



New Product Announcement

AL58818Q AL58812Q

I2C/SPI Programmable 18-/12-Channel Linear LED Drivers with Digital-Color Mixing Simplify Automotive Dynamic Lighting

The automotive-compliant* AL58818Q/12Q are 18-/12-channel linear constant current LED drivers with integrated 12-bit PWM for color and brightness control through the I2C/SPI interfaces. This makes these devices ideal for up to 6-RGB LED modules or 18 single-color LED automotive lighting applications.

The AL58818Q/12Q have built-in addressable registers, with three programmable banks (A, B, C) for software control of each color, enabling users to easily customize the devices to meet their needs. Additional benefits include:

- Independent color-mixing registers per channel
- Independent 6-bit brightness control registers per RGB module
- 3-bit dithering function to enhance the PWM resolution
- Diagnostic reporting through registers and hardware fault pin
- Shutdown mode 1 μ A current max

The AL58818Q/12Q automatically enters their power-saving mode of 15 μ A (max.) when all LEDs are off for >30ms.

They are available in the wettable W-QFN5050-40/SWP (Type A1) package.

Standard compliance versions, AL58818 and AL58812, are available and are 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 AL58818Q/12Q provides precise brightness and color controls in automotive applications.

- **Hardware-Selectable Digital Interfaces: I2C or SPI**
Provides programming flexibility for the system
- **Individual Fault Mask Registers & Open/Short Registers with Open Drain Fault Pin**
Detects and reports open/shorts for each LED channel with the ability to enable/disable individual channels
- **Supports Both PWM (3%) and Analog (<3%) Dimming**
Delivers 3-bit dither, which enhances PWM resolution to 0.0244%
- **Internal 16MHz Oscillator for PWM Dimming**
Eliminates the need for external PWM clock
- **Accurate 3% Device-to-Device and Channel-to-Channel Current Matching**
Provides precise color mixing and uniform color distribution across lamps and displays

Automotive Applications

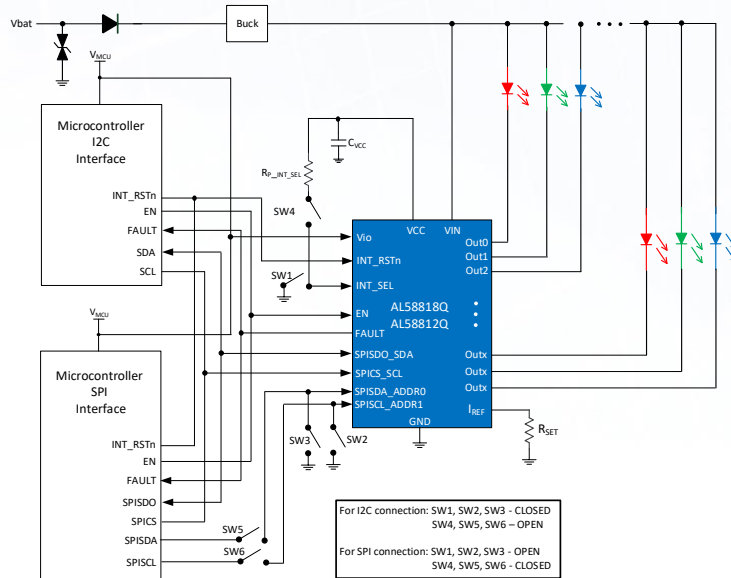
- Interior and exterior lighting
- Infotainment displays
- Status indicator lights
- Touch panels and LED display backlights



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Typical Application



Multi-Channel Linear LED Driver Overview

Part Number	Min. Supply Voltage	Max. Supply Voltage	Max. V _{OUT}	Number of Channels	Max. Output Current	Accuracy	Interface	Dimming		Ambient Temp. Range	Package
	V	V	V		mA	%		Global Analog	PWM		
AL58818Q	2.7	5.5	5.5	18	70	±3	I2C/SPI	6	12	-40 to +125	W-QFN5050-40/SWP (Type A1)
AL58812Q	2.7	5.5	5.5	12	70	±3	I2C/SPI	6	12	-40 to +125	W-QFN5050-40/SWP (Type A1)
AL58263Q	3.0	5.5	15	16	55	±1.5	SSI-4*	6	16	-40 to +125	W-QFN4040-24EP/SWP
AL5887Q	2.7	5.5	5.5	36	70	±3	I2C/SPI	6	12	-40 to +125	W-QFN6060-52/SWP

* SSI-4: Serial Synchronous Interface 4 wires

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	Package	Package Code	Moisture Sensitivity	Packing	
					Quantity	Carrier
AL58818QJAZW40-13	Automotive	W-QFN5050-40/SWP (Type A1)	JAZW	MSL-1	5,000	13" Tape & Reel
AL58812QJAZW40-13		W-QFN5050-40/SWP (Type A1)				