AMIS-42670

High-Speed CAN Transceiver for Long Networks

Description

The AMIS–42670 CAN transceiver is the interface between a controller area network (CAN) protocol controller and the physical bus and may be used in both 12 V and 24 V systems. The transceiver provides differential transmit capability to the bus and differential receive capability to the CAN controller. Due to the wide common–mode voltage range of the receiver inputs, the AMIS–42670 is able to reach outstanding levels of electromagnetic susceptibility (EMS). Similarly, extremely low electromagnetic emission (EME) is achieved by the excellent matching of the output signals.

The AMIS–42670 is the industrial version of the AMIS–30660 and primarily intended for applications where long network lengths are mandatory. Examples are elevators, in–building networks, process control and trains. To cope with the long bus delay the communication speed needs to be low. AMIS

AMIS−42670

Table 1. TECHNICAL CHARACTERISTICS

Symbol	Parameter	Condition	Max	Max	Unit
V_{CANH}	DC Voltage at Pin CANH	$0 < V_{CC} < 5.25$ V; no time limit	−45	+45	V
V_{CANL}	DC Voltage at Pin CANL	$0 < V_{CC} < 5.25$ V; no time limit	−45	+45	V
$V_{o(dif)(bus\_dom)}$	Differential Bus Output Voltage in Dominant State	$42.5\ \Omega < R_{LT} < 60\ \Omega$	1.5	3	V
$t_{pd(rec-dom)}$	Propagation Delay TxD to RxD	See Figure 6	70	245	ns
$t_{pd(dom-rec)}$	Propagation Delay TxD to RxD	See Figure 6	100	245	ns
$C_{M-range}$	Input Common−Mode Range for Comparator	Guaranteed Differential Receiver Threshold and Leakage Current	−35	+35	V
$V_{CM-peak}$	Common−Mode Peak	See Figures 7 and 8 (Note 1)	−500	500	mV
$V_{CM-step}$	Common−Mode Step	See Figures 7 and 8 (Note 1)	−150	150	mV

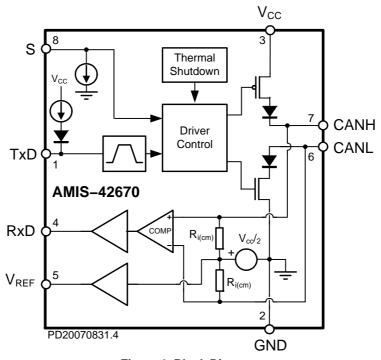1. The parameters $V_{CM-peak}$ and $V_{CM-step}$ guarantee low electromagnetic emission.

Figure 1. Block Diagram

Table 2. PIN DESCRIPTION

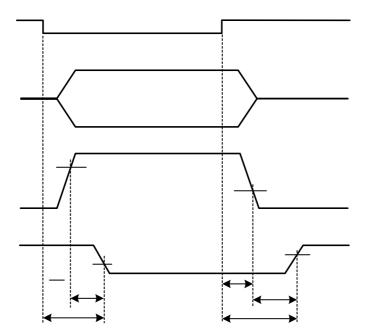| Pin	Name	Description
1	TxD	Transmit Data Input; Low Input → Dominant Driver; Internal Pullup Current
2	GND	Ground
3	V_{CC}	Supply Voltage
4	RxD	Receive Data Output; Dominant Transmitter → Low Output
5	V_{REF}	Reference Voltage Output
6	CANL	Low−Level CAN Bus Line (Low in Dominant Mode)
7	CANH	High−Level CAN Bus Line (High in Dominant Mode)
8	S	Silent Mode Control Input; Internal Pulldown Current

Table 3. ABSOLUTE MAXIMUM RATINGS

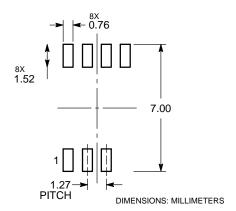| Symbol	Parameter	Conditions	Min.	Max.	Unit
V_{CC}	Supply Voltage		−0.3	+7	V
V_{CANH}	DC Voltage at Pin CANH	$0 < V_{CC} < 5.25$ V; no time limit	−45	+45	V
V_{CANL}	DC Voltage at Pin CANL	$0 < V_{CC} < 5.25$ V; no time limit	−45	+45	V
V_{TxD}	DC Voltage at Pin TxD		−0.3	$V_{CC} + 0.3$	V
V_{RxD}	DC Voltage at Pin RxD		−0.3	$V_{CC} + 0.3$	V

RxD   0.3

FUNCTIONAL DESCRIPTION

Operating Modes

ELECTRICAL CHARACTERISTICS

Definitions

DEVICE ORDERING INFORMATION

Part Number

DATE 18 MAY 2015

8X
0.76

8X
1.52

7.00

1

1.27
PITCH

DIMENSIONS: MILLIMETERS

*For