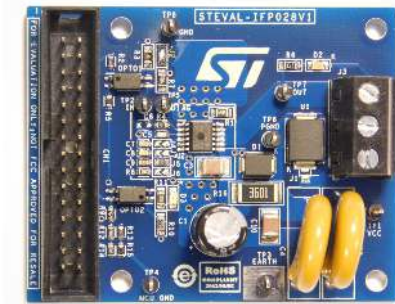


## Single high-side driver based on IPS160H single high-side switch for SIL2 and SIL3 compliant systems



### Features

- Operating voltage from 8 to 60 V
- Operating current up to 2.5 A
- Programmable cut-off delay time
- Reverse polarity protection
- Galvanic isolation on PCB
- Input pins compatible with  $V_{CC}$  rails
- Green LED for channel ON/OFF status
- Red LED for common diagnostics on:
  - Open load in OFF state
  - Cut-off
  - Thermal protection
  - Red LED functionality on DIAG pin guaranteed from  $V_{CC} = 12\text{ V}$
- Microcontroller interface
- IEC 61000-4-2, IEC61000-4-4 and IEC 61000-4-5 compliant
- RoHS compliant

### Description

The [STEVAL-IFP028V1](#) evaluation board is designed to help you analyze the functionality of the [IPS160H](#) single high-side switch for SIL2 and SIL3 compliant systems.

The board meets application requirements for galvanic isolation between the user interface and the power interface through optical isolation implemented with two optocouplers, OPTO1 and OPT2, for forward signals to the device and for diagnostic feedback signals, respectively, in compliance with IEC 61000-4-2, IEC61000-4-4, IEC 61000-4-5 requirements.

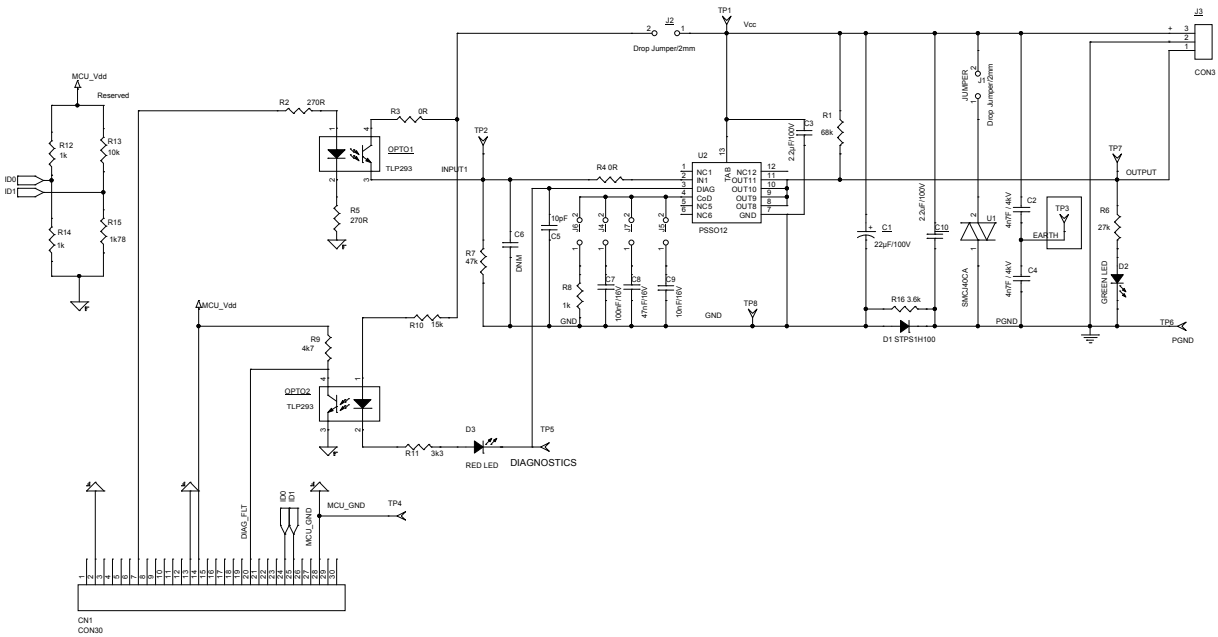
The STEVAL-IFP028V1 can operate in the 8 to 60 V range, but operation of the red LED on the DIAG pin is only ensured above  $V_{CC} = 12\text{ V}$ , and you must ensure that jumper J1 is open for supply voltages above 40 V to avoid permanent damage to the [SMCJ40CA](#) transient-voltage-suppression (TVS) diode. The board also optimizes thermal performance through a careful layout which includes a dedicated copper area connected to the exposed pad of the PSSO12 package, which also serves to dissipate heat.

You can use your PC to monitor the status of the output on the power side and receive fault information from the IPS160H DIAG pin by connecting the [STEVAL-PCC009V2](#) interface board between your PC (via USB) and the [STEVAL-IFP028V1](#) board (via 30-way flat cable), and then running the [STSW-IPS16X](#) GUI software, which is freely available on the ST website.

Product summary	
Single high side driver based on IPS160H	<a href="#">STEVAL-IFP028V1</a>
Single high-side switch for safety integrity level (SIL2 and SIL3) compliant systems	<a href="#">IPS160H</a>
STM32-based USB-to-serial interface bridge board	<a href="#">STEVAL-PCC009V2</a>
GUI for STEVAL-IFP028V1 and STEVAL-IFP034V1	<a href="#">STSW-IPS16X</a>

# 1 Schematic diagram

Figure 1. STEVAL-IFP028V1 circuit schematic



## Revision history

**Table 1. Document revision history**

Date	Version	Changes
08-Mar-2016	1	Initial release.
13-May-2019	2	Minor text and formatting changes. Updated document Title, <a href="#">Section Description</a> and <a href="#">Section 1 Schematic diagram</a> Added <a href="#">Section Device summary table</a>

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