



MP28167-A

2.8-22V V_{IN} , 3A I_{OUT} , 4-Switch, Integrated Buck-Boost Converter with FB Pin

PRELIMINARY SPECIFICATIONS SUBJECT TO CHANGE

DESCRIPTION

The MP28167-A is a synchronous, 4-switch, integrated buck-boost converter capable of regulating the output voltage from a 2.8V to 22V wide input voltage range with high efficiency. The integrated output voltage scaling and adjustable output current limit functions meet the USB power delivery (PD) requirement.

The MP28167-A uses constant-on-time (COT) control in buck mode and constant-off-time control in boost mode, providing fast load transient response and smooth buck-boost mode transient. The MP28167-A provides auto PFM/PWM or forced PWM switching modes, programmable output constant current (CC) current limit, which supports flexible design for different applications.

Full protection features include over-current protection (OCP), over-voltage protection (OVP), under-voltage protection (UVP), programmable soft start, and thermal shutdown.

The MP28167-A is available in a 16-pin QFN(3mmx3mm) package.

FEATURES

- Output Voltage Programmable Via FB Pin
- Wide 2.8V to 22V Operating Input Voltage Range
- Reference voltage range is 0.08-1.637V with 0.8mV Resolution through I2C⁽¹⁾ (Default 1V reference voltage)
- 3A Output Current or 4A Input Current
- Four Low $R_{DS(ON)}$ Internal Buck Power MOSFETs
- Adjustable Accurate CC Output Current Limit with Internal Sensing MOSFET via I²C
- 500kHz/750kHz Selectable Switching Frequency
- Output Over-Voltage Protection (OVP) with Hiccup
- Output Short-Circuit Protection(SCP) with Hiccup
- Over-Temperature Warning and Shutdown
- I²C Interface with ALT Pin
- One-Time Programmable (OTP) Non-Volatile Memory
- I²C Programmable Line Drop Compensation, PFM/PWM Mode, Soft Start, OCP, OVP, etc.
- EN Shutdown Discharge Programmable
- Available in a QFN-16 (3mmx3mm) Package

APPLICATIONS

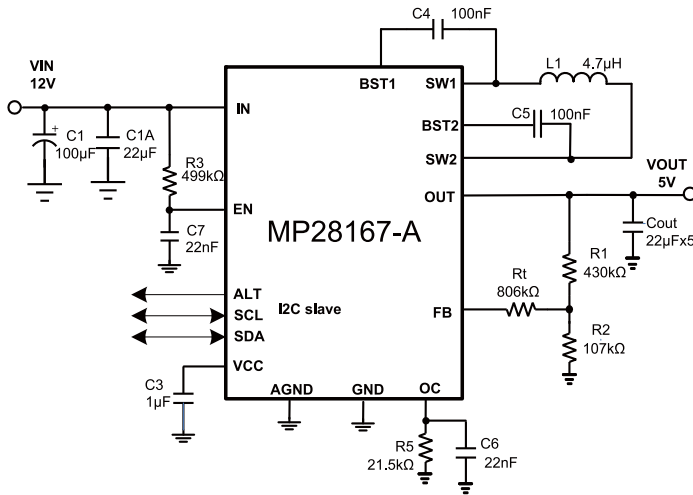
- USB PD Sourcing Ports
- Buck-Boost Bus Supplies

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NOTE:

- 1) For $V_{OUT} < 3V$ applications, the switching frequency decreases.

TYPICAL APPLICATION



Efficiency vs. Output Current

$V_{IN} = 12V$, $V_{OUT} = 5 - 20V$, $L = 4.7 \mu H$,
 $f_s = 500kHz$, $R_{dc} = 19.5m\Omega$, Forced PWM
 Mode

