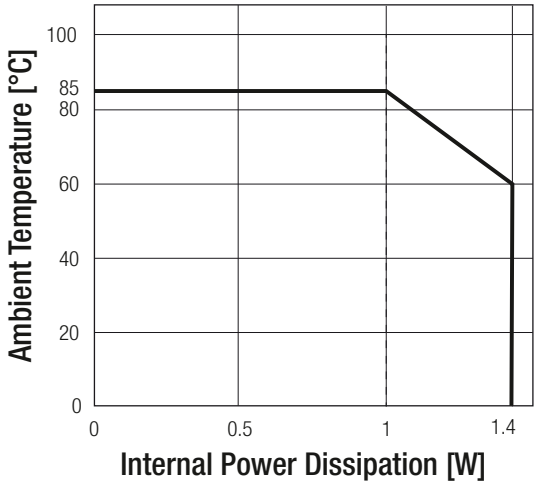
Note4: ON/OFF pin driven by TTL (logic gate), open-collector bipolar transistor or open-drain MOSFET

How to calculate the max output current

The internal power dissipiation (P_D) follows the equation:

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

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



Example: **R-745.0P**

Calculation 1:

Vin = 28V
Vout = 5V
$Eff_{max\ Vin}$ = 91%
P_D = 1.4W
$T_{Ambient}$ = 60°C

$$Iout = \frac{1.4W}{5V \times (1-0.91)} = \mathbf{3.11A}$$

Calculation 2:

Vin = 28V
Vout = 5V
$Eff_{max\ Vin}$ = 91%
P_D = 1.0W
$T_{Ambient}$ = 85°C

$$Iout = \frac{1W}{5V \times (1-0.91)} = \mathbf{2.222A}$$

Calculation 3:

Vin = 12V
$Eff_{max\ Vin}$ = 94%
P_D = 1.0W
$T_{Ambient}$ = 85°C

$$Iout = \frac{1W}{5V \times (1-0.94)} = \mathbf{3.33A}$$

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