TEP0001 CAN FD TRM

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Overview

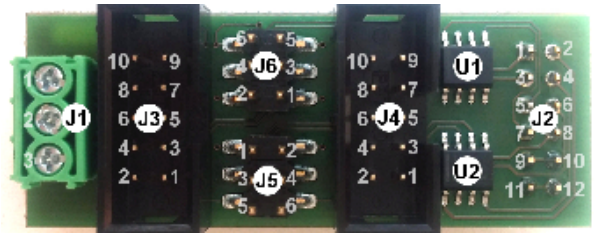
Refer to https://shop.trenz-electronic.de/de/Download/?path=Trenz_Electronic/PMOD/TEP0001 for online version of this manual and other documents available about the product.

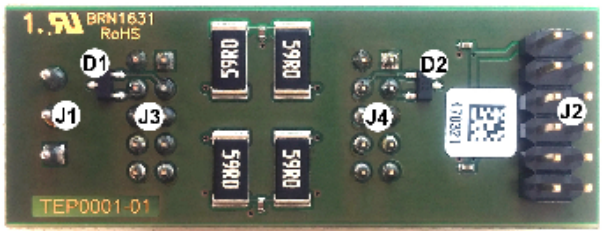
The Trenz Electronic TEP0001 is an industrial-grade dual CAN FD transceiver with Pmod interface.

Features

- Digilent Pmod interface compatible
- Dual CAN FD PHY's (CAN0 and CAN1)
  - Texas Instruments TCAN337G
  - Up to 5Mbit data rate
  - Compatible with ISO 11898-2
  - Bus pin fault protection of ±14 V
  - Integrated 12 kV IEC-61000-4-2 ESD contact discharge protection
  - 10 pin headers (IDC cable to DB9)
  - One CAN FD transceiver has extra 3-pin screw connector terminal
- Single 3.3V supply

Main Components





- J1. Screw connector terminal of CAN0 bus
- J2. 2.54mm pitch 2x6-pin header Pmod interface
- J3. 2.54mm pitch 2x5-pin box header, CAN0 bus
- J4. 2.54mm pitch 2x5-pin box header, CAN1 bus
- J5. 2.54mm pitch SMT 2x3-pin jumper block, can also be used as CAN1 bus connector
- J6. 2.54mm pitch SMT 2x3-pin jumper block, can also be used as CAN0 bus connector
- U1. Texas Instruments TCAN337G CAN FD transceiver, CAN0
- D1. Bourns CDSOT23-T24CAN CANbus Protector, CAN0
- U2. Texas Instruments TCAN337G CAN FD transceiver, CAN1
- D2. Bourns CDSOT23-T24CAN CANbus Protector, CAN1

⚠ TEP0001 PMOD connector is mounted for Right Angle connection to PMOD Baseboard.

Interfaces and Pins

J1 Connector, CAN0 Bus

Pin	Signal	Notes
1	CAN0_H	U1 high level CAN bus line
2	GND	U1 ground connection
3	CAN0_L	U1 low level CAN bus line

J2 Connector, Pmod Interface

Pin	Signal	Notes		Pin	Signal	Notes
1	CAN0_TX	U1 CAN0 transmit data input, integrated pull up		2	CAN1_TX	U2 CAN1 transmit data input, integrated pull up
3	CAN0_RX	U1 CAN0 receive data output, tri-state		4	CAN1_RX	U2 CAN1 receive data output, tri-state
5	CAN0_S	U1 silent mode,integrated pull down		6	CAN1_S	U2 silent mode, integrated pull down
7	CAN0_F	U1 open drain fault output		8	CAN1_F	U2 open drain fault output
9	GND	U1 ground connection		10	GND	U2 ground connection
11	3.3V	U1 3.3V supply voltage		12	3.3V	U2 3.3V supply voltage

J3 Connector, CAN0 Bus

Pin	Signal	Notes		Pin	Signal	Notes
1	N/A	-		2	GND	U1 ground connection
3	CAN0_L	U1 low level CAN bus line		4	CAN0_H	U1 high level CAN bus line
5	GND	U1 ground connection		6	N/A	-
7	N/A	-		8	N/A	-
9	N/A	-		10	N/A	-

J4 Connector, CAN1 Bus

Pin	Signal	Notes		Pin	Signal	Notes
1	N/A	-		2	GND	U2 ground connection
3	CAN1_L	U2 low level CAN bus line		4	CAN1_H	U2 high level CAN bus line
5	GND	U2 ground connection		6	N/A	-
7	N/A	-		8	N/A	-

Pin	Signal	Notes		Pin	Signal	Notes
9	N/A	-		10	N/A	-

J5 Jumper Block/Connector CAN1 bus

Close pins 1-3 and 2-4 with jumpers to enable on-board terminator for CAN1 bus. J5 header can also be used as CAN1 bus connector, refer to the following table pin mapping.

Pin	Signal	Note		Pin	Signal	Note
3	CAN1_L	U2 low level CAN bus line		4	CAN1_H	U2 high level CAN bus line
5	GND	U2 ground connection		6	GND	U2 ground connection

J6 Jumper Block/Connector, CAN0 bus

Close pins 1-3 and 2-4 with jumpers to enable on-board terminator for CAN0 bus. J6 header can also be used as CAN0 bus connector, refer to the following table for pin mapping.

Pin	Signal	Note		Pin	Signal	Note
3	CAN0_L	U1 low level CAN bus line		4	CAN0_H	U1 high level CAN bus line
5	GND	U1 ground connection		6	GND	U1 ground connection

Operating Conditions, Ratings and Dimensions

Recommended Operating Conditions

	Minimum	Maximum	Unit
Supply voltage	3	3.6	V
Operational free-air temperature	-40	125	°C

Absolute Maximum Ratings

Parameter	Minimum	Maximum	Unit
Supply voltage range	-0.3	5	V
Voltage at any bus terminal (CANH or CANL)	-14	14	V
Operating temperature range	-40	150	°C
Storage temperature	-	150	°C

Refer to Texas Instruments TCAN337G product datasheet for additional information about conditions and ratings.

Power Requirements

3.3V supply voltage TBD* (180 mA max per one CAN FD transceiver in "Normal Mode", dominant state with bus fault as per TCAN337G datasheet).

* TBD - To Be Determined soon with reference design setup.

Physical Dimensions

- Module size: 54 mm × 20.5 mm.
- Mating height of the J2 connector from the PCB: 8mm
- PCB thickness: 1.6mm
- Highest parts on PCB are J1, J3 and J4 connectors, approximately 9.5mm from the PCB.

Revision History

Hardware Revision History

Date	Revision	Notes	PCN
2016-08-22	01	Initial batch	-

Hardware revision number is printed on the PCB board next to the module model number separated by the dash.

Document Change History

Date	Rrevision	Contributors	Description
2016-09-05	V21	Jan Kumann	Initial document.

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