

# 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



## R-78-0.5

**0.5 Amp  
SIP3  
Single Output**



### Description

The R-78xx-Series high efficiency switching regulators are ideally suited to replace 78xx linear regulators 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.

### Selection Guide

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [A]	Efficiency	
				@ min Vin [%]	@ max. Vin [%]
R-781.5-0.5	4.75 - 30 <sup>(1)</sup>	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 <sup>(2)</sup> - 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

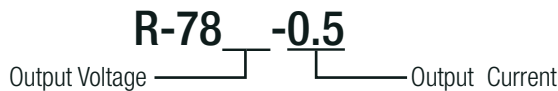


IEC/EN60950-1 certified  
EN55032 compliant

#### Notes:

- Note1: 1.5V Output can be unstable with Vin>30VDC
- Note2: Refer to Transient Response on page I-3

### Model Numbering



**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 <sup>(3)</sup>		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 <sup>(4)</sup>	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

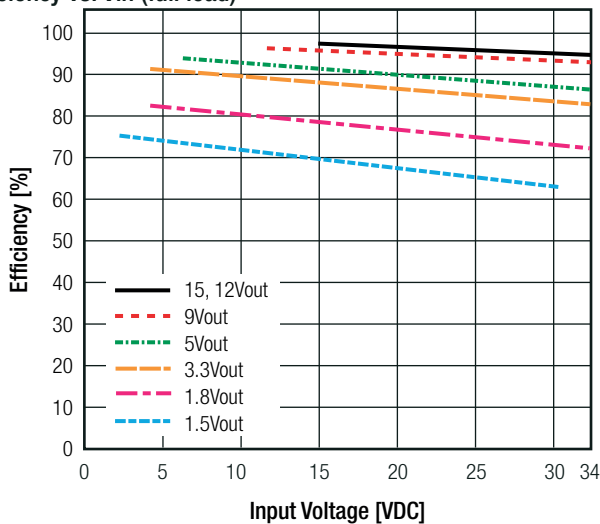
**Notes:**

Note3: Operation under no load will not harm the converter, but specifications may not be met

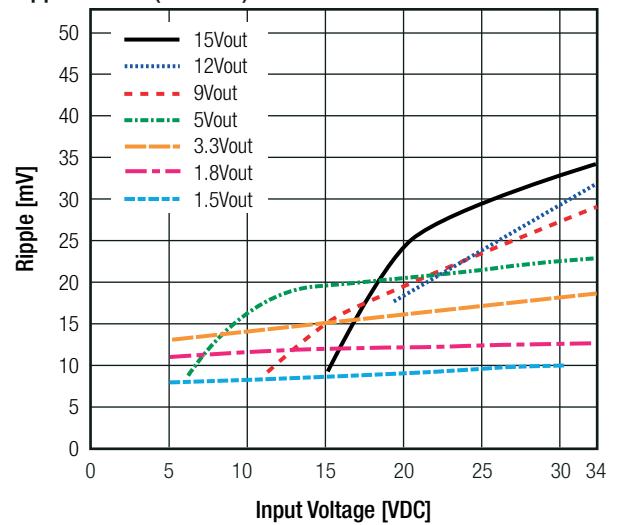
A minimum load of 6mA is recommended

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

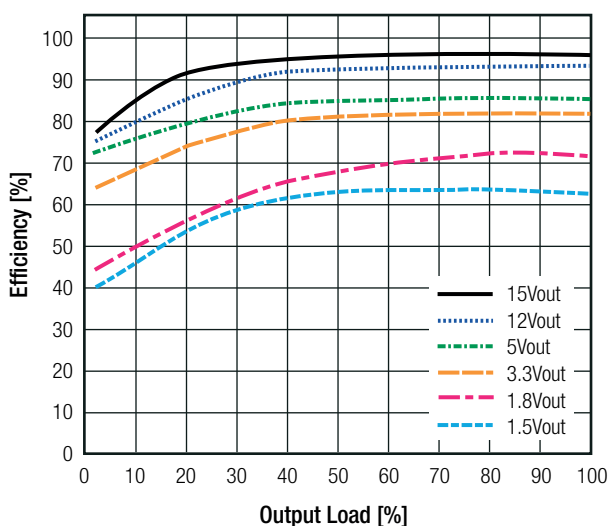
**Efficiency vs. Vin (full load)**



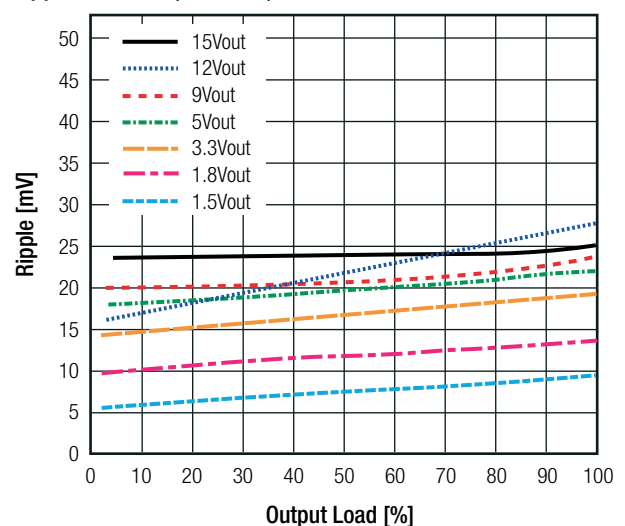
**Ripple vs. Vin (full load)**



**Efficiency vs. Load (max. Vin)**



**Ripple vs. Load (nom. Vin)**



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