

Features

Switching Regulator

- Boost converter
- Efficiency 93% , >80% with 10% load
- Input range down to 0.65V
- Continuous short circuit protection
- 7µA input current in standby
- -40°C to +100°C operation
- IEC/EN62368-1 certified, CB report

RECOM
DC/DC Converter

R-78S

0.1 Amp
SIP4
Single Output



IEC/EN62368-1 certified
CB report, EAC
EN55032 compliant

Description

The R-78S is a DC/DC boost converter designed to run from single cell batteries. The input voltage range of 0.65V-3.3V means that alkaline, NiCd, NiMH, zinc-carbon or lithium chemistry cells can be used to generate a stable 1.8V, 3.3V or 3.6V output to power microprocessors, WLAN/Bluetooth modules and IoT systems. The very high efficiency and low standby consumption can be used to extend battery lifetimes until the „last gasp“ to get the maximum available energy out of the cell. The wide operating temperature of -40°C to +100°C, short circuit protection, OTP, Class A EMC and 3-year warranty round off this high performance converter.

Selection Guide

Part Number	Input Voltage Range ⁽³⁾ [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency ⁽¹⁾		Max. Capacitive Load ⁽²⁾ [µF]
				@ min Vin [%]	@ typ. Vin [%]	
R-78S1.8-0.1	0.65-1.3	1.8	100	92	93	470
R-78S3.3-0.1	0.65-3.15	3.3	100	92	93	470
R-78S3.6-0.1	0.65-3.3	3.6	100	92	93	470

Notes:

Note1: Efficiency is tested at nom. input voltage and full load. (refer to Basic characteristics below)

Note2: Max. Cap Load is tested by nominal input and full resistive load

Note3: For more information, please refer to "Line Derating" on page I-2

Model Numbering

R-78S- -0.1
Output Voltage ——— Output Current

Specifications (measured @ Ta= 25°C, 1.5Vin, full load and after warm-up unless otherwise stated)

BASIC CHARACTERISTICS

Parameter	Condition			Min.	Typ.	Max.
Input Voltage	R-78S1.8-0.1	nom. Vin=	1.2VDC	0.65VDC	1.2VDC	1.3VDC
	R-78S3.3-0.1		1.5VDC		1.5VDC	3.15VDC
	R-78S3.6-0.1		1.5VDC		1.5VDC	3.3VDC
Under Voltage Lockout	DC-DC OFF				0.4VDC	
Overload Capability ⁽⁴⁾	peak duty cycle 10%					150%, 10s
Quiescent Current	Vout=1.8VDC				100μA	
	Vout=3.3VDC				160μA	
	Vout=3.6VDC				180μA	
Start-up time	Vout=1.8VDC, use E-cap 330μF				4ms	
	Vout=3.3VDC and 3.6VDC				2ms	
Rise time	Vout=1.8VDC, use E-cap 330μF				3.5ms	
	Vout=3.3VDC and 3.6VDC				800μs	
Internal Operating Frequency					1200kHz	

Notes:

Note4: For more information, please refer to "Overload Capability Graph" on page I-2

continued on next page



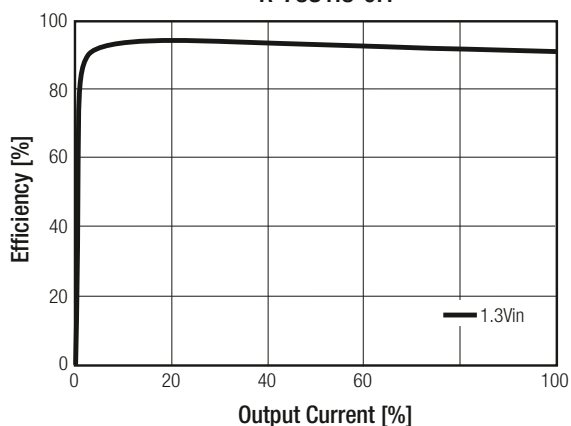
www.recom-power.com/eval-ref-boards

Specifications (measured @ $T_a = 25^\circ\text{C}$, 1.5Vin, full load and after warm-up unless otherwise stated)

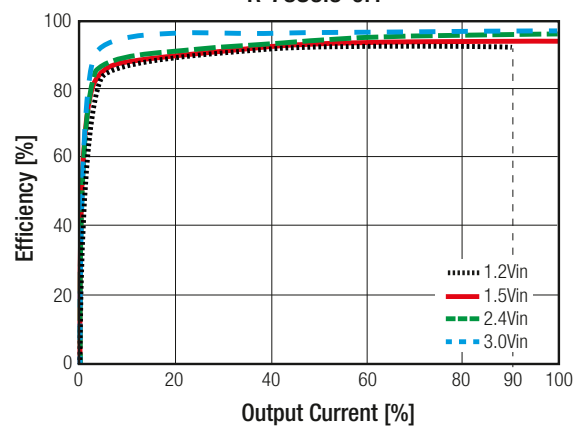
Parameter	Condition	Min.	Typ.	Max.
Minimum Load			0%	
Dropout Voltage	$V_{out} = 1.8\text{VDC}$		500mV	
	$V_{out} = 3.3\text{VDC}$		150mV	
	$V_{out} = 3.6\text{VDC}$		300mV	
Output Ripple and Noise	20MHz BW, 10%-100% load			100mVp-p
ON/OFF CTRL	DC-DC ON DC-DC OFF	Open or $0.7\text{V} \leq V_{CTRL} < V_{in}$ Short to GND or $V_{CTRL} < 0.1\text{V}$		
Input Current of CTRL pin			5 μA	
Standby Current			7 μA	

Efficiency vs. Load

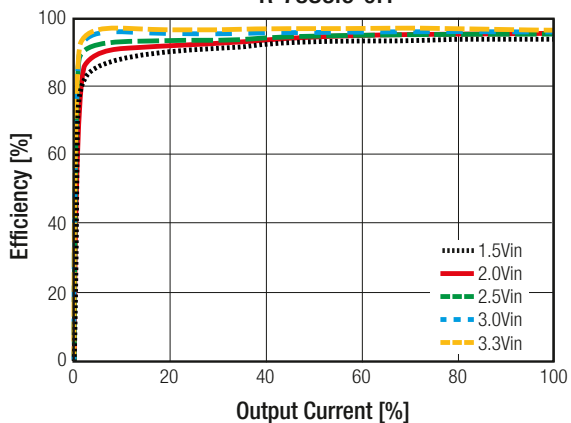
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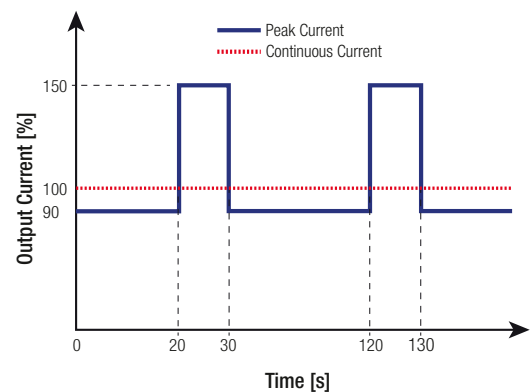
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R-78S3.6-0.1

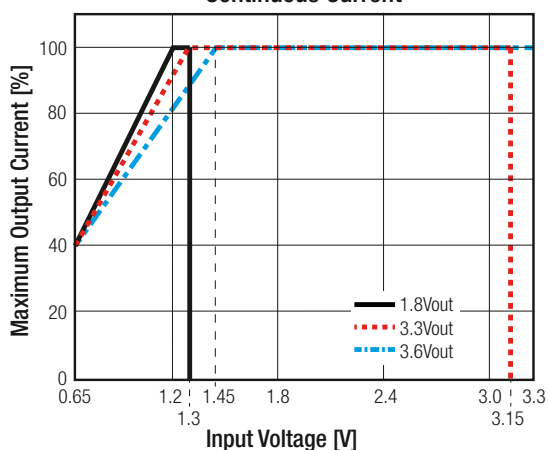


Overload Capability



Line Derating

Continuous Current



Peak Current

