TRC-8542 Specifications

2025-03-11

Contents

TRC-8542 Specifications

Definitions

Warranted specifications describe the performance of a model under stated operating conditions and are covered by the model warranty.

Characteristics describe values that are relevant to the use of the model under stated operating conditions but are not covered by the model warranty.

- ***Typical*** specifications describe the performance met by a majority of models.
- ***Nominal*** specifications describe an attribute that is based on design, conformance testing, or supplemental testing.

Specifications are ***Typical*** unless otherwise noted.

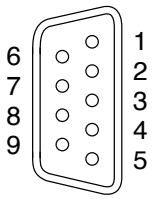
Conditions

The following specifications are typical for the range -40 °C to 70 °C unless otherwise noted.

TRC-8542 Pinout

The following table lists the TRC-8542 pinout.

Table 1. Pin Assignments for the TRC-8542

Connector	Pin	Signal Name
	1	No Connection (NC)
	2	CAN_L
	3	COM
	4	NC

Connector	Pin	Signal Name
	5	NC
	6	COM
	7	CAN_H
	8	NC
	9	NC

High-Speed/Flexible Data-Rate Signal Improvement Capability (SIC) CAN Characteristics

Transceiver	NXP TJA1463
Certified baud rate (maximum)	8 Mb/s[1]
Input voltage limits CAN_H, CAN_L bus lines	-27 V DC to +40 V DC
Output voltage limit CAN_H, CAN_L bus lines	5 V DC
MTBF	Contact NI for Bellcore MTBF specifications at other temperatures or MIL-HDBK-217F specifications.

1. NI-XNET provides a warning for CAN FD transceivers used at baud rates that exceed 5 Mb/s. These warnings can be safely ignored when using the NXP TJA1463 within its certified limits. The NXP TJA1463 transceiver is CiA certified for baud rates up to 8 Mb/s in the CAN FD fast phase.

High-Speed/Flexible Data-Rate CAN Characteristics

Transceiver	NXP TJA1043T
Certified baud rate (maximum)	5 Mb/s [2]
Input voltage limits CAN_H, CAN_L bus lines	-27 V DC to +40 V DC
Output voltage limit CAN_H, CAN_L bus lines	5 V DC
MTBF	Contact NI for Bellcore MTBF specifications at other temperatures or MIL-HDBK-217F specifications.

Power Requirements

Thermal dissipation (at 70 °C)	550 mW maximum (active mode); 440 mW typical (active mode)
Power consumption from TRC-8542 host	550 mW maximum (active mode); 440 mW typical (active mode)

Note The TRC-8542 is internally powered from the host and does not require external power from the CAN Bus.

2. NI-XNET provides a warning for CAN FD transceivers used at baud rates that exceed 5 Mb/s. The NXP TJA1043T transceiver is CiA certified for baud rates up to 5 Mb/s in the CAN FD fast phase.

Physical Characteristics

Weight	70 g (2.5 oz)
Length	447 mm to 462 mm (17.6 in. to 18.2 in.)
D-Sub connector jackscrew maximum torque	0.56 N · m (5.0 lb · in.)

Safety

Maximum Voltage[3]

Connect only the voltages that are within these limits.

Port-to-COM	-27 V DC to +40 V DC maximum, Measurement Category I

Isolation Voltage

Port-to-earth ground	
Continuous	60 V DC, Measurement Category I

Note The TRC-8542 COM signals are not connected to the host port ground.

Caution Do not connect the product to signals or use for measurements within Measurement Categories II, III, or IV.

3. The maximum voltage that can be applied or output without creating a safety hazard.

Attention Ne pas connecter le produit à des signaux dans les catégories de mesure II, III ou IV et ne pas l'utiliser pour effectuer des mesures dans ces catégories.

Warning Do not connect the product to signals or use for measurements within Measurement Categories II, III, or IV, or for measurements on MAINs circuits or on circuits derived from Overvoltage Category II, III, or IV which may have transient overvoltages above what the product can withstand. The product must not be connected to circuits that have a maximum voltage above the continuous working voltage, relative to earth or to other channels, or this could damage and defeat the insulation. The product can only withstand transients up to the transient overvoltage rating without breakdown or damage to the insulation. An analysis of the working voltages, loop impedances, temporary overvoltages, and transient overvoltages in the system must be conducted prior to making measurements.

Mise en garde Ne pas connecter le produit à des signaux dans les catégories de mesure II, III ou IV et ne pas l'utiliser pour des mesures dans ces catégories, ou des mesures sur secteur ou sur des circuits dérivés de surtensions de catégorie II, III ou IV pouvant présenter des surtensions transitoires supérieures à ce que le produit peut supporter. Le produit ne doit pas être raccordé à des circuits ayant une tension maximale supérieure à la tension de fonctionnement continu, par rapport à la terre ou à d'autres voies, sous peine d'endommager et de compromettre l'isolation. Le produit peut tomber en panne et son isolation risque d'être endommagée si les tensions transitoires dépassent la surtension transitoire nominale. Une analyse des tensions de fonctionnement, des impédances de boucle, des surtensions temporaires et des surtensions transitoires dans le système doit être effectuée avant de procéder à des mesures.

Measurement Category I is for measurements performed on circuits not directly connected to the electrical distribution system referred to as ***MAINS*** voltage. MAINS is a hazardous live electrical supply system that powers equipment. This category is for measurements of voltages from specially protected secondary circuits. Such voltage measurements include signal levels, special equipment, limited-energy parts of

equipment, circuits powered by regulated low-voltage sources, and electronics.

Note Measurement Categories CAT I and CAT O are equivalent. These test and measurement circuits are for other circuits not intended for direct connection to the MAINS building installations of Measurement Categories CAT II, CAT III, or CAT IV.

Environmental Characteristics

Refer to the manual for the host you are using for more information about meeting these specifications.

Temperature[4]	
Operating	-40 °C to 70 °C
Storage temperature	-40 °C to 85 °C
Humidity	
Operating	10% RH to 90% RH, noncondensing
Storage	5% RH to 95% RH, noncondensing
Ingress protection	IP40
Pollution Degree	2
Maximum altitude	5,000 m

4. Similar to other standard PVC cables, this product's cable becomes less ductile at low temperatures. Preroute and secure the cable while flexible to avoid premature failure.

Shock and Vibration

To meet these specifications, you must securely mount the product and ensure all cables and connectors have proper strain relief.

Operating vibration	
Random	5 g RMS, 10 Hz to 500 Hz
Sinusoidal	5 g, 10 Hz to 500 Hz
Operating shock	30 g, 11 ms half sine; 50 g, 3 ms half sine; 18 shocks at 6 orientations