



MP2731

4.5A I²C Controlled SW CHARGER With NVDC Power Path and USB OTG

PRELIMINARY SPECIFICATIONS SUBJECT TO CHANGE

DESCRIPTION

The MP2731 is a 4.5A highly-integrated switching-mode battery charge management device for single-cell Li-ion or Li-polymer battery. This device with NVDC system power path management is suitable for a variety of applications such as smartphone, tablets, wireless cameras and other portable devices. Its low impedance power path optimizes efficiency, reduces battery charging time and extends battery life. The I²C serial interface with charging and system settings allow the device to be flexibly controlled.

The MP2731 supports a wide range of input sources, including standard USB host port and higher power wall adapter with fast charge capability. The MP2731 provides USB input type detection via DP/DM pins.

The MP2731 supports USB On-The-Go operation by supplying 5V on input bus with output current limit up to 3.0A.

The MP2731 initiates and completes a charging cycle without software control. It automatically detects battery voltage and charges battery in different stages. The charger automatically terminates when battery charged fully is detected. When the fully battery drops below recharge threshold, the charger automatically starts another charging cycle.

The charger provides various safety features for battery charging and system operations, including charging safety timer, battery temperature monitoring and overvoltage/over current protections. When any fault occurs, the charger asserts an INT to host. The device provides BATFET disable control to enter ship mode and system reset function via DISC pin.

The MP2731 is available in a QFN-26 (3.5mmx3.5mm) package.

FEATURES

- 3.7V to 16V Operating Input Voltage Range
- Up to 22V Sustainable Voltage
- High Efficiency 4.5A 1.5MHz Buck Charger
 - Up to 92% Charge Efficiency at 3A Charge Current
 - Programmable D+/D- for Flexible Fast Charge Protocol Support
- USB On-the-Go (OTG) with Adjustable Output from 4.8V to 5.5V
 - Up to 3.0A Output
 - Up to 93% Efficiency with 1.5A OTG Load
- Narrow Voltage DC (NVDC) Power Path Management
 - Instant on works with no battery or deeply discharged battery
 - Ideal diode operation in battery supplement mode
- High Battery Discharge Efficiency with 14mΩ BATFET up to 9A
- I²C Port for Flexible System Parameter Setting and Status Reporting
- Fully-integrated power MOSFETs, Current Sensing and Loop Compensation
- Dedicated DISC pin to Control Ship Mode and System Reset
- 13μA Low Battery Leakage Current in Shipping Mode
- Integrated ADC for Monitoring Input Voltage, Input Current, Battery Voltage, Charge Current, System Voltage and Battery Temperature
- Charging Status Indicator
- Safety
 - Programmable JEITA for Battery Temperature Protection for Charge Mode
 - Battery Charging Safety Timer
 - Thermal Regulation and Thermal Shutdown
 - Watchdog Monitoring I²C Operation
 - Input/System Overvoltage Protection

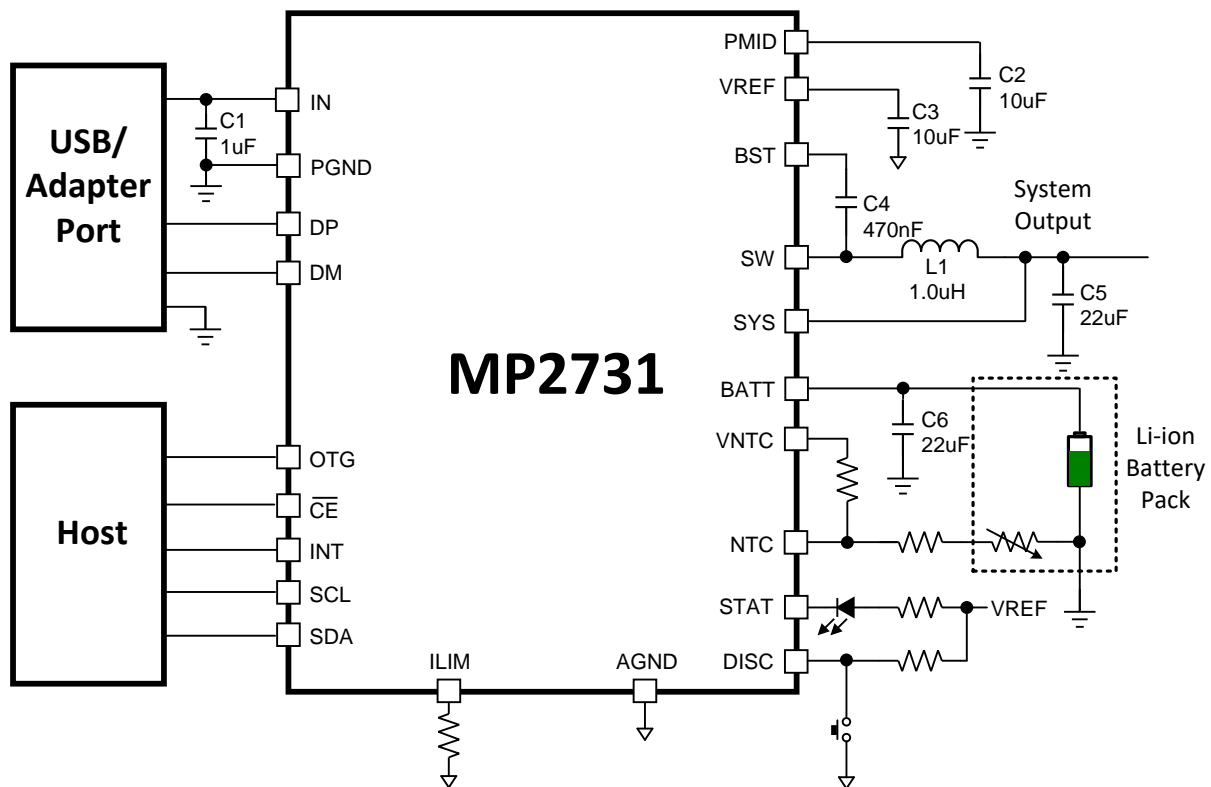
APPLICATIONS

- Tablet PC
- Smart Phones
- Wireless Cameras
- Other Portable Devices

All MPS parts are lead-free, halogen free, and adhere to the RoHS directive. For MPS green status, please visit MPS website under Quality Assurance.

"MPS" and "The Future of Analog IC Technology" are Registered Trademarks of Monolithic Power Systems, Inc.

TYPICAL APPLICATION



NOTICE: The information in this document is subject to change without notice. Users should warrant and guarantee that third party Intellectual Property rights are not infringed upon when integrating MPS products into any application. MPS will not assume any legal responsibility for any said applications.