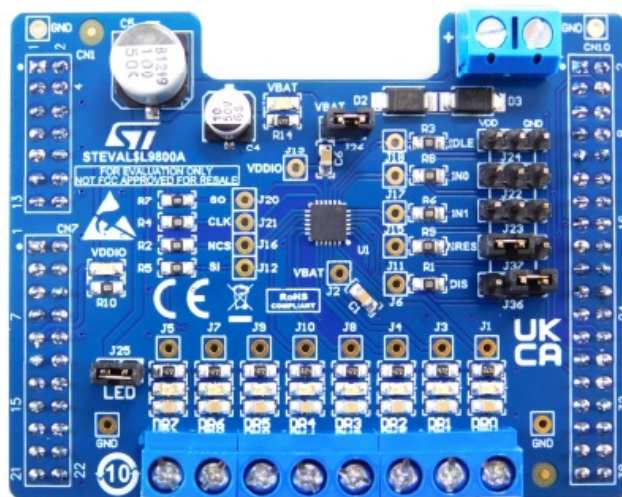


Contents [[hide](#)]

- 1 [STMicroelectronics L9800 Multi-Channel Driver Evaluation](#)
- 2 [Specifications](#)
- 3 [Features](#)
- 4 [Description](#)
- 5 [Overview](#)
- 6 [System requirements](#)
- 7 [FAQs](#)
- 8 [Documents / Resources](#)
 - 8.1 [References](#)



STMicroelectronics L9800 Multi-Channel Driver Evaluation



Specifications

- **Operative Input Voltage:** 3 – 28 V (VBATT pin), 3 – 5 V (VDDIO pin)
- **Number of Channels:** 8
- **Maximum Current per Channel:** 0.5 A
- **Features:** Configurable inputs, SPI communication interface, 4-layer PCB
- **System Requirements:** 3 V to 28 V power supply with current capability up to 8 A
- **Recommended Loads:** LED, relay, solenoid lamp with a rating of 12 V/0.5 A

Electrical Characteristics

- **Operative Input Voltage:** Ensure the input voltage is within the specified range for both VBATT and VDDIO pins.
- **Driver Configuration:** Utilize jumpers to configure inputs as needed.

System Requirements

- **Power Supply:** Connect a power supply with voltage between 3 V to 28 V and current capability up to 8 A.
- **Loads:** Connect compatible loads such as LEDs, relays, or solenoid lamps.
- **Test Equipment:** Use an oscilloscope and/or multimeter for monitoring and testing.

External Connections

- Refer to the user manual for the configuration sequence when connecting the board to a microcontroller.
- A graphical user interface is available on the AEK-MCU-C1MLIT1 interface for connection.

Features

- Operating input voltage: 3 V to 28 V
- Eight LS drivers up to 0.5 A
- Idle mode for reduced current consumption
- Possible daisy chain configuration
- Two parallel input pins with input mapping functionality
- SPI communication interface for control and diagnostics

- Reference design with optimized bill of materials
- L9800 hosted in QFN24 package
- 4-layer PCB (70 x 55 mm)

Product summary	
L9800 multichannel driver evaluation board	STEVAL-L9800
8-channel low side driver	L9800-TR
Applications	Body control module (BCM) HVAC and climate control Power domain control (PDC)

Description

The STEVAL-L9800 is a tool designed to evaluate the L9800 smart power device, designed by STMicroelectronics in advanced BCD technology. The L9800 is an 8-channel IC with eight LS drivers designed for automotive applications (LEDs and relays) and compatible with resistive, inductive, and capacitive loads. The device offers advanced diagnostic and protection functionalities such as short to GND, open load, overcurrent, and overtemperature detection. The 8 output channels can be driven by SPI or by 2 dedicated parallel inputs that can be associated with different outputs thanks to a programmable internal multiplexer. Limp home functionality is also featured, which allows the use of 2 selected drivers in specific fault conditions, such as SPI fault, microcontroller fault, or supply UV. Daisy chain compatibility, even with 8-bit SPI, is available. The device can ensure operation in cranking scenarios down to VBATT = 3 V and very low quiescent current in the SLEEP condition.

A serial peripheral interface (SPI) is used for control and configuration of the loads and

the device. Status feedback of all diagnostic functions is also provided.

There are two input pins available for direct control and PWM: these are connected to two defined outputs by default, but additional or different output mapping can be controlled by SPI. Thanks to the expansion connectors, the STEVAL-L9800 allows the complete control of L9800 communication interface (SPI) and parallel input/output.

The evaluation platform may also be controlled through a graphical user interface (GUI) on the AEK-MCU-C1MLIT1 hardware interface.

Overview

Electrical characteristics

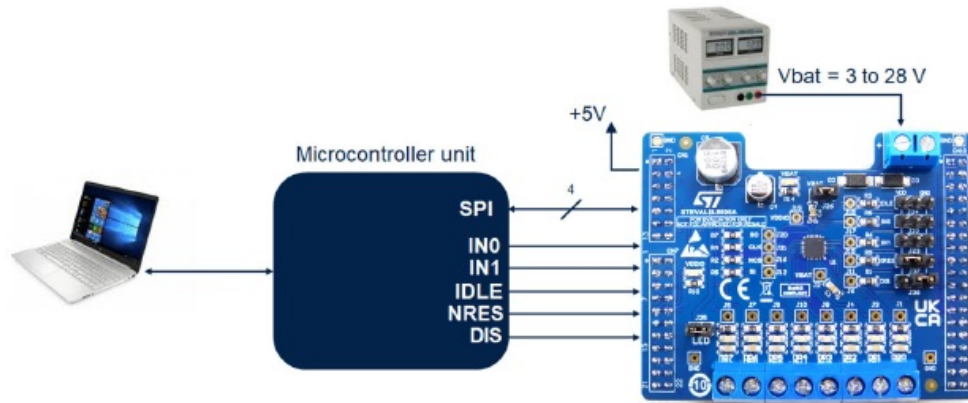
- Operative input voltage: 3 – 28 V (for VBATT pin)
- Operative input voltage: 3 – 5 V (for VDDIO pin)
- 8 LS drivers up to 0.5 A each
- Configurable inputs (using jumpers):
 - IN0/IN1
 - IDLE
 - NRES
 - DIS
- SPI communication interface
- 70 x 55 mm 4-layer PCB

System requirements

- 3 V to 28 V power supply with current capability up to 8 A
- Loads: LED, relay, solenoid lamp with a rating of 12 V/0.5 A
- Oscilloscope and/or multimeter

External connection

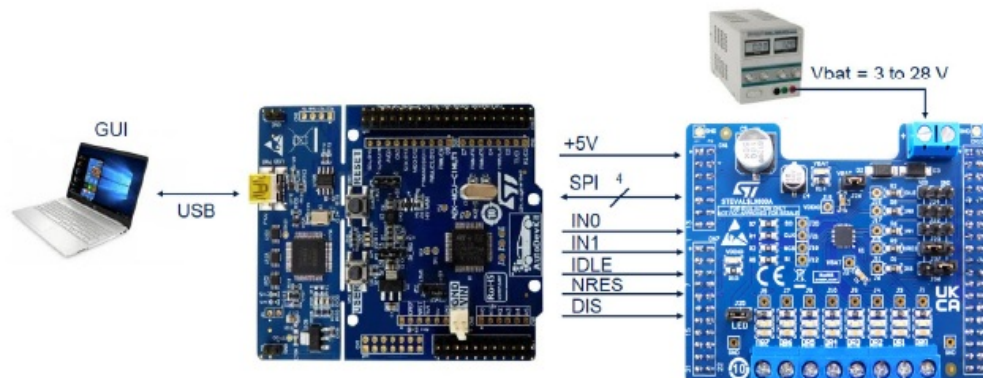
Figure 1. Connection with an arbitrary microcontroller board



Note:

- The configuration sequence is available in the STEVAL-L9800 user manual.

Figure 2. Connection with an arbitrary microcontroller board

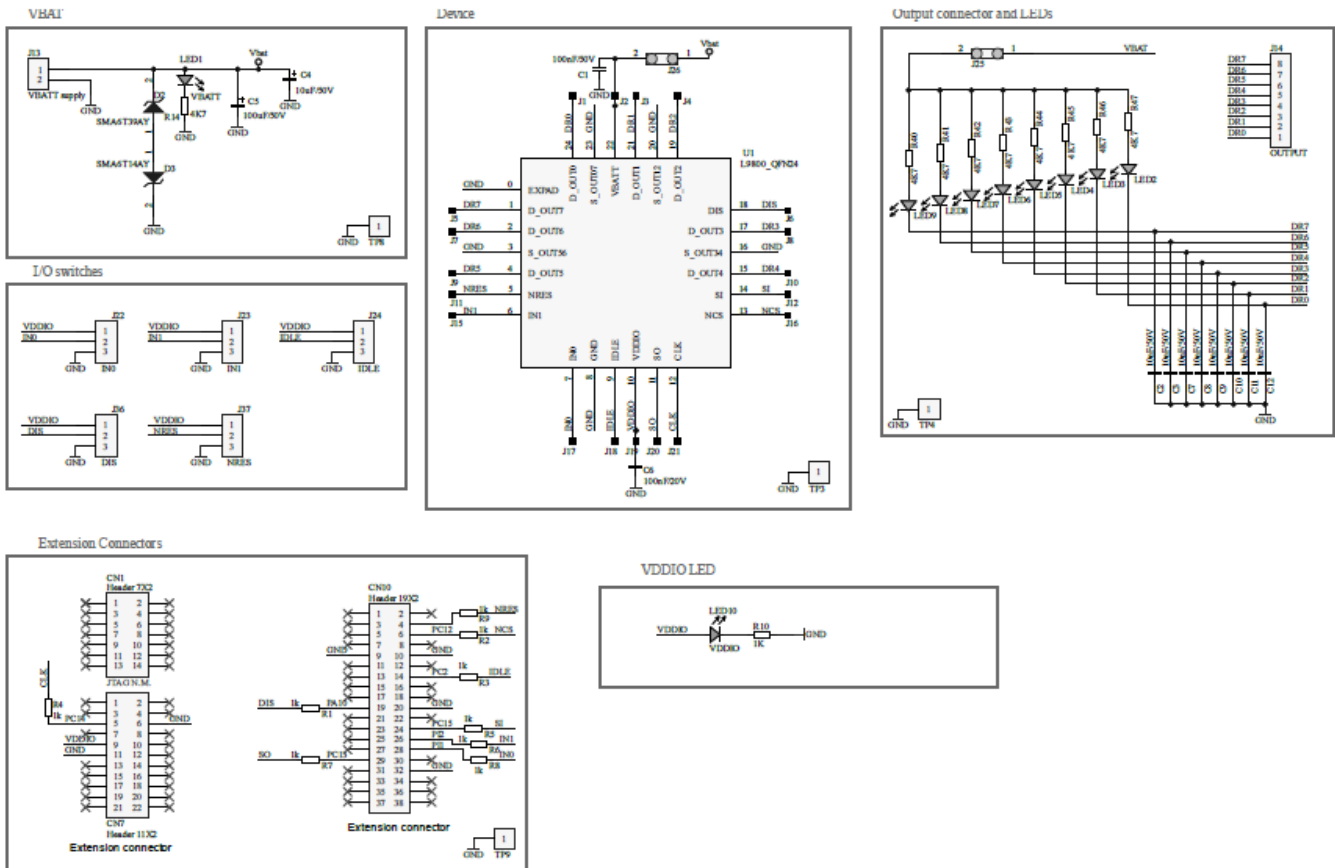


Note:

- A graphical user interface is available on the AEK-MCU-C1MLIT1 interface.

Schematic diagrams

Figure 3. STEVAL-L9800 evaluation board schematic



Board versions

Table 1. STEVAL-L9800 versions

Finished good	Schematic diagrams	Bill of materials
STEVAL\$ L9800A (1)	STEVAL\$ L9800A schematic diagrams	STEVAL\$ L9800A bill of materials

- 1. This code identifies the STEVAL-L9800 evaluation board, first version.

Reference documents

- STEVAL-L9800 user manual (UM3342)

Revision history

- Table 2. Document revision history

Date	Version	Changes
04-Apr-2025	1	Initial release.

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FAQs


Q: What are the typical applications of the STEVAL-L9800 board?

A: The board is commonly used in Body Control Modules (BCM), HVAC and climate control systems, and Power Domain Control (PDC) applications.

Q: What is the size of the STEVAL-L9800 board?

A: The board dimensions are 70 x 55 mm with a 4-layer PCB design.

Documents / Resources

	<p>STMicroelectronics L9800 Multi Channel Driver Evaluation Board [pdf] User Guide</p> <p>L9800 Multi Channel Driver Evaluation Board, L9800, Multi Channel Driver Evaluation Board, Driver Evaluation Board, Evaluation Board, Board</p>
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References

- [User Manual](#)

STMicroelectronics

Board, Driver Evaluation Board, Evaluation Board, L9800, L9800 Multi Channel Driver Evaluation Board, Multi Channel Driver Evaluation Board, STMicroelectronics

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