

## General Description

The MAX25588 is a 38-channel low-side driver. The integrated current outputs can sink up to 35mA LED current each. Device power comes from an external 3.3V or 5V supply, while the LED current-sink outputs can operate at up to 14V.

A feedback output pin (FB) is provided to control an external DC-DC converter so that voltage headroom can be optimized and the overall system power dissipation reduced.

The device is highly flexible due to its programmability using the SPI interface. Among the programmable parameters are the LED current and individual PWM settings.

The device features a high-speed interface for controlling up to 61 devices in a daisy-chain configuration. In addition, they include multiple diagnostic features.

The MAX25588 is available in a TQFN package and operates in the -40°C to +125°C temperature range.

## Applications

- Central Information Displays
- Instrument Clusters
- Interior Lighting
- Exterior Rear Lighting

## Benefits and Features

- Flexible Configuration
  - Optional Individual Programmable Delays
  - Optional Pseudorandom Spread Spectrum on Each Output
- 38 Low-Side Constant-Current Drivers
  - Up to 35mA Peak Output Current
  - 0.25V Minimum SNK\_ Voltage Headroom
  - Very Narrow Minimum Current Pulse for Maximum Dimming Ratio
- Extensive Diagnostics
  - LED Integrity Test
  - Shorted or Open LEDs
  - Shorted SNK\_ to GND
  - Undervoltage Detection on All Supplies, Overvoltage Detection on V18
  - Thermal Warning/Shutdown
- FB Output to Control External DC-DC Converter
- Industry-Standard SPI Interface
- VSYNC Synchronization Input (Programmable Active High/Low)
- 7mm x 7mm, 48-Pin TQFN Package
- AEC-Q100 Grade 1

**Ordering Information appears at end of data sheet.**

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Simplified Block Diagram



