

# L98GD8

## Configurable multi-channel switch for advanced 48V automotive



### Smart 8-channel MOSFET gate driver for efficient and reliable automotive systems across 12 V, 24 V, and 48 V powernets

The eight-channel gate driver for 48 V automotive powernets supports independent high-side/low-side, H-bridge or peak & hold configuration options, enabling control for a wide range of loads.

Its flexibility ensures full load and MOSFET control, enhanced by advanced diagnostics that monitor both ON and OFF states for improved safety.

Configurations and diagnostics are managed via a high-speed SPI, featuring daisy-chain capability to optimize microcontroller resources.

This high level of configurability makes the L98GD8 ideal for a wide variety of automotive applications, from body to control engine management and air conditioning systems.

#### KEY FEATURES AND BENEFITS

- AEC-Q100 qualified
- Absolute maximum rating up to 60V suitable for 48V battery applications
- 8-channel configurable gate driver for low-side, high-side, peak & hold and H bridge configurations
- Digital operating supply voltage from 4.5 to 5.5 V
- Full set of diagnostics in ON and OFF state
- Comprehensive set of safety features

#### KEY APPLICATIONS

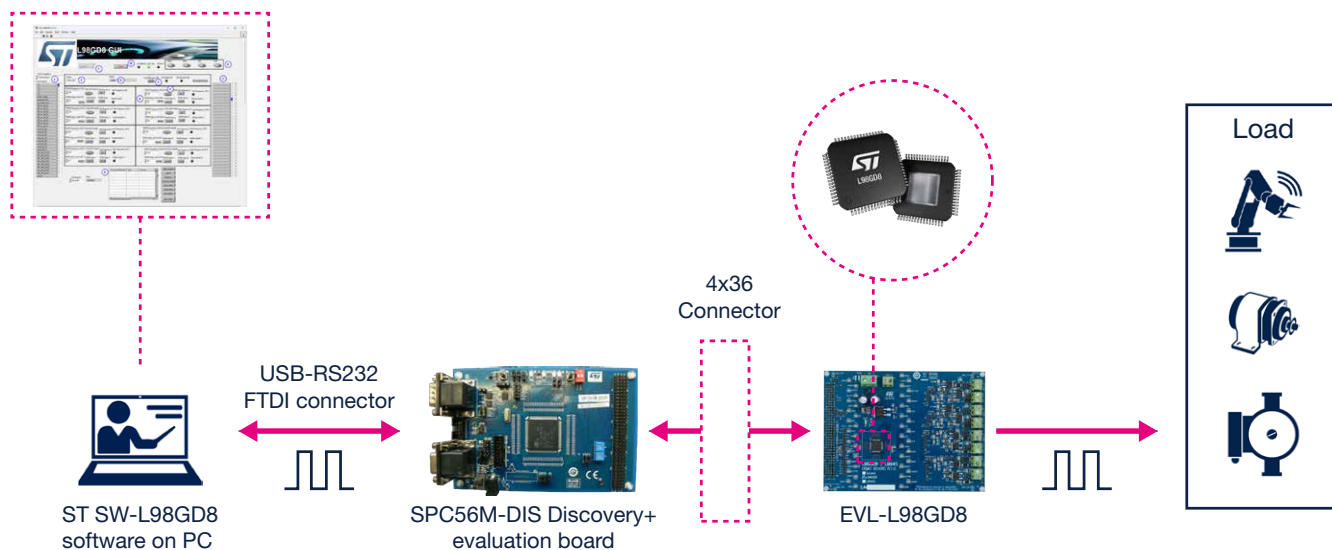
- Body control module
- Engine management systems
- Air conditioning systems

## Detailed description

The L98GD8 is a highly flexible device designed specifically to comply with 48 V battery system requirements. Its 8 configurable gate driver channels can be independently set as low-side, high-side, peak & hold, or H-bridge outputs. Channels not assigned to peak & hold or H-bridge modes can still be used as low- and high-side drivers, maximizing versatility. Low- and high-side configurations support loads like lamps, electro-valves, and probe heaters. All channels can handle general loads, while Channel 6 has a dedicated enable (EN6) for safety-critical use. Peak & hold mode is optimized for loads such as injectors and fuel pumps, providing precise current control. While, the H-Bridge configuration is ideal for driving brushed DC motors, enabling bidirectional control.

The IC integrates multiple safety mechanisms — Built-In Self-Test (BIST), Hardware Self-Check (HWSC), and a Communication Check (CC) watchdog — to ensure reliable operation. For added protection, it includes two external disable pins, DIS and NDIS, allowing a microcontroller to quickly disable the device when necessary. Together with a comprehensive set of robust protection features, these functions maximize system reliability and safeguard both the IC and connected loads. The L98GD8 offers advanced diagnostics in both ON and OFF states. During the ON state, it detects overcurrent (OC) conditions, while in the OFF state, it monitors for open load (OL), short to ground (STG), and short to battery (STB) faults. Diagnostic status follows a priority

scheme: if multiple events occur on the same channel, only the highest-priority event is reported. Each output's diagnostic status can be continuously monitored via dedicated SPI registers, enabling real-time fault detection and system monitoring. To help developers evaluate the many benefits of this compact solution, an L98GD8 evaluation board (EVL-L98GD8) is available. The EVL-L98GD8 can be set up and controlled using a dedicated graphical user interface (EVL-L98GD8 GUI), which communicates with the microcontroller via the SPC56M-DIS Discovery+ evaluation board.



Product	Package	Channels	Rating	Operating battery voltage (V)	Operating Digital supply voltage (V)	Temperature range (°C)	Ready-to-use evaluation board
L98GD8	TQFP64 (with exposed pad down)	8 (configurable high/low side)	Automotive	3.8 to 58	4.5 to 5.5	-40 to 150	<a href="#">EVL-L98GD8</a>



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