

LCD Panel Step- up Converter with Analog Multi-Function Outputs

Features

- 2.6V to 5.5V Input Supply Range
- 640kHz/1.2MHz Current-Mode PWM Step-Up Regulator:
 - ♦ Fast Transient Response
 - ♦ 1.0% High-Accuracy Output Voltage
 - ♦ Built-In 18V, 2.0A, 0.2Ω N-Channel MOSFET
 - ♦ Programmable Soft-Start
 - ♦ Current-Limit
 - ♦ Latched Fault Protection with Timer
 - ♦ High Efficiency
- Gate-On Charge Pump Regulator Controller with Latched Fault Protection with Timer
- High-Performance Linear Regulator:
 - ♦ 1.5% Output Accuracy
 - ♦ Works with Small Ceramic Output Capacitors
 - ♦ Fast Transient Response
 - ♦ Foldback Current Limit
- High-Current Operational Amplifier:
 - ♦ ±150mA Output Short-Circuit Current
 - ♦ 13V/μs Slew Rate
 - ♦ 12MHz, -3dB Bandwidth
 - ♦ Rail-to-Rail Input/Output
- Gate-on Pulse Modulator with Adjustable Delay for Sequence Control
- Voltage Detector with Adjustable Delay

Applications

- LCD Monitor Panel Modules
- NB LCD Panel Modules
- Automotive Displays

General Description

The AT1739 offers a complete power-supply solution for TFT LCD panels used in LCD monitors and NB LCD panels. The AT1739 consists of a high-performance step-up converter, a low-power charge-pump regulator, a high-performance linear regulator, an operational amplifier, a voltage detector and a logic-controlled gate-on pulse modulator.

The step-up DC-DC converter provides the regulated supply voltage for the panel source driver ICs. The charge-pump regulator generates the positive gate-on supply voltage. The operational amplifier supplies the VCOM buffer with high output current, fast slew rate and wide bandwidth performances for driving capacitive loads.

The high-voltage gate-on pulse modulator to control the positive gate-on output voltage waveform for reducing the flicker on TFT LCD panel.

The high-performance linear regulator uses an internal P-channel MOSFET to supply load currents up to 350mA. It provides the regulated supply voltage for the TCON IC.

The voltage detector with adjustable detected voltage-point and delay-time monitors the input supply voltage to prevent the improper shutdown of the system power application.

The AT1739 is available in a 24-pin thin QFN package which is 4mm x 4mm with a maximum thickness of 0.8mm for ultra-thin LCD panel design.

Ordering Information

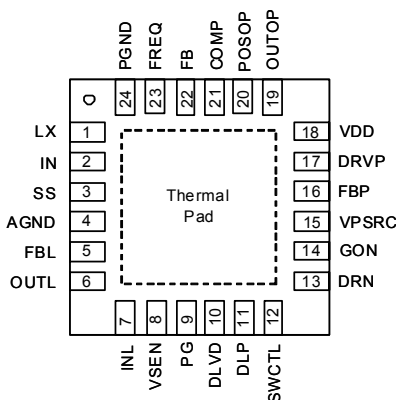
ORDER NUMBER	MARKING	TEMP. RANGE	PACKAGE (Green)
AT1739R51U	A1739	-40°C to 85°C	TQFN4X4-24

Note: R5: TQFN4X4-24

1 : Bonding Code

U: Tape & Reel

Pin Configuration



AT1739 TQFN4X4-24