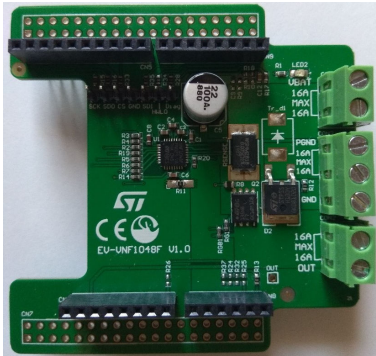


VNF1048F evaluation board



Product status link

[EV-VNF1048F](#)

Product summary

Order code	EV-VNF1048F

Features

Max transient supply voltage	VS	70 V
Operating voltage range	VS	6 V to 60 V
Operating voltage range (extended)	VS	6 V to 70 V
Standby current (max)	IS_Q	70 μ A
SPI I/O supply voltage	VSPi	3 V to 5.5 V
SPI standby current (max)	I_STBY	5 μ A

- EV-VNF1048F easy board that is able to work connected to EV-SPC582B to create an intelligent high side switch for 12 V, 24 V and 48 V automotive applications
- General
 - High-side switch Control IC with e-fuse protection for Automotive 12 V, 24 V and 48 V applications
 - SPI slave interface for host control
 - 32-bit ST-SPI interface compatible with 3.3 V and 5 V CMOS level
 - 2 stage charge pump
 - Gate drive for an external MOSFET in high side configuration
 - High precision uni-directional digital current sense via SPI through an external high side shunt resistor
 - Input for a NTC resistor to monitor the external MOSFET temperature
 - Very low standby current
 - Robust fail-safe functionality through internal and external controls
 - SPI register lock-out by a dedicated digital input pin
 - Integrated ADC for TJ, VNTC, VOUT and VDS conversion
- Protections
 - Battery under-voltage shut-down
 - External MOSFET desaturation shutdown configurable via SPI
 - Hard short circuit latch-off configurable via SPI
 - Current vs time latch-off configurable via SPI (fuse-emulation)
 - Device overtemperature shutdown
 - External MOSFET overtemperature shutdown
- Intelligent high current fuse replacement for automotive applications
- Especially intended for automotive power distribution applications

Description

The [EV-VNF1048F](#) board provides an easy way to connect VNF1048F into the existing system.

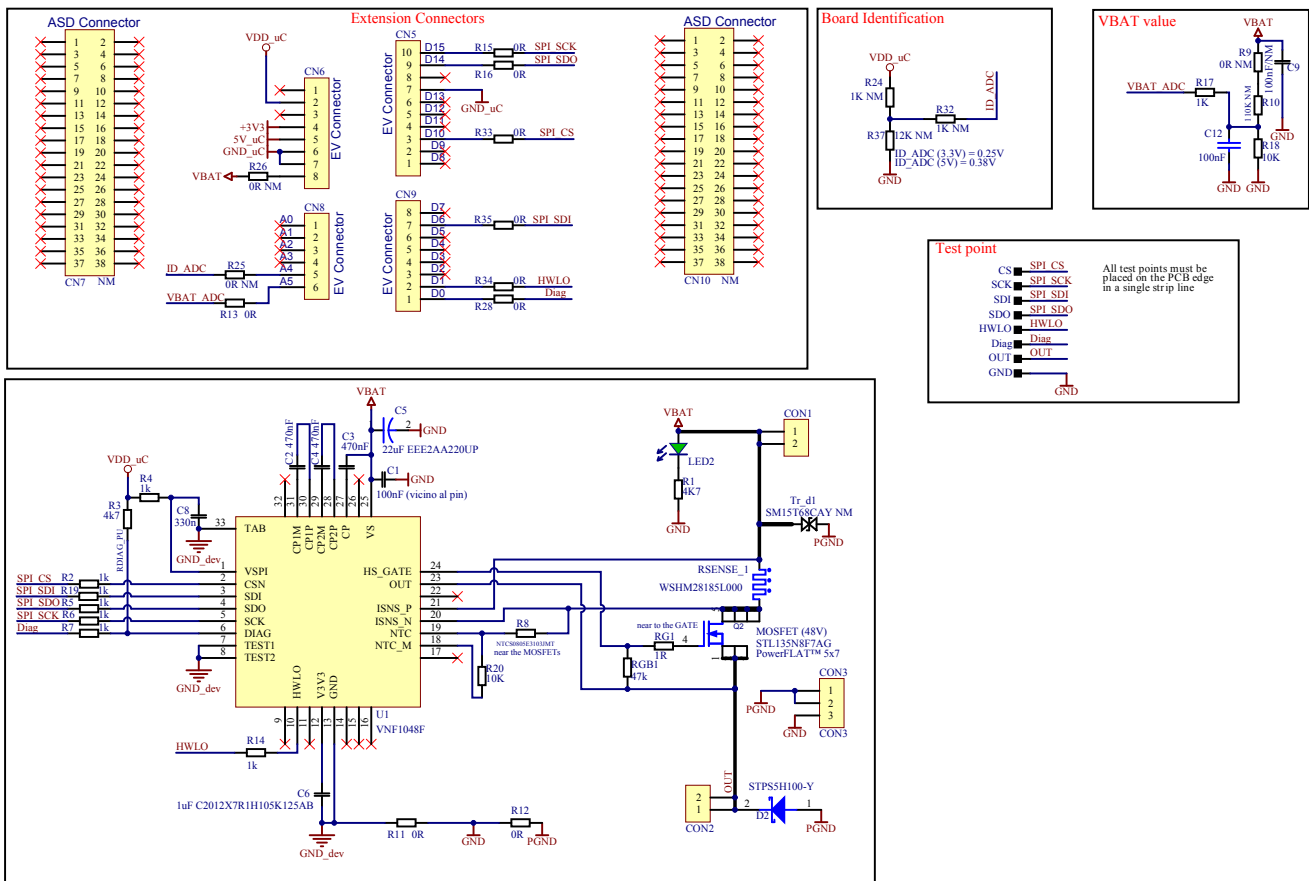
1 Overview

The EV-VNF1048F comes pre-assembled with VNF1048F high-side switch controller. On board minimum set of electrical components (as for device datasheet recommendation) enables the user to directly connect the load, the power supply and the microcontroller without any additional effort in external component design and connection.

The VNF1048F is an advanced controller for a power MOSFET in high-side configuration, designed for the implementation of an intelligent high-side switch for 12 V, 24 V and 48 V automotive applications. The Control IC is interfaced with a host microcontroller through a 3.3 V and 5 V CMOS-compatible SPI interface and provides protection and diagnostics to the system.

Below are showed the board schematics.

Figure 1. Board schematics



2 Board connections

The Figure 2 shows the placement of the connectors to be used for supplying the evaluation board, connecting the load, and controlling the functionality and diagnostic of the device.

Figure 2. Evaluation board connections

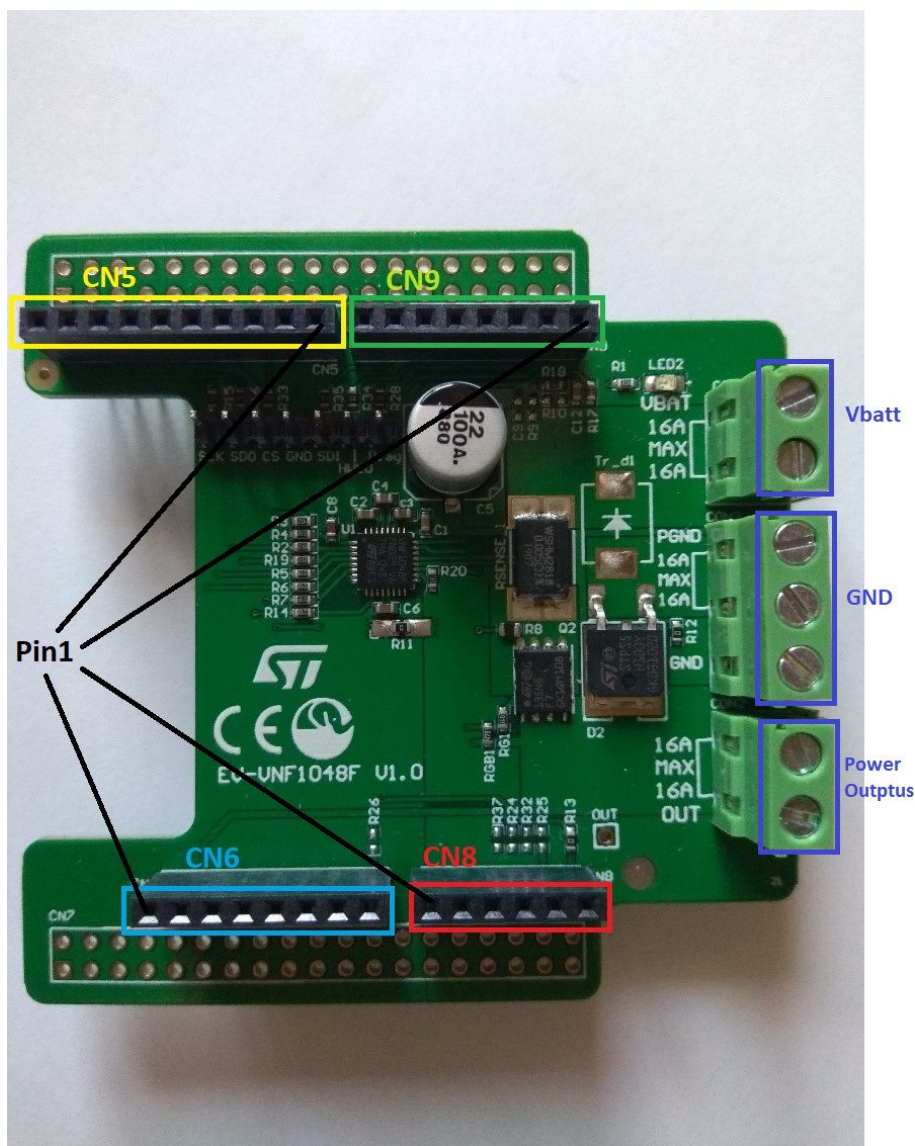


Table 1. CN connectors: pin functions

Pin number	Connector	Pin function
3	CN5	SPI_CS
7	CN5	GND
9	CN5	SPI_SDO
10	CN5	SPI_SCK
4	CN6	3.3 V
5	CN6	5 V

Pin number	Connector	Pin function
6	CN6	GND
7	CN6	GND
5	CN8	ID_ADC
6	CN8	VBAT_ADC
1	CN9	Diag
2	CN9	HWLO
7	CN9	SPI_SDI

Revision history

Table 2. Document revision history

Date	Revision	Changes
19-Sep-2022	1	Initial release.
02-Feb-2023	2	Add Section 1 Overview and Section 2 Board connections .

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