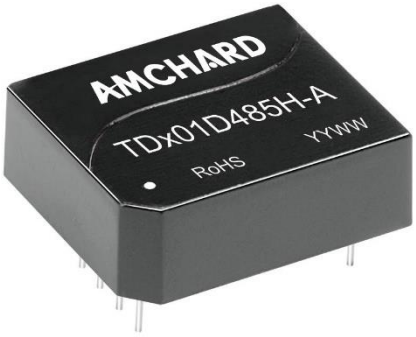
FEATURES

1. Integrated high efficient isolated DC-DC converter
2. High baud rate of up to 115200bps
3. Two-port isolation test voltage(2.5kVDC)
4. Operating ambient temperature range: -40°C to +85°C
5. The bus supports maximum 32 nodes
6. Set isolation and ESD bus protection in one
7. Automatic send and receive data function



RoHS CE 3 years Warranty

Selection Guide

Part No.	Power input (VDC)	Baud rate (bps)	Static Current (mA)	Max.Operating Current (mA)	Number of Nodes
TD301D485H-A	3.17-3.45	115200	40	70	32
TD501D485H-A	4.75-5.25	115200	40	70	32

3.3V Input Specifications

Item		Symbol	Min.	Typ.	Max.	Unit
Power Supply Input Voltage		VCC	3.17	3.3	3.45	VDC
TXD Logic Level	High-level	VIH	0.7VCC	3.3	3.6	
	Low-level	VIL	0	--	0.8	
RXD Logic Level	High-level	VOH	VCC-0.4	3.1	--	
	Low-level	VOL	0	0.2	0.4	
Pin Current		ITXD≤2mA; IRXD≤2mA				
Serial Interface		Compatible with + 3.3 V UART interface only				

5V Input Specifications

Item		Symbol	Min.	Typ.	Max.	Unit
Power Supply Input Voltage		VCC	4.75	5	5.25	VDC
TXD Logic Level	High-level	VIH	0.7VCC	5	5.5	
	Low-level	VIL	0	--	0.8	
RXD Logic Level	High-level	VOH	VCC-0.4	4.8	--	
	Low-level	VOL	0	0.2	0.4	
Pin Current		ITXD≤2mA; IRXD≤2mA				
Serial Interface		Compatible with + 5 V UART interface only				

Bus Interface

Item		Operating Conditions	Value
Output Port	RS485 Bus Interface		Standard RS485 interface, pull-up and pull-down resistors with 5.1kΩeach on A and B channels.

Transmission Specifications

Item	Operating Conditions	Value
Transmission rate		Maximum 115200 bps

Number of Nodes		Up to 32 nodes connected on one bus		
Transceiver Control		Half duplex, automatic transmission		
Truth Table	Send status	Input	Output	
		TXD	A	B
		1	1	0
		0	0	1
	Receive status①	Input	Output	
		A-B	RXD	
		≥-20mV	1	
		≤-220mV	0	
		-220mV＜VA-VB＜-20mV	Undefined state	
Note: ①Receiving threshold varies with Vcc will produce subtle error.				

Output Specifications

Item	Symbol	Min.	Typ.	Max.	Unit
Difference Level	Vdiff(d), No load	1.5	--	--	VDC
Difference Input Impedance	-7V≤VCM≤+12V	94	--	--	kΩ
Bus Interface Protection		ESD protection			

General Specifications

Item	Operating Conditions	Value
Electric Isolation		Two-terminal isolation (input and output are mutually isolated)
Isolation Test	Electric Strength Test for 1 min, leakage current <5mA	2.5kVDC
Operating Temperature		-40℃ to +85℃
Transportation and Storage Temperature		-50℃ to +105℃
Operating Humidity		10% - 90%
Case Temperature Rise	Ta=25℃	25℃(Typ.)
Safety Standard		EN62368-1 (Report)
Safety Class		CLASS III
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-V0)
Dimensions	DIP10
Weight	4.0g (Typ.)
Cooling Method	Free air convection

Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032	CLASS A (see Fig.2)		
	RE	CISPR32/EN55032	CLASS A (see Fig.2)		
	ESD	IEC/EN61000-4-2	Contact ±4kV		perf. Criteria B
		IEC/EN61000-4-4	Power supply port ±2kV	(see Fig.2)	perf. Criteria B

Immunity	EFT	IEC/EN61000-4-4	Signal port ±1kV	(see Fig.2)	perf. Criteria B
	Surge	IEC/EN61000-4-5	Power supply port ±1kV (line to line)	(see Fig.2)	perf. Criteria B
			Signal port ±2kV (line to line)/ ±4kV (line to ground)	(see Fig.2)	perf. Criteria B

Application Precautions

1. Carefully read and follow the instructions before use; contact our technical support if you have any question;
2. Do not use the product in hazardous areas;
3. Use only DC power supply source for this product. 220V AC power supply is prohibited;
4. It is strictly forbidden to disassemble the product privately in order to avoid product failure or malfunction;
5. Hot-swap is not supported;
6. If the external input of TXD is insufficient, the pull-up resistor should be added according to the situation.

After-sales service

1. 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;
2. 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 RS485IsolatedIndustrialBusInterfaceModuleApplicationManual.

Design Reference

1. Typical application circuit

TD5(3)01D485H-A

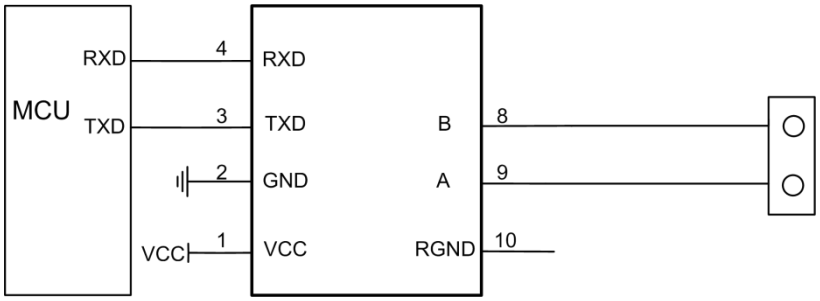


Fig. 1

2. Recommended port protection circuit

TD5(3)01D485H-A

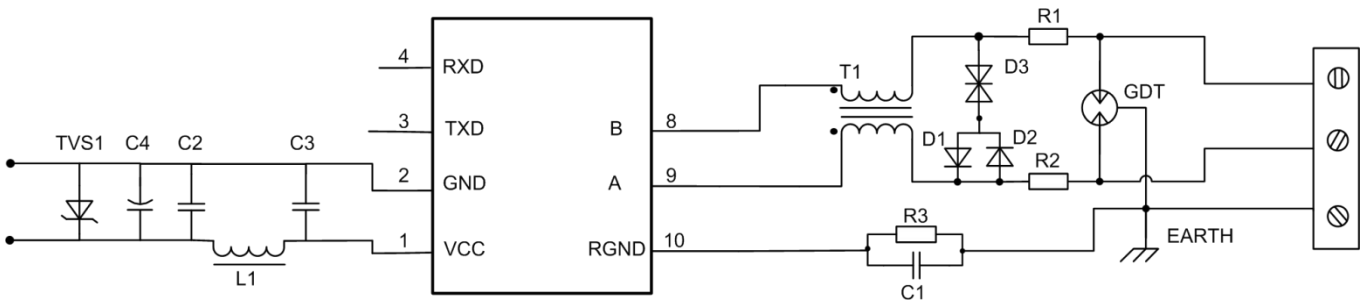
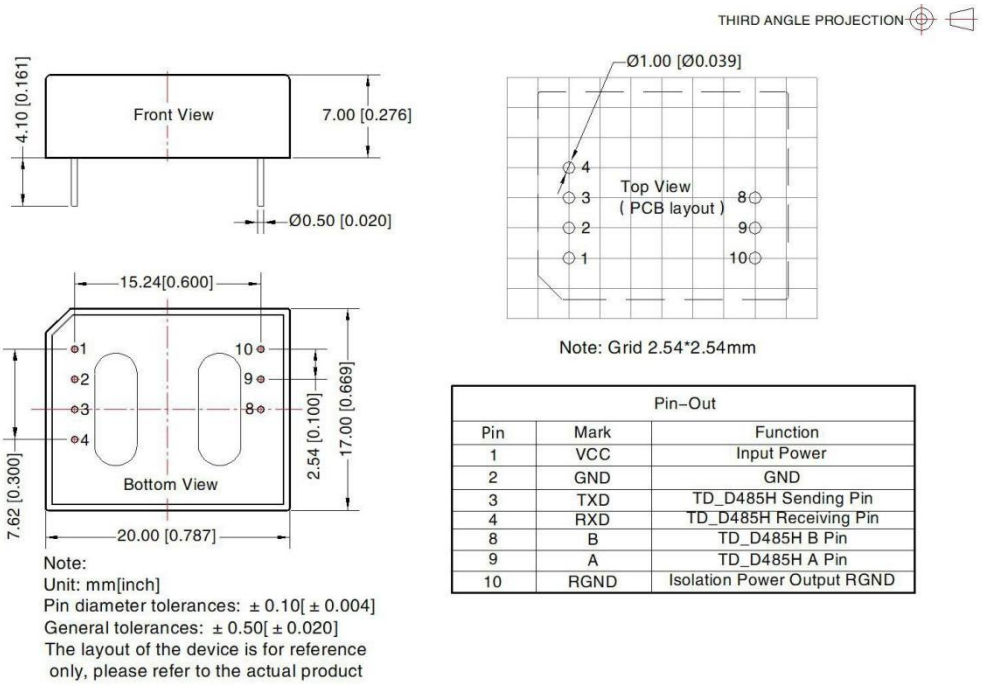


Fig. 2

Recommended components and values:

Component	Recommended part, value	Component	Recommended part, value
R3	1MΩ	R1、R2	2.7Ω/2W
C1	1nF, 2kV	D1、D2	1N4007
T1	ACM2520-301-2P	D3	SMBJ8.5CA
GDT	B3D090L	L1	10uH
C2、C3	1uF/50V	TVS1	SMCJ5.0A (TD301D485H-A) / SMCJ6.5A(TD501D485H-A)
C4	220uF/10V(Electrolytic capacitor)		

Dimensions and Recommended Layout



Note:
Unit: mm[inch]
Pin diameter tolerances: ± 0.10[± 0.004]
General tolerances: ± 0.50[± 0.020]
The layout of the device is for reference only, please refer to the actual product

Pin-Out		
Pin	Mark	Function
1	VCC	Input Power
2	GND	GND
3	TXD	TD_D485H Sending Pin
4	RXD	TD_D485H Receiving Pin
8	B	TD_D485H B Pin
9	A	TD_D485H A Pin
10	RGND	Isolation Power Output RGND

Note:

1. The input voltage should not exceed the specified range value, otherwise it may cause permanent and irreparable damage;
2. It is recommended to use at a load of over 5%. If the load is below 5%, the ripple index of the product may exceed the specifications, but it does not affect the reliability of the product;
3. Suggested dual output module load imbalance: ≤ ± 5%. If it exceeds ± 5%, it cannot be guaranteed that the product performance meets all performance indicators in this manual;
4. The maximum capacitive load is tested within the input voltage range and under full load conditions;
5. Unless otherwise specified, all indicators in this manual are measured at Ta=25 °C, humidity<75% RH, nominal input voltage, and output rated load;
6. All indicator testing methods in this manual are based on our company's corporate standards;
7. Our company can provide product customization, and specific requirements can be directly contacted by our technical personnel;
8. Product specifications are subject to change without prior notice.