



Product Data Manual

SNE-TB298 TTL-to-CAN Module

CAN / CAN FD Transceiver · 3.3 V / 5 V Logic Interface

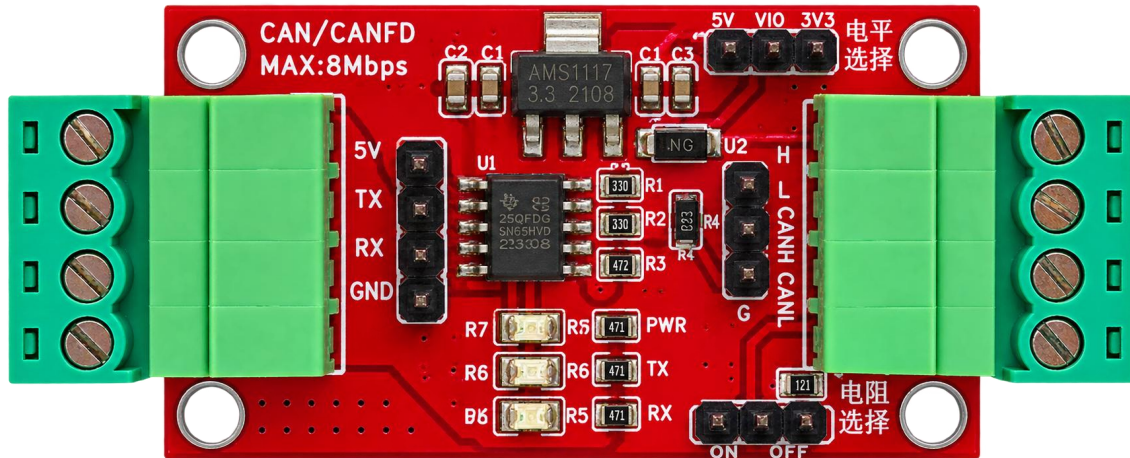


Figure 1 SNE-TB298 module front view

Product Overview

SNE-TB298 provides the physical-layer interface between a CAN controller's logic signals and the differential CAN bus. It uses a 5 V supply, offers selectable 3.3 V or 5 V logic levels, and supports Classical CAN and CAN FD with data-phase rates up to 8 Mbps.

Manual Version V1.2 | October 2026

For hardware, embedded software, system integration and test engineers.

Contents

Preface..... 3

 Intended Readers..... 3

 Manual Conventions..... 3

 User Interface Notation..... 3

 Notice Categories..... 3

 Example Conventions..... 4

 Feedback..... 4

Chapter 1 Product Appearance..... 5

Chapter 2 Product Introduction..... 6

Chapter 3 MCP2562FD-E/SN Features..... 7

Chapter 4 MCP2562FD-E/SN Operation..... 7

Chapter 5 MCP2562FD-E/SN Applications..... 8

Chapter 6 Automotive Characteristics..... 8

Chapter 7 Qualification and Compliance..... 9

Chapter 8 Key Characteristics..... 9

Chapter 9 Mechanical Dimensions..... 10

Chapter 10 Jumper Settings..... 11

Chapter 11 Wiring..... 12

Appendix Troubleshooting and Precautions..... 13

Contact and Disclaimer..... 14

Preface

This manual covers the SNE-TB298 TTL-to-CAN module's appearance, technical features, applications, mechanical dimensions, jumper settings and wiring for selection, development, installation and testing. The module uses the MCP2562FDT-E/SN and supports Classical CAN and CAN FD.

Intended Readers

- Microcontroller, embedded software, hardware and computer software engineers.
- Field support, maintenance and equipment test personnel.
- Technical staff responsible for network configuration, equipment integration and maintenance.

Manual Conventions

User Interface Notation

Notation	Meaning and Example
< >	Indicates a button name, for example, click <OK>.
[] or brackets	Indicates a window, menu or data table, for example, the [New User] window.
/	Indicates nested menus, for example, [File/New/Folder].

Notice Categories

Category	Meaning
Warning	Requires special attention; improper operation may cause personal injury.
Caution	Improper operation may cause data loss or equipment damage.
Important	Information essential to successful configuration or normal operation.
Note	Additional explanation of an operation.
Tip	Practical advice for configuration, operation or use.

Preface Continued

Example Conventions

Interfaces may differ with software versions, settings or upgrades. Refer to the software actually in use. Configuration examples explain operating methods and do not imply that the supplied application includes every example function. Available functions and procedures depend on the delivered version.

Feedback

If you have questions about the documentation, terminal labels or procedures, provide the product model, hardware revision, supply and jumper settings, wiring and symptoms. Photos or test records can help identify the issue.

WhatsApp: +86 138 2963 2935. For WeChat, scan the QR code on the last page.

Website: <https://interpower-pcba.com/>

Reading Notes

The chapter topics follow the original CAN FD user guide. Its H3 and H4 correspond to H1 logic-level selection and H2 termination selection on the photographed SNE-TB298 board. Always check the function labels before wiring.

IC electrical ratings and module operating conditions are listed separately. Transceiver protection features, standby current and qualification information do not mean that the complete board or end product has passed the same tests.

Chapter 1 Product Appearance

The four photos below show the module's front and rear with and without the removable terminal plugs. Identify connections by the board labels. Left and right positions are reversed when the PCB is turned over.

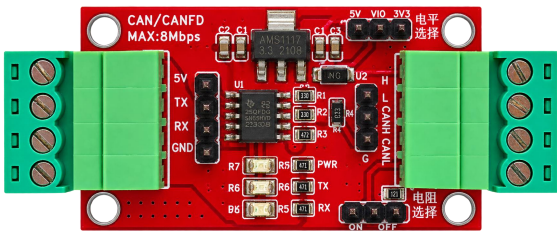


Figure 2 Front with terminal plugs



Figure 3 Rear with terminal plugs

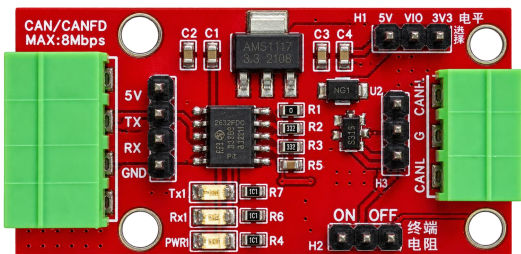


Figure 4 Front without terminal plugs



Figure 5 Rear without terminal plugs

Functional Areas

Location / Label	Function
5V / TX / RX / GND	Controller-side power and transmit/receive interface
CANH / G / CANL	Differential CAN bus and reference ground
H1: 5V / VIO / 3V3	Logic-level selection
H2: ON / OFF	120 Ω termination selection
PWR1 / Tx1 / Rx1	Power, transmit and receive indicators

The LEDs help indicate power and bus activity. Confirm successful communication using the controller status, received frames and error counters.

Chapter 2 Product Introduction

The SNE-TB298 TTL-to-CAN module uses an MCP2562FDT-E/SN transceiver to convert the CAN controller's TX signal into differential CANH / CANL signals and return received bus data to the controller's RX input. It is intended for CAN / CAN FD node development, interface expansion and communication testing.

“TTL-to-CAN” means physical-layer level conversion. The module has no built-in CAN protocol controller and cannot directly convert ordinary UART data into CAN frames. The external CAN controller handles frame format, identifiers, bit timing, arbitration and retransmission.

Main Specifications

Item	Specification / Description
Model	SNE-TB298 TTL-to-CAN Module
Transceiver IC	MCP2562FDT-E/SN, SOIC-8 package
Module Supply	5 V DC; reference operating range: 4.5–5.5 V
Logic Level	3.3 V / 5 V, selected by H1
Bus Type	High-speed CAN / CAN FD
Bit Rate	Arbitration phase: up to 1 Mbps; CAN FD data phase: up to 8 Mbps
Termination	On-board 120 Ω resistor, connected or disconnected by H2
Controller Interface	5V, TX, RX, GND
Bus Interface	CANH, GND (G), CANL
PCB Outline	45 × 25 mm, excluding protruding terminal plugs

Operating Conditions

The maximum rate is a reference design capability. Achievable rates depend on the controller, bit timing, cable length, routing, node count and termination. The module supply is 5 V; H1 selects the 3.3 V / 5 V logic-interface level. These are separate settings.

Chapter 3 MCP2562FD-E/SN Features

The MCP2562FD-E/SN is a second-generation high-speed CAN transceiver optimized for CAN FD operation at 2, 5 and 8 Mbps. It interfaces a CAN protocol controller to the differential bus, providing high-speed communication, logic-level compatibility and bus-fault protection.

Feature	Description
Physical Layer	Implements the relevant physical-layer requirements of ISO 11898-2 and ISO 11898-5.
Logic Interface	VIO interfaces with controllers using 1.8–5.5 V I/O. This module offers jumper-selectable 3.3 V / 5 V logic levels.
Bus Protection	Provides protection against bus short circuits, transients and overtemperature, plus TXD permanent-dominant detection.
Operating Modes	Normal mode enables high-speed communication. Standby mode reduces power consumption and monitors bus activity.
Supply Protection	Provides power-on reset and undervoltage protection; an unpowered node should not add load to the bus.
Termination	The module uses an on-board 120 Ω resistor and jumper for bus termination.

The termination resistor is part of the module's external circuitry, not integrated into the IC. CAN FD bit-rate switching is configured by the CAN controller; selecting VIO does not enable a speed boost.

Chapter 4 MCP2562FD-E/SN Operation

During transmission, the IC converts the controller's digital TXD signal into differential CANH / CANL signals. During reception, it converts the differential bus state into a digital RXD signal. Its role is physical-layer transmission, reception and interface protection.

The CAN controller handles identifiers, arbitration, frame formats, filtering, acknowledgment and retransmission. The module does not convert UART protocols or provide message routing or application-layer security gateway functions.

Chapter 5 MCP2562FD-E/SN Applications

Application	Purpose and Integration Considerations
Automotive Electronics	Development and interface validation of CAN FD nodes for smart cockpits, ADAS and similar systems. Confirm environmental and automotive requirements against the exact IC ordering code.
Industrial Automation	Connects PLCs, servo systems, actuators and industrial sensor nodes to improve data-phase throughput. Validate operation with the actual cabling and interference environment.
New Energy Systems	Evaluation of the communication interface between BMS cell-monitoring units and the main controller. Cycle time depends on the acquisition strategy, message volume and bus scheduling.

CAN FD supports longer data fields, but payload size and transfer cycles depend on the controller and system design. Application results in the original guide are examples, not guarantees for specific radar data volumes or BMS communication cycles.

Chapter 6 Automotive Characteristics

The original guide highlights loop-delay symmetry, propagation delay, low quiescent current and EMC / ESD design features for high-speed CAN FD. The following specifications apply to the transceiver IC.

Item	Specification / Description
Optimized CAN FD Rates	2, 5 and 8 Mbps
Loop-Delay Symmetry	-10% / +10% at 2 Mbps
Maximum Propagation Delay	120 ns
System Integration	Supply decoupling, bus termination, cable topology, grounding and transient protection jointly determine end-product performance.

Interpret these timing values under the IC datasheet's specified test conditions. Verify EMC, ESD and reliability in the final assembled automotive or industrial system.

Chapter 7 Qualification and Compliance

Qualification and standards apply at three levels: IC, PCBA and end product. Component documentation supports selection but does not replace module or end-product test and certification reports.

Item	Description
AEC-Q100	The MCP2562FD family includes devices for automotive use. Confirm qualification and grade using the exact ordering code and manufacturer documentation. The original guide lists inconsistent grades, so it does not establish an automotive grade for the complete board.
Temperature Range	The E temperature grade of MCP2562FD-E/SN is -40 to +125 °C. This is an IC rating; the module's operating temperature range requires separate validation.
RoHS	The original guide describes the IC as lead-free and RoHS compliant. Compliance of delivered parts should be supported by component and PCBA material declarations.
ISO Compatibility	The IC implements the relevant physical-layer requirements of ISO 11898-2 for high-speed CAN and ISO 11898-5 for low-power CAN.

Chapter 8 Key Characteristics

Feature	Parameter and Description
EMC and ESD	The IC includes protection and design features for automotive use. Test the complete equipment for its intended application.
Low Power	Typical IC standby current is 5 μ A. This is not the current of the complete board, which also includes a regulator, LEDs and other circuitry.
Package	SOIC-8; the fitted part number is MCP2562FDT-E/SN.
VIO Interface	IC I/O supply range: 1.8–5.5 V. Standard module logic settings: 3.3 V or 5 V.
Mode Control	STBY low selects Normal mode; STBY high selects Standby mode.

Always power the module from the specified 5 V supply. Selecting 3.3 V logic does not change the main supply requirement.

Chapter 9 Mechanical Dimensions

The PCB outline is 45 × 25 mm. The drawing below reproduces the dimensions in the original guide. All dimensions are in mm and exclude protruding terminal plugs.

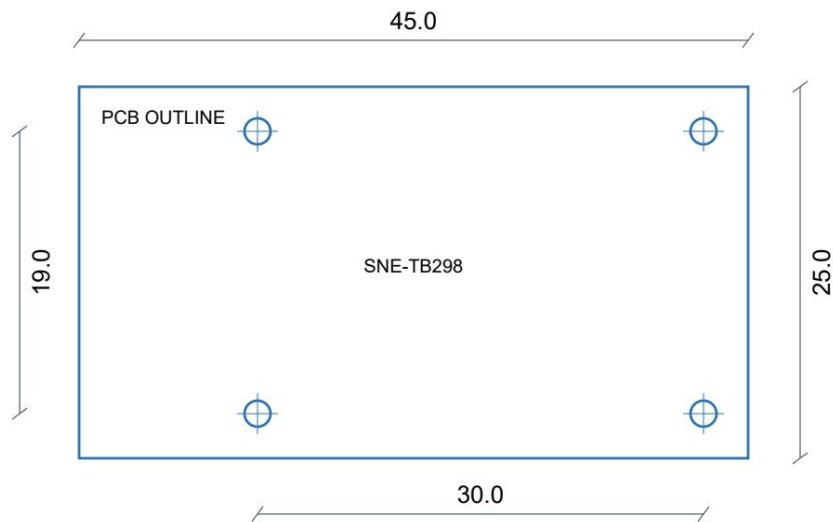


Figure 6 PCB outline and mounting-hole center spacing

Item	Dimension / Location
PCB Outline	45.0 × 25.0
Mounting-Hole Center Spacing	Horizontal: 30.0; vertical: 19.0
Hole Centers to Left / Right Edges	12.0 / 3.0, respectively
Hole Centers to Top / Bottom Edges	3.0 each

Refer to the delivered mechanical drawing for hole diameter, PCB thickness, component height and tolerances. The circles indicate hole centers only; hole diameters are not to scale. Allow space for terminal plugs, mounting screws and cable bends.

Chapter 10 Jumper Settings

Terminal and Signal Definitions

Label	Direction / Type	Connection
5V	Power input	Connect a stable 5 V DC supply
TX	Logic input	Connect to the CAN controller's CAN_TX / FDCAN_TX
RX	Logic output	Connect to the CAN controller's CAN_RX / FDCAN_RX
GND / G	Reference ground	Connect to controller GND; connect bus-side ground according to the system grounding design
CANH	Differential bus	Connect to other nodes' CANH (CH in the original guide)
CANL	Differential bus	Connect to other nodes' CANL (CL in the original guide)

H1 Logic-Level Selection

Jumper Position	Result
Bridge VIO and 3V3	3.3 V logic for a 3.3 V CAN controller
Bridge VIO and 5V	5 V logic for a 5 V CAN controller

Set jumpers with power off. Never bridge all three pins, 5V, VIO and 3V3, together. Match the selected logic level to the controller I/O. H1 selects VIO; it is not a CAN FD speed switch.

H2 Termination Selection

Jumper Position	Result
Bridge ON and the center pin	Connects the on-board 120 Ω resistor between CANH and CANL
Bridge OFF and the center pin	Disconnects the on-board termination, for example at an intermediate node

Fit one 120 Ω termination at each physical end of the bus. Do not add termination at intermediate nodes. H3 and H4 in the original guide correspond to H1 and H2 on this module's photographed PCB.

Chapter 11 Wiring

Controller-to-Module Connections

Controller / Supply	SNE-TB298	Connection Rule
5 V supply positive	5V	Check supply voltage and polarity
CAN_TX / FDCAN_TX	TX	TX to TX; do not cross-connect
CAN_RX / FDCAN_RX	RX	RX to RX; do not cross-connect
GND	GND	Use a common ground for controller and module
CAN network CANH	CANH	Connect matching bus signal names
CAN network CANL	CANL	Connect matching bus signal names

Unlike typical UART wiring, this module uses TX-to-TX and RX-to-RX connections. Use the CAN controller's transmit and receive pins, not ordinary UART TXD / RXD pins.

First Power-Up

1. Disconnect power. Check terminals, supply polarity and wiring for shorts.
2. Set H1 for the controller's I/O voltage and H2 for the node's position on the bus.
3. Connect TX, RX, GND, CANH and CANL, then apply the 5 V supply.
4. Configure CAN / CAN FD mode, arbitration rate, sample point and receive filters. For CAN FD, also configure the data-phase rate and BRS.
5. Test transmission and reception with another working node or CAN analyzer. Verify matching modes and bit timing at both ends.
6. Check received frames, ACK and error counters. Increase the rate gradually after communication is stable at a low rate.

Operating Modes

MCP2562FD has Normal and Standby modes; STBY low enables normal communication. The original guide's HSTBY grounding instruction applies to its reference circuit. No external jumper with that label is visible on this module, so confirm mode control using the schematic for the applicable hardware revision.

Appendix Troubleshooting and Precautions

Troubleshooting

Symptom	Check First
No response after power-up	Check the 5 V supply, polarity, GND and plug contacts. Measure voltage at the module.
Cannot transmit or repeated retries	Check TX-to-TX and RX-to-RX wiring, controller pin multiplexing and operating mode. Confirm that another bus node can acknowledge frames.
Transmits but receives no frames	Check RX wiring, receive filters, frame format and interrupt / polling settings.
Works at low rate, fails at high rate	Check CAN FD data timing, sample point, cable length, stubs, grounding and both bus-end terminations.
Classical CAN works, CAN FD fails	Confirm CAN FD support at the controller and peer. Check FD frame format, BRS and data-phase rate.
Bus error counters keep increasing	Check for reversed CANH / CANL, excessive termination, poor cable contacts and mismatched logic levels.

Electrical and Handling Precautions

- Disconnect power before changing jumpers, rewiring or soldering to prevent shorts and incorrect live connections.
- The 5V terminal is a 5 V input. Never connect it directly to a 12 V or 24 V system supply.
- Transceiver protection does not replace system-level surge, ESD, grounding and power-supply protection.
- IC temperature, standby current and qualification data are component-level specifications, not guaranteed board-level ratings.

Supporting Files and Accessories

Reference files include the user guide, schematic, IC documentation and CAN FD transmit/receive examples. The original guide lists 4-pin jumper wires, 3.81 mm terminal plugs and a screwdriver. Actual accessory types and quantities are defined by the order or packing list.

Contact and Disclaimer

Contact

For samples, module selection, design evaluation or PCBA customization support, please contact us below.

WhatsApp

+86 138 2963 2935

WeChat: scan the QR code on the right



WeChat QR Code

Conditions of Use

This manual supports SNE-TB298 selection and wiring. Illustrations, component configurations and functions may change with hardware revisions or customization. Deliverables are governed by the BOM, drawings and specifications agreed by both parties.

Users must validate electrical, mechanical, thermal, EMC, ESD and reliability performance for the final application. Users are responsible for damage caused by operation outside specified conditions, incorrect wiring, unauthorized modifications or incompatible components.

Official Website

InterPower | <https://interpower-pcba.com/>