



# Bias Power Supply with High-Speed Amplifier and High-Accuracy LDO for LCD TVs

## Features

- 8V to 14V Input Voltage Range
- 500kHz/750kHz Fixed Switching Frequency
- $V_S$  Step-Up Converter
  - ◆ Current Mode
  - ◆ 1% Feedback Accuracy
  - ◆ Output Voltage Range up to 20V
  - ◆ 3A Switch Current
  - ◆ Adjustable Soft Start
  - ◆ Adjustable Current Limit
- $V_{LOGIC}$  Step-Down Converter
  - ◆ Current Mode
  - ◆ 1% Feedback Accuracy
  - ◆ 2.5A Switch Current
  - ◆ 2.5ms Internal Soft Start
- 150mA Negative Charge Pump Driver for VGL
- 150mA Positive Charge Pump Driver for VGH
- Integrated High Voltage Switch for Gate Voltage Shaping
- High Voltage LDO for VREF
  - ◆ 0.5% Feedback Accuracy
  - ◆ 0.5V Dropout at 60mA Output Current
- High-Speed Operational Amplifier
  - ◆ 20MHz -3dB Bandwidth
  - ◆ 45 V/ $\mu$ s Slew Rate
  - ◆  $\pm$ 200-mA Short-Circuit Current
- Gate Drive Signal to Drive External MOSFET
- XAO Comparator
- Thermal Shutdown
- Available in 7mmx7mm 48-pin TQFN Package

## Applications

- LCD TV Panels

## General Description

The G5562 DC-DC converter provides regulated voltages required by thin-film transistor (TFT) liquid crystal displays (LCD) panels in TQFN package. One step-up converter, one step-down converter, and two charge pumps convert the 8V to 14V input voltage into four output voltages. These features complete the power-supply requirements of large screen LCD panels. The step-up converter provides source voltages  $V_S$  and the step-down converter provides logic voltage for the system. The dual charge pumps independently generate adjustable regulated output voltages VGL and VGH to bias the LCD. These four blocks operate with a fixed switching frequency of 500kHz or 750kHz.

Both step-up and step-down converters operate in asynchronous switch mode. Current mode control provides fast transient response and eases loop stabilization. Fault protection includes cycle-by-cycle current limit, thermal shutdown, and output-fault shutdown.

Current mode control is used for both charge pumps to regulate its output voltage, which minimizes output ripple and capacitor sizes. High voltage switch is used for gate voltage shaping to improve TFT-LCD display quality.

The G5562 includes one high-speed high-current operational amplifier and one high-accuracy LDO for Gamma buffer reference.

The G5562 is available in a 48-pin TQFN package.

## Ordering Information

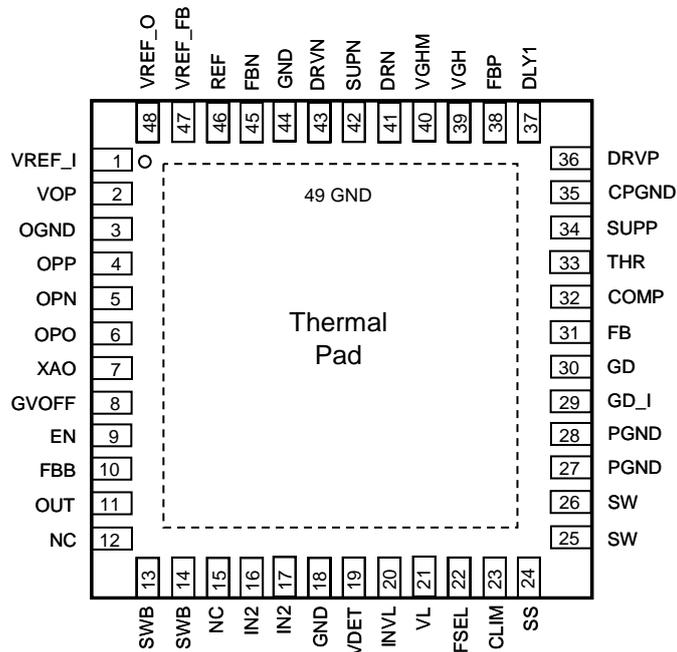
ORDER NUMBER	MARKING	TEMP. RANGE	PACKAGE (Green)
G5562R11U	5562	-40°C~ +85°C	TQFN7X7-48

Note: R1: TQFN7X7-48

1: Bonding Code

U: Tape & Reel

**Pin Configuration**



Note: Recommend connecting the Thermal Pad to the Ground for excellent power dissipation.