

### High Efficiency Step-Up LED Driver with Integrated Power Diode

#### Features

- Wide input range: 2.7V to 5.5V
- Highly integrated solution with high efficiency
  - ▶ Integrated 30V power diode
  - ▶ Integrated 30V power MOSFET
- Integrated 2-channel current sinks, up to 8-LEDs per string
  - ▶ High accuracy up to 30mA/ch
  - ▶ 0.6% current matching at 20mA
  - ▶ 1.5% current accuracy at 20mA
- Dual dimming control scheme
  - ▶ I<sup>2</sup>C interface control with 256 steps
  - ▶ Wide range PWM Dimming for CABC
    - 100Hz to 100kHz Frequency
    - 0.1%~100% Duty Cycle at 10kHz
- Input PWM glitch filter
- I<sup>2</sup>C interface for various controls
- Programmable current sink ramp up/down time and shape (Exponential/Linear)
- Selectable 1MHz and 500kHz switching frequency with frequency shift option
- Programmable OVP (30V/24V), current limit (1A/0.7A) and LX pin slew rate
- LED open/short protection
- Pb-free Packages: TQFN33-16, WLCSP-12
- -40°C to +85°C Temperature Range

#### Applications

- Smartphone/Tablet Backlight
- PDA/GPS Backlight

#### Brief Description

KTD3122 is the ideal power solution for white LED backlighting used with small to medium size LCD panels. It is a highly integrated step-up converter accommodating single cell lithium ion batteries or 5V regulated supply. KTD3122 integrates a 30V power diode and a 30V power MOSFET as well as compensation and soft start circuitry, which results in a simpler and smaller solution with much fewer external components. Adjustable switching frequency (1MHz/500kHz) and OVP threshold (30V/24V) allow the use of a smaller inductor and capacitor to further reduce the solution size.

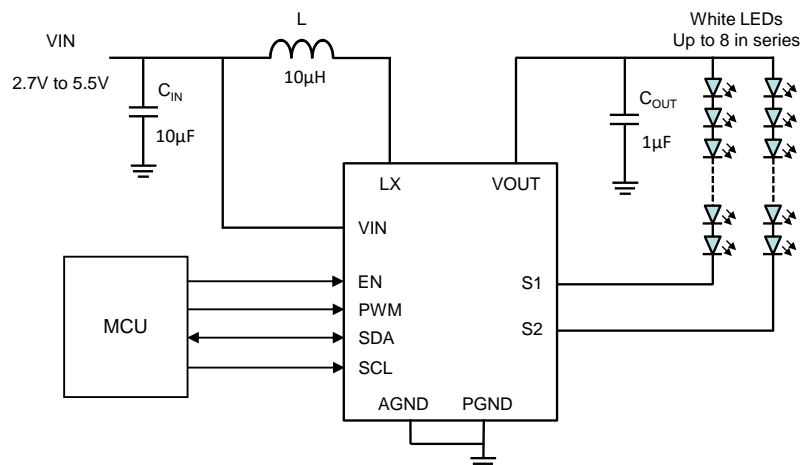
KTD3122 has two regulated current sinks up to 30mA per string. With a maximum of 30V at the output of the step-up converter, each string can connect up to 8 LEDs in series, or up to 16 LEDs total.

KTD3122 is equipped with I<sup>2</sup>C interface for various controls. For additional flexibility, wide frequency (100Hz to 100kHz) and duty cycle range (0.1% to 100% at 10kHz) PWM dimming control is included and can support Content Adaptive Brightness Control (CABC).

Various protection features are built into KTD3122, including cycle-by-cycle input current limit protection, output over-voltage protection, LED fault (open or short) protection and thermal shutdown protection.

KTD3122 is available in a RoHS compliant and Green 16-lead 3mm x 3mm x 0.75mm Thin-QFN or 12-ball 1.21mm x 1.65mm x 0.62mm WLCSP package.

#### Typical Application



### Ordering Information

Part Number	Marking <sup>1</sup>	Operating Temperature	Package
KTD3122EFJ-TR	GWYYZ	-40°C to +85°C	TQFN33-16
KTD3122EAZ-TR	GWYYZ	-40°C to +85°C	WLCSP-12, 1.21mm x 1.65mm x 0.62mm

1. "YYZ" is the date code and assembly code.

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