



New Product Announcement

AL5887Q

36-Channel Linear LED Driver with RGB Registers Simplifies Automotive Display and Lighting Applications

The AL5887Q is a 36-channel linear constant-current automotive-compliant* LED driver that drives both RGB (up to 12) LEDs as well as single-color LED applications. It uses an I²C/SPI interface with an internal 12-bit PWM for color and brightness control.

Its built-in registers have three RGB banks (A, B, C) for software control of each color and enable easy device customization, providing:

- Independent color-mixing per channel, and
- An independent 6-bit brightness control register per RGB module.

Other key performance enhancements include:

- 3-bit dithering function to enhance PWM dimming resolution;
- Diagnostic fault registers with a fault flag pin;
- Individual fault mask registers;
- Shutdown mode of 1 μ A current (max);
- Automatic power-saving mode of 15 μ A (max) when all LEDs are off for >30ms.

The device is available in the wettable W-QFN6060-52/SWP (Type A1) package.

A standard compliance version, AL5887, is available and is suitable for industrial and commercial applications.

*Automotive-compliant - AEC qualified, manufactured in sites certified to IATF 16949 supporting PPAP documents.

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The DIODES Advantage

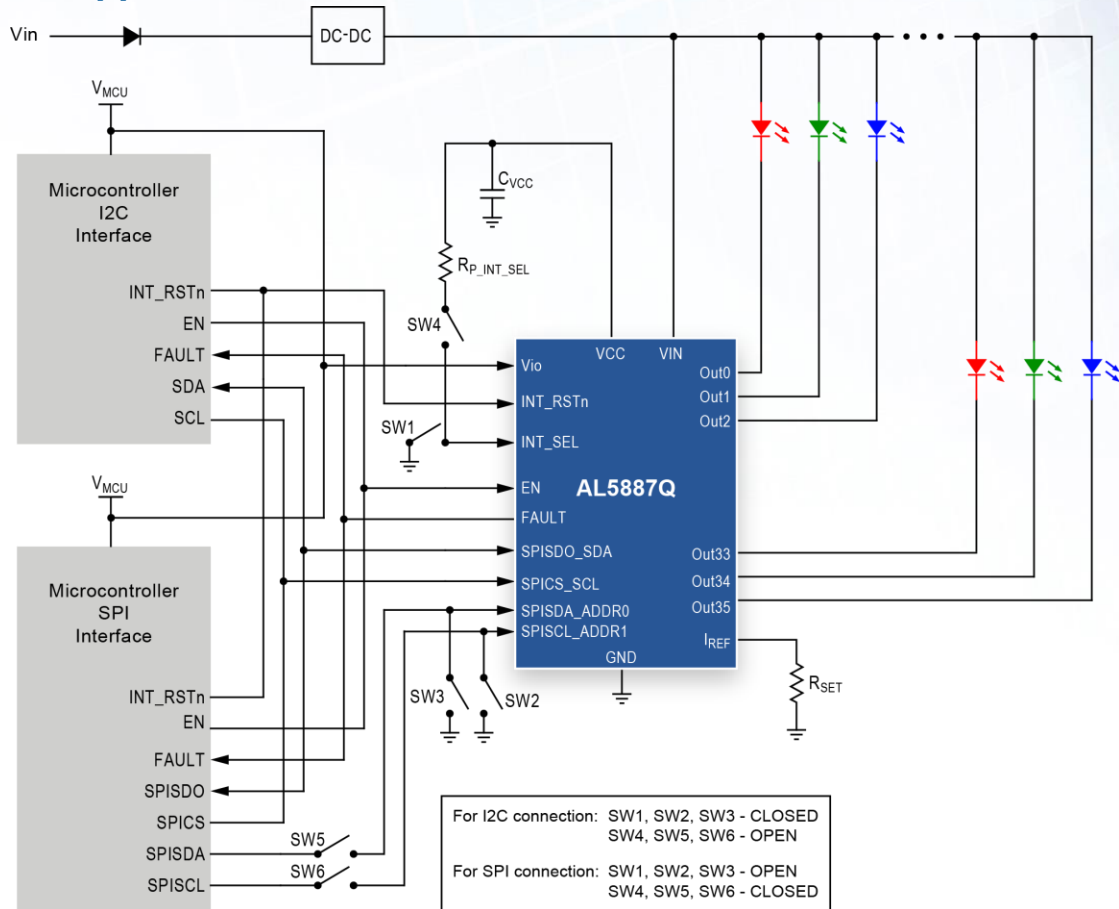
The I²C/SPI AL5887Q provides versatile and accurate adjustment of brightness and color in automotive illumination applications.

- **Hardware-Selectable Digital Interface: I²C or SPI**
Provides system programming flexibility
- **Supports Both PWM (3%) and Analog (<3%) Dimming**
Enhances PWM resolution to 0.0244% by using 3-bit dither
- **Internal 16MHz Oscillator for PWM Dimming**
Eliminates the need for external PWM clock
- **Open-Drain Fault Pin with Diagnostic Fault Register and Individual Fault Mask**
Reports individual LED channel-open/-short detection with ability to ignore certain channels, UVLO, and overtemperature conditions
- **Tight 3% Device-to-Device and Channel-to-Channel Current Accuracy**
Provides precise color mixing and uniform color distribution across lamps and displays

Applications

- Automotive interior and exterior lighting
- Infotainment displays
- Automotive status indicator lights
- Touch panels and LCD display backlights

Typical Application



High Channel Count Automotive-Compliant Linear LED Drivers

Part Number	Min. Supply Voltage	Max. Supply Voltage	Max. Vout	Number of Channels	Channel Max. Output Current	Accuracy	Interface	Global ADIM	PWM DIM	Ambient Temperature Range	Package
	V	V	V		mA	%		Bits	Bits		
AL5887Q	2.7	5.5	5.5	36	70	±3	I ² C/SPI	6	12	-40 to +125	W-QFN6060-52/SWP (Type A1)
AL58263Q	3.0	5.5	15	16	55	±1.5	SPI	6	16	-40 to +125	W-QFN4040-24EP/SWP

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAPs)	Package	Moisture Sensitivity	Packing	
				Quantity	Carrier
AL5887QJAZW52-13	Automotive	W-QFN6060-52/SWP (Type A1) (JAZW52)	MSL-1	4,000	13" Tape & Reel