# High Efficiency, Synchronous 32V/5A Buck Converter

## 1 Descriptions

SC8101Q is a synchronous buck converter with a wide input voltage from 4.4V to 32V. The SC8101Q regulates the output voltage at a fixed 5.1V or customized voltage by setting the divider resistor. It also provides high accurate output current limit. The converter enters Constant Current (CC) Mode in case the output reaches the setting current limit. The total output power can be programmed by a resistor, which makes it easy for constant power (CP) control.

SC8101Q integrates 45mΩ high side NMOS and 30mΩ low side NMOS to achieve high efficiency. Besides, it provides low side gate driver (LSD) to drive external NMOS and works with build-in NMOS.

SC8101Q adopts programmable line drop compensation, programmable frequency setting with minimum external components, maximum functions can be achieved for user's different applications.

SC8101Q also supports full protections including under voltage protection, over voltage protection, short current protection and auto-restart, over temperature protection.

SC8101Q adopts 19 pin QFN 3x3 package.

## 2 Features

- AEC-Q100 qualified for automotive applications:
  - Temperature grade 1: $T_A$ range: -40°C to +125°C
  - HBM ESD classification level H2
  - CDM ESD classification level C5
- Wide input operating voltage from 4.4V to 32V
- Max output capacity 5V/5A with internal MOSFETs
- External low side NMOS gate driver
- Almost 100% duty cycle operation
- Ultra-low quiescent current
- ±2% output voltage reference accuracy
- ±4.5% output current limit accuracy
- Programmable output power limit
- Programmable line drop compensation
- PFM mode
- Fixed-150kHz switching frequency or adjustable by external resistor
- Hiccup and auto-restart
- Full protection of UVLO, IN/OUT-OVP, OCP, OTP
- Available in QFN-19 3x3 Package

## 3 Applications

- Automotive USB Charging
- Automotive Wireless Charging
- Infotainment

## 4 Device Information

| ORDER NUMBER | PACKAGE | BODY SIZE |
|---|---|---|
| SC8101QQFKR | 19 pin QFN | 3mm x 3mm x 0.55mm |