



# MP2731

## 4.5A I<sup>2</sup>C 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 I<sup>2</sup>C 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
- I<sup>2</sup>C 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 I<sup>2</sup>C Operation
  - Input/System Overvoltage Protection

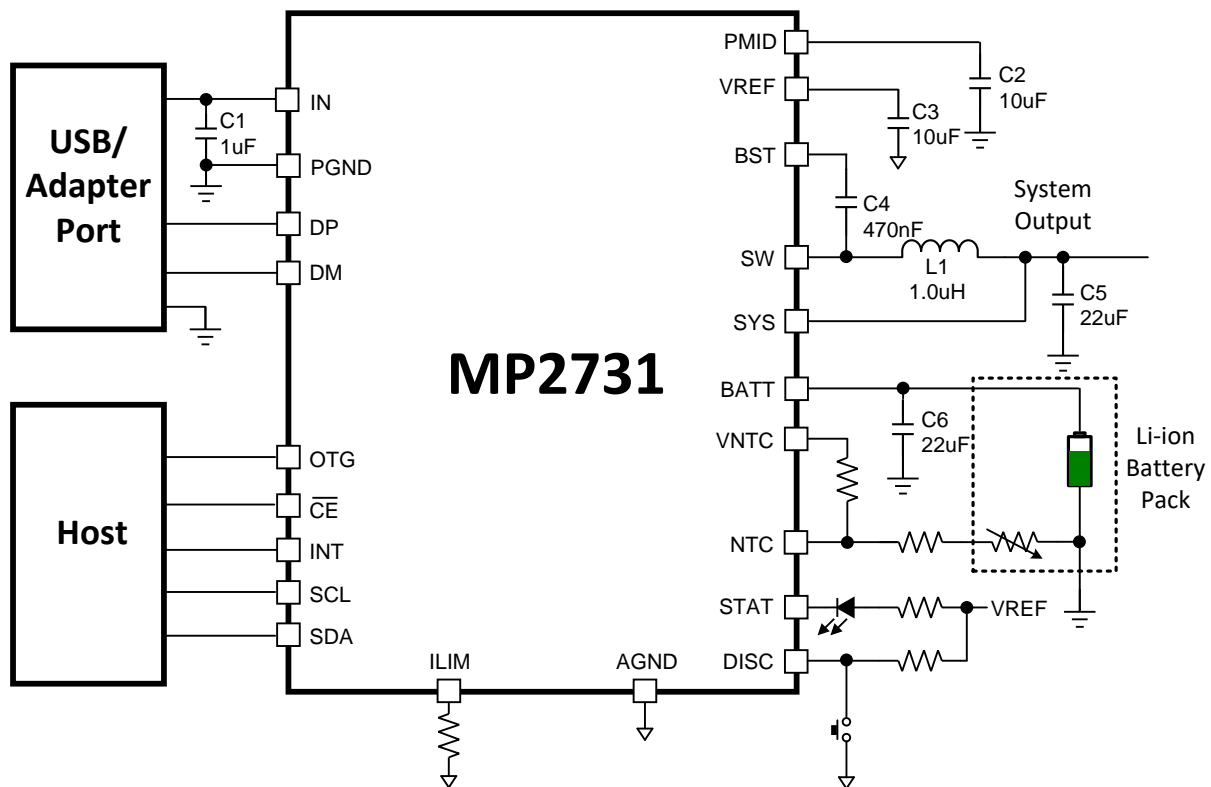
## APPLICATIONS

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

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## TYPICAL APPLICATION



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