Features

Switching Regulator

- Efficiency up to 96%, no need for heatsinks
- 2A continuous output current
- Vin up to 32V
- Vout: 1.2V - 15V
- Wide operating temperature -40°C to +70°C at full load
- Continuous short circuit protection
- Pin compatible with TO220 linear regulators
- Positive to negative

RECOM
DC/DC Converter

R-78B-2.0

2.0 Amp SIP3 Single Output

3 YEAR warranty

IECEE CB SCHEME

EAC

IEC62368-1 certified
EN62368-1 certified
EN55032 compliant
CB report

Description

The R-78Bxx-2.0 series high efficiency 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. Full power is available over a temperature range of -40°C up to 70°C without the need for heatsinks with their additional space and mounting costs. A high input voltage of up to 32VDC and output voltages from 1.2V up to 15V, low ripple and noise figures and a short circuit input current of typically only 50mA round off the specifications of this versatile converter series.

Selection Guide

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency @ full load @ min Vin [%]	@ max. Vin [%]	Max. Capacitive Load (1) [µF]
R-78B1.2-2.0	4.75 - 32	1.2	2000	87	72	3300
R-78B1.5-2.0	4.75 - 32	1.5	2000	90	79	3300
R-78B1.8-2.0	4.75 - 32	1.8	2000	91	80	3300
R-78B2.5-2.0	4.75 - 32	2.5	2000	92	84	2300
R-78B3.3-2.0	4.75 - 32	3.3	2000	92	86	1800
R-78B5.0-2.0	6.5 - 32	5	2000	94	90	820
R-78B9.0-2.0	11 - 32	9	2000	95	93	620
R-78B12-2.0	15 - 32	12	2000	96	94	470
R-78B15-2.0	18 - 32	15	2000	96	95	470

Notes:

Note1: Max. cap load is tested by nominal input and full resisitive load

Model Numbering

R-78B__-2.0

Output Voltage — Output Current

Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm up unless otherwise specified)

BASIC CHARACTERISTICS

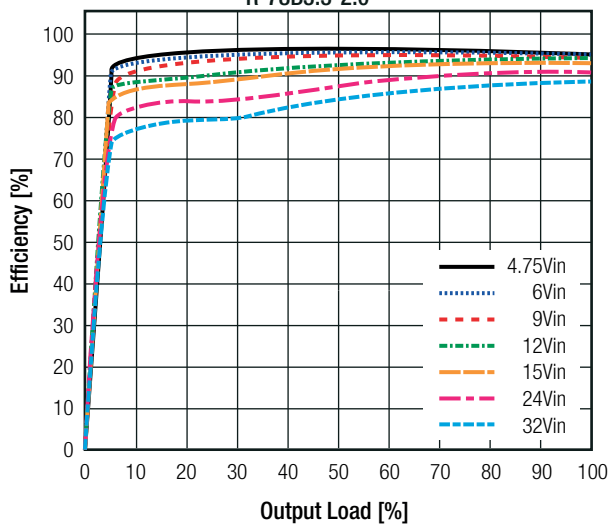
Parameter	Condition		Min.	Typ.	Max.
Input Voltage Range	nom. Vin= 24VDC	1.2Vout - 3.3Vout 5Vout 9Vout 12Vout 15Vout	4.75VDC 6.5VDC 11VDC 15VDC 18VDC	24VDC	32VDC
Maximum Reverse Voltage					0V
Inrush Current				2A	
Quiescent Current	nom. Vin= 24VDC			2mA	
Internal Power Dissipation	Vout= 1.5VDC			0.35W	0.8W
Start-up time				10ms	
Rise Time				50µs	
Internal Operating Frequency	nom. Vin= 24VDC			460kHz	
Minimum Load			0%		
Output Ripple and Noise [2]	20MHz BW	Vout ≤3.3VDC Vout ≥5VDC		50mVp-p 75mVp-p	

Notes:

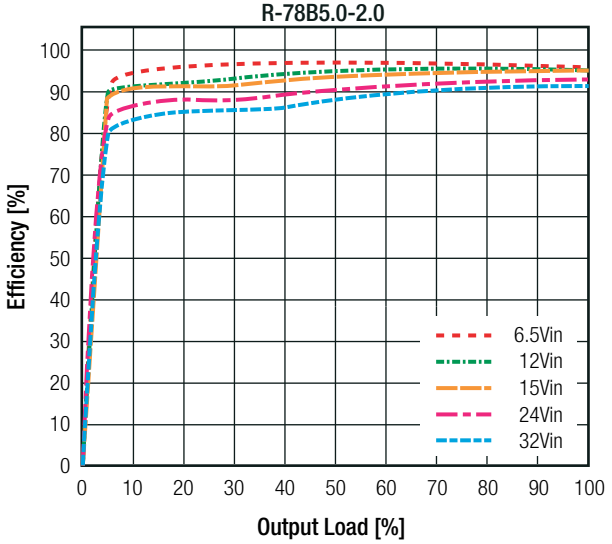
Note2: Measurements are made with a 100nF MLCC across output (low ESR)

Efficiency vs. Load

R-78B3.3-2.0

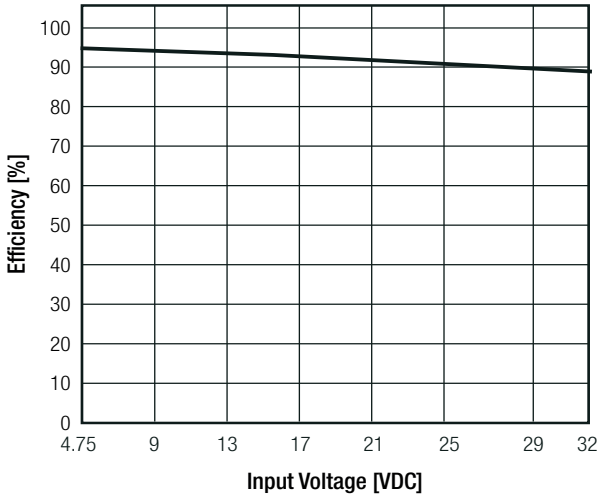
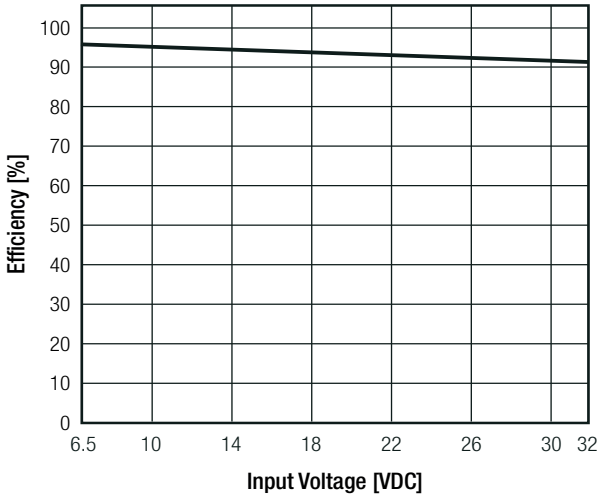


R-78B5.0-2.0



Efficiency vs. Input Voltage

R-78B3.3-2.0



R-78B5.0-2.0