

Industrial Bus

STDx01DCANH3 Series



SCHMID-M

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 $\pm 4\text{KV}$) protection, complete EMC recommended circuit

High speed CAN isolation transceiver STD301DCANH3/STD501DCANH3 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)
STD301DCANH3	3.0-3.6
STD501DCANH3	4.5-5.5

Input Specifications

Item	Operating Conditions		Value
Input Power Supply	Static current	Products energized, no communication	STD301DCANH3 $\leq 40\text{mA}$, STD501DCANH3 $\leq 30\text{mA}$
		Serial interface	STD301DCANH3: Compatible with the CAN control port of +3.3V STD501DCANH3: Compatible with the CAN control port of +5V
Input	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 $< 5\text{mA}$, humidity $< 95\%$	2.5KVDC

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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
			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

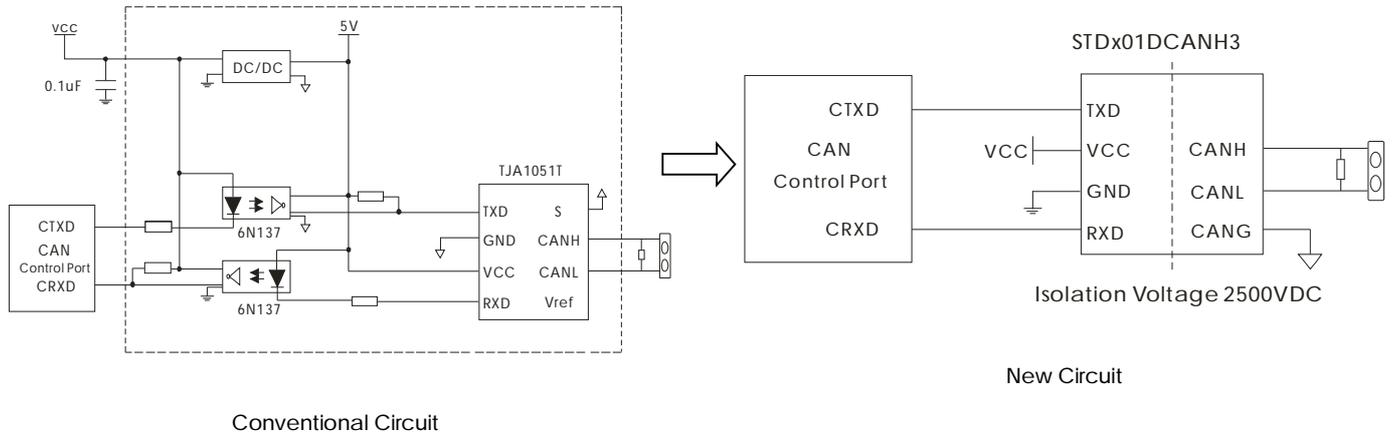


Fig. 1

2. Recommended EMC circuit

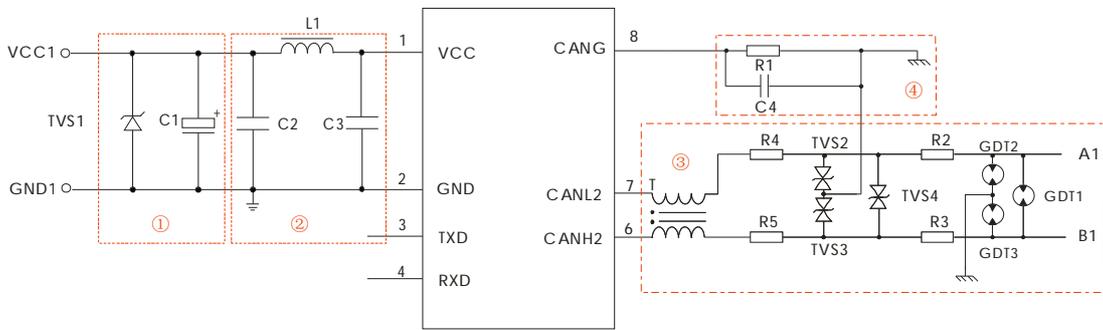
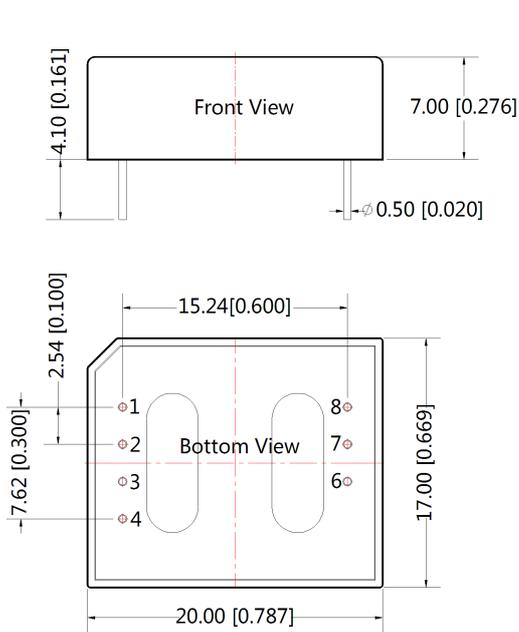


Fig. 2

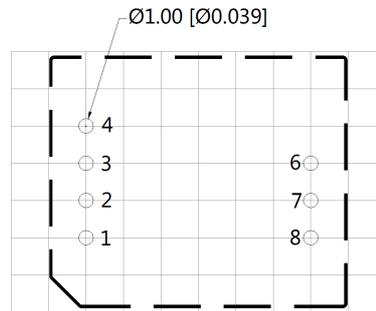
	STD301DCANH3/ STD501DCANH3				
	$\pm 0.25KV/\pm 0.5KV$	$\pm 0.5KV/\pm 1KV$	$\pm 1KV/\pm 2KV$	$\pm 2KV/\pm 4KV$	$\pm 4KV/\pm 6KV$
C1	220uF/10V (Electrolytic capacitor)		220uF/10V (Electrolytic capacitor)		
TVS1	SMCJ5.0A (STD 301DCANH3) / SMCJ6.5A(STD501DCANH3)				
C2/C3	1uF/50V		1uF/50V		
L1	10μH		10μH		
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 "--".				

Dimensions and Recommended Layout



Note:
Unit :mm[inch]
Pin diameter tolerances : $\pm 0.10[\pm 0.004]$
General tolerances: $\pm 0.25[\pm 0.010]$

THIRD ANGLE PROJECTION



Note : Grid 2.54*2.54mm

Pin-Out		
Pin	Designation	Function
1	VCC	Input Power+
2	GND	GND
3	TXD	STD-DCAN Send Pin
4	RXD	STD-DCAN Receiving Pin
6	CANH	STD-DCAN HPin
7	CANL	STD-DCAN L Pin
8	CANG	Isolation Power Output CANG

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 $T_a=25^{\circ}\text{C}$, 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.