

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



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 [%]	@ 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	200mA
Absolute Maximum Capacitive Load	1 second start up, no external components <1 second start up + diode protection circuit				470μF 6800μF

Notes:

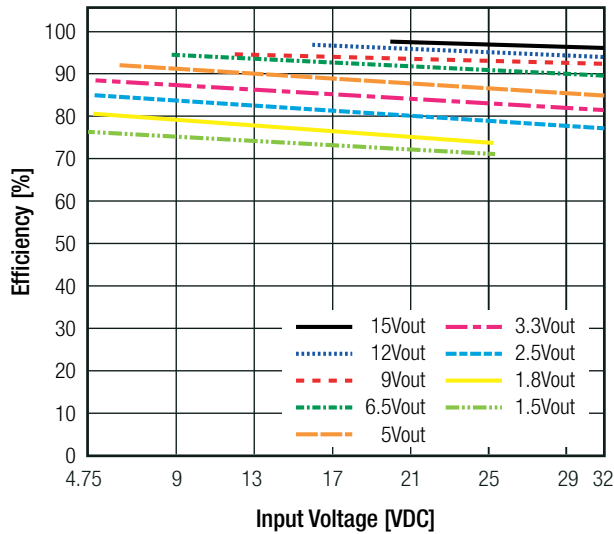
Note2: Operation under no load will not harm the converter, but specifications may not be met
A minimum load of 10mA is recommended

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

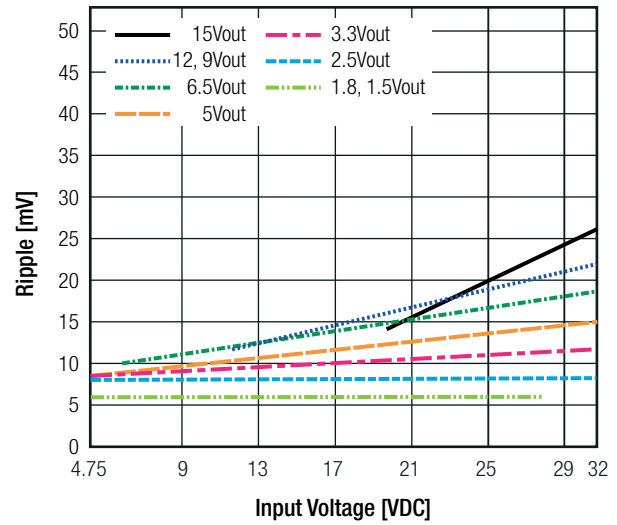
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Specifications (measured @ $T_a = 25^\circ\text{C}$, 10% minimum load, unless otherwise stated)

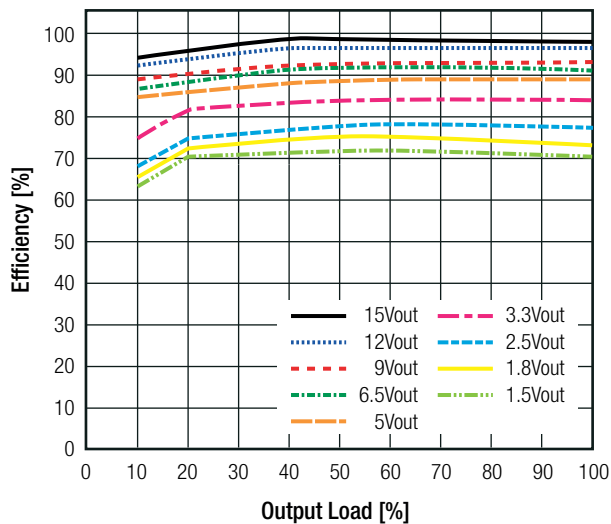
Efficiency vs. V_{in} (full load)



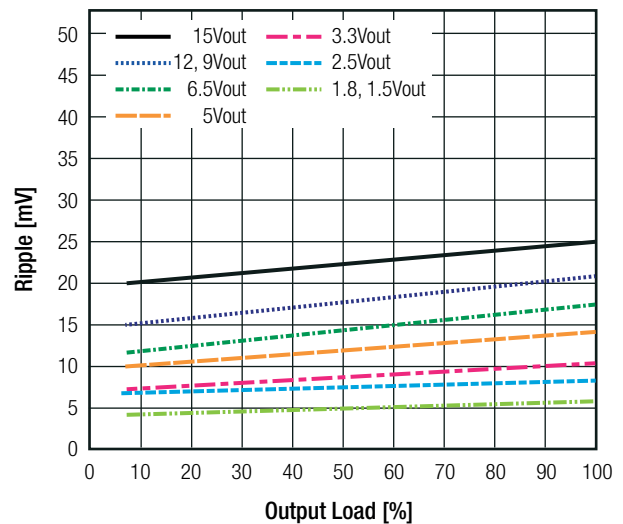
Ripple vs. V_{in} (full load)



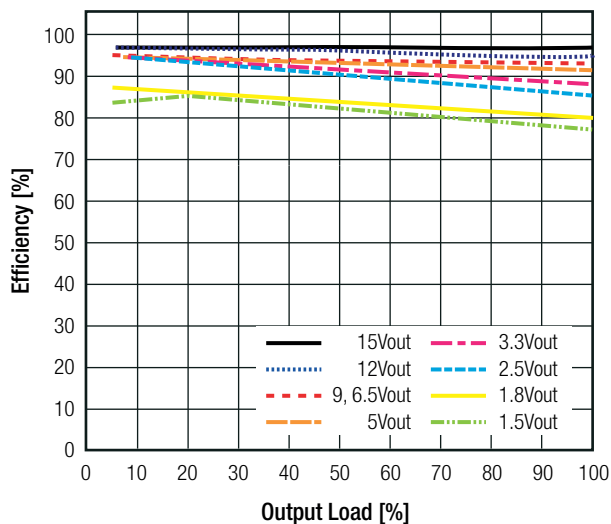
Efficiency vs. Load (max. V_{in})



Ripple vs. Load (max. V_{in})



Efficiency vs. Load (min. V_{in})



Ripple vs. Load (min. V_{in})

