

### High Efficiency 3-Channel LED Backlight Driver

#### Features

- Wide input range: 2.7V–5.5V
- High efficiency step-up 3-Channel LED driver
- 3-Ch current sinks, up to 8-LEDs per string
  - ▶ Up to 29.8mA/Ch
  - ▶ +/-0.6% current matching at 20.2mA
  - ▶ +/-1.5% current accuracy at 20.2mA
- I<sup>2</sup>C/PWM dual dimming control scheme
  - ▶ 11-bit I<sup>2</sup>C exponential or linear mapping with programmable transition ramp time
  - ▶ Wide range PWM dimming with programable transition ramp time
    - 100Hz to 100kHz frequency
    - 0.2% to 100% duty cycle at 20kHz
- Programmable current sink turn on/off ramp time and shape
- Selectable boost converter switching frequency 1MHz or 500kHz with 20% shift up option
- Programmable input PWM hysteresis to minimize jitter at low PWM duty cycle
- Programmable OVP (25.9V/32V) and current limit (2.6A/1.8A)
- LED open/short protection
- Status reporting through I<sup>2</sup>C interface

#### Applications

- Smartphone/Tablet Backlight

#### Brief Description

KTD3136 is the ideal power solution for LED backlighting in medium to large size LCD panels. It is a highly integrated step-up DC-DC converter operating with an input voltage from 2.7V to 5.5V, accommodating 1-cell lithium ion batteries or 5V supply. It includes a high voltage power NMOS, as well as three current sinks, resulting in a simpler and smaller solution with fewer external components. High switching frequency allows the use of a smaller inductor and capacitor.

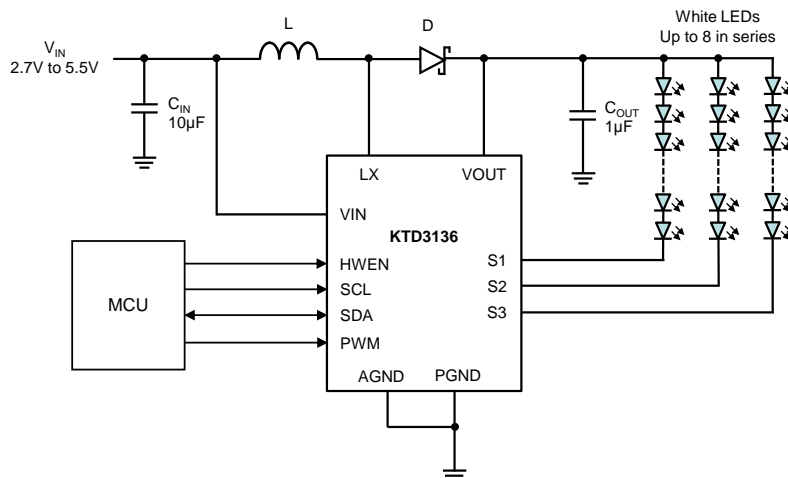
Each of the three regulated current sinks can regulate up to 29.8mA. With a maximum of 32V at the output of the step-up converter, each string can connect up to 8-LED in series for a 24-LED application.

KTD3136 is equipped with I<sup>2</sup>C interface for various controls. For additional flexibility, PWM dimming with wide range frequency and duty cycle is included to support Content Adaptive Brightness Control (CABC).

Various protection features are built into KTD3136, including cycle-by-cycle inductor current limit protection, output over-voltage protection, LED fault (open or short) protection and thermal shutdown protection.

KTD3136 is available in a RoHS compliant 12-ball 1.19mm x 1.64mm WLCSP or a 16-lead 3mm x 3mm x 0.75mm Thin-QFN package.

#### Typical Application





### Ordering Information

Part Number	Marking <sup>1</sup>	Operating Temperature	Package
KTD3136EUS-TR	LKXXYYZZZZ	-40°C to +85°C	WLCSP-12
KTD3136EFJ-TR	LKYYZ	-40°C to +85°C	TQFN33-16

1. "XXYYZZZZ" / "YYZ" are the date code, assembly code and serial number / the date code and assembly code.

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