

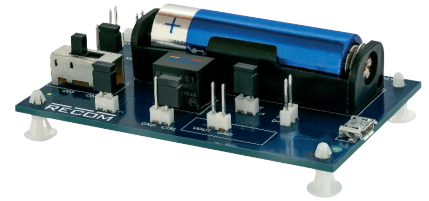
Features

Evaluation Module

- 3.3V from a single AA battery or from an external source (boost converter)
- Efficiency 93%, >80% at 10% load
- Input voltage range down to 0.65V
- Input and output power measurement capability
- Micro-USB type B or 0.100" (2.54mm) pin output

Description

The R-78S3.3-0.1-EVM-1 Evaluation Module generates 3.3V from a single AA battery or from an external source. By using the external input source, any voltage source (other types of batteries, energy harvesters, etc.) in the range from 0.65V to 3.15V can be used. The evaluation module contains a AA battery holder, power switch, R-78S3.3-0.1 boost converter and a micro-USB connector. Jumper headers are provided to allow various test measurements to be made. An enable pin puts the R-78S into sleep mode where it draws only 7uA from the battery.



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-78S3.3-0.1 | 0.65-3.15 | 3.3 | 100 | 92 | 93 | 470 |

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

| BASIC CHARACTERISTICS | | | | |
|------------------------------------|-----------------------|------|--|------|
| Parameter | Condition | Min. | Typ. | Max. |
| Under Voltage Lockout | DC-DC OFF | | 0.4VDC | |
| Overload Capability ⁽³⁾ | peak duty cycle 10% | | 150%, 10s | |
| Quiescent Current | | | 160μA | |
| Start-up Time | | | 2ms | |
| Rise Time | | | 800μs | |
| Internal Operating Frequency | | | 1200kHz | |
| Minimum Load | | 0% | | |
| Dropout Voltage | | | 150mV | |
| Output Ripple and Noise | | | 100mVp-p | |
| ON/OFF CTRL | DC-DC ON DC-DC OFF | | Open or 0.7V ≤ VCTRL < Vin Short to GND or VCTRL < 0.1V | |
| Input Current of CTRL Pin | | | 5μA | |
| Standby Current | | | 7μA | |

Notes:

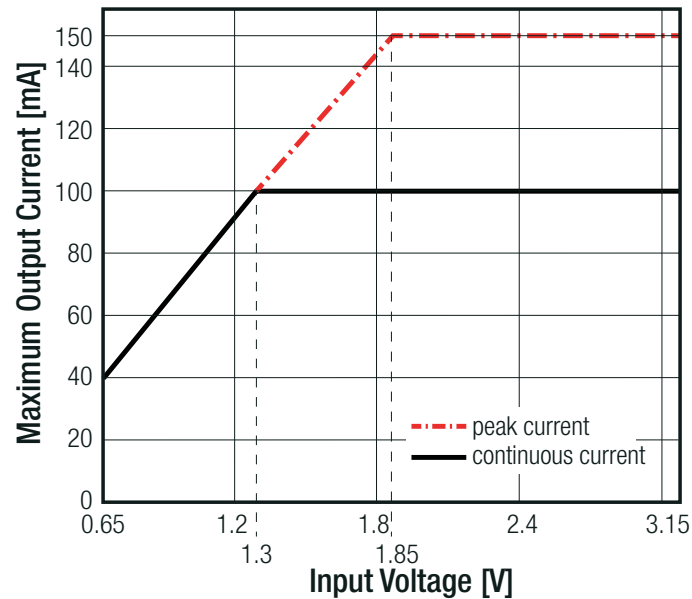
Note1: Efficiency is tested at full load. Typ. Vin = 1.5V

Note2: Max. capacitive load is tested at nominal input and full resistive load

Note3: For more information, please refer to "Overload Capability Graph" on page P-2

Specifications (measured @ $t_a = 25^\circ\text{C}$, 1.5V_{in} , full load after warm up unless otherwise stated)

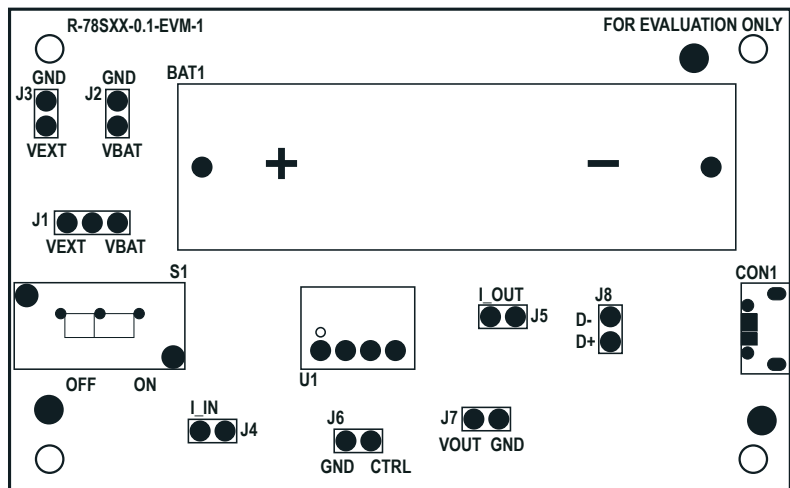
Overload Capability Graph



Quick Start Guide

- Insert the AA battery into the battery holder (only one way possible).
- If powering USB-powered demonstrators: plug in the micro-USB cable.
- Turn on and off using the slide switch.
 - Note: to reduce the power consumption, no indicator LED is fitted. Remember to switch off to conserve the battery.
- The output voltage is accessed via J7 or the USB port.
- To measure the input and output current of the R-78S, remove the jumpers on J4 and J5. J4 and J5 are standard 0.100" (2.54mm) pin headers to allow current measurement device connections (ampere meter, scope probe).
- When an external voltage source (no on-board battery) is used on J3, change the jumper position on J1 to pin 1 and pin 2 (VEXT).
- When the on-board AA battery is used, change the jumper position on J1 to pin 2 and pin 3 (VBAT).
- To set the R-78S into sleep mode, apply the provided jumper on both pins of J6 (CTRL to GND).

Component Placement



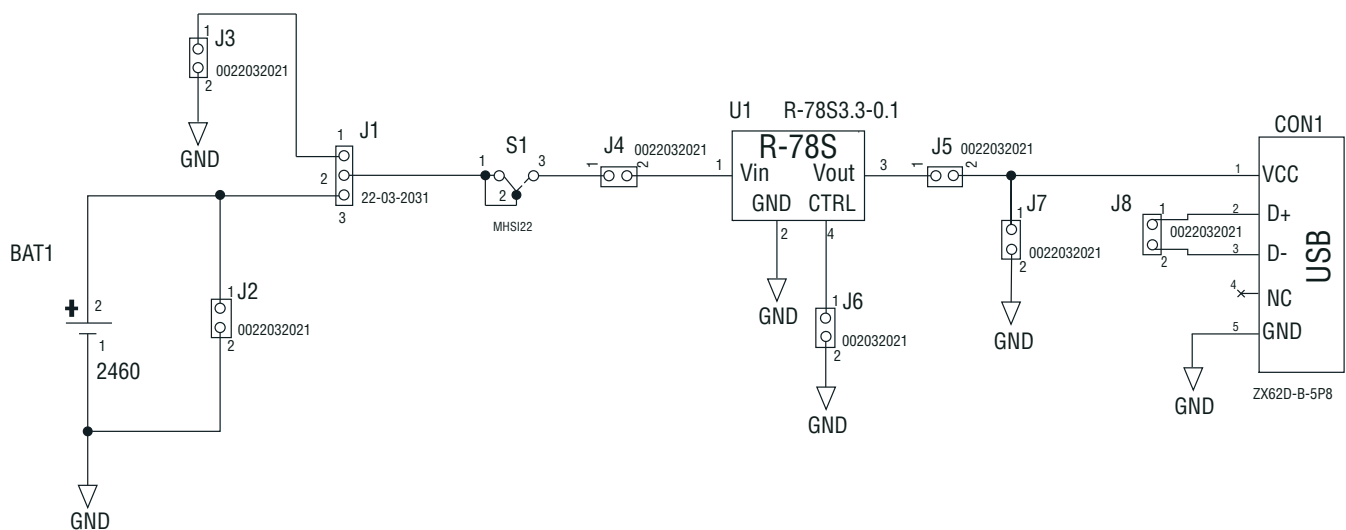
Specifications (measured @ ta= 25°C, 1.5Vin, full load after warm up unless otherwise stated)

| Component List | | |
|----------------|--|---------------------------------|
| Part | Description | Setting |
| BAT1 | AA battery holder | |
| J1 | 3 pin 0.100" (2.54mm) header for VEXT and VBAT | Factory set to on-board battery |
| J2* | 2 pin 0.100" (2.54mm) header for VBAT and GND | Leave open if not used |
| J3 | 2 pin 0.100" (2.54mm) header for VEXT and GND | Leave open if not used |
| J4 | 2 pin 0.100" (2.54mm) header for input current | Leave closed if not used |
| J5 | 2 pin 0.100" (2.54mm) header for output current | Leave closed if not used |
| J6 | 2 pin 0.100" (2.54mm) header for CTRL (enable) and GND | Leave open if not used |
| J7 | 2 pin 0.100" (2.54mm) header for VOUT and GND | Leave open if not used |
| J8 | 2 pin 0.100" (2.54mm) header for USB D+ and D- | Leave open if not used |
| S1 | Slide switch | Factory set OFF |
| CON1 | USB micro B connector | |
| U1 | R-78S3.3-0.1 boost converter | |

***Caution:**

DO NOT PLACE A JUMPER ON J2. DOING SO WILL CAUSE THE BATTERY TO SHORT CIRCUIT AND CREATE THE RISK OF FIRE.

Schematic

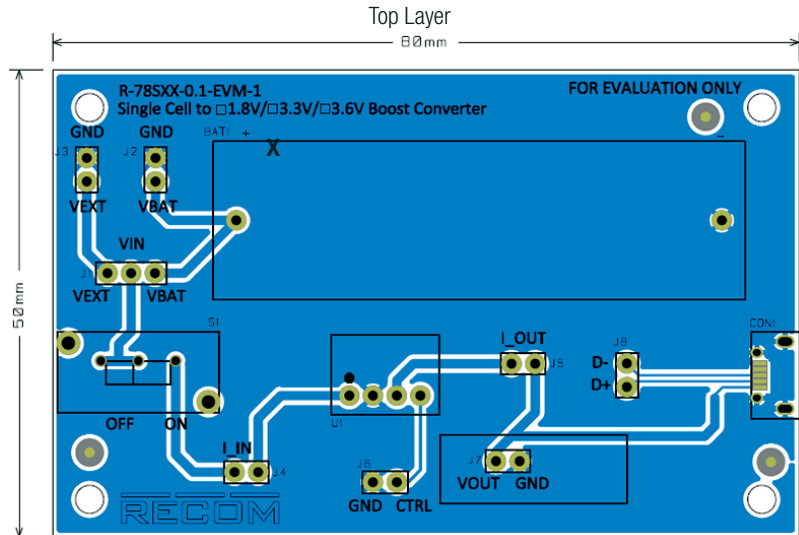


Specifications (measured @ ta= 25°C, 1.5Vin, full load after warm up unless otherwise stated)

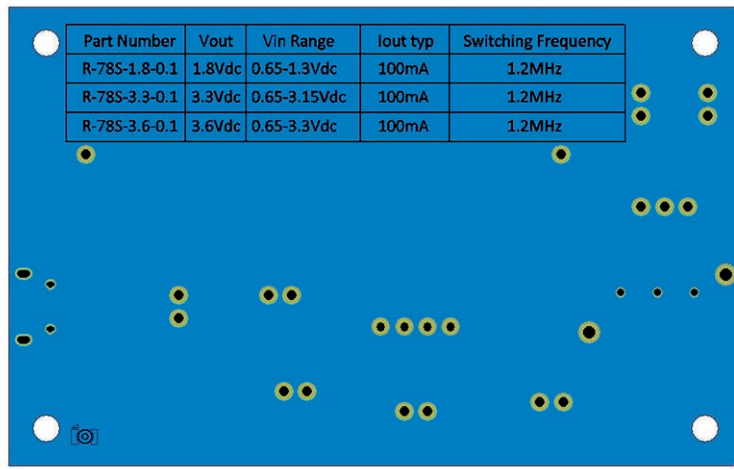
DIMENSION AND PHYSICAL CHARACTERISTICS

| Parameter | Type | Value |
|-------------------|------|----------------------|
| Dimension (LxWxH) | | 80.0 x 50.0 x 23.0mm |
| Weight | | 26g typ. |

Layout



Bottom Layer



BOM

| Part Name/Number | Description | Manufacturer Part Number | Manufacturer | Qty. | Comps. |
|-------------------|---|--------------------------|------------------------|------|----------------------|
| Battery_Holder_AA | Holder Battery 1Cell AA PCB MNT | 2460 | Keystone Electronics | 1 | BAT1 |
| JUMPER_2PINS | 2 Positions Header Connector 0.100" (2.54mm) Through Hole Tin | 0022032021 | Molex | 7 | J2 J3 J4 J5 J6 J7 J8 |
| JUMPER_3PINS | Conn Header 3POS .100 Vert Tin | 22-03-2031 | Molex | 1 | J1 |
| MHS122 | Switch Slide SPDT 300mA 30V | MHS122 | APEM Inc | 1 | S1 |
| R-78S3.3-0.1 | DC DC Converter 3.3V | R-78S3.3-0.1 | RECOM | 1 | U1 |
| ZX62D-B-5P8 | Conn RCPT USB Micro B SMD | ZX62D-B-5P8 | Hirose Electric Co Ltd | 1 | CON1 |

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

PACKAGING INFORMATION

| Parameter | Type | Value |
|-----------------------------|--------|------------------------|
| Packaging Dimension (LxWxH) | carton | 200.0 x 135.0 x 68.0mm |
| Packaging Quantity | | 1 pcs |

Contents

- R-78S3.3-0.1-EVM-1 Evaluation Module PBA
- Micro-USB Type B to Micro-USB Type B Cable
- Terms and Conditions Letter

The product information and specifications may be subject to changes even without prior written notice. The product has been designed for various applications; its suitability lies in the responsibility of each customer. The products are not authorized for use in safety-critical applications without RECOM's explicit written consent. A safety-critical application is an application where a failure may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The applicant shall indemnify and hold harmless RECOM, its affiliated companies and its representatives against any damage claims in connection with the unauthorized use of RECOM products in such safety-critical applications.

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А