

PRODUCT SUMMARY

SKY81292: 1.8 A Single or Dual Flash LED Driver with I²C Control Interface

Applications

- LED photo flash with Movie/Torch modes
- Camera enabled mobile devices
- Cell phones/smartphones
- Digital still cameras
- Multimedia mobile phones

Features

- Input voltage range: 2.5 V to 5.5 V
- Supports single and dual flash LEDs
- Up to 1.8 A regulated output current
- Up to 90% efficiency
- Switching frequency: 2 MHz
- True load disconnect
- Soft-start and input current limit
- Separate flash enable
- Industry standard I²C programming:
 - Flash and Movie mode current
 - Battery current limit
 - Input voltage monitor with programmable thresholds
 - Programmable safety timer
 - Fault readback
- Fault protection:
 - Flash timer
 - Over-voltage (open LED, open circuit)
 - Short circuit
 - Over-temperature protection
 - NTC resistor flash LED temperature sense
 - Flash mode input voltage monitor
 - Open drain fault flag output
- Independent current source for LED indicator lamp
- Small WLCSP (16-bump, 2 mm x 2 mm) package (MSL1, 260 °C per JEDEC J-STD-020) package



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Description

The SKY81292 is a high-efficiency, 1.8 A high-current boost converter with a programmable constant current. The device is intended for LED photo flash applications in all single-cell Li-ion powered portable products.

The SKY81292 maintains the flash LED output current using a DC-DC step-up converter with a bypass function to maximize efficiency when under all load conditions. For single flash LED applications, the flash current can be programmed up to 1.8 A. For dual flash LED applications, the flash current can be programmed up to 900 mA. This provides a direct flash LED cathode connection to the ground plane that helps heat dissipation.

The high frequency 2 MHz DC-DC boost switching frequency allows the use of a small external inductor and output capacitor, which makes the SKY81292 ideally suited for small battery-powered applications. A start-up control circuit automatically senses the flash LED forward voltage at any programmed output current setting and determines the most efficient operation mode.

An industry standard I²C digital interface is used to program the SKY81292 LED flash and movie modes. Device operations are fully configurable; movie and flash current level, current limits, and fault reporting. Also included is a separate flash enable input to initiate the flash operation and a flash inhibit input to reduce the flash current to movie-mode levels during high battery demand conditions. An additional low-level programmable current source output is provided to drive an LED indicator lamp.

The integrated thermal management system protects the device in the event of an output short-circuit condition. An NTC thermistor function protects the external flash LEDs from thermal damage. Fault status may be read using the I²C interface after the system is alerted by an open drain fault flag. Built-in soft-start circuitry prevents excessive in-rush current during start-up. The shutdown feature reduces quiescent current to less than 1.0 µA.

The SKY81292 is provided in a small, 16-bump, 2 mm x 2 mm Wafer Level Chip Scale Package (WLCSP). The pin configuration and package are shown in Figure 1.

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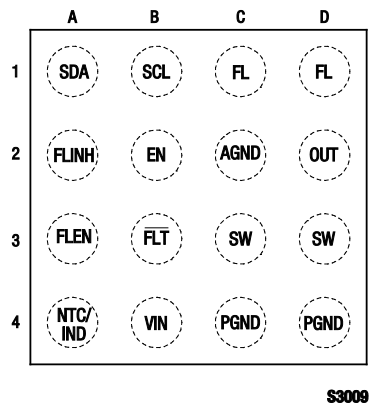


Figure 1. SKY81292 Pinout – 16-Bump WLCSP Package (Top View)

Ordering Information

Model Name	Manufacturing Part Number	Evaluation Board Part Number
SKY81292 Flash LED Driver with I ² C Control Interface	SKY81292-11-001	TW21-D260

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