### **Features**

### Reference Design

- 3.3V from a single AA battery (boost converter)
- Efficiency 93%, >80% at 10% load
- Input voltage range down to 0.65V
- 0.100" (2.54mm) pin output
- 3.5mm mounting holes



R-REF02-78S

### Description

The R-REF02-78S generates 3.3V from a single AA battery and can directly be used in any application. The reference design contains a AA battery holder and an R-78S3.3-0.1 boost converter. Two jumper headers J1 and J2 ensure connectivity to the output voltage and the CTRL pin of the R-78S converter. The jumper header pins are standard 0.100" (2.54mm) pitch for which there are several mating connectors available. Two 3.5mm mounting holes are provided to allow snap-in or screw mounting. An enable pin puts the R-78S into sleep-mode where it draws only 7uA from the battery.



Selection Guide						
Part	Input	Output	Output	Efficiency (1) Max		Max. Capacitive
Number	Voltage Range (3) IVDC1	Voltage IVDC1	Current [mA]	@ min Vin [%]	@ typ. Vin [%]	Load <sup>(2)</sup> [µF]
		,				
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.	Тур.	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		Open or 0.7V ≤ V <sub>CTRL</sub> <vin< td=""></vin<>			
OWOFF CIRL	DC-DC OF	DC-DC OFF		Short to GND or V <sub>CTRL</sub> <0.1V		
Input Current of CTRL Pin				5µA	·	
Standby Current				7μΑ		

### 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



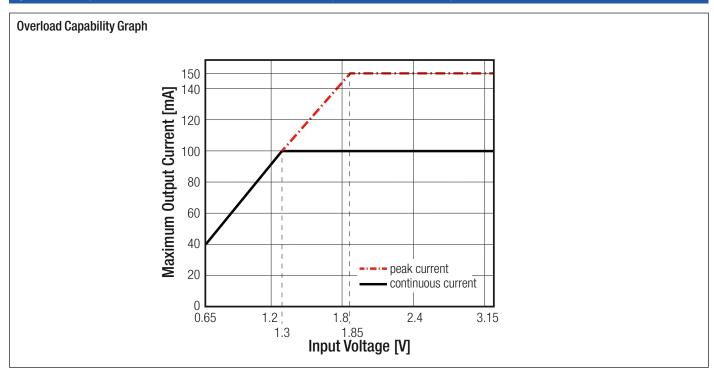
### **Caution:**

ESD sensitive. Always follow ESD preventative procedures when handling the product!



# R-REF02-78S

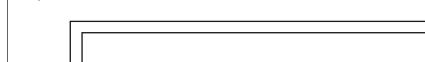
Specifications (measured @ ta= 25°C, 1.5Vin, full load after warm up unless otherwise stated)

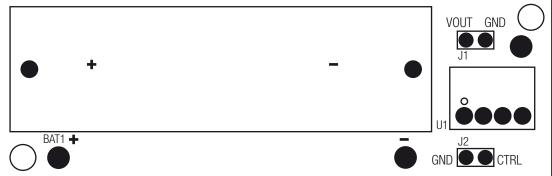


### **Quick Start Guide**

**Component Placement** 

- Insert the AA battery into the battery holder (only one way possible).
- The output voltage is accessed via J1.
- To set the R-78S into sleep mode, short both pins of J2 (CTRL to GND).





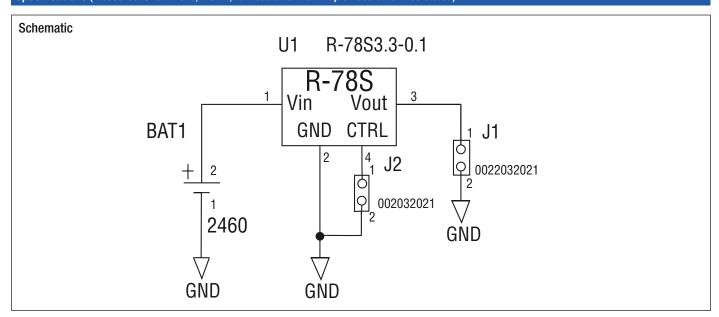
Component List			
Part	Description		
BAT1	AA battery holder		
U1	R-78S3.3-0.1		
J1	2 pin 0.100" (2.54mm) header for VOUT and GND		
J2	2 pin 0.100" (2.54mm) header for CTRL and GND		

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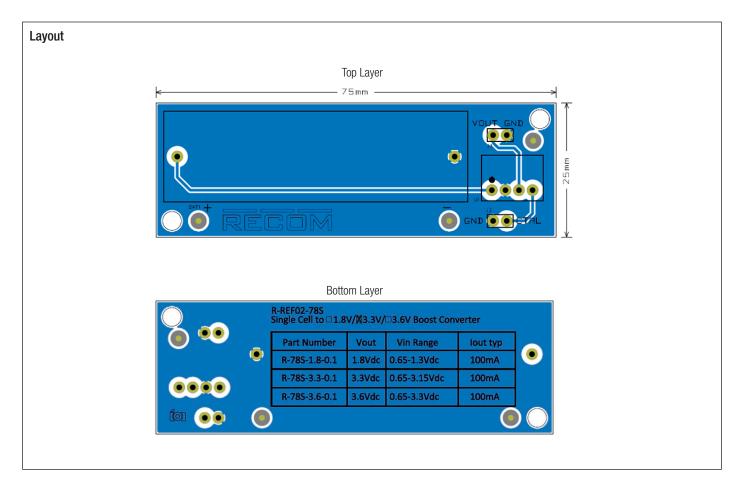


# R-REF02-78S

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



DIMENSION AND PHYSICAL CHARACTERISTICS			
Parameter	Туре	Value	
Dimension (LxWxH)		75.0 x 25.0 x 17.5mm	
Weight		12.1g typ.	





# R-REF02-78S

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

### **BOM**

Part Name/Number	Description	Manufacturer Part Number	Manufacturer	Qty.	Comps.
BATTERY_HOLDER_AA	Holder Battery 1 Cell AA PCB MNT	2460	Keystone Electronics	1	BAT1
JUMPER_2PINS	2 Position Header Connector 0.100" (2.54mm) Through Hole Tin	0022032021	Molex	2	J1 J2
R-78S3.3-0.1	DC DC Converter 3.3V	R-78S3.3-0.1	RECOM	1	U1

PACKAGING INFORMATION				
Parameter	Туре	Value		
Packaging Dimension (LxWxH)	airbag	177.0 x 126.0 x 25.0mm		
Packaging Quantity		1pcs		

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