Datasheet Brief
KTZ8864

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High Efficiency 4-CH LED Backlight Driver with Dual LCD Bias Power

Features

➢ **Backlight LED Driver**

- Wide input range: 2.7V~5.5V
- High efficiency step-up LED driver with 4-Ch current sinks, up to 32V boost voltage.
  - Up to 30mA/Ch in backlight mode
  - ±0.7% current matching at 20mA
  - ±2.2% current accuracy at 20mA
- I^2C/PWM dual dimming control scheme
  - High resolution I^2C 11-bit linear or exponential dimming
  - Wide range PWM dimming
    - 100Hz to 100kHz frequency
    - 0.2% to 100% duty cycle at 20kHz
- Programmable current sink turn on/off ramp time/shape and transition ramp up/down time
- Selectable boost switching frequency 1.0MHz or 500kHz with Auto-Frequency Mode supported
- Programmable input PWM hysteresis to minimize jitter at low PWM duty cycle
- Programmable OVP and current limitation
- LED open/short protection

➢ **LCD Panel Bias**

- Wide input range: 2.7V~5.5V
- Programmable dual output Bias regulator using a single inductor
- Programmable ramp time for OUTP and OUTN
- Charge pump PFM mode at light load
- LCD Bias efficiency: up to 85%
- Wide dual output voltage range ±4.0V to ±6.3V (50mV/step) and output current up to 120mA
- Active output discharge function
- Current limitation and short protection

➢ **Others**

- System level input UVLO
- Thermal shutdown protection
- Low shutdown current <1μA
- Flexible I^2C interface
- Pb-free Packages: WLCSP-24
- -40°C to +85°C Temperature Range

Applications

- Smartphone/Tablet Backlight

Brief Description

KTZ8864 is the ideal power solution for LED backlighting and LCD bias power of small and medium size panels. It integrates a step-up converter for LED backlighting, a step-up converter with LDO and inverting charge pump for LCD bias power, resulting in a simpler and smaller solution with fewer external components. High switching frequency allows the use of a smaller inductor and capacitor. Its input operating range is from 2.7V to 5.5V, accommodating 1-cell lithium ion batteries or 5V supply.

The LED driver's four regulated current sinks can regulate up to 30mA with its maximum boost output voltage up to 32V. 11-bit linear or exponential I_{LED} resolution can be obtained over I^2C or PWM dimming. For additional flexibility, PWM dimming offers wide range frequency and duty cycle to support Content Adaptive Brightness Control (CABC).

The LCD bias power section includes a step-up converter, LDO and an inverting charge pump to generate dual outputs, OUTP and OUTN, whose voltages can be programmed via an I^2C interface. By integrating synchronous rectification MOSFETs for the step-up converter and charge pump, the KTZ8864 maximizes conversion efficiency up to 85%.

Various protection features are built into KTZ8864, including inductor current limit protection, output short circuit protection, output over-voltage protection, LED fault (open or short) protection and thermal shutdown protection.

KTZ8864 is equipped with I^2C interface for various controls and status monitor.

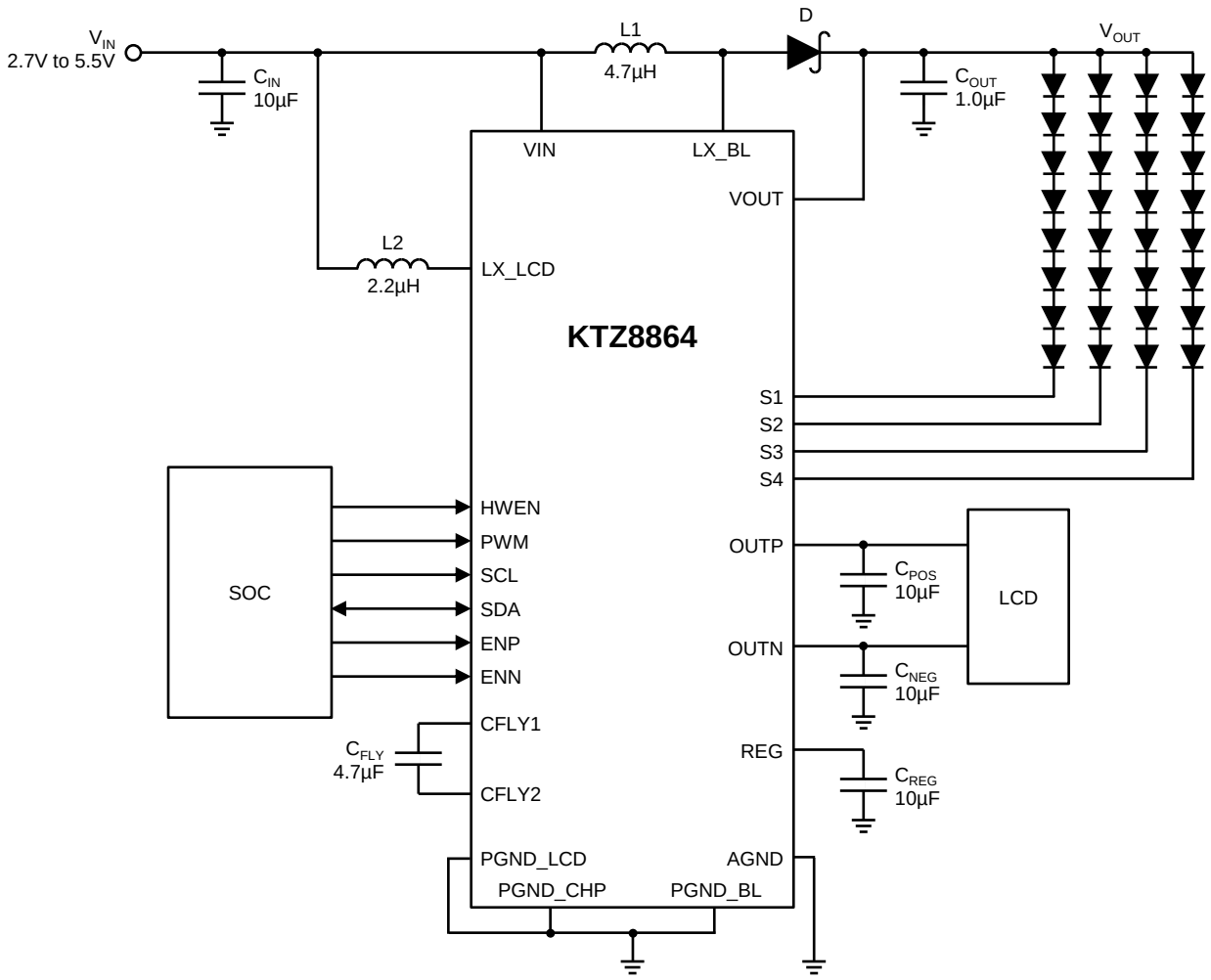
KTZ8864 is available in a RoHS compliant 24-ball 1.72mm x 2.45mm x 0.62mm WLCSP.

Ordering Information

Part Number	Marking[1]	Operating Temperature	Package
KTZ8864EJAA-TR	NDXXYYZZZZ	-40°C to +85°C	WLCSP-24

1. “XXYYZZZZ” is the date code and assembly code.

Typical Application



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