



NXP 500 mA, dual-LED flash drivers SSL3250A/SSL3252

Maximum flash/torch efficiency and light from a small footprint

These highly integrated devices deliver the right combination of features – high efficiency, maximum light, and a small footprint – for LED flash drivers in mobile devices. They extend battery life, improve pictures, reduce application size, and enhance system reliability.

Key benefits

- ▶ High efficiency for longer battery life
- ▶ Maximum light for brighter pictures
- ▶ High integration for a smaller application
- ▶ Comprehensive protection circuits for enhanced reliability

Key features

- ▶ High-power, single- or dual-LED output current
 - Flash: up to 500 mA
 - Torch: up to 200 mA (SSL3250A) or 160 mA (SSL3252)
- ▶ Integrated up to 20 mA (SSL3250A) or 10 mA (SSL3252) LED indicator
- ▶ Greater than 85% efficiency at optimum output current
- ▶ Soft start in torch and flash modes to avoid battery overload
- ▶ Synchronous boost without external diode (SSL3252)
- ▶ High-side drive simplifies thermal design (SSL3252)
- ▶ Built-in broken-coil detect function (SSL3252)
- ▶ Internally timed flash operation up to 820 ms
- ▶ Strobe signal to avoid I²C-bus latency
- ▶ Discrete enable signals for standalone operation
- ▶ Optional configurable output currents via external resistors (SSL3250A)
- ▶ Low device shut-down current (<1 μ A)
- ▶ Wide input voltage range (2.7 to 5.5 V)
- ▶ Programmable, 400-kHz I²C-bus

Key applications

- ▶ Camera-equipped mobile phone
- ▶ PDA
- ▶ Digital camera
- ▶ White LED driver for battery-operated device

These highly integrated, highly efficiency LED flash drivers are ideal for driving up to two high-brightness LED. Their small size and high internal switching frequencies minimize the design footprint, and are ideal for space constrained mobile applications.

The SSL3250A is a low-side asynchronous boost converter that has optional external resistors to configure the output current, while the SSL3252 is a high-side synchronous boost converter that has resistors built-in.

Both devices use an inductive boost DC/DC converter to ensure maximum light generation in a battery-operated system. They are programmable for three modes of operation: Flash, Torch, or Indicator/Video-on. When driving two LEDs in series at up to 500 mA, they achieve at least 85% efficiency. A separate linear current source (10 or 20 mA) can be used to drive a single indicator LED.



SSL3250A and SSL3252 comparison table

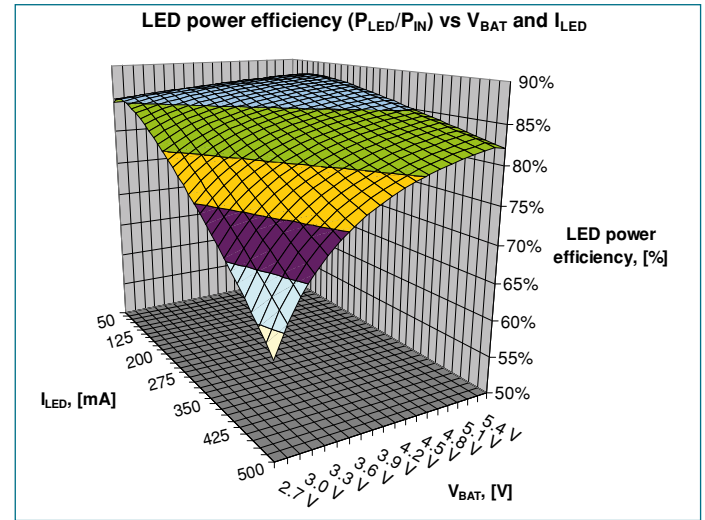
Feature	SSL3250A	SSL3252
Number of LEDs driven in series	1 or 2	1 or 2
Flash/torch/indicator current (mA)	500 / 200 / 20	400* / 160 / 10
Assist light	No	Yes
LED output type	Low-side drive	High-side drive
Fixed switching frequency (MHz)	1.2	2.0
Integrated diode and resistors	No	Yes
Interface type	I ² C-bus or direct	I ² C-bus or direct
VIN range (V)	2.7 to 5.5	2.5 to 5.5
Inductor broken coil detect	No	Yes

* For single LED mode, SSL3252 drives a maximum of 500 mA flash current

Ordering information

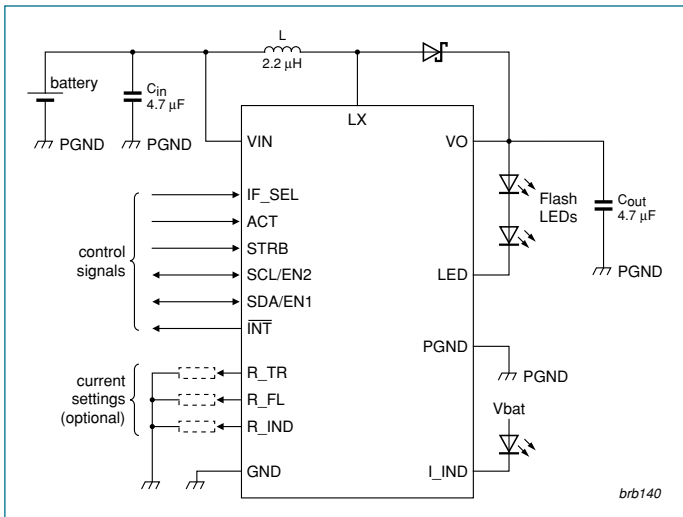
Type number	Package
SSL3250AHN/C1	HVQFN-16 (3 x 3 x 0.8mm)
SSL3252UK	WLCSP-12 (1.5 x 2 x 0.6mm)

Dual-LED power efficiency graph (flash mode)

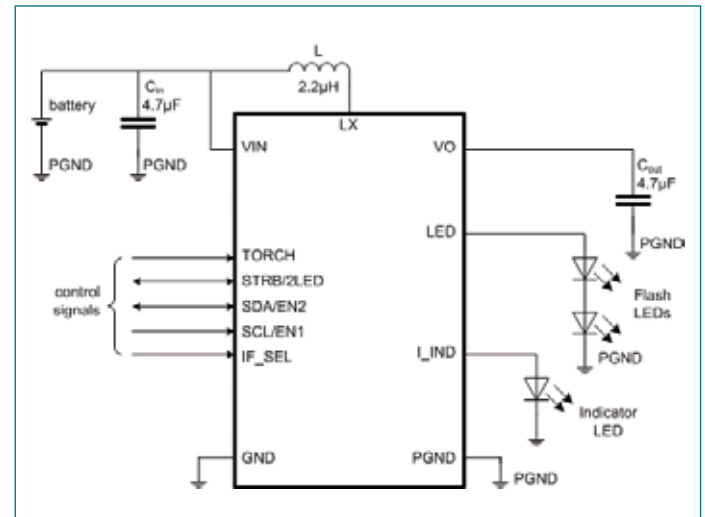


Dual-LED, in series, inductor boost results in higher efficiency because the driver always operate in boost mode

SSL3250A application



SSL3252 application



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