Features

Switching Regulator

- Efficiency up to 96%, no heatsinks required
- Pin-out compatible with LM78XX linears
- Low profile (L/W/H=11.5 x 8.5 x 17.5mm)
- High input voltage range, up to 72V
- Short circuit protection, thermal shutdown
- Low ripple and noise
- „L“ version with 90° pins

RECOM

DC/DC Converter

R-78HB-0.5(L)

0.5 Amp SIP3 Single Output

3 YEAR warranty

IEC/EN60950-1 certified
EN55032 compliant

Description

The R-78HBxx-Series high efficiency, high input voltage switching regulators are ideally suited to replace 78xx linear regulators and are pin compatible. The efficiency of up to 96% 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.

An input voltage range of up to 8:1 is unsurpassed by any other converter and allows the full stored energy utilization of standard and high voltage batteries. The fully protected output is ideal for industrial applications (especially for industry standard 24VDC bus supplies) and 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 15mA round off the specifications of this versatile converter series. Typical applications include telecommunication, automotive, industrial, aerospace and battery powered applications.

Selection Guide

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [A]	Efficiency @ min Vin [%]	Efficiency @ max. Vin [%]
R-78HB3.3-0.5	9 - 72	3.3	0.5	82	76
R-78HB5.0-0.5	9 - 72	5.0	0.5	87	81
R-78HB6.5-0.5	9 - 72	6.5	0.5	91	84
R-78HB9.0-0.5	14 - 72	9.0	0.5	92	86
R-78HB12-0.5	17 - 72	12	0.5	94	89
R-78HB15-0.5	20 - 72	15	0.5	95	91
R-78HB24-0.3	36 - 72	24	0.3	96	92

Model Numbering

R-78HB__-__(L)

Output Voltage — Pinning (1)

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.**
Internal Input Filter			1µF capacitor	
Absolute Maximum Input Voltage				75VDC
Quiescent Current	nom. Vin= 48VDC		1mA	5mA
Internal Power Dissipation				0.65W
Minimum Load (2)		2%		

Notes:

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

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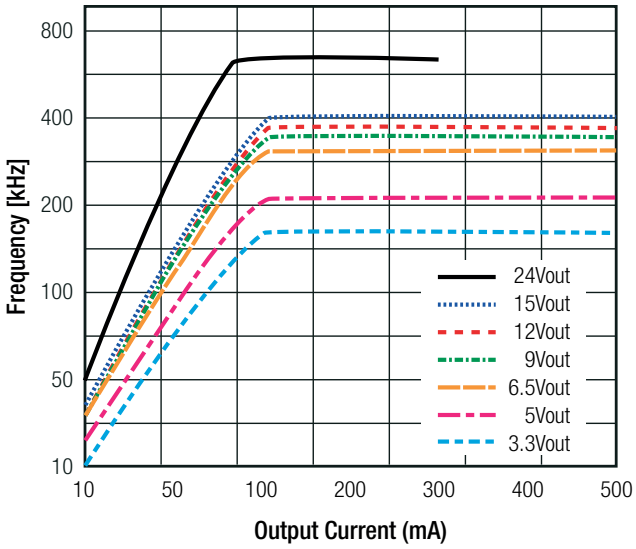
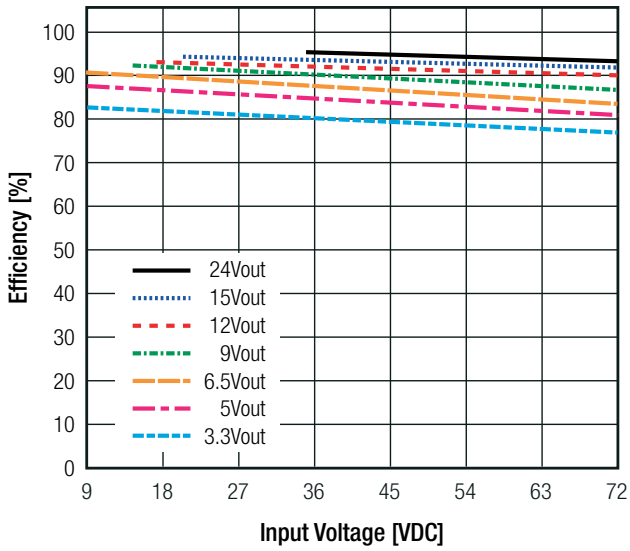
Specifications (measured @ Ta= 25°C, 10% minimum load, unless otherwise stated)

Parameter	Condition	Min.	Typ.	Max.
Internal Operating Frequency	nom. Vin= 48VDC	120kHz		800kHz
Output Ripple and Noise	20MHz BW (10 - 100% load)		20mVp-p	60mVp-p
Absolute Maximum Capacitive Load	1 second start up, no external components <1 second start up + diode protection circuit			100µF 6800µF

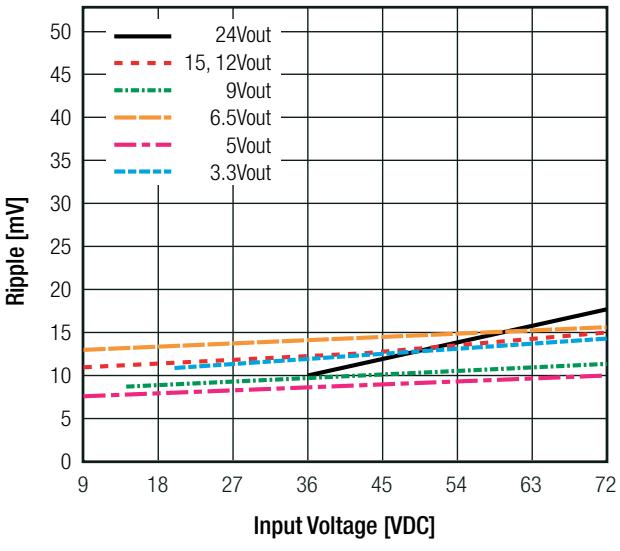
Switching Frequency vs. Load



Efficiency vs. Vin (full load)



Ripple vs. Vin (full load)



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