

23-V, 10-A, Fully Integrated Synchronous Boost Converter

1 Features

- Wide Input and Output Voltage Range:
 - V_{IN} start up: 2.9V to 18V
 - V_{IN} operation: 2.7V to 18V
 - V_{OUT}: 4.5V to 23V
- Power Capability:
 - 10A peak switch current limit
 - 10-mΩ low-side FET
 - 16-mΩ high-side FET
- High efficiency
 - up to 96.5% efficiency at V_{IN} = 9 V, V_{OUT} = 16V, I_{OUT} = 2 A
 - up to 96% efficiency at V_{IN} = 12 V, V_{OUT} = 18V, I_{OUT} = 1.5 A
- Adjustable Switching Frequency
 - 200kHz to 1MHz
- External Soft Start and Compensation Pins to meet various applications
- Programmable V_{IN} UVLO and hysteresis
- Robust OVP, OCP, and OTP Protection
- PFM/FPWM selectable at light load
- 3mm×3mm QFN-13 Package

2 Applications

- MPP 15W wireless power transmitter
- MPP 25W wireless power transmitter
- Bluetooth Speaker
- Portable POS Systems
- Source Driver for LCD display
- Beauty Apparatus

FETs: A 10-mΩ switching FET and a 16-mΩ rectifier FET. The NU3121 features a wide input voltage range from 2.9 V to 18 V to support applications powered with single-cell, two-cell Lithium ion/polymer batteries or 5V,9V,12V, 15V power supplies. The NU3121 has 10-A continuous switch current capability and provides output voltage up to 23V. It provides a small-size solution for portable equipment.

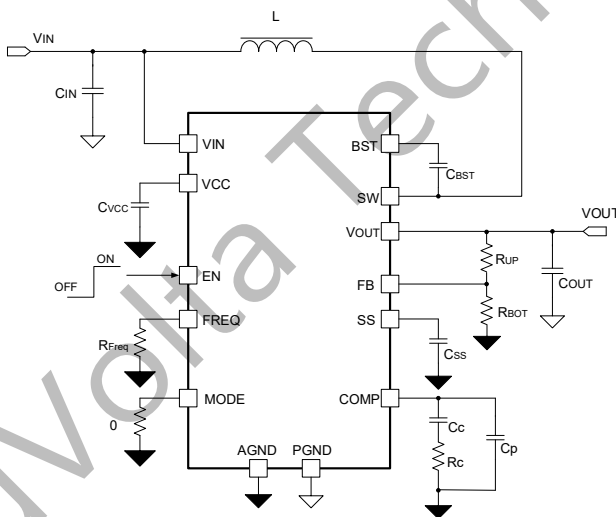
The NU3121 uses fixed frequency peak current mode control with slope compensation integrated. At the light load, the device has two operation modes selected by the MODE pin. One is the pulse frequency modulation (PFM) mode to improve the efficiency and another one is forced PWM mode to avoid application problems caused by low switching frequency. The switching frequency is adjustable from 200kHz to 1 MHz.

The NU3121 also implements a adjustable soft start function. In addition, the device provides 24.5-V output overvoltage protection, cycle-by-cycle overcurrent protection, and thermal shutdown protection.

NU3121 is in a 3.0-mm x 3.0-mm 13-pin VQFN package with enhanced thermal dissipation.

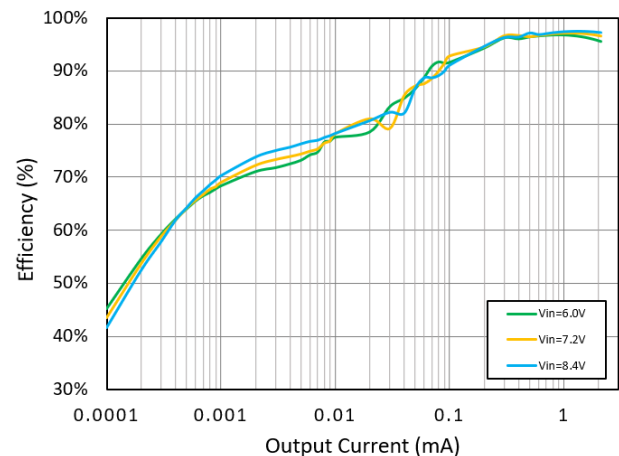
Device Information

Part Number	Package	Dimension
NU3121	QFN-13	3mm×3mm



3 Descriptions

The NU3121 is a synchronous high-efficiency boost converter. It integrates two low on resistance power



V_{OUT} = 16V FSW = 500kHz L=3.3uH Auto PFM