



SC8741Q 36V / 100W Automotive Buck-Boost Converter with Low-Side MOSFETs Integrated and I2C Interface

Descriptions

The SC8741Q is a buck-boost converter with two low-side integrated power switches capable of regulating the output voltage at, above, or below the input voltage. The SC8741Q operates over 3.7V to 36V wide input voltage and can output 1V to 22V voltage to support a variety of applications.

The SC8741Q is suitable for USB power delivery application. It can work well with external USB PD controller through I2C interface and provide flexibility of programmable features.

The SC8741Q employs current mode control scheme. The switching frequency could be set at 270kHz/405kHz/540kHz through I2C. The SC8741Q also provides optional spread spectrum to optimize EMI performance.

The SC8741Q offers output over-voltage protection, cycle-by-cycle current limit, output short circuit protection, average output current limit and thermal shutdown protection

The SC8741Q is available in 20-pin 3mm X 5mm Wettable Flank QFN packages.

Features

- AEC-Q100 qualified for automotive applications:
 - Temperature grade 1: T_A range: -40°C to 125 °C
- Integrated gate driver for high-side power switches
- 4V to 36V start up input voltage, support 3.7V falling Vin
- 1V to 22V output voltage range
- Programmable Power Supply (PPS) support for USB power delivery
 - Programmable reference voltage range: 0.1V – 1.123V with 1mV resolution
 - Programmable output current limit up to 6.35A with 50-mA step
 - +/- 5% accurate average output current limiting
- I2C Interface for:
 - 270k/405k/540kHz frequency selectable
 - Auto PFM / Forced PWM
 - Spread spectrum dithering
 - Line drop compensation
 - Current limit setting
- Battery short to ground protection driver
- External biased VCC for higher efficiency
- Output OCP / SCP / OVP / TSD protection

Applications

- Automotive USB Charging
- Automotive Wireless Charging
- Automotive ADAS

Device Information

ORDER NUMBER	PACKAGE	BODY SIZE
SC8741Q	20 pin QFN	3mm x 5mm x 0.9mm