Features

Switching Regulator

- Efficiency up to 97%, no need for heatsinks
- Pin-out compatible with LM78XX linears
- Very low profile
- 4.75V - 32V Wide input range
- Short circuit protection, thermal shutdown
- Low ripple and noise
- IEC/EN60950-1 certified

RECOM
DC/DC Converter

R-78-0.5

0.5 Amp SIP3 Single Output

3 YEAR warranty

Description

The R-78xx-Series high efficiency switching regulators are ideally suited to replace 78xx linear regultors and are pin compatible. The efficiency of up to 97% means that very little energy is wasted as heat so there is no need for any heat sinks with their additional space and mounting costs. Low ripple and noise figures and short circuit, overload and over-temperature protection round off the specifications of this versatile converter series. This R-78xx-0.5 is fully certified to EN55032 EMC Standard and for IEC/EN-60950-1 + AM2 Safety.

IEC/EN60950-1 certified
EN55032 compliant

Selection Guide

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [A]	Efficiency @ min Vin [%]	Efficiency @ max. Vin [%]
R-781.5-0.5	4.75 - 30 (1)	1.5	0.5	73	63
R-781.8-0.5	4.75 - 32	1.8	0.5	82	71
R-782.5-0.5	4.75 - 32	2.5	0.5	87	77
R-783.3-0.5	4.75 (2) - 32	3.3	0.5	91	81
R-785.0-0.5	6.5 - 32	5.0	0.5	94	86
R-786.5-0.5	8.0 - 32	6.5	0.5	95	88
R-789.0-0.5	11 - 32	9.0	0.5	96	92
R-7812-0.5	15 - 32	12	0.5	97	94
R-7815-0.5	18 - 32	15	0.5	97	95

Notes:

Note1: 1.5V Output can be unstable with Vin>30VDC

Note2: Refer to Transient Response on page I-3

Model Numbering

R-78__-0.5

Output Voltage — Output Current

Specifications (measured @ Ta= 25°C, 10% minimum load, unless otherwise stated)

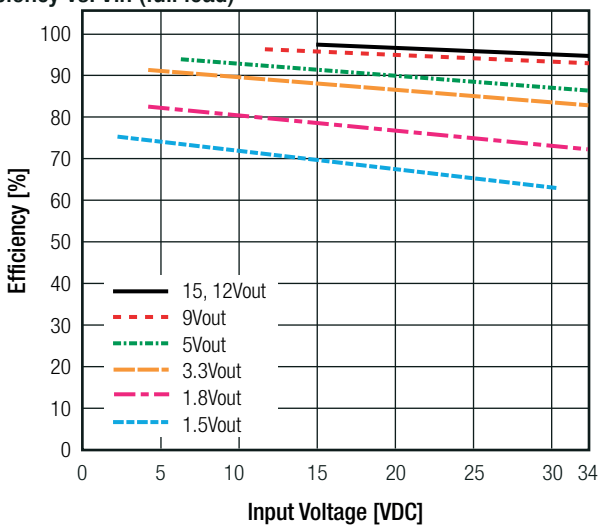
BASIC CHARACTERISTICS					
Parameter	**Condition**		**Min.**	**Typ.**	**Max.**
Absolute Maximum Input Voltage					34VDC
Quiescent Current	nom. Vin= 24VDC			5mA	7mA
Internal Power Dissipation					0.4W
Minimum Load (3)			0%		
Internal Operating Frequency			280kHz	330kHz	380kHz
Output Ripple and Noise	20MHz BW, without output capacitor	1.5 - 6.5VDC 9 - 15.5VDC		20mVp-p 30mVp-p	30mVp-p 40mVp-p
	20MHz BW (4)	1.5VDC 1.8 - 15.5VDC		15mVp-p 25mVp-p	20mVp-p 35mVp-p
Absolute Maximum Capacitive Load	1 second start up, no external components				220µF
	<1 second start up + diode protection circuit				6800µF

Notes:

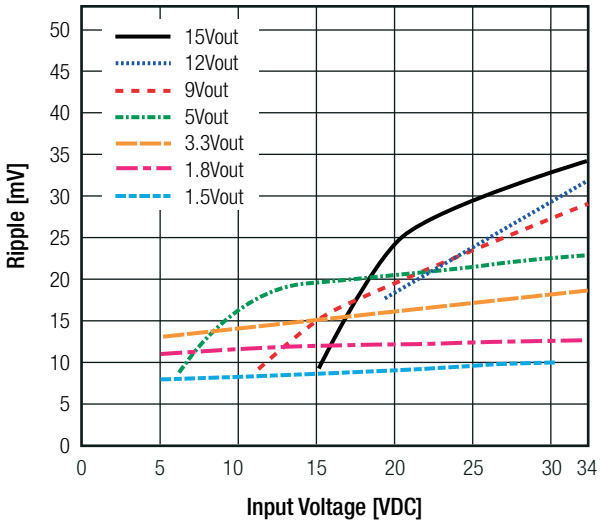
Note3: Operation under no load will not harm the converter, but specifications may not be met
A minimum load of 6mA is recommended

Note4: Measurements are made with a 100nF MLCC across output (low ESR)

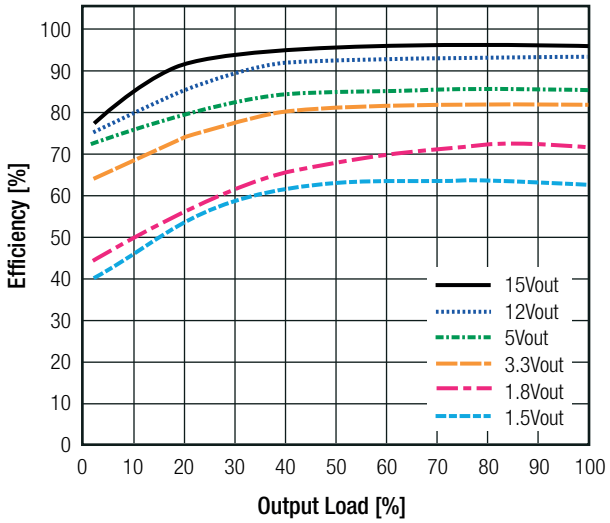
Efficiency vs. Vin (full load)



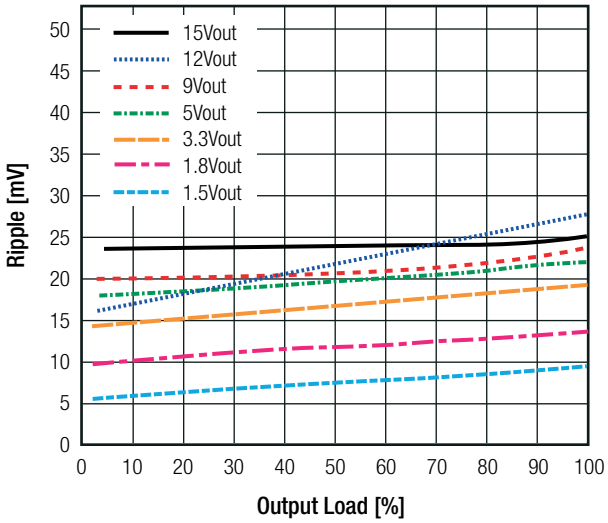
Ripple vs. Vin (full load)



Efficiency vs. Load (max. Vin)



Ripple vs. Load (nom. Vin)



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