

Single high rate CAN isolation transceiver module
(enhanced version)



FEATURES

- | Two-terminal isolation between input and output
- | Integrated Isolated DC/DC converter
- | Isolation voltage: 2500VDC
- | Operating temperature range: -40°C ~ +105°C
- | High speed data rate : 1 Mbps
- | Complies with ISO 11898 standard
- | An unpowered node does not disturb the bus lines
- | Connect up to 110 nodes on one bus
- | ESD (human discharge model ± 4KV) protection, complete EMC recommended circuit

High speed CAN isolation transceiver TD301DCANH3/TD501DCANH3 series are CAN bus transceiver module with integrated power isolation power, signal isolation chip, and CAN transceiver chip. The main function of Products is to switch from logic level to CAN bus difference level, achieve signal isolation. The product is with constant-voltage source isolation power. It can achieve 2500 VDC electrical isolation, and has the function of ESD protection. Products can be easily embedded in the user equipment, achieve function of CAN bus network connection easily.

Selection Guide

| Part No. | Power Supply input (VDC) |
|-------------|--------------------------|
| TD301DCANH3 | 3.0~3.6 |
| TD501DCANH3 | 4.5~5.5 |

Input Specifications

| Item | Operating Conditions | Value |
|--------------------|----------------------|--|
| Input Power Supply | Static current | Products energized, no communication |
| Input | Serial interface | TD301DCANH3: Compatible with the CAN control port of +3.3V |
| | | TD501DCANH3: Compatible with the CAN control port of +5V |
| | Pin current | $I_{TXD} \leq 2\text{mA}; I_{RXD} \leq 2\text{mA}$ |

Bus Interface

| Item | Operating Conditions | Value |
|--------|-------------------------------|--|
| Output | CAN bus interface | Up to standard of ISO-11898, twisted-pair output |
| | The max DC voltage of bus pin | -58V ~ +58V |
| | Bus protection | Over-voltage bus protected, thermally protected and high-voltage transient protected |

Transmission Specifications

| Item | Operating Conditions | Value |
|---------------------|----------------------|------------------|
| Data Rate | | 1Mbps (max.) |
| The Number of Nodes | | 110 nodes (min.) |

General Specifications

| Item | Operating Conditions | Value |
|---------------------|---|--|
| Electric Isolation | | Two -terminal isolation (input and output) |
| Degree of Isolation | testing for 1 minute, leakage current <5mA, humidity <95% | 2.5KVDC |

| | | |
|--|---------|---|
| Operating Temperature | | -40°C ~+105°C |
| Transportation and Storage Temperature | | -55°C ~+125°C |
| Operating Humidity | | 10%~90% |
| Max. Operating Temperature for casing | Ta=25°C | 25°C (Typ.) |
| Application Environment | | The presence of dust, fierce vibration, impulsion and corrosive gas may cause damage to the product |

Physical Specifications

| | |
|-----------------|---------------------|
| Casing Material | WH8100-F |
| Package | DIP8 |
| Dimensions | 19.90*16.90*7.00 mm |
| Weight | 4.00g(Typ.) |
| Cooling Method | Natural cooling |

EMC Specifications

| | | | | |
|-----|-------------------------|-----------------------|--|--|
| EMI | Conducted Disturbance | CISPR22/EN55022 | CLASS A (see 2-② for recommended circuit) | |
| | Radiated Emission | CISPR22/EN55022 | CLASS A (see 2-② for recommended circuit) | |
| EMS | Electrostatic Discharge | IEC/EN61000-4-2 | Contact ±4KV perf. Criteria B | |
| | EFT | IEC/EN61000-4-4 | Power supply port ±2KV | (see 2-① for recommended circuit) perf. Criteria B |
| | | IEC/EN61000-4-4 | Signal port ±1KV | (see 2-③ for recommended circuit) perf. Criteria B |
| | Surge Immunity | IEC/EN61000-4-5 | Power supply port ±1KV | (see 2-① for recommended circuit) perf. Criteria B |
| | | | Signal port ±0.25KV/±0.5KV | (see 2-③ for recommended circuit) perf. Criteria B |
| | | | Signal port ±0.5KV/±1KV | (see 2-③ for recommended circuit) perf. Criteria B |
| | | | Signal port ±1KV/±2KV | (see 2-③ for recommended circuit) perf. Criteria B |
| | | Signal port ±2KV/±4KV | (see 2-③ for recommended circuit) perf. Criteria B | |
| | | Signal port ±4KV/±6KV | (see 2-③ for recommended circuit) perf. Criteria B | |

Application Precautions

1. Please read the technical manual carefully before use; contact our technical support if you have any problem.
2. Do not use the product in hazardous areas.
3. Use DC power supply for the product and 220V AC power supply is prohibited.
4. Do not dismount and assemble the product without permission to avoid failure or malfunction of equipment.

After-sales service

1. Ex-factory inspection and quality control have been strictly conducted for the product; if there occurs abnormal operation or possibility of failure of internal module, please contact the local representative or our technical support.
2. The warranty period for the product is 3 years as calculated from the date of delivery. If any quality problem occurs under normal use within the warranty period, the product can be repaired or changed for free.

Applied circuit

See *Application Notes for Isolated Transmitter* for details.

Design Reference

1. Typical application

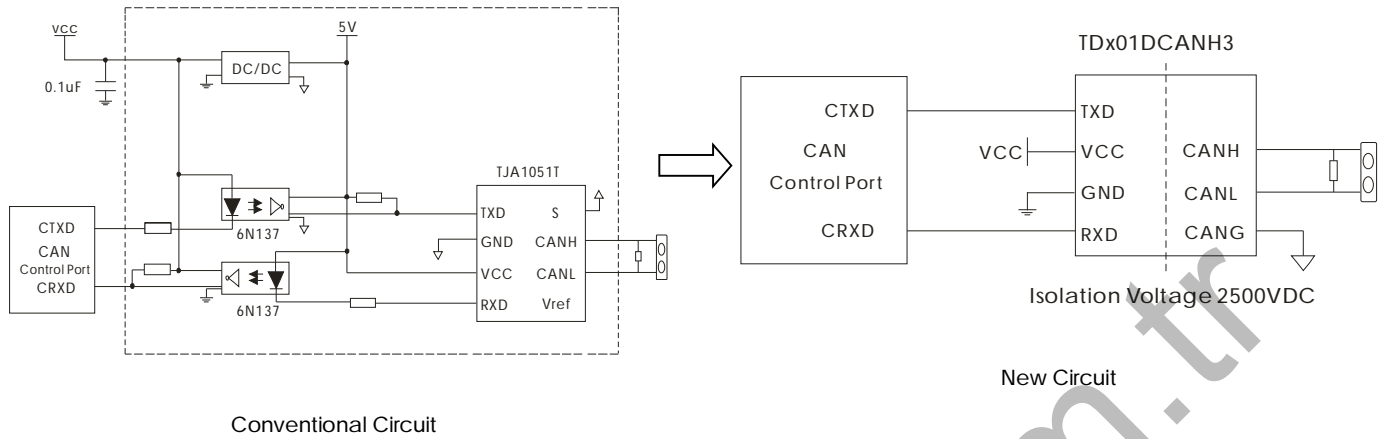


Fig. 1

2. Recommended EMC circuit

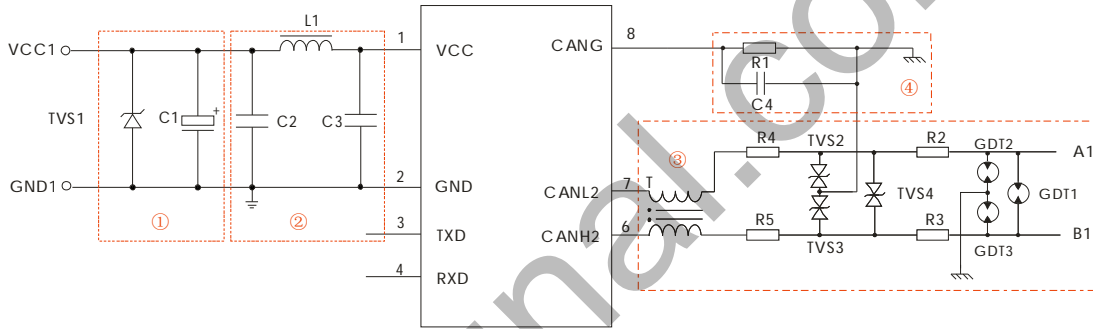
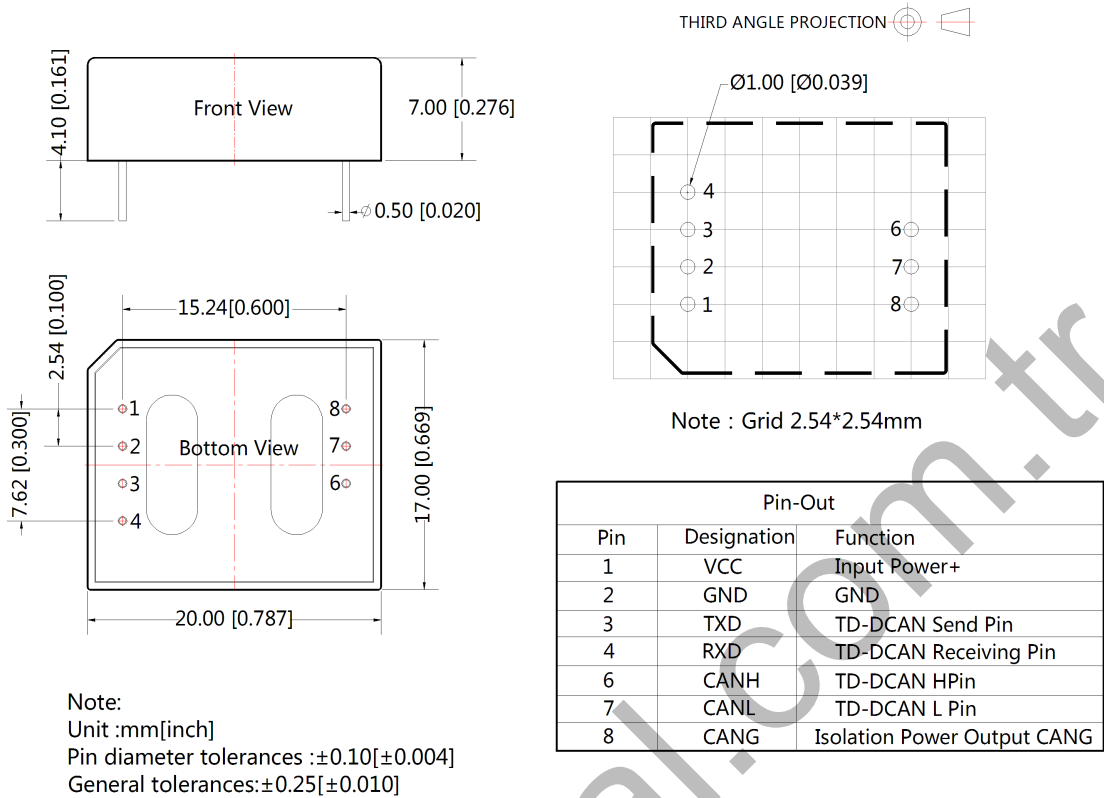


Fig. 2

| 型号 | TD301DCANH3/ TD501DCANH3 | | | | |
|---|--|-----------------------------------|---------------------------------------|-----------------------------------|-----------------------------------|
| | ±0.25KV/±0.5KV | ±0.5KV/±1KV | ±1KV/±2KV | ±2KV/±4KV | ±4KV/±6KV |
| C1 | 220uF/10V (Electrolytic capacitor) | | 220uF/10V (Electrolytic capacitor) | | |
| TVS1 | SMCJ5.0A (TD301DCANH3) / SMCJ6.5A(TD501DCANH3) | | | | |
| C2/C3 | 1uF/50V | | 1uF/50V | | |
| L1 | 10μH | | 10μH | | |
| T | B82793S0513N201 | | B82793S0513N201 | | |
| C4 | 1nF/2KV | | 1nF/2KV | | |
| R1 | 1MΩ | | 1MΩ | | |
| TVS2/TVS3/TVS4 | SMBJ15CA | | SMBJ15CA | | |
| R2/R3 | -- | -- | (Wire wound resistance) 10Ω/2W | (Wire wound resistance) 10Ω/2W | (Wire wound resistance) 10Ω/2W |
| R4/R5 | (Wire wound resistance) 10Ω/1W | (Wire wound resistance) 10Ω/2W | -- | -- | -- |
| GDT1/GDT2/GDT3 | -- | -- | G30-A90X | S30-A90X | S50-A90X |
| Notes: | | | | | |
| 1. GDT1, GDT2 and GDT3 be used instead of a three terminal gas discharge tube. Such as GDT1, GDT2 and GDT3 three two-terminal device available gas discharge tube instead of a three-terminal at "± 4KV / ± 6KV" hierarchy, as B3D090L-C. | | | | | |
| 2. It is not needed the component when parameter with the symbol of "--". | | | | | |

3. For more information please find the application notes on www.mornsun-power.com

Dimensions and Recommended Layout



Notes:

1. Packing Information please refer to 'Product Packing Information'. Packing bag number: 58040012;
2. Unless otherwise specified, data in this datasheet should be tested under the conditions of Ta=25°C, humidity<75% when inputting nominal voltage and outputting rated load;
3. All index testing methods in this datasheet are based on our Company's corporate standards;
4. The performance indexes of the product models listed in this datasheet are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, and please directly contact our technician for specific information;
5. We can provide product customization service;
6. Specifications of this product are subject to changes without prior notice.

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