

■ General Description

The TCS3514 is designed to support positive/negative driven TFT-LCD panels up to 10" at least (from SFF to MFF like tablets). The two output rails are usually connected to the Source Driver IC. The device uses a single inductor scheme in order to provide the user the smallest solution size possible as well as high efficiency.

It features a highly integrated step-up DC-DC converter with wide input voltage range from 2.7V to 5V. It is optimized for products powered by single-cell batteries (Li-Ion, Ni-Li, and Li-Polymer) and symmetrical output currents up to 150mA. An LDO and charge pump generate dual outputs at +5.8V(default) and -5.8V(default), whose voltages can be programmed via an I²C compatible interface. Optimized step-up, LDO and charge pump converters maximize conversion efficiency.

TCS3514 integrates all compensation and soft-start circuitry, which results in a simpler and smaller solution with much fewer external components. High switching frequency (1.2MHz) allows the use of a smaller inductor and capacitor to further reduce the solution size.

The I²C compatible interface allows to control the positive and negative outputs from +4V to +6.5V and -4V to -6.5V, respectively, as well as programming additional registers on the device.

The device is a RoHS compliant 15-Ball

2.07mmX1.24mmX0.58mm WLCSP package.

■ Pin Configuration

WLCSP-15B (Top view)

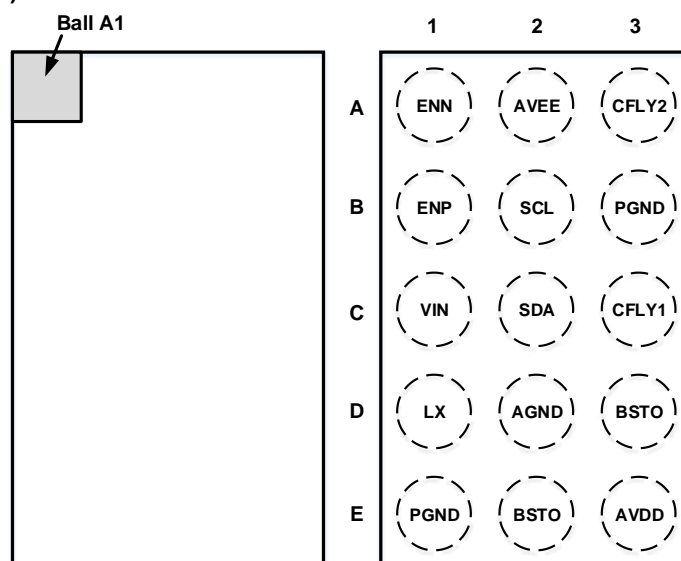


Figure 1, Pin Assignments of TCS3514

■ Features

- Wide 2.7V to 5V Operating Input Range
- Dual Output Regulator with Single Inductor
- Programmable Output Voltage Voltages
- Positive Output Voltage Range: +4V to +6.5V (100mV/Step)
- Negative Output Voltage Range: -4V to -6.5V (100mV/Step)
- ±1.5% Output Voltage Accuracy
- Excellent Line Regulation
- Advanced Power-Save Mode for Light Load
- Support I²C Compatible Interface
- Integrated Compensation and Feedback Circuits
- 1μA Shut-Down Supply Current
- Boost Current Mode Operation
- Over Current Protection
- Internal Soft-Start Prevents Inrush Current
- Under Voltage Lock Out
- Thermal Shutdown
- Available in a 15-Ball WLCSP
- -40°C to +85°C Operating Temperature Range

■ Applications

- TFT LCD Smart-phones
- TFT LCD Tablets
- General Dual Power Supply Application