



# Load Switch with Integrated Configurable Reset Timer

## Features

- ◆ Input Voltage Operating Range: 1.8V to 5.5V
- ◆ Typical  $R_{ON}$ : 23 m $\Omega$ (Typ.) at  $V_{IN}=3.8$  V
- ◆ Factory Programmed Reset Delay: 7.5 s
- ◆ Factory Programmed Reset Pulse: 400 ms
- ◆ Factory Customized Turn-on Time: 2.3 s
- ◆ Factory Customized Turn-off Delay: 7.3 s
- ◆ Adjustable Reset Delay by an external resistor (Optional)
- ◆ Low  $I_{CCT}$  Saves Power Interfacing to Low-Voltage Chips
- ◆ SW\_OFF Pin Turns Off Load Switch to Maintain Battery Charge during Shipment and Inventory. Ready to use Right Out of the Box
- ◆ Over-Voltage Protection: Allow Input Pins  $> V_{IN}$
- ◆ Slew Rate/Inrush Control with  $t_R: 2.7$  ms (Typical)
- ◆ 3.8 A / 4.5 A Max Continuous Current (No VIA / with Thermal VIA)
- ◆ Output Capacitor Discharge Function
- ◆ Factory Test-Mode Enable
- ◆ Typical Shutdown Current  $< 0.2$   $\mu$ A
- ◆ ESD Protection:
  - 8 kV HBM ESD
  - 10 kV HBM ESD (Pin VIN & VOUT)
  - 2 kV CDM
- ◆ CSP 1.16 mm x 1.56 mm Package

## Applications

- ◆ Smart Phone
- ◆ Tablet PC
- ◆ Portable device



### Typical Application Diagram

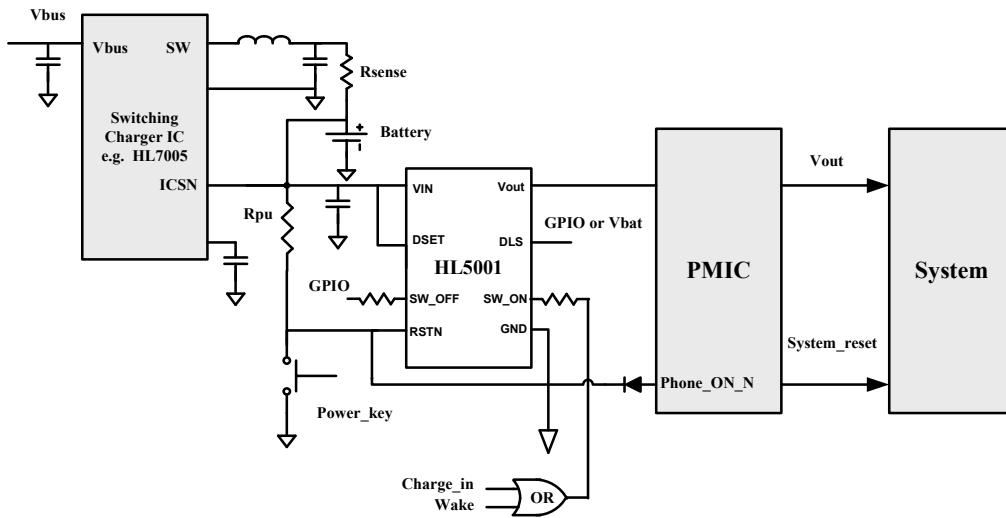


Figure 1. HL5001 with PMIC (stand along switching Charger)

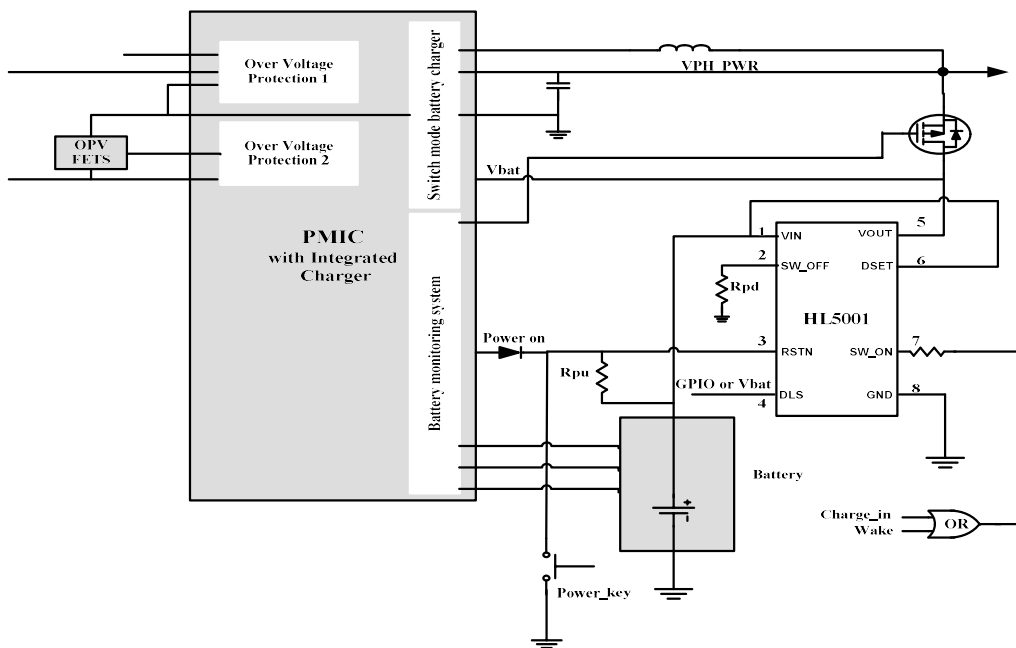


Figure 2. HL5001 with PMIC (Integrated Charger)



## General Description

The HL5001 consists of an advanced load switch and a reset timer, designed for mobile devices requiring a highly integrated solution. HL5001 is available in CSP 1.16 mm x 1.56mm package.

As an advanced load management switch, the HL5001 disconnects loads powered from the DC power rail with stringent off-state current targets and high load capacitances (up to 200 $\mu$ F). The HL5001 consists of a slew-rate controlled low-impedance switching MOSFET (23 m $\Omega$  typical at  $V_{IN}=3.8$  V) that has exceptionally low off-state current drain (<0.2 $\mu$ A Typical) to facilitate compliance with standby power requirements. The slew-rate-controlled turn-on characteristic prevents inrush current and the resulting excessive voltage drop

on power rails. The low  $I_{CCT}$  enables direct interface to lower-voltage chipsets without external translation, while maintaining low power consumption.

As a reset timer, HL5001 has one input and one fixed delay output. It generates a fixed delay of 7.5s $\pm$ 20% by disconnecting the PMIC from the battery power supply for 400ms  $\pm$ 20%. Then the load switch is turned on again to reconnect the battery to the PMIC such that the PMIC goes into power-on sequence. The reset delay can be customized by connecting an external resistor to the DSET pin. If the mobile device is off, holding RSTN LOW (by pressing power-on key) for 2.3s  $\pm$ 20% turns on the PMIC.



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