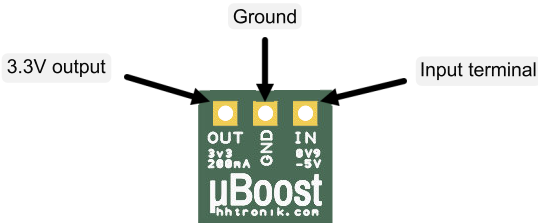


µBoost is a very small high efficiency 3.3V out boost converter module. Its very low quiescent current and a low startup voltage of only 0.9V make it ideal for low power applications running off of alkaline or primary lithium cells.

## Features

- Very small: 8.4x8.4x2.5mm
- Output voltage: 3.3V
- High efficiency (typ.  $\geq 80\%$ , up to 94%)
- Wide supply voltage range: 3.5V - 0.6V
- Extended hold range down to 0.25V
- Low startup voltage: 0.9V
- Very low quiescent current ( $\leq 15 \mu\text{A}$  at 3V input)
- Good line and load regulation

## Connections

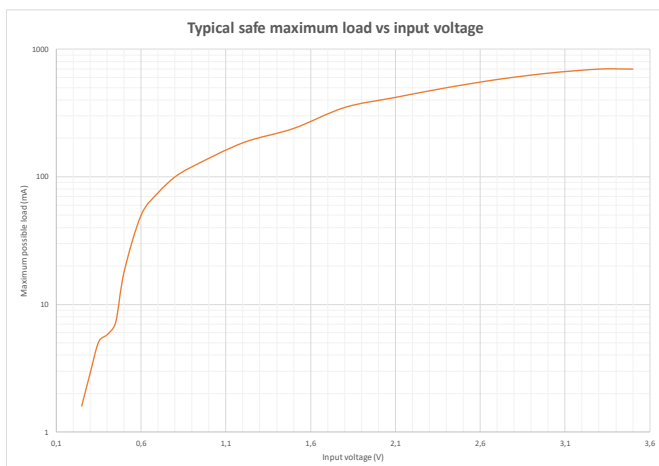


## Application notes

The module might heat up significantly under certain operations conditions, especially at higher loads.

Do not short circuit, over-load or invert polarity. Any such error condition may damage the module.

While the µBoost module is targeted at low power applications, it can supply over 120mA current to an attached load in the input supply range of 0.9V to 3.5V



Exceeding the operation range displayed in the chart may result in loss of regulation or overheating of the module.

Input characteristics				
Parameter	Min.	Typ.	Max.	Units
Voltage range	0.6		3.50	V
Ext. hold voltage (1)		0.25		V
Startup voltage		0.9		V
Quiescent current	10		90	$\mu\text{A}$

(1) output characteristics are not guaranteed in the extended operation range.

Output characteristics				
Parameter	Min.	Typ.	Max.	Units
Output voltage		3.3		V
Output voltage accuracy		3		%
Line regulation (1)		0.2	0.5	%/V
Load regulation (2)		1	2	%
Output current (3)	50		700	mA
RMS ripple		30	100	mV

(1) Figure at load = 50mA

(2) Figure at load = 0 to 300mA

(3) Output current supply capability depends on input voltage. See chart „Typical safe maximum load vs. Input voltage“

Mechanical characteristics				
Parameter	Min.	Typ.	Max.	Units
Length		8.4		mm
Width		8.4		mm
Height		2.5		mm
Weight		0.25		g

Absolute maximum ratings				
Parameter	Min.	Typ.	Max.	Units
Input terminals	-0.3		6	V
Output terminal	-0.3		6	V
Ambient temperature	-30		80	$^{\circ}\text{C}$
Storage temperature	-50		125	$^{\circ}\text{C}$

## Extended range input voltage operation

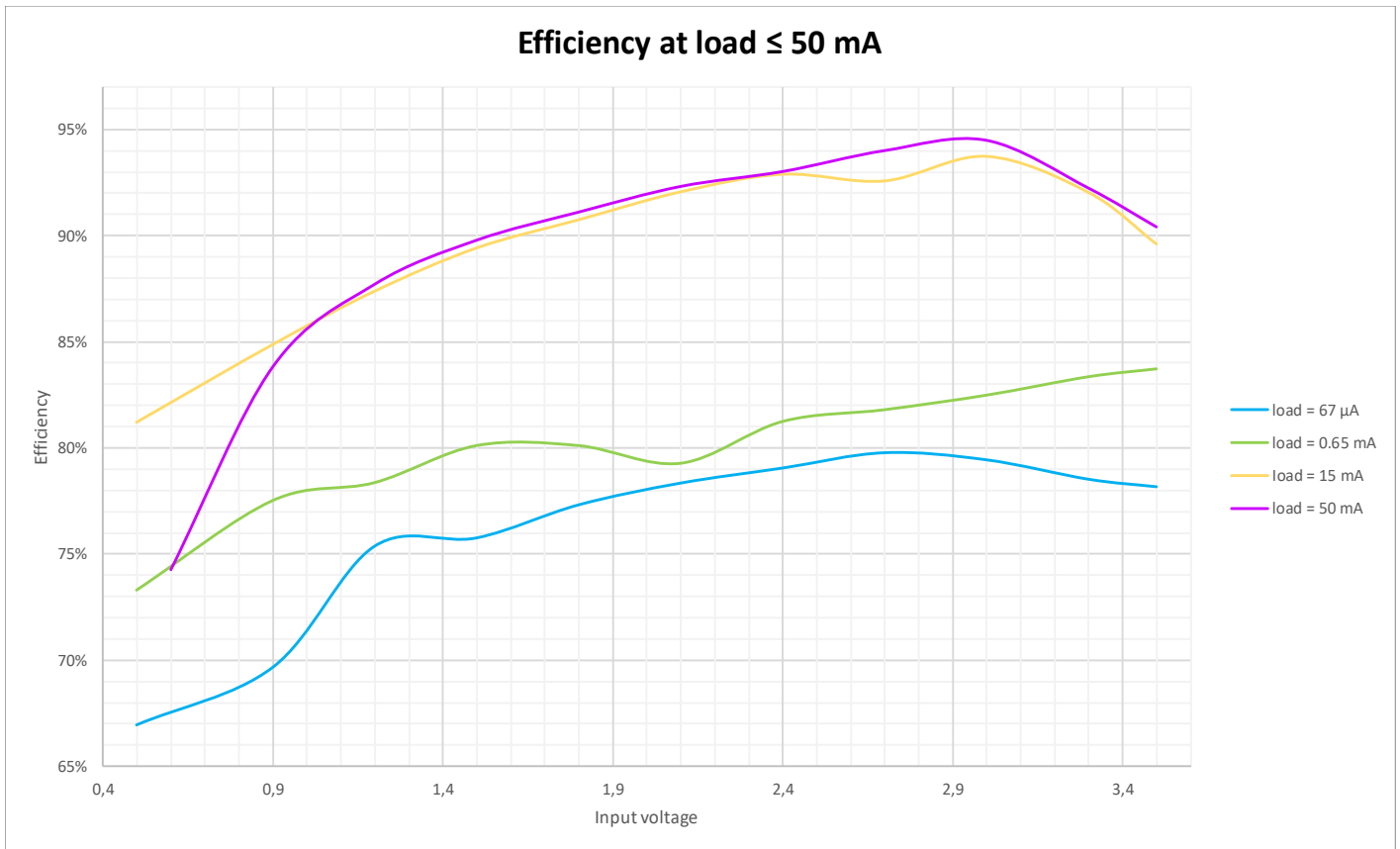
Once started up, the µBoost module is able to maintain operation down to 0.25V under normal conditions and light load. Typically the module can supply over 1mA at 0.25V input while retaining good regulation.

If required, transient response can be improved by adding additional output capacitance (ex. 33 - 100uF aluminum electrolytic).

Once the output voltage drops below 0.9V the module goes to shutdown mode. Starting it up again requires the input voltage to rise above the startup voltage threshold.

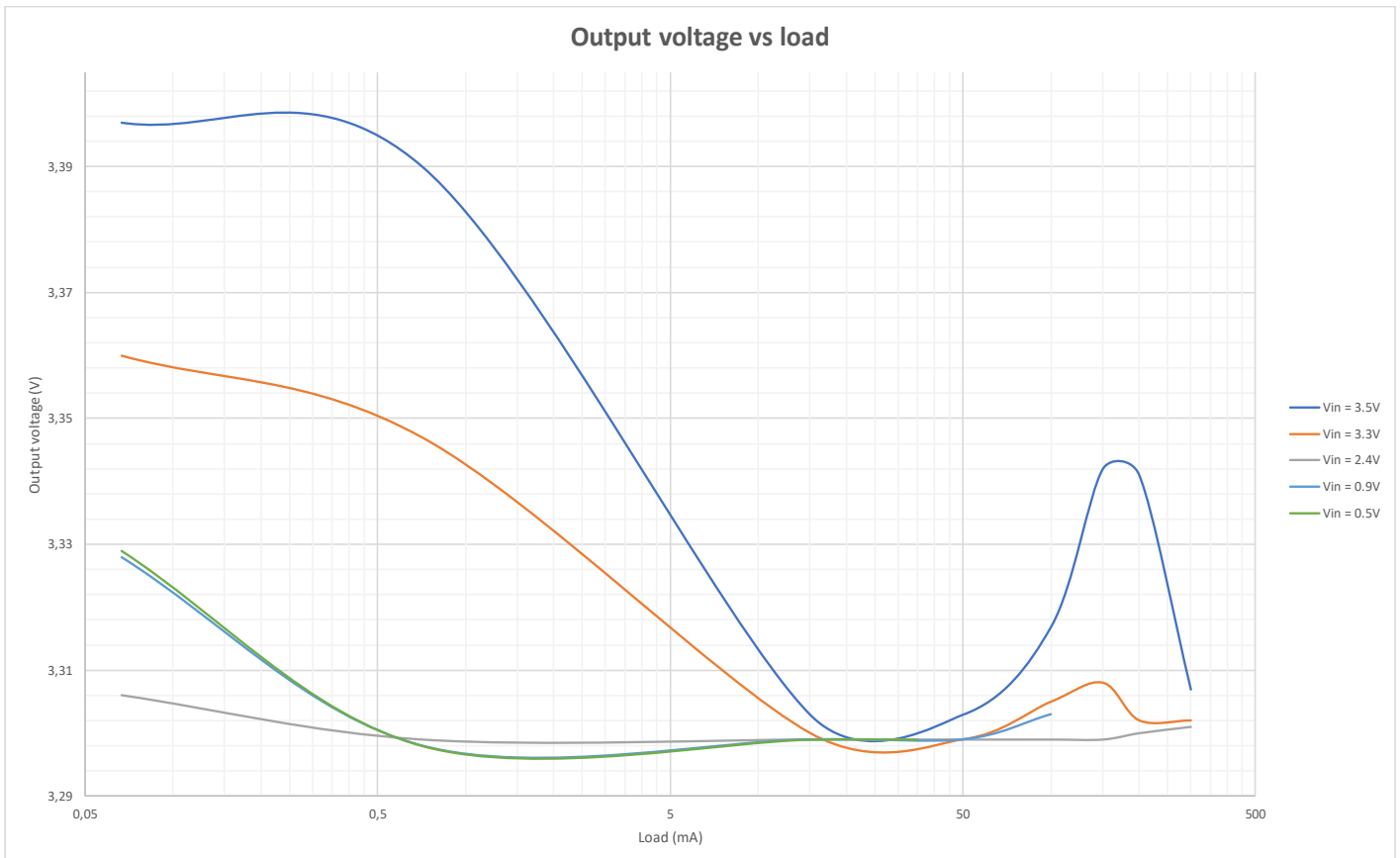
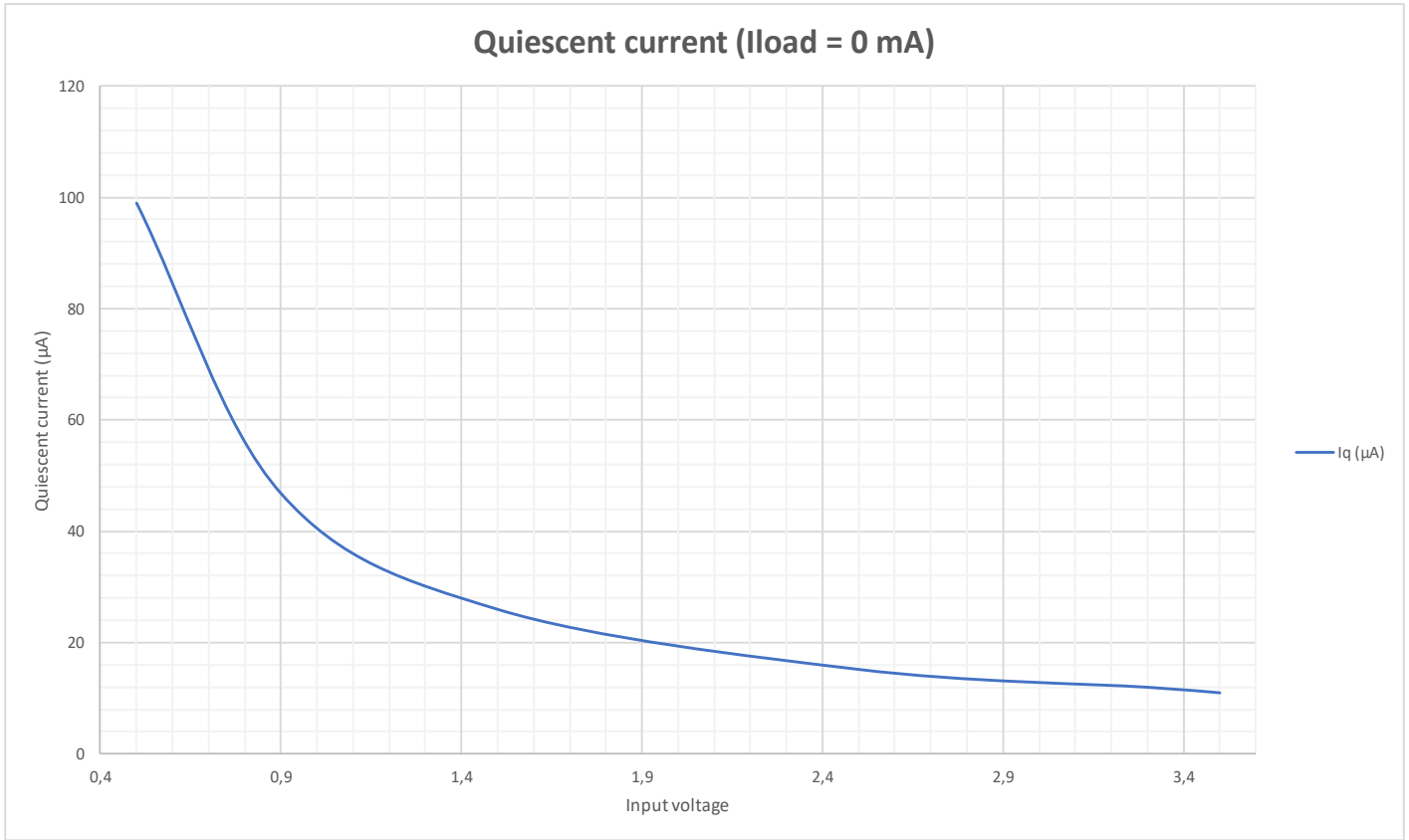
The regulator allows the input voltage to exceed the output voltage without getting damaged (while remaining within the absolute maximum ratings). The output regulation does deteriorate however. If such conditions may occur in your application, make sure the load can handle these higher voltages safely.

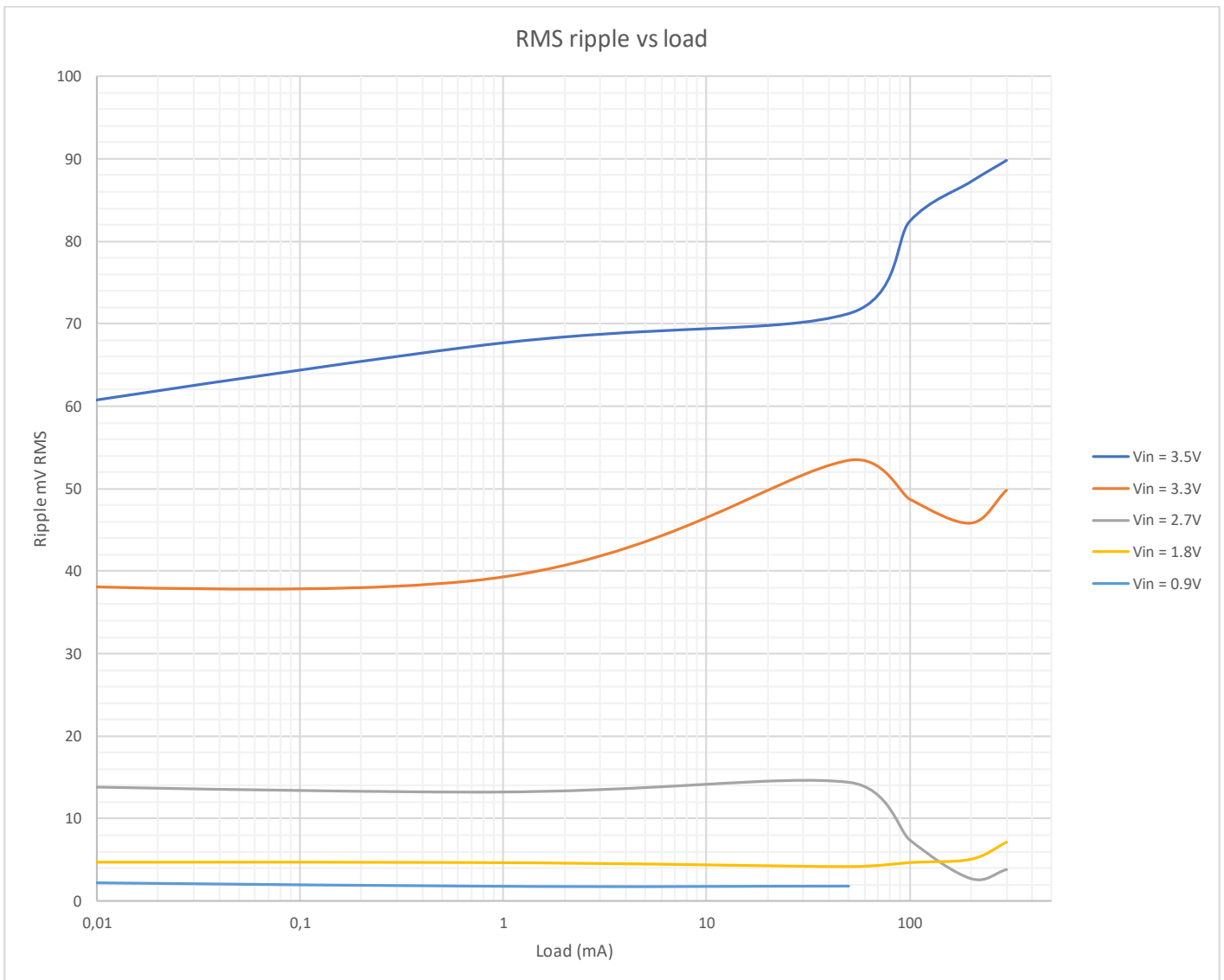
### Efficiency at load $\leq 50$ mA



### Efficiency at load $\leq 300$ mA







Note: measured at 20MHz bandwidth using a 1x probe.