

Flash LED Driver IC

# High Efficiency Synchronous Boost Converter, 1.5A Flash LED Drivers With PWM Dimming

**AS6585B**

## ● General Description

The AS6585B is a 3MHz fixed frequency synchronous boost converter, optimized for 0.75A/ch, total 1.5A flash current output LED driver with PWM dimming function, for distance dimming camera flash LED application and maximum 800mA movie mode applications using high-current white LEDs in all single cell Li-ion powered products. An adaptive regulation method ensures the current for each LED remains in regulation and maximizes efficiency.

Two simple logic control inputs (ENM and ENF) enable and disable flash and movie mode operation of the AS6585B. The movie-mode and flash-mode current levels are independently fixed by two separate resistors (RSETM and RSETF).

For flash mode, a default timer 800mS can be used either to terminate a flash event or as a safety flash timer. One or two LEDs can be connected to the AS6585B; in the case of two LEDs the output current is matched between each diode. The real LED current at flash mode and movie/torch mode can be programmed by external PWM signal at ENM pin.

The AS6585B integrate an intelligent flash current control mode: during flash current turn-on the input voltage falls below the flash mode VIN Monitor threshold, the flash current is stopped at the level that the current ramp had risen to, at the time of the VIN Flash Monitor events.

The AS6585B contain a thermal management system to protect the device; a internal over-voltage protection (OVP) circuitry prevents damaged to the AS6585B from open LED or open circuit conditions; and a cycle-by-cycle current limit prevents damage to the AS6585B. Built-in circuitry prevents excessive inrush current during start-up. The shutdown feature reduces quiescent current to less than 1.0 $\mu$ A.

The 3MHz switching frequency allow for the use of tiny, low profile (0.47 $\mu$ H or 1.0 $\mu$ H) inductors and 4.7 $\mu$ F ceramic capacitors. The device is available in 14-pin 2mmX3mm DFN package and is rated over the -40°C to 85°C.

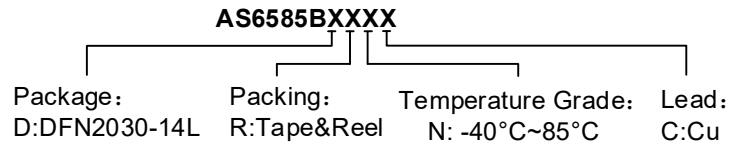
## ● Features

- Input Voltage Range : 2.7V to 5.0V
- Power On Flash Mode Spurious Triggering Suppress
- Up to 3.0MHz Switching Frequency for Smaller Inductor Using
- Output Current Soft-Start
- Optimize Flash Current During Low Battery
- Intelligent Flash Current Control
- Drives up to 1.5A Output Current (0.75A per Channel)
- High Efficiency PWM Boost Converter
- Up to 97% Efficiency with Small Inductor
- Under Voltage Lock-Out
- Over-Temperature Protection
- Over Voltage (Open LED) Protection
- LED Short Circuit Protection
- Flash Mode and Movie/Torch Mode LED Current can be Programmed via PWM Signal at ENM pin
- Flash Mode PWM Dimming Frequency: 1kHz to 200KHz
- 800mS Flash Timer Control
- Cycle by Cycle Current Limit
- Separate Hardware Flash and Movie Enable
- Set Flash/Movie Currents
  - Flash Mode Current: 0.75A/Ch
  - Movie Mode Current: 0.40A/Ch
- Two Resistors Set Flash and Movie Current Independently
- Small Solution Size
- Less than 1 $\mu$ A Shutdown Current
- RoHS and Green Compliant
- 14- pin, 2mm X 3mm DFN Packages
- -40°C to +85 °C Temperature Range

## ● Applications

- Camera Flashes and Movies
- Cell Phones or Smart Phones
- PDAs and Digital Camera
- White LED Biasing
- Mobil Handsets
- Tablet PCs and Laptops/Netbooks
- Camcorder Video Light (Movie Light)

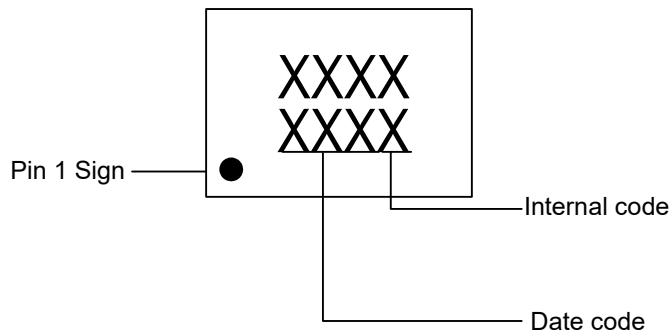
■ **Ordering Information**



Part Number	Driver Capability	Package Type	Package Qty	Temperature	Eco Plan	Lead
AS6585BDRNC	1.5A	DFN2030-14L	7-in reel 3000pcs/reel	-40~85°C	Green	Cu

■ **Marking Information**

DFN2030-14L



■ **Typical Application Circuit**

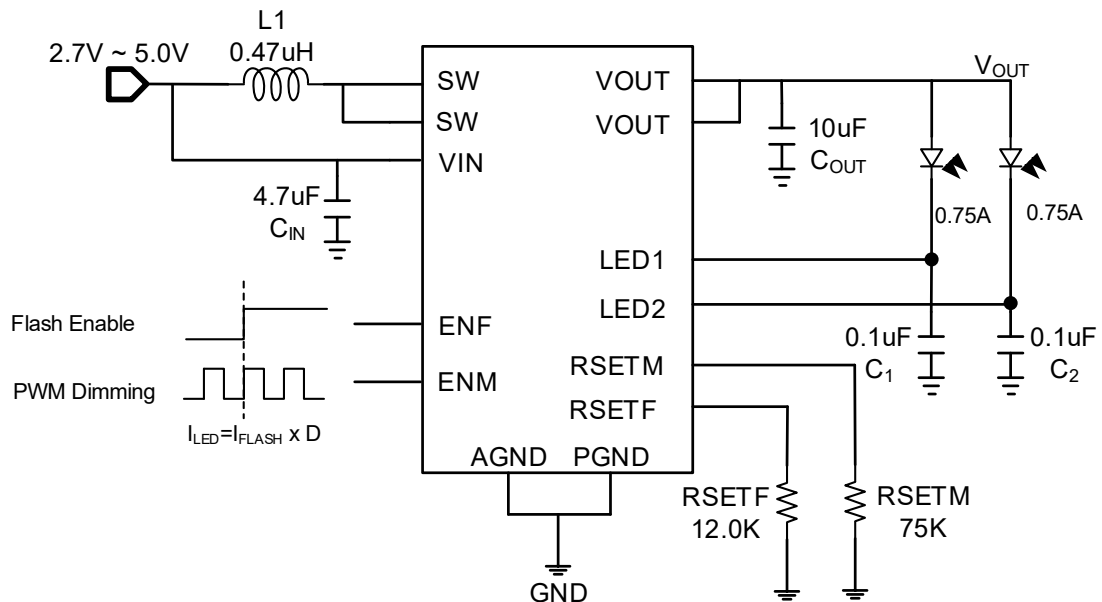
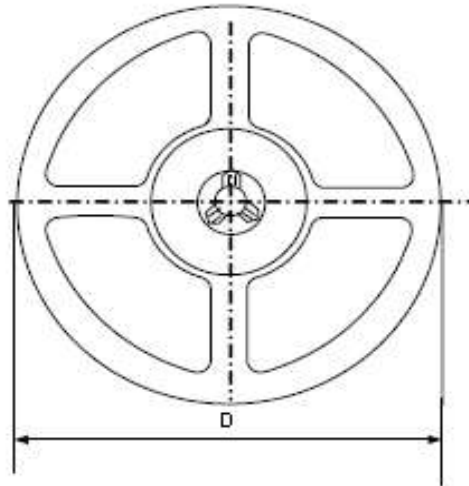
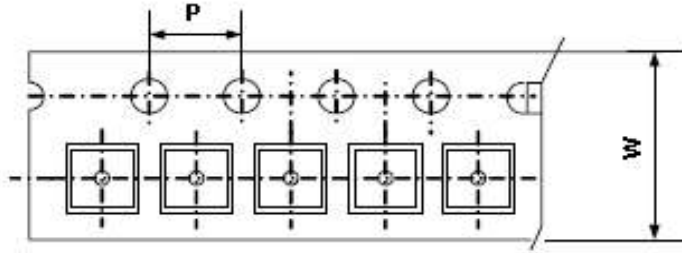
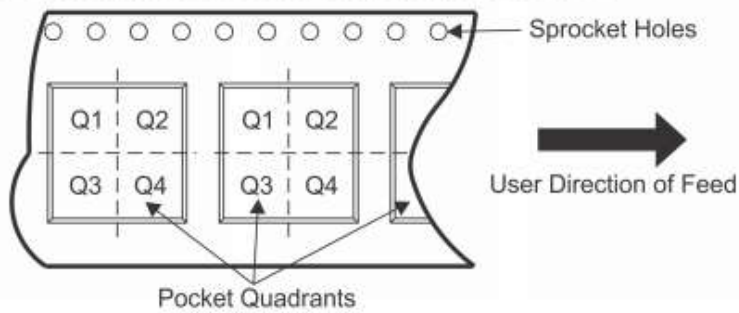


Figure 1, Flash Dimming Typical Application Circuit of AS6585B

■ Packing Information



**QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE**



Device	Package Type	SPQ	Carrier Width (W)	Pitch(P)	Reel Size(D)	Pin1 Quadrant
AS6585BDRNC	DFN2030-14L	3000pcs	8.0±0.1 mm	4.0±0.1 mm	180±1 mm	Q1

\*All dimensions are nominal