Descriptions

Industrial Bus



RoHS

CE Report
EN62368-1

UKCA Report
BS EN62368-1

Features

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

Applications

- Industrial control
- Power
- Communication

Selection Guide

Certification	Part No.	Power input (VDC)	Baud rate (bps)	Static Current (mA)	Max. Operating Current (mA)	Number of Nodes
EN/BS EN	T485L301D-A	3.17-3.45	115200	40	70	32
	T485L501D-A	4.75-5.25	115200	40	70	32

Notes: *Product images are for reference only; the actual product shall prevail.

Specifications

Product feature	Item		Symbol	Min.	Typ.	Max.	Unit
3.3V Input Specifications	Power Supply Input Voltage		VCC	3.17	3.3	3.45	VDC
	TXD Logic Level	High-level	V_{IH}	0.7V_{CC}	3.3	3.6	
		Low-level	V_{IL}	0	--	0.8	
	RXD Logic Level	High-level	V_{OH}	V_{CC}-0.4	3.1	--	
		Low-level	V_{OL}	0	0.2	0.4	
	Pin Current		ITXD≤2mA; IRXD≤2mA				
	Serial Interface		Compatible with + 3.3 V UART interface only				
5.0V Input Specifications	Power Supply Input Voltage		VCC	4.75	5	5.25	VDC
	TXD Logic Level	High-level	V_{IH}	0.7V_{CC}	5	5.5	
		Low-level	V_{IL}	0	--	0.8	
	RXD Logic Level	High-level	V_{OH}	V_{CC}-0.4	4.8	--	
		Low-level	V_{OL}	0	0.2	0.4	
	Pin Current		ITXD≤2mA; IRXD≤2mA				
	Serial Interface		Compatible with + 5 V UART interface only				
Output Specifications	Difference Level		Vdiff(d), No load	1.5	--	--	VDC
	Difference Input Impedance		-7V≤VCM≤+12V	94	--	--	kΩ
	Bus Interface Protection		ESD protection				
Bus interface	Output Port		RS485 Bus Interface	Standard RS485 interface, pull-up and pull-down resistors with 5.1kΩ each on A and B channels.			
Transmission Specifications	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 < V_A-V_B < -20mV	Undefined state		
General Specifications	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 standards		Through 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 V-0)
	Dimensions	DIP10
	Weight	4.0g (Typ.)
	Cooling Method	Free air convection
Note: ①Receiving threshold varies with Vcc will produce subtle error.		

Electromagnetic Compatibility (EMC)

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

Design Reference

1.Typical application circuit

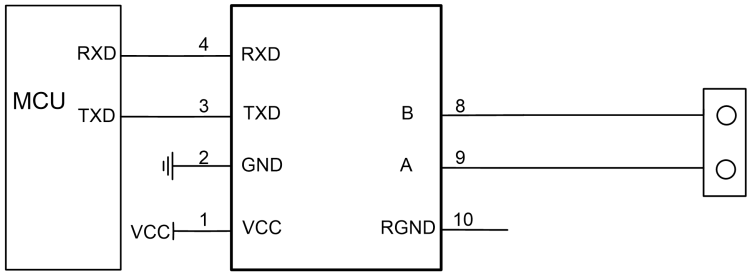


Fig. 1

2. Recommended EMC circuit

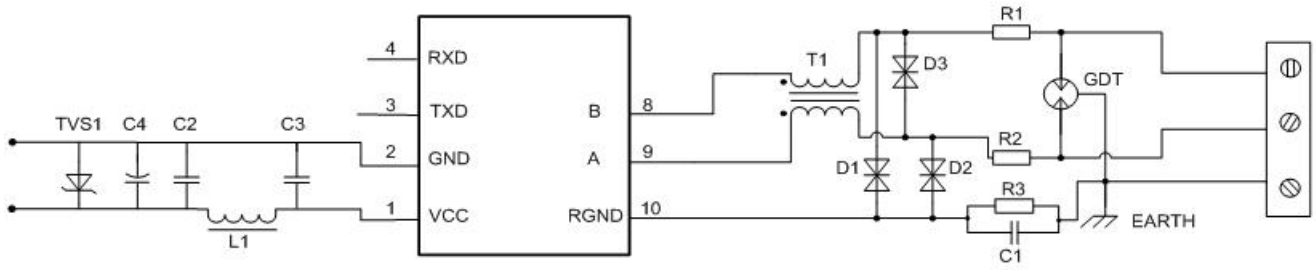


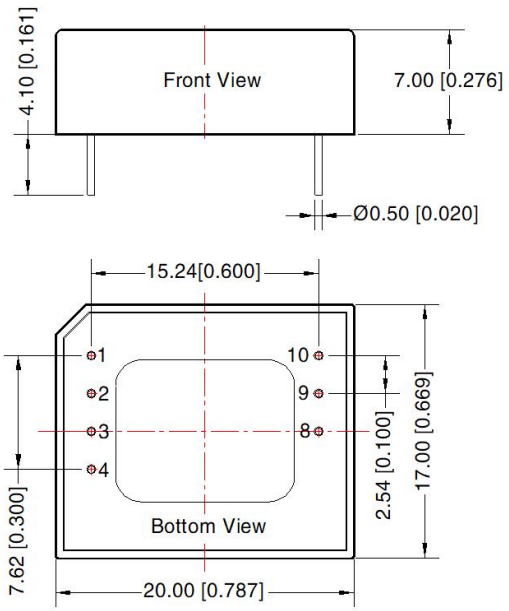
Fig. 2

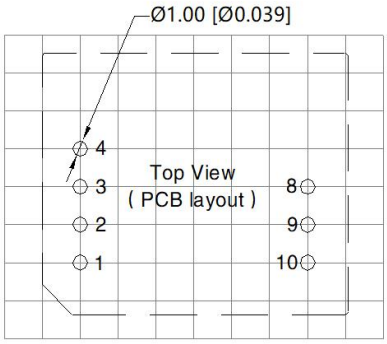
Recommended components and values:

Component	Recommended part, value	Component	Recommended part, value
R3	1MΩ	R1、R2	2.7Ω/2W
C1	1nF, 2kV	D1、D2	SMBJ6.5CA
T1	ACM2520-301-2P	D3	SMBJ6.5CA
GDT	B3D090L	L1	10uH
C2、C3	1uF/50V	TVS1	SMCJ5.0A (T485L301D-A) /SMCJ6.5A(T485L501D-A)
C4	220uF/10V(Electrolytic capacitor)	--	--

Dimensions and Recommended Layout

THIRD ANGLE PROJECTION





Note: Grid 2.54*2.54mm

Note:
Unit: mm[inch]
Pin1/2/3/4/8/9/10: Ø0.5mm
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	Sending Pin
4	RXD	Receiving Pin
8	B	B Pin
9	A	A Pin
10	RGND	Isolation Power Output RGND

Notes:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%RH with nominal input voltage and rated output load;
2. All index testing methods in this datasheet are based on company corporate standards;
3. 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;
4. Products are related to laws and regulations: see "Features" and "EMC";
5. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
6. The image certification marks are for reference only; please refer to the selection table for actual specifications. Certification is based on the physical mark or packaging label.