



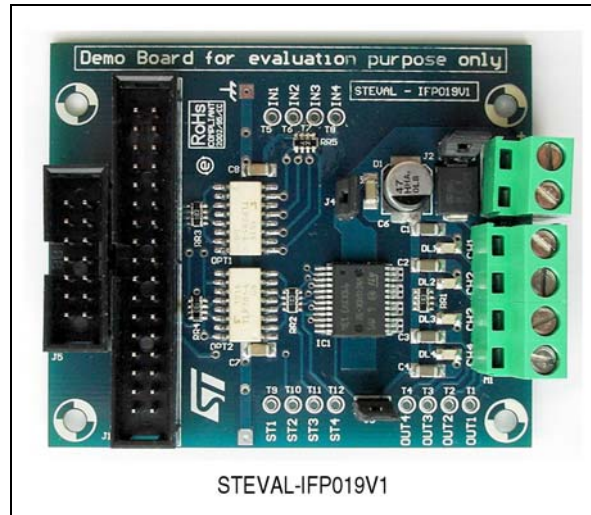
STEVAL-IFP019V1

Quad high-side smart-power solid-state relay demonstration board based on the VNI4140K-32

Data brief

Features

- Output current: 1 A per channel
- Shorted load protections
- Junction overtemperature protection
- Case overtemperature protection for thermal independence of the channels
- Thermal case shutdown non-simultaneous restart for the various channels
- Protection against loss of ground
- Current limitation
- Undervoltage shutdown
- Open drain diagnostic outputs
- 3.3 V CMOS/TTL compatible inputs
- Fast demagnetization of inductive loads
- Conforms to IEC 61131-2
- RoHS compliant



STEVAL-IFP019V1

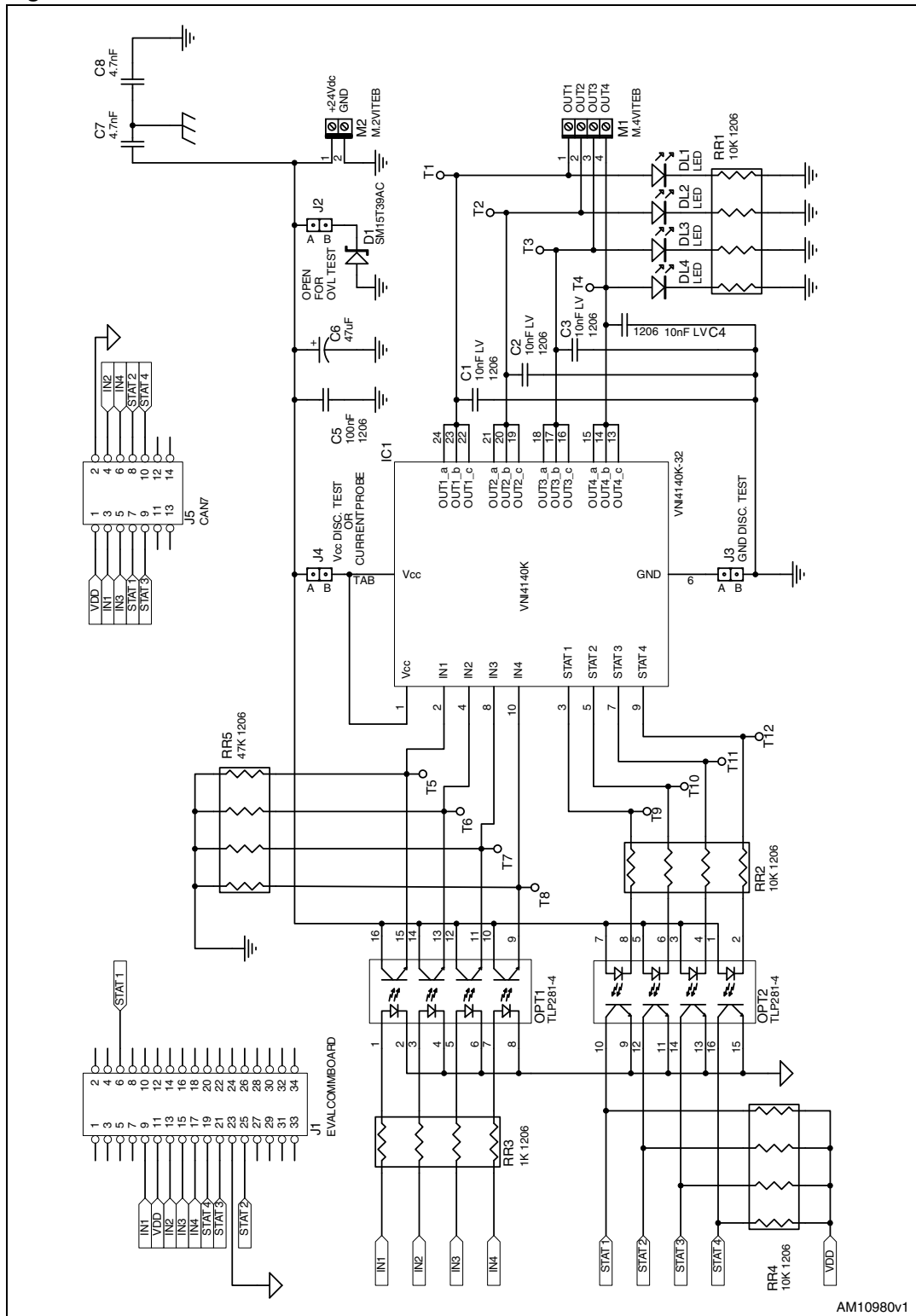
Description

The STEVAL-IFP019V1 demonstration board shows the features of the VNI4140K-32 quad high-side smart-power solid-state relay.

The application offers robustness and complies with EMC industrial standards. It implements short-circuit/overload protection and also thermal management, achieving best-in-class MTBF values. The reference design is suitable for use in programmable logic controllers (PLCs) as well as to drive generic loads which require up to 1 A of nominal current (the typical current limitation is 1.1 - 2.6 A). Thanks to the very low $R_{DS(on)}$ (only 80 m Ω typical @ 25 °C per channel) the device allows very low power consumption during operation and for this reason it offers an ideal solution for IP65 / IP67 requirements. The VNI4140K-32 is compliant with IEC 61131-2 (international standard for programmable controllers).

1 Schematic circuit

Figure 1. Schematic circuit



AM10980v1



2 Connectors

The STEVAL-IFP019V1 demonstration board uses input header connectors; one screw drives the four-channel output connector and one screw drives the two-channel supply connector.

Both input connectors, J5 and J1, provide the same bi-directional demonstration board signalization guaranteeing maximum compatibility with existing ST tools.

Figure 2. J1 connector pinout

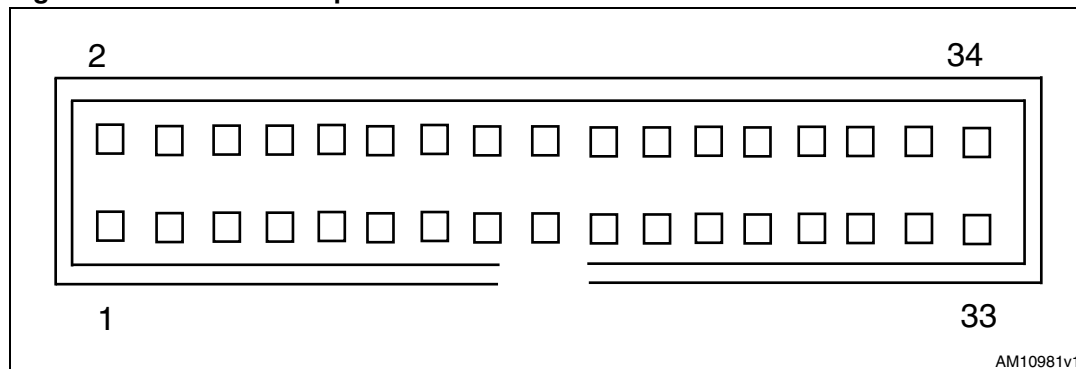


Figure 3. J5 connector pinout

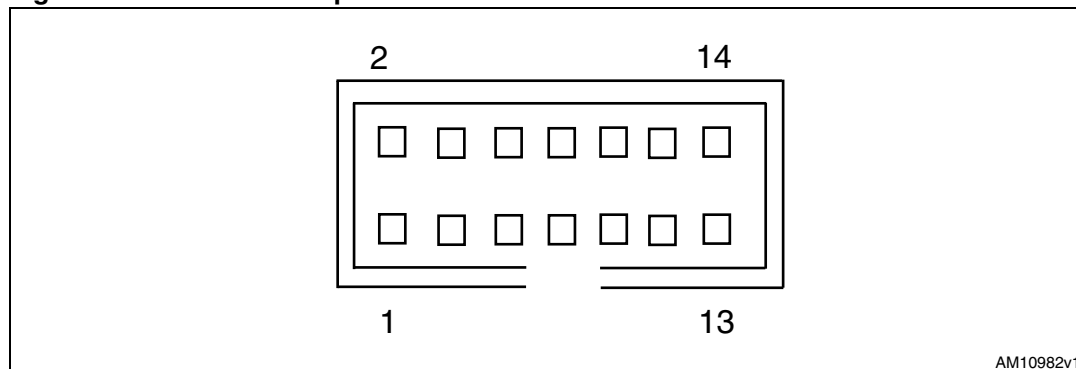


Table 1. Connector J1 and J5 pinout mapping

J1 pin number	J5 pin number	Signal	Type
11	1	V _{dd}	5 / 3.3 V supply voltage
23	2	GND	Signal ground
9	3	IN1	Input channel 1
13	4	IN2	Input channel 2
15	5	IN3	Input channel 3
17	6	IN4	Input channel 4
6	7	STAT1	Status channel 1
25	8	STAT2	Status channel 2
21	9	STAT3	Status channel 3
19	10	STAT4	Status channel 4

3 Revision history

Table 2. Document revision history

Date	Revision	Changes
19-Dec-2011	1	Initial release.

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