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1 Purpose of the Functional Safety Report

The purpose of the Functional Safety Report is to summarize the results from analysis and documentation involved in the development of this project and to determine the results are sufficient to claim compliance to the identified functional safety standard(s). This high level overview is intended to be used by customers as a part of their safety case with respect to the TCAN114x-Q1.

2 Summary of Assessment

The TCAN1144-Q1 and TCAN1146-Q1 were developed using Texas Instruments Incorporated Quality Managed product development process and qualified according to AEC Q100 Grade 1. This assessment of the functional safety documentation for these products indicate they meet the minimum requirements for enabling additional system level analysis.

These products did not follow any functional safety development process and do not claim compliance to any functional safety standard.

The work products developed may be helpful for the customer to integrate these products into the functional safety systems. TI recommends the customer integrate this product through "evaluation of hardware elements" as described in ISO 26262-8 Clause 13 or similar method.

The TCAN114x-Q1 passes the assessment. This assessment applies to all part numbers listed below:

- TCAN1144x-Q1 where x is the package variant
- TCAN1146x-Q1 where x is the package variant

3 Product Description

The TCAN1144-Q1 and TCAN1146-Q1 are enhanced high-speed CAN FD transceivers supporting data rates up to 5 Mbps. These devices are configured using serial peripheral interface (SPI) in order to use all the features available. The devices support 1.8 V to 5 V processors by applying the appropriate voltage to the VIO pin, allowing lower power processors to be utilized. The family of devices are register compatible enabling the system designer the flexibility to implement the features needed with minimal if any hardware and software changes.

The TCAN1146-Q1 supports selective wake, also known as partial networking, used in systems containing nodes that can be placed into sleep mode and reducing overall power of the system. The transceiver and selective wake function meets the specifications of the ISO11898-2:2016 standard.

Table 3-1. Device Comparison Table

Device Number	Selective Wake	Watchdog	Bus Fault Diagnostics	LIMP Home Capable
TCAN1144-Q1		X	X	X
TCAN1146-Q1	X	X	X	X

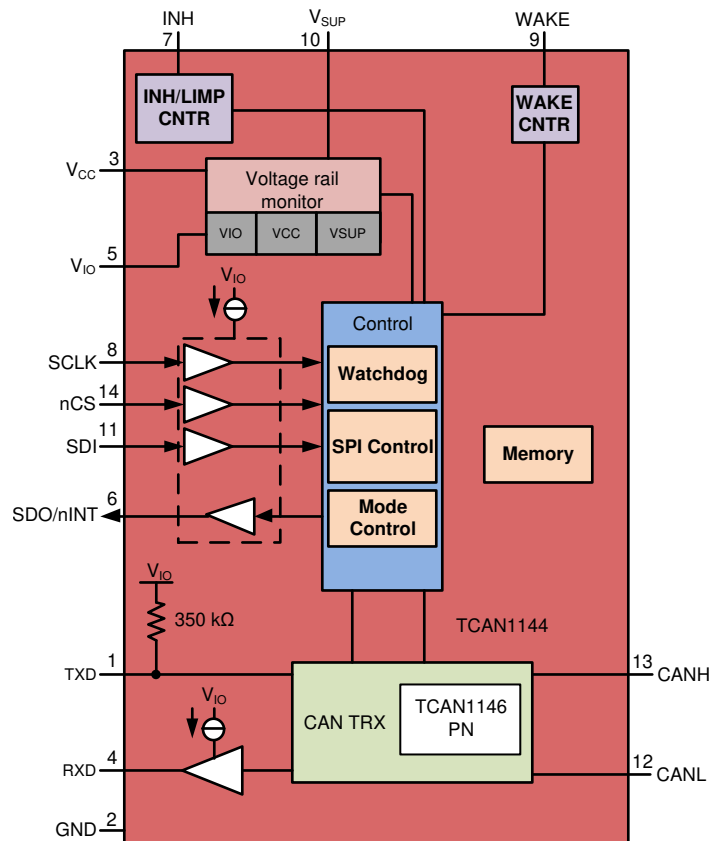


Figure 3-1. TCAN1144-Q1 and TCAN1146-Q1 Functional Block Diagram

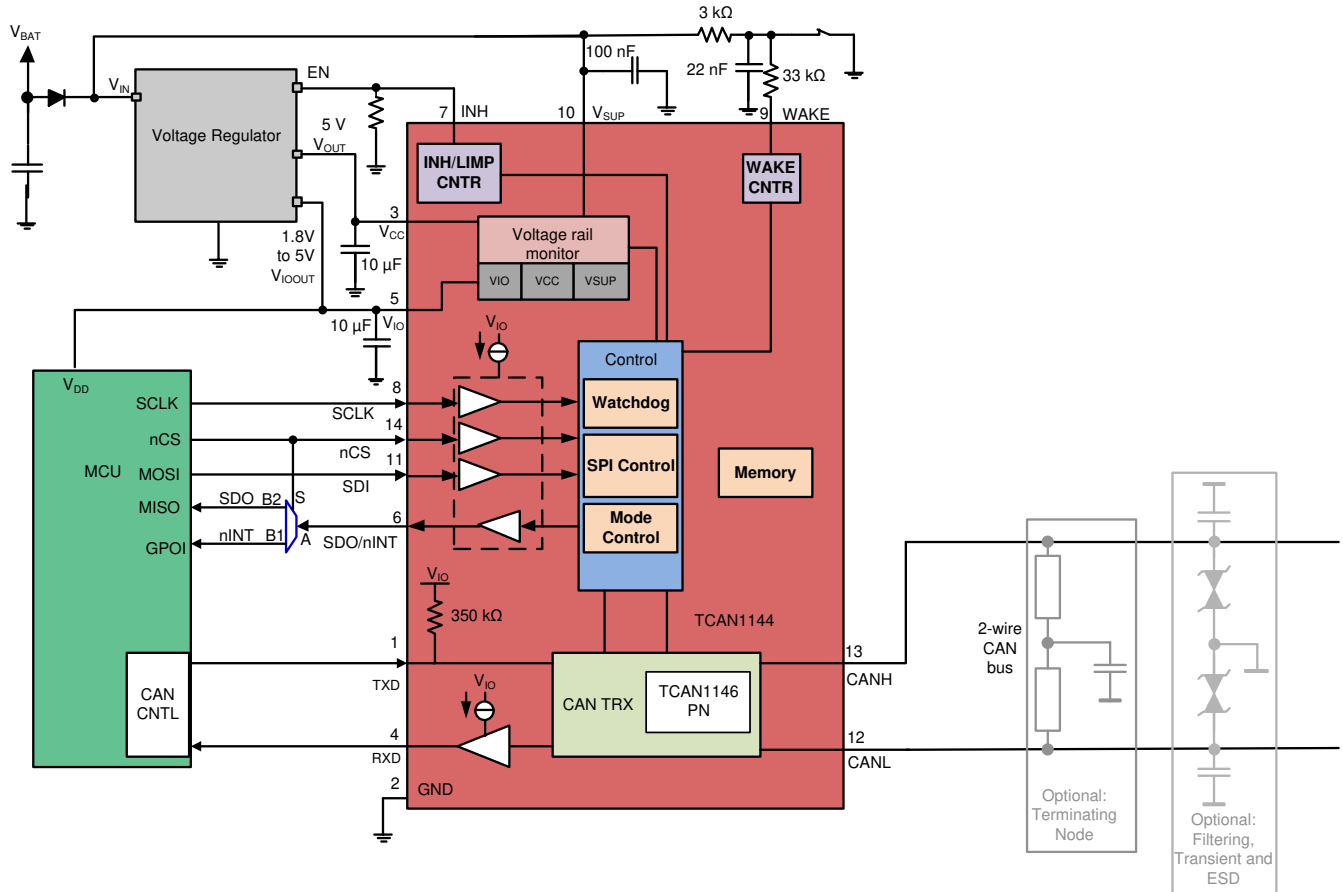


Figure 3-2. Typical Application

4 Fulfillment of Texas Instruments Functional Safety Quality-Managed Requirements

Texas Instruments carried out this assessment with respect to relevant requirements for the Functional Safety Quality-Managed Requirements

Table 4-1. Details of Functional Safety Quality-Managed Documents

Lifecycle Phase	Document Name	Version Number	Assessment Results	Evidence
None	Functional Safety Manual	1	Pass	TI.com
	Functional Safety Analysis Report (Quantitative FMEDA for DMT version)	1.1	Pass	Document Available on MySecure
	Functional Safety Analysis Report (Quantitative FMEDA for DDY version)	1.1	Pass	Document Available on MySecure
	Functional Safety Analysis Report (Quantitative FMEDA for D version)	1.1	Pass	Document Available on MySecure
	Functional Safety Analysis Report	1.1	Pass	TI.com

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