

# High Frequency Quasi-Resonant Flyback Converter With GaN Integrated

## 1 Descriptions

SC3057 is a high frequency, quasi-resonant flyback PWM converter with 650V GaN integrated (QR/DCM), which can achieve high efficiency and reliability. The converter with x-cap discharge function built-in high voltage start-up circuit through HV pin. Therefore, extremely low standby power consumption and super-fast start-up time can be obtained by HV pin.

SC3057 provides an adaptive switching frequency fold-back to achieve higher efficiency in the whole loading range. It operates in QR and DCM with valley switching for high efficiency. And at no load, the IC will operate in burst mode to reduce power consumption.

SC3057 provides functions of low start-up current, fast start-up, low standby power consumption. The burst mode with extremely low operation current (350uA) can significantly reduce standby power consumption to meet the efficiency regulations.

The converter integrates a segment power supply circuit for VDD power supply, which is especially suitable for applications with wide output voltage range.

SC3057 offers comprehensive protections to prevent the circuit from damage under abnormal conditions.

Furthermore, the features of frequency jittering and smart driving function can minimize the noise and improve EMI performance.

## 2 Features

- Integrated 650V GaN
- Integrated high-voltage startup circuit with brown in/out detection
- With x-cap discharge function.
- Internal Soft Start
- Integrated segment power supply circuit for extra-wide output range
- Ultra-low operation current @Burst mode/Fault Mode
- Up to 175KHz Switching Frequency
- Frequency Jitter for EMI improvement
- Valley switching operation @QR/DCM
- Burst Mode @ Light Load & No Load
- Internal over temperature protection
- Comprehensive Protection
  - VDD over voltage protection
  - VDD under voltage lock out
  - Cycle by cycle current limiting
  - Two level over current protection
  - Output over voltage protection
  - Output short protection
  - Over Load protection
- QFN6\*8 package available

## 3 Applications

- USB-PD and QC Chargers
- AC-DC adapters for Portable Devices