Step-up 500mA Module - RT9266

User's Guide

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NOTES:

Product Version : Ver 1.0

Document Version : Ver 1.0

Chapter 1. Overview

1.1 Overview

This is a minimized Step-Up DC-DC converter module which provides easy-to-use and minimum number of external components power supply solution. Integrated with RT9266 chip which is a high efficiency, low voltage step-up DC/DC converter, this module can provide output voltage from 3.6V to 5.2V over a wide range of input voltage from 1.2V to 5.5V via the on-board adjustable resistor and deliver up to 500mA output current. This module can also be used for applications powered by one-cell, two-cell, or three-cell Alkaline, NiCd/NiMH, one-cell Li-Ion or Li-Polymer batteries in addition to 3.6V to 5.2V applications.

FIGURE 1-1 OVERVIEW

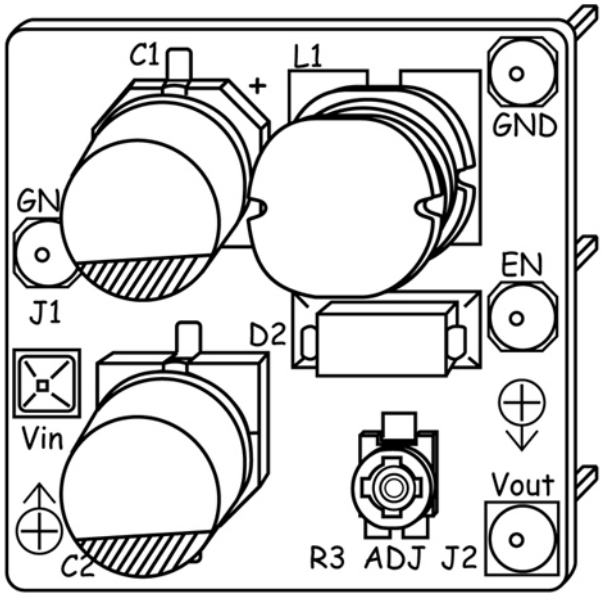
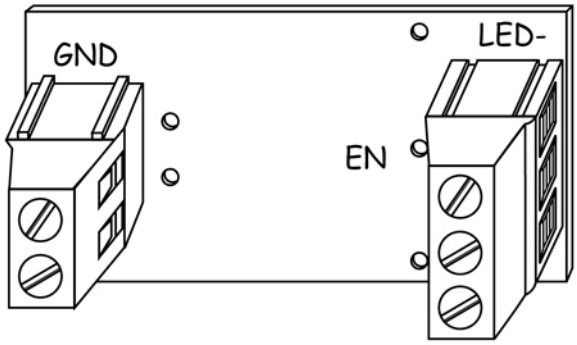


FIGURE 1-2 ACCESSORY



Note: All the diagrams in this manual are for reference only.

1.2 Features

- Minimized and easy-to-use
- 1.2V Low Start-up Input Voltage
- Easy-to-use and minimum number of external components power supply solution for applications powered by one-cell, two-cell, or three-cell alkaline, NiCd/NiMH, one-cell Li-Ion or Li-Polymer batteries
- High Supply Capability to Deliver 5.0V 500mA with 2 Alkaline Cell
- 1mA Quiescent (Switch-off) Supply Current
- Zero Shutdown Mode Supply Current
- Input voltage: 1.2V to 5.5V
- Output voltage: 3.6V to 5.2V
- 90% Efficiency
- Easy installation

1.3 Applications

Power Conversion

Chapter 2. Hardware Detail

2.1 Port Definition

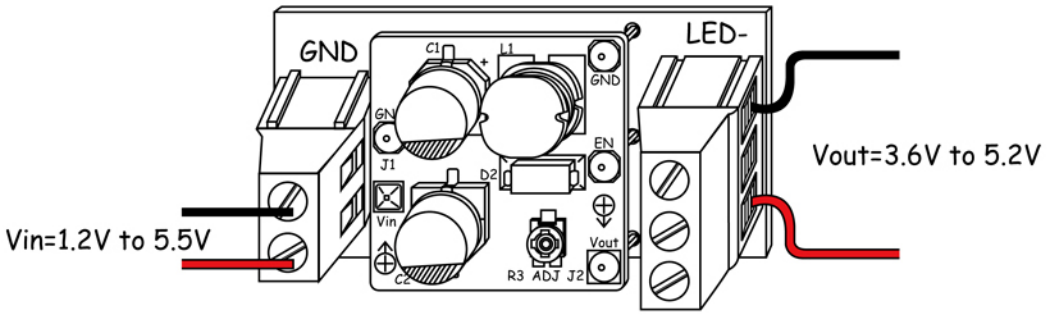
TABLE 2-1 PORT DESCRIPTION

Pin	Description
Vin	The positive of the input
GND	The negative of the input
Vout	The positive of the output
GND	The negative of the output
EN	NC

2.2 Connection

Please refer to the following figure for connection.

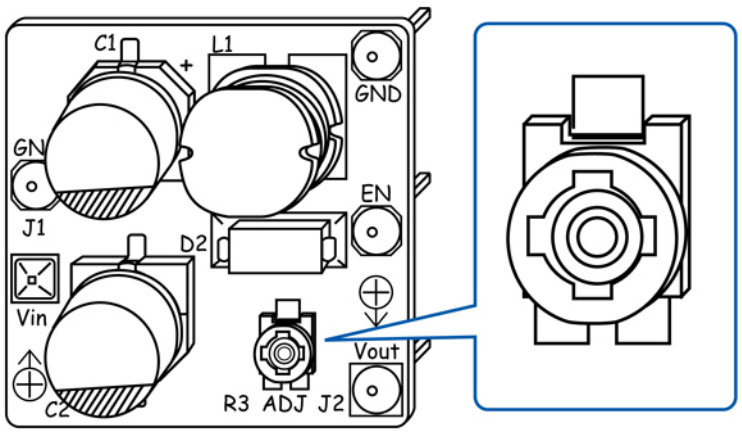
FIGURE 2-1 CONNECTION SCHEMATIC



2.3 Regulation

An SMD adjustable resistor is applied on the board so that this module can provide output voltage from 3.6V to 5.2V.

FIGURE 2-2 ON-BOARD ADJUSTABLE RESISTOR



Chapter 3. Electrical Characteristics

3.1 Electrical Characteristics

The typical parameters are listed in the table below.

Tested @ V_{in} = 2.4V (or two AA batteries), R_L=100ohm, unless otherwise stated.

FIGURE 3-1 ELECTRICAL CHARACTERISTICS

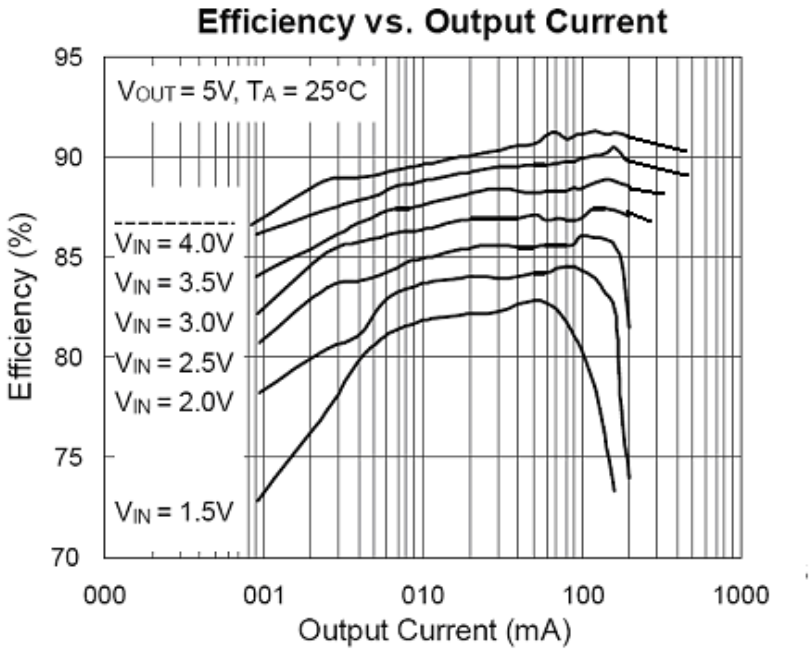
Parameter	Condition	Min.	Typ.	Max.	Unit
Input Voltage	No Load	1.2	-	5.5	V
	R_L=100ohm	1.2	-	5.5	V
	R_L=40ohm	1.5	-	5.5	V
Input Current	No Load	0.55	0.57	0.60	mA
Output Voltage	-	3.59	-	5.2	V
Max. Output Current	V_{in}=2AA batteries, V_{out}=5.0V, R_L=10ohm	-	500	-	mA
Efficiency	V_{out}=5.0V, V_{in}=4.0V, I_{out}=200mA	-	90	-	%
Max. Operation Frequency (Internal)	-	425	500	575	KHz
Max. Duty Cycle	-	85	95	-	%
Temperature Stability for V_{out}	-	-	50	-	℃
Thermal Shutdown Hysterises	-	-	10	-	℃
Working Temperature	-	-10	20	50	℃
Storage Temperature	-	-55	20	+125	℃

Note: Some data from Data Sheet of MBI6651 chip. Please refer to the relevant documents for the details.

3.2 The General Performance Specifications

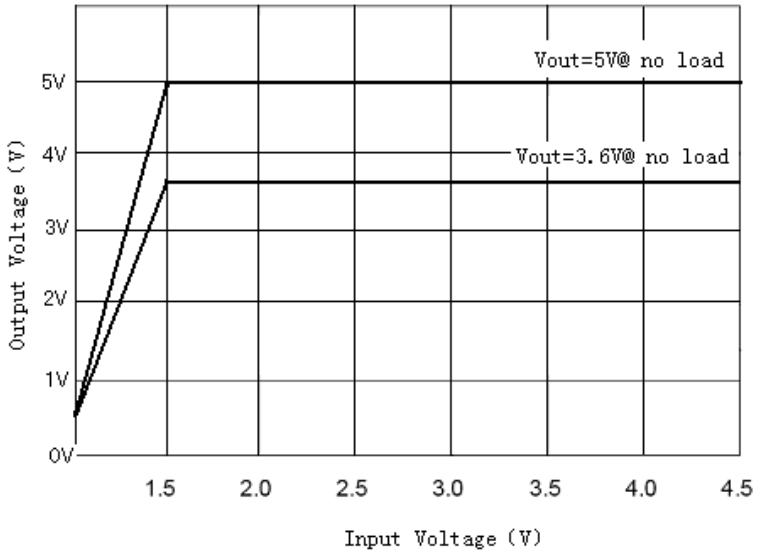
1. Efficiency Vs Output Current@ input voltage

FIGURE 3-2 EFFICIENCY VS OUTPUT CURRENT@ INPUT VOLTAGE



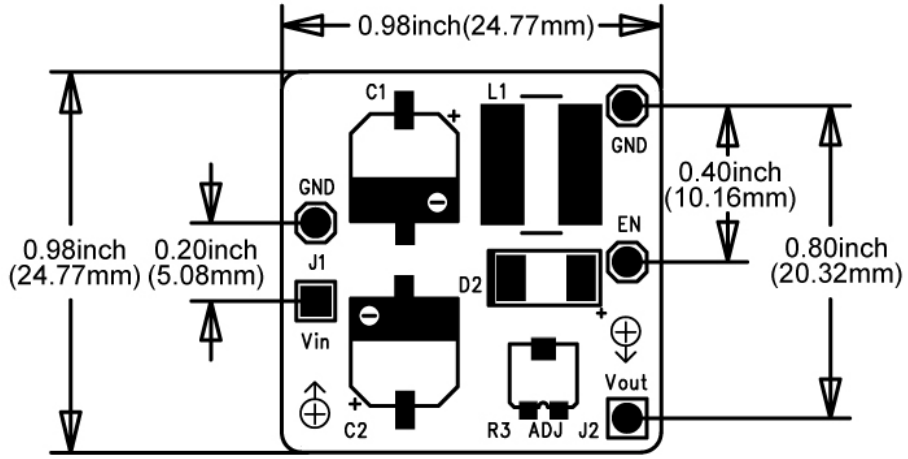
2. Output Voltage Vs Input Voltage

FIGURE 3-3 OUTPUT VOLTAGE VS INPUT VOLTAGE



Chapter 4. Mechanical Drawing

FIGURE 4-1 MECHANICAL DRAWING



Chapter 5. Contact Us

Sure Electronics Co., Ltd.
East zone, 3F, Building 6
Jingang Technology Innovation Center
No.108 Ganjiabian Rd (ZIP: 210000)
Qixia District
Nanjing
P.R.China
Tel: +86-25-68154800-860
Fax: +86-25-68154891-832
Website: www.sure-electronics.com
Email: customerservice@sure-electronics.com