

Multi-Output Power Supplies for TV TFT LCD Panels

DESCRIPTION

The EUP2683 generates all the four supply rails for thin-film transistor liquid-crystal display (TFT LCD) TV panels operating from a regulated 12V input. They include a step-down and a step-up regulator, a positive and a negative charge pump.

The step-up and step-down switching regulators feature internal power MOSFETs and high-frequency operation allowing the use of small inductors and capacitors, resulting in a compact solution. The step-up regulator provides TFT source driver supply voltage, while the step-down regulator provides the system with logic supply voltage. Both regulators use fixed-frequency current-mode control architectures, providing fast load-transient response and easy compensation. The positive and negative charge-pump regulators provide TFT gate-driver supply voltages. Both output voltages can be adjusted with external resistive voltage-dividers. Both switching regulators and both charge pumps operate from a central clock that can be set to either 750 kHz or 500 kHz by tying the FREQ pin high or low.

The EUP2683 features adjustable power-up sequencing, step-up regulator over voltage protection, step-down regulator short-circuit protection, and over temperature protection to ensure in safe operating. The device also incorporates a gate drive signal to control an external MOSFET isolation switch connected in series with V_S or V_{GH} .

FEATURES

- 8V to 14.7V In Input Voltage Range
- Selectable Frequency (500kHz/750kHz)
- Current-Mode Step-Up Regulator
 - Built-In 20V, 3.7A, 100mΩ MOSFET
- Current-Mode Step-Down Regulator
 - Built-In 20V, 2.3A, 175mΩ MOSFET
- 100mA Charge Pump Output Current
- Negative Charge Pump Driver for V_{GL}
- Positive Charge Pump Driver for V_{GH}
- Adjustable Sequencing for V_{GL} and V_{GH}
- Gate Drive Signal to Drive External MOSFET
- Internal and Adjustable Soft Start
- Short-Circuit Protection
- Over voltage Protection
- Thermal Shutdown
- Available in TSSOP-28 (EP) Package
- RoHS Compliant and 100% Lead (Pb)-Free Halogen-Free

APPLICATIONS

- TFT LCD Displays for Monitor and LCD TV

Typical Application Circuit

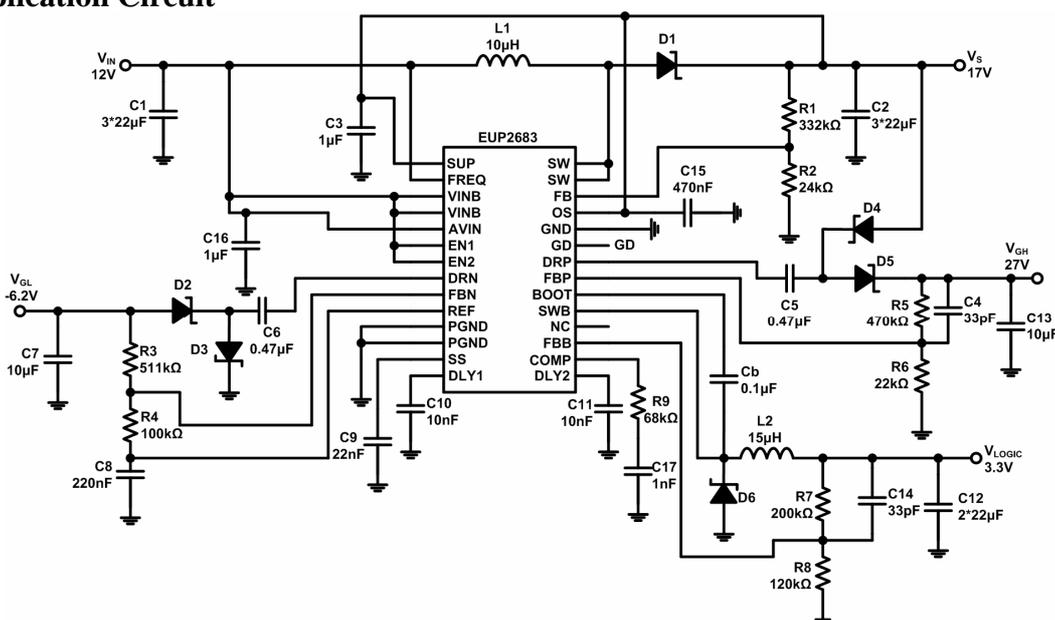


Figure 1. Typical Application Circuit