MAX20067

Automotive 3-Channel Display Bias IC with VCOM Buffer, Level Shifter, and I²C Interface

Industry's First Integrated Power Solution for TFT-LCD with Synchronous Boost, Gate-Shading and I²C

Description

The MAX20067 IC is a complete TFT bias solution for automotive applications. It includes a current-mode boost converter and two push-pull charge-pump drivers.

The IC also includes a gate-shading push-pull level shifter that can be used to improve display uniformity (when needed), and a DAC and VCOM buffer. All blocks on the IC can be used in stand-alone mode or through the I²C interface.

Comprehensive control functions are included using the built-in I²C interface, as well as diagnostics and monitoring.

The IC is intended to operate with 2.7V to 5.5V supplies.

The MAX20067 is available in a 32-pin TQFN package and operates in the -40°C to +105°C temperature range.

Key Features

- Versatile TFT Display Power Section
  - Integrated Synchronous Boost Converter with Output Voltages Up to 18V
  - Integrated Charge-Pump Drivers for the VGON (+36V, max) and VGOFF (-24V, min) Outputs
- Low EMI Operation
  - Programmable Switching Frequencies of 440kHz or 2.2MHz
  - Programmable Spread Spectrum
- Full Sequencing Flexibility Through I²C, Along with Preset Sequences Using SEQ Pin
- Extended Diagnostics Using I²C Interface
  - Undervoltage/Overvoltage on HVINP, VGON, and VGOFF
  - Overcurrent on AVDD
  - Temperature Warning
- Built-In Gate-Shading Circuit Controlled by CTL Input

- 8-Bit DAC-Controlled VCOM Buffer
- Robust
    - -40°C to +105°C Operating Temperature Range
    - Internal Temperature Shutdown
    - AEC-Q100 Qualified
- Compact 32-Pin (5mm × 5mm) TQFN Package

Applications/Uses

- Central Information Displays
- Infotainment Displays
- Instrument Clusters

Part Number	Monitor/Control Features	DC-DC/Power Features	LCD/LED/Flash/CCD Features	Interface Type	V_{IN} (V) min	V_{IN} (V) max	V_{OUT} (V) min	V_{OUT} (V) max	Max. I_{OUT} (A)	Max. I_{OUT} (A)	Oper. Freq. (kHz)	Inverting Outputs	Package/Pins
MAX20067	Output OVP Output UVP Serial Interface Shutdown Volt. or PWM Controlled Output	Adj. Frequency Avg. Current Mode Control Fixed Freq./PWM Internal Switch Soft Start	TFT Bias	I^2C	2.7	5.5	-14	36	2	2	400 2000	2	TQFN-CU/32