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

RECOM
DC/DC Converter

R-78B-1.0(L)

1.0 Amp SIP3 Single Output

3 YEAR warranty

EN55032 compliant
IEC/EN60950-1 certified

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 [%]	Efficiency @ max. Vin [%]
R-78B1.5-1.0 (1)	4.75 - 26	1.5	1.0	77	71
R-78B1.8-1.0 (1)	4.75 - 26	1.8	1.0	80	74
R-78B2.5-1.0 (1)	4.75 - 32	2.5	1.0	85	78
R-78B3.3-1.0 (1)	4.75 - 32	3.3	1.0	89	83
R-78B5.0-1.0 (1)	6.5 - 32	5.0	1.0	93	88
R-78B6.5-1.0 (1)	9.0 - 32	6.5	1.0	94	90
R-78B9.0-1.0 (1)	12 - 32	9.0	1.0	95	93
R-78B12-1.0 (1)	16 - 32	12	1.0	96	95
R-78B15-1.0 (1)	20 - 32	15	1.0	97	96

Model Numbering

R-78B__-1.0(L)

Output Voltage — Pinning — Output Current

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 (2)			0%		
Output Ripple and Noise (3)	20MHz BW	1.5Vout to 6.5Vout 9Vout to 15Vout		15mVp-p 25mVp-p	20mVp-p 35mVp-p
Ref. Back Ripple Current				150mA	200mAp-p
Absolute Maximum Capacitive Load	1 second start up, no external components <1 second start up + diode protection circuit				470µF 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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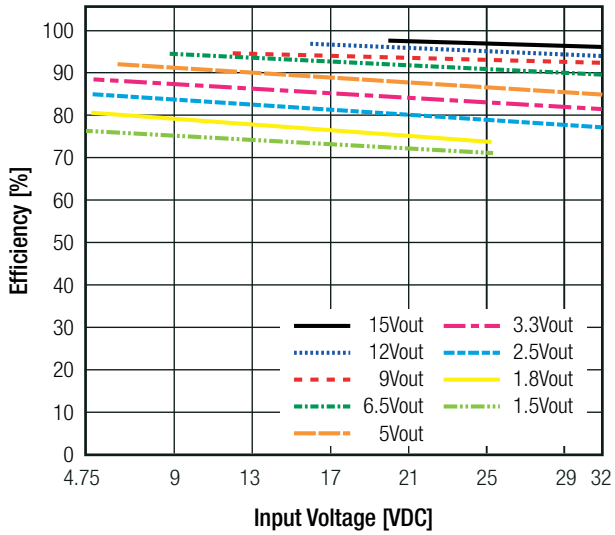
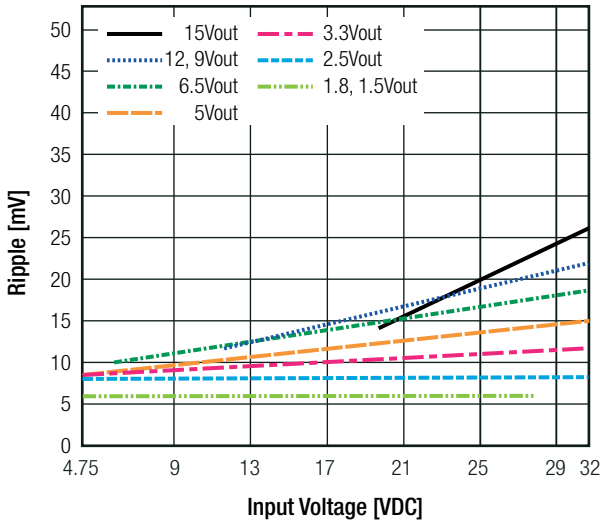
Specifications (measured @ Ta= 25°C, 10% minimum load, unless otherwise stated)

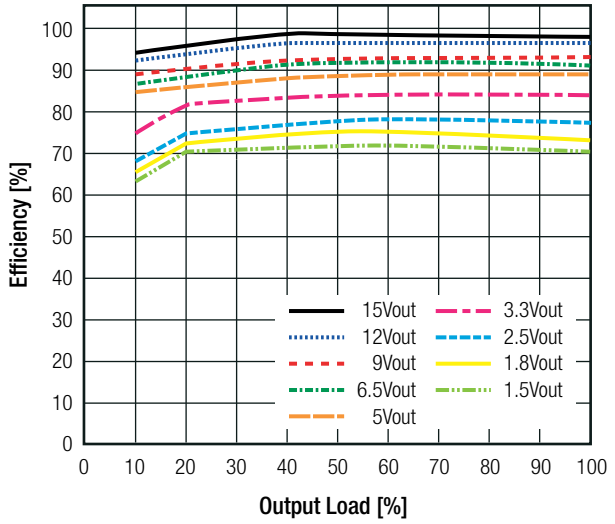
Efficiency vs. Vin (full load)



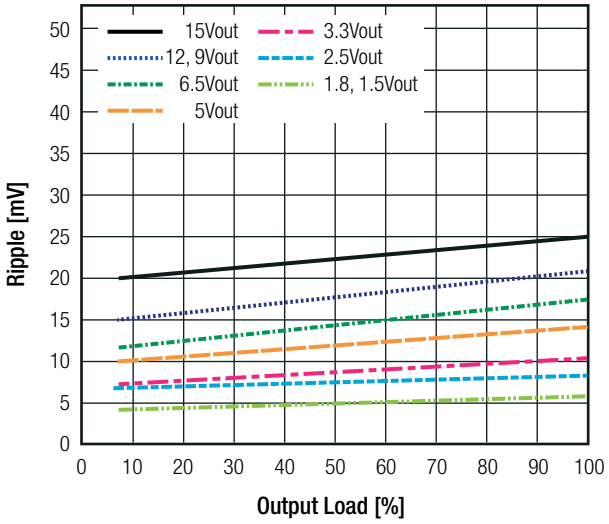
Ripple vs. Vin (full load)



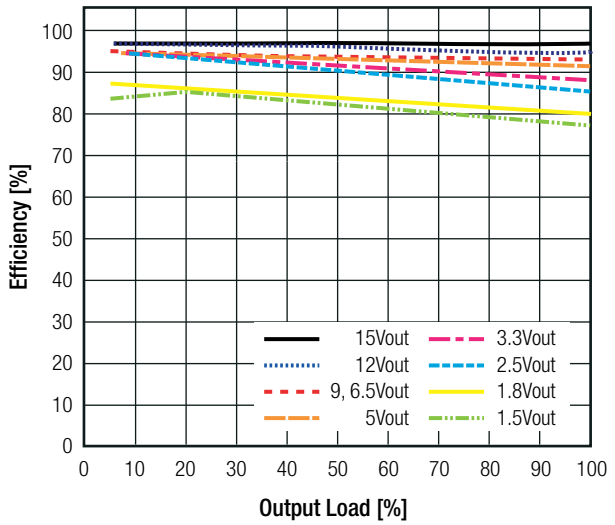
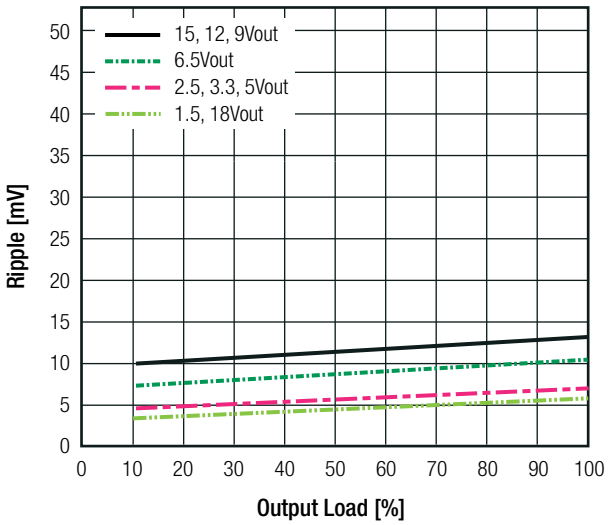
Efficiency vs. Load (max. Vin)



Ripple vs. Load (max. Vin)



Efficiency vs. Load (min. Vin)



Ripple vs. Load (min. Vin)