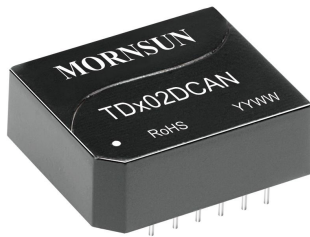


Duplex universal CAN isolation transceiver module



RoHS



FEATURES

- Integrated high efficiency isolated DC/DC converter
- Two-port isolation (2.5kVDC)
- High baud rate up to 1Mbps
- Operating ambient temperature range: -40°C ~ +105°C
- Complies with ISO 11898 standard
- An unpowered node does not disturb the bus lines
- The bus supports maximum 110 nodes
- Set isolation and ESD bus protection in one

The TD302DCAN/ TD502DCAN series' main function is to convert TTL / CMOS level into isolated CAN bus differential level signals. The use of IC integrated technology allows for power isolation, signal isolation, CAN transceiver and bus protection all in one single CAN bus transceiver module, which withstands an isolation test voltage of 2500VDC. Also, they can easily be embedded in the user's end equipment, to achieve fully functional CAN bus network connectivity.

Selection Guide

Certification	Part No.	Power Input (VDC)	Maximum Baud Rate (bps)	Static Current (mA)	Maximum Operating Current(mA)	Number of Nodes
-	TD302DCAN	3.0-3.6	1M	80	±36	110
	TD502DCAN	4.5-5.5	1M	50	±36	110

Input Specifications

Item	Operating Conditions	Value
Input Power Supply	Static Current	TD302DCAN ≤80mA
		TD502DCAN ≤50mA
Input	Serial Interface	TD302DCAN Compatible with the CAN control port of +3.3V
		TD502DCAN Compatible with the CAN control port of +5V
	Pin current	I _{TXD} ≤2mA; I _{RXD} ≤2mA

Bus Interface

Item	Operating Conditions	Value
Output	CAN Bus Interface	Up to standard of ISO-11898, twisted-pair output
	The Maximum DC Voltage of Bus Pin	-36V to +36V
	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
Electrical Isolation		Two-terminal isolation (input to output)
Isolation Test	Electric strength test for 1 min., leakage current <5mA	2.5kVDC
Operating Temperature		-40°C ~ +105°C
Transportation and Storage Temperature		-55°C ~ +125°C
Operating Humidity		10% - 90%
Temperature Rising	T _a =25°C	25°C (Typ.)
Application Environment		The presence of dust, severe vibration, shock and corrosive gas may cause damage to the product

Mechanical Specifications

Case Material	Black flame-retardant heat-proof plastic (UL94 V-0)
Package	DIP12
Dimensions	19.90 x 16.90 x 7.05 mm
Weight	4.5g(Typ.)
Cooling Method	Natural cooling

Electromagnetic Compatibility (EMC)

Emission	CE	CISPR32/EN55032	CLASS A (see 2-② for recommended circuit)	
	RE	CISPR32/EN55032	CLASS A (see 2-② for recommended circuit)	
Immunity	ESD	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
			Signal port ±1kV	(see 2-③ for recommended circuit) perf. Criteria B
	Surge	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

- Carefully read and follow the instructions before use; contact our technical support if you have any question;
- Do not use the product in hazardous areas;
- Use only DC power supply source for this product. 220V AC power supply is prohibited;
- It is strictly forbidden to disassemble the product privately in order to avoid product failure or malfunction.

After-sales service

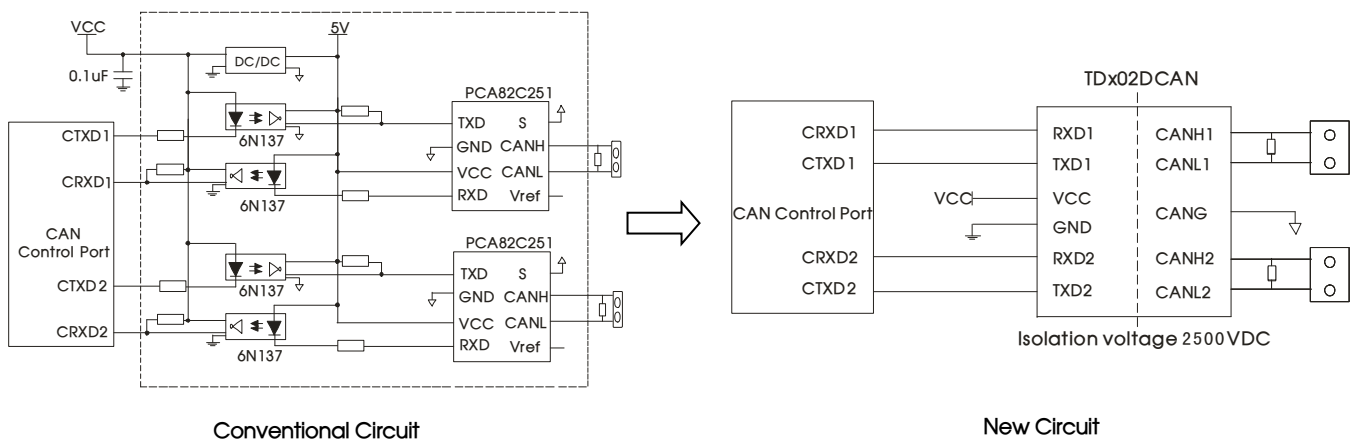
- Factory inspection and quality control are strictly enforced before shipping any product; please contact your local representative or our technical support if you experience any abnormal operation or possible failure of the module;
- The products have a 3-year warranty period, from the date of shipment. The product will be repaired or exchanged free of charge within the warranty period for any quality problem that occurs under normal use.

Applied circuit

Refer to the CAN Industrial Bus Interface Isolating Module Application Manual.

Design Reference

1. Typical application



2. Recommended circuit for EMC compliance

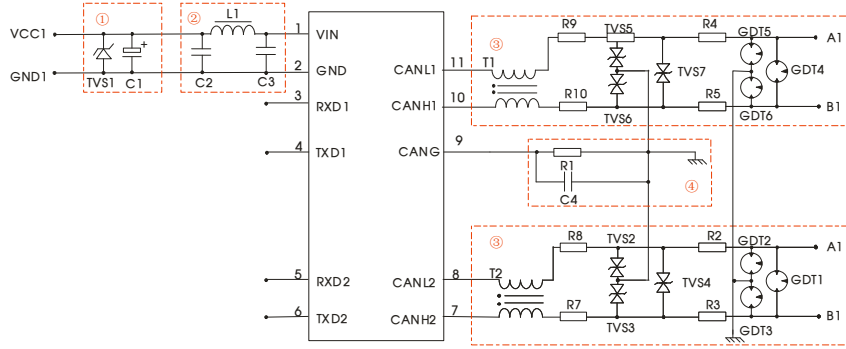


Fig. 1

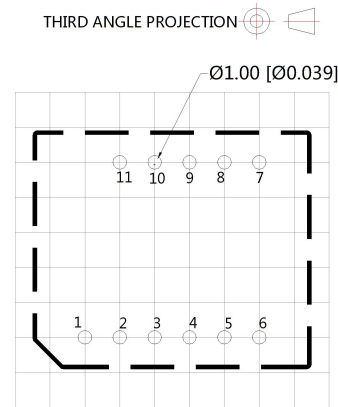
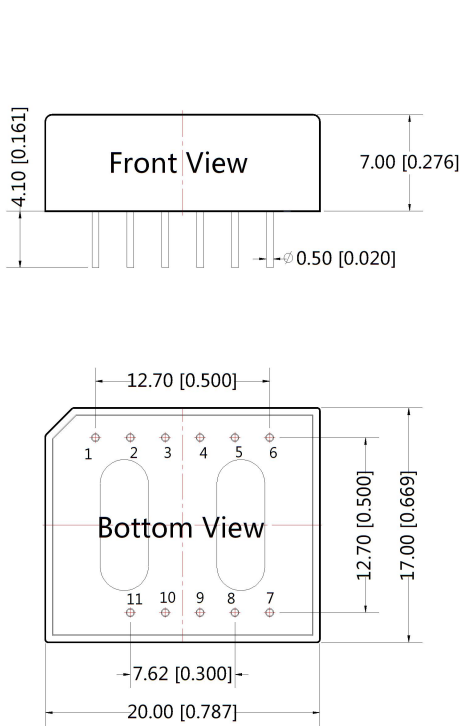
Recommended components and values:

Components	TD302DCAN / TD502DCAN				
	±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 (TD302DCAN) / SMCJ6.5A(TD502DCAN)				
C2/C3	1uF/50V		1uF/50V		
L1	10uH		10uH		
T1/T2	B82793S0513N201		B82793S0513N201		
C4	1nF/2kV		1nF/2kV		
R1	1MΩ		1MΩ		
TVS2/TVS3/TVS4	SMBJ15CA		SMBJ15CA		
TVS5/TVS6/TVS7	SMBJ15CA		SMBJ15CA		
R2/R3/R4/R5	--	--	(Wire wound resistance) 10Ω/2W	(Wire wound resistance) 10Ω/2W	(Wire wound resistance) 10Ω/2W
R7/R8/R9/R10	(Wire wound resistance) 10Ω/1W	(Wire wound resistance) 10Ω/2W	--	--	--
GDT1/GDT2/GDT3	--	--	G30-A90X	S30-A90X	S50-A90X
GDT4/GDT5/GDT6	--	--	G30-A90X	S30-A90X	S50-A90X

Notes: GDT1/GDT2/GDT3 can be replaced by a three terminal gas discharge tube, the same as GDT4/GDT5/GDT6. For example, GDT1/GDT2/GDT3 and GDT4/GDT5/GDT6 can be replaced by B3D090L-C.

3. For additional information, please refer to our application note on www.mornsun-power.com

Dimensions and Recommended Layout



Pin-Out		
Pin	Designation	Function
1	VCC	Input Power +
2	GND	GND
3	RXD1	TD-CAN1 Receiving Pin
4	TXD1	TD-CAN1 Send Pin
5	RXD2	TD-CAN2 Receiving Pin
6	TXD2	TD-CAN2 Send Pin
7	CANH2	TD-CANH2 Pin
8	CANL2	TD-CANL2 Pin
9	CANG	Isolation Power Output CANG
10	CANH1	TD-CANH1 Pin
11	CANL1	TD-CANL1 Pin

Note:
Unit :mm[inch]
Pin diameter tolerances : ± 0.10 [± 0.004]
General tolerances: ± 0.25 [± 0.010]

Notes:

- For additional information on Product Packaging please refer to www.mornsun-power.com. The Packaging bag number: 58040014;
- Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^\circ\text{C}$, humidity<75%RH with nominal input voltage and rated output load;
- All index testing methods in this datasheet are based on company corporate standards;
- The above are the performance indicators of the product models listed in this datasheet. Some indicators of non-standard models will exceed the above requirements. For details, please contact our technical staff;
- We can provide product customization service;
- Products are related to laws and regulations: see "Features" and "EMC";
- Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

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