

Programmable Dual Output LCD Bias Power

Features

- Input voltage range (2.7V to 5.5V)
- Dual output regulator with single inductor
- High efficiency above 85%
- Charge pump with PFM mode at light load
- Programmable output voltages
- Positive output voltage range
 - ▶ +4.0V to +6.3V (100mV/step)
- Negative output voltage range
 - ▶ -4.0V to -6.3V (100mV/step)
- Programmable regulator offset voltage
- 1.0% output voltage accuracy
- Regulated output current up to 80mA
- Programmable active discharge
- I²C compatible interface
- 1 μ A shutdown supply current
- Pb-free WLCSP-15 and TDFN-14 packages
- -40°C to +85°C Temperature Range

Applications

- Smartphone TFT-LCD
- Tablet TFT-LCD
- General Dual Power Supply Applications

Brief Description

The KTD2151 is a TFT-LCD power supply IC for small and medium size displays for smartphones and tablets. The positive and negative output rails provide bias supplies for TFT LCD panels via the Source Driver IC. The device only requires a single inductor, to reduce the total PCB area.

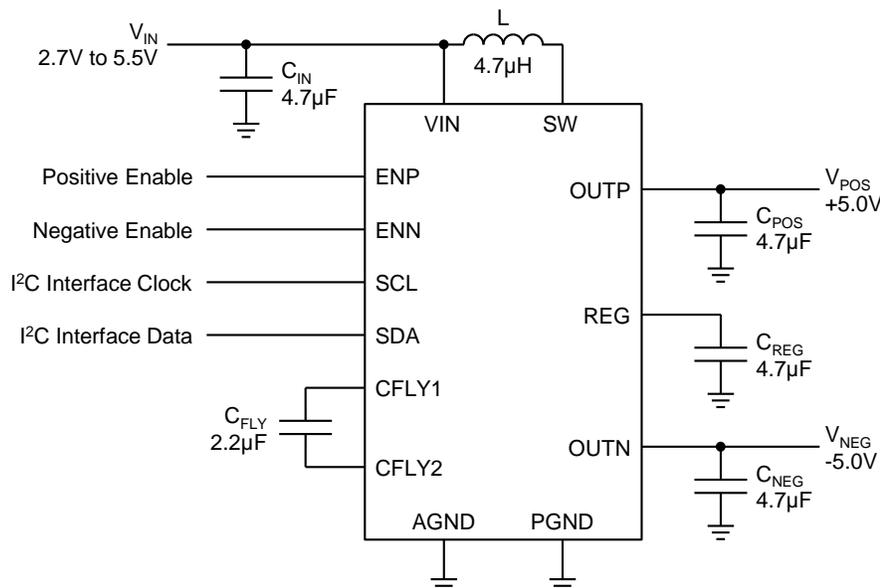
It features an integrated step-up DC-DC converter with input voltage range from 2.7V to 5.5V. An LDO and charge pump generate dual regulated outputs, whose voltages can be programmed via an I²C compatible interface. Optimized step-up, LDO and charge pump converters maximize conversion efficiency, exceeding 85%.

KTD2151 integrates all compensation and soft-start circuitry, which results in a simpler and smaller solution with much fewer external components. High switching frequency (1.8MHz) allows the use of a smaller inductor and capacitor to further reduce the solution size.

The I²C compatible interface allows control of the positive and negative outputs from +4.0V to +6.3V and from -4.0V to -6.3V, respectively, as well as programming additional registers on the device.

KTD2151 is available in a RoHS compliant 15-bump 2.2mm x 1.45mm x 0.62mm WLCSP and 14-lead TDFN 2.5 x 3.0 x 0.75mm.

Typical Application



Ordering Information

| Part Number | Marking ¹ | V _{POS} Default Setting | V _{NEG} Default Setting | I _{SD} ² | Operating Temperature | MSL | Package |
|--------------------------------|----------------------|--|--|------------------------------|--------------------------|---------|----------|
| KTD2151EUO-TR | GRYYZ | +5.0V | -5.0V | 6μA | -40°C to +85°C | Level 1 | WLCSP-15 |
| KTD2151EUO-CC-TR | GZYYZ | +5.2V | -5.2V | 6μA | -40°C to +85°C | Level 1 | WLCSP-15 |
| KTD2151BEUO-TR ³ | HMYYZ | +5.0V | -5.0V | 100nA | -40°C to +85°C | Level 1 | WLCSP-15 |
| KTD2151BEUO-BB-TR ³ | HXYYZ | +5.1V | -5.1V | 100nA | -40°C to +85°C | Level 1 | WLCSP-15 |
| KTD2151BEUO-CC-TR ³ | HOYYZ | +5.2V | -5.2V | 100nA | -40°C to +85°C | Level 1 | WLCSP-15 |
| KTD2151BEUO-FF-TR ³ | HSYYZ | +5.5V | -5.5V | 100nA | -40°C to +85°C | Level 1 | WLCSP-15 |
| KTD2151BEUO-GG-TR ³ | MJYYZ | +5.6V | -5.6V | 100nA | -40°C to +85°C | Level 1 | WLCSP-15 |
| KTD2151BEUO-JJ-TR ³ | MKYYZ | +5.8V | -5.8V | 100nA | -40°C to +85°C | Level 1 | WLCSP-15 |
| KTD2151EXH-TR | GRYYZ | +5.0V | -5.0V | 6μA | -40°C to +85°C | Level 1 | TDFN-14 |

1. "YYZ" is the date code and assembly code.
2. Shutdown current with V_{IN} = 3.6V, ENP = ENN = 0 and SDA = SCL = 1.8V.
3. KTD2151B I²C inputs are disabled when both ENP and ENN are logic low.

Kinetic Technologies cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a Kinetic Technologies product. No intellectual property or circuit patent licenses are implied. Kinetic Technologies reserves the right to change the circuitry and specifications without notice at any time.