

# Features

# Switching Regulator

- Efficiency up to 97%, no heatsinks required
- Pin compatible with LM78XX linears
- Low profile (L/W/H=11.5 x 8.5 x 17.5mm)
- Wide input range
- Short circuit protection, thermal shutdown
- Low ripple and noise
- „L“ version with 90° pins

## R-78B-1.0(L)

**1.0 Amp**  
**SIP3**  
**Single Output**



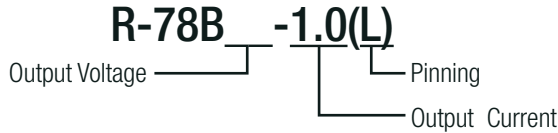
### Description

The R-78Bxx-1.0 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. The L-Version with 90° pins allows direct replacement for laid-flat regulators where component height is at a premium. Low ripple and noise figures and a short circuit input current of typically only 10mA round off the specifications of this versatile converter series.

### Selection Guide

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [A]	Efficiency	
				@ min Vin [%]	@ max. Vin [%]
R-78B1.5-1.0 <sup>(1)</sup>	4.75 - 26	1.5	1.0	77	71
R-78B1.8-1.0 <sup>(1)</sup>	4.75 - 26	1.8	1.0	80	74
R-78B2.5-1.0 <sup>(1)</sup>	4.75 - 32	2.5	1.0	85	78
R-78B3.3-1.0 <sup>(1)</sup>	4.75 - 32	3.3	1.0	89	83
R-78B5.0-1.0 <sup>(1)</sup>	6.5 - 32	5.0	1.0	93	88
R-78B6.5-1.0 <sup>(1)</sup>	9.0 - 32	6.5	1.0	94	90
R-78B9.0-1.0 <sup>(1)</sup>	12 - 32	9.0	1.0	95	93
R-78B12-1.0 <sup>(1)</sup>	16 - 32	12	1.0	96	95
R-78B15-1.0 <sup>(1)</sup>	20 - 32	15	1.0	97	96

### Model Numbering



**Notes:**

Note1: add suffix "L" for 90° bent pins, e.g. R-78B5.0-1.0L

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

BASIC CHARACTERISTICS					
Parameter	Condition		Min.	Typ.	Max.
Absolute Maximum Input Voltage	1.5Vout , 1.8Vout 2.5Vout to 15Vout				26VDC 34VDC
Quiescent Current	nom. Vin= 24VDC			5mA	7mA
Internal Power Dissipation	Vout= 1.5VDC				0.65W
Internal Operating Frequency	nom. Vin= 24VDC		280kHz	330kHz	380kHz
Minimum Load <sup>(2)</sup>			0%		
Output Ripple and Noise <sup>(3)</sup>	20MHz BW	1.5Vout to 6.5Vout		15mVp-p	20mVp-p
		9Vout to 15Vout		25mVp-p	35mVp-p
Ref. Back Ripple Current				150mA	200mA-p-p
Absolute Maximum Capacitive Load	1 second start up, no external components				470µF
	<1 second start up + diode protection circuit				6800µF

**Notes:**

Note2: Operation under no load will not harm the converter, but specifications may not be met  
A minimum load of 10mA is recommended

Note3: Output Ripple and Noise is tested from 10% to 100% load

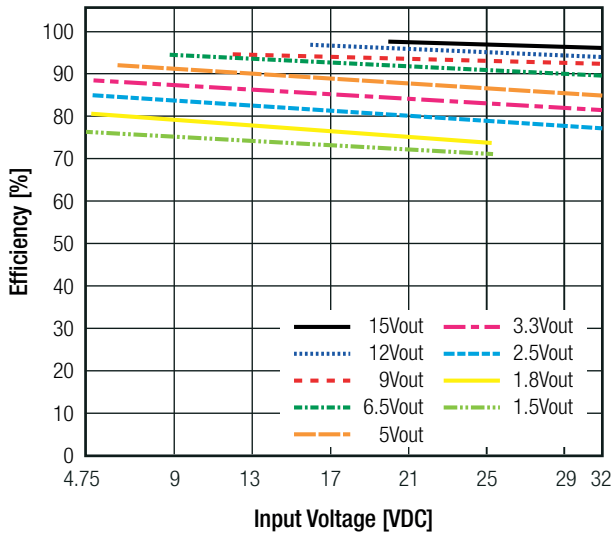
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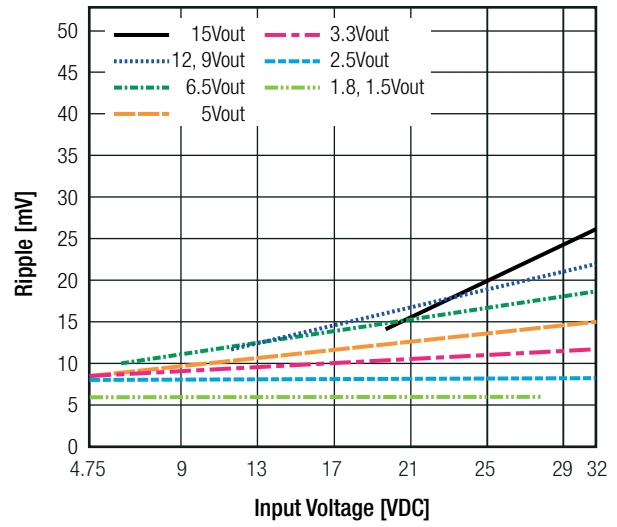
EN55032 compliant  
IEC/EN60950-1 certified

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

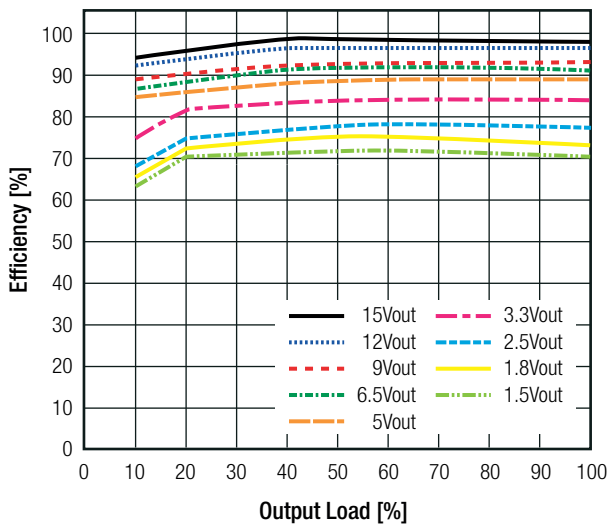
Efficiency vs. Vin (full load)



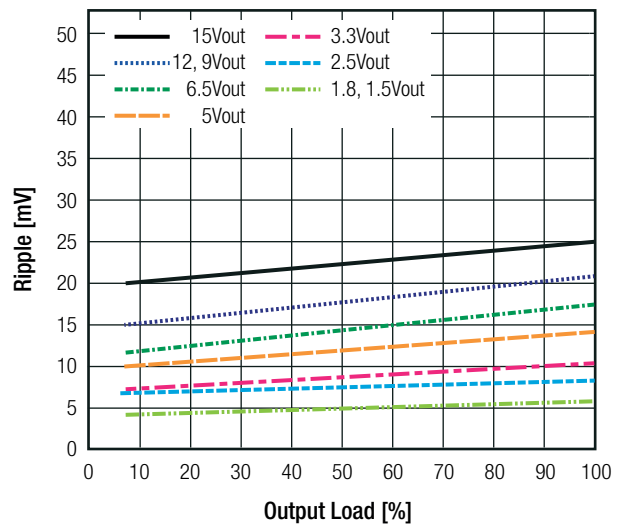
Ripple vs. Vin (full load)



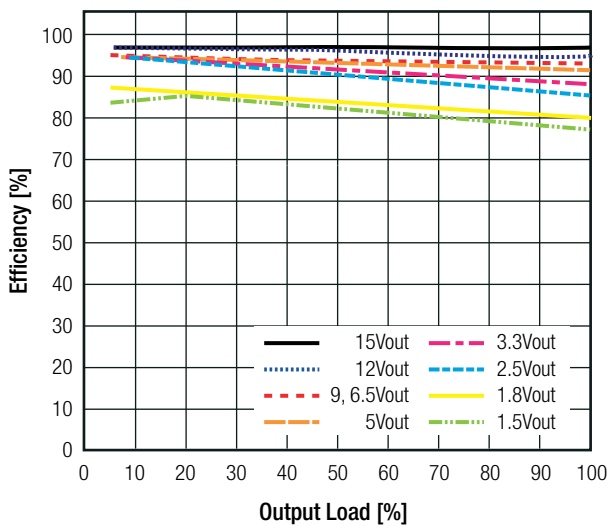
Efficiency vs. Load (max. Vin)



Ripple vs. Load (max. Vin)



Efficiency vs. Load (min. Vin)



Ripple vs. Load (min. Vin)

