

SINGLE LOW RATE 485 ISOLATION TRANSCEIVER MODULE

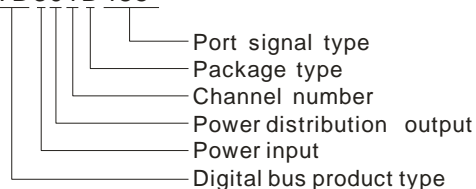
—TD301D485 (3.3V Power supply)
TD501D485 (5.0V Power supply)



RoHS

PART NUMBER SYSTEM

TD301D485



FEATURES

- Two-port electrical isolation input and output
- Integrated isolated DC/DC converter
- Bus protection
- Isolation voltage 2.5KVDC
- Operating temperature range:-40°C~+85°C
- Baud rate 9600bps,
- Connect up to 32 nodes on one bus
- Low electromagnetic radiation
- High electromagnetic immunity

GENERAL DESCRIPTION

TD301D485/TD501D485 series are transceiver isolation module with integrated duplex power isolation, electrical isolation, and RS-485 interface bus protector; Products can be easily embedded in the user equipment, achieve function of RS-485 network connection.

The isolation RS-485 circuits of using a piece of power isolation module, three light couplings and RS-485 transceivers and device are only need to adopt a RS485 isolation module now. Simplify the customers on the isolation requirements of the design.

SELECTION GUIDE

Model	Power Input
TD301D485	3.17V~3.45V
TD501D485	4.75V~5.25V

ELECTRICAL CHARACTERISTICS

Input Parameters Of Power Supply	Static current	TD501D485≤30 mA, TD301D485≤40mA
	Send current	TD501D485≤40 mA, TD301D485≤60mA
	power dissipation	≤0.2W
Input Parameters	Serial interface	TD501D485 compatible with + 5 V UART interface TD301D485 compatible with + 3.3 V UART interface
	Pin current	$I_{TXD} \leq 5mA; I_{RXD} \leq 3 mA; I_{CON} \leq 5mA$
Output Parameters	485 bus interface	Standard interface RS485 ,pull-up and pull-down resistor, whose value is 4.7K, have been set to A/B line.

TRANSMISSION SPECIFICATIONS

Data Rate	Maximum 9600bps bps					
Data Delay	The delay time from the receiving data switch to the send data : 30 μs(min), 100 μs(max).					
The number of nodes	Connect up to 32 nodes on one bus					
Transceiver control	Contrary to common 485 transceiver control level					
Truth Table	Sending Status	Control	Input	Output		
		CON	TXD	A	B	Line state
		0	1	1	0	Normal
		0	0	0	1	Normal
	Receiving Status	Control	Input	Output		
		CON	A-B	RXD		
		1	0.2V	1		
		1	-0.2V	0		

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ISOLATION SPECIFICATIONS

Electrical Isolation	Two-port isolation (input and output)
Isolation Voltage	2.5KVDC(Tested for 1 minute and leakage current < 5mA,humidity < 95%)

EMC SPECIFICATIONS

EMI	CE	CISPR22/EN55022	CLASS A	(External Circuit Refer to Figure 1-②)	
	RE	CISPR22/EN55022	CLASS A		
EMS	ESD	IEC/EN61000-4-2	Contact ±4KV	perf. Criteria B	
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A	
	EFT	IEC/EN61000-4-4	Power Port ±2KV	perf. Criteria B	(External Circuit Refer to Figure 1-①)
IEC/EN61000-4-4		Signal Port ±1KV	perf. Criteria B	(External Circuit Refer to Figure 1-③)	
EMS	Surge	IEC/EN61000-4-5	Power Port ±1KV/2KV	perf.Criteria B	(External Circuit Refer to Figure 1-①)
		IEC/EN61000-4-5	Signal Port ±4KV/6KV	perf. Criteria B	(External Circuit Refer to Figure 1-③)
	CS	IEC/EN61000-4-6	3 Vr.m.s	perf. Criteria A	

OTHER CHARACTERISTICS

Environmental Temperature	Operating temperature:-40°C~+85°C
	Transport and storage temperature:-50°C~+105°C
Operating Humidity	10%~90%
Size	19.9*16.9*7.05 (Unit:mm)
Weight	About 10g
Application Environment	No dust, fierce vibration, impulsion and corrosive gas

Note:1. All specifications measured at TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.

2. All specifications stated in this datasheet are subject to the above listed models only. For specifications of non-standard models, please contact our technical support team.

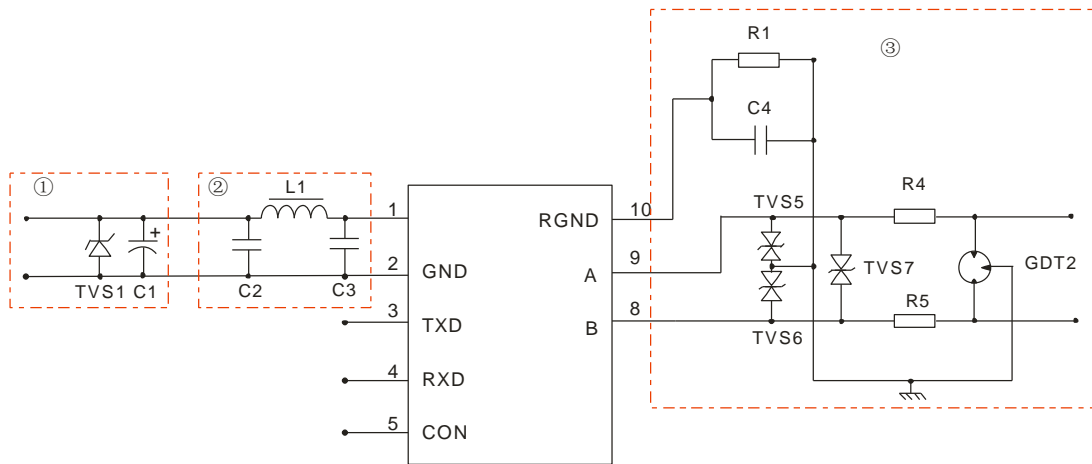
EMC RECOMMENDED CIRCUIT

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(Figure 1)overall plan(detail parameter refer to item)

Table 1

Model	TD301D485	TD501D485
C1	220uF/10V(Electrolytic capacitor)	
TVS1	SMCJ5.0A	SMCJ6.5A
C2,C3	1uF /25V	
L1	10μH	
C4	1nF /2000V	
R1	1MΩ	
TVS5,TVS6	SMBJ15CA	
TVS7	SMBJ15CA	
R4,R5	10Ω/2W(Wire wound resistance)	
GDT2	B3D090L-C	

APPLICATION NOTE

1. Please read the user manual carefully before using. If any question please contact our technical support department.
2. Please do not use this product in hazardous area.
3. To avoid invalid explosion protection function, or any failure, users disassemble this product is forbidden.

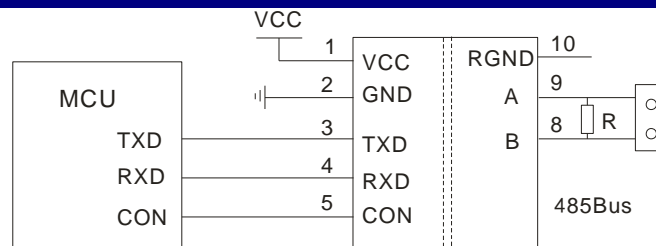
AFTER SERVICE

4. Products are carefully inspected and quality control during production and before shipment. If they operated abnormally or there were anything wrong, please contact our agent near you or MORNSUN FAE as soon as possible.
5. MORNSUN warranty our product for 3 years from manufacturing date. During this period, MORNSUN will repair or replace the product if product was found to have manufacturing defect.

APPLICATION GUIDE

See the communication interface product application guide.

TYPICAL APPLICATIONS CIRCUIT DIAGRAM



OUTLINE DIMENSIONS, RECOMMENDED FOOTPRINT & PACKAGING

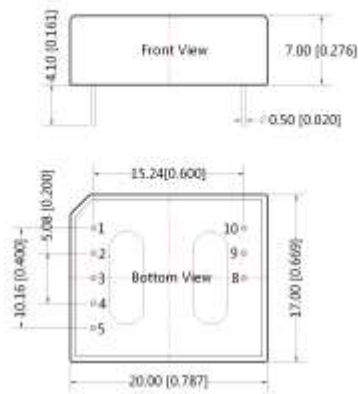
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MECHANICAL DIMENSIONS

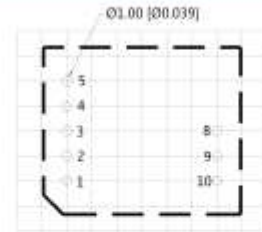


PIN CONNECTION		
Pin	Designation	Function
1	VCC	Input Power
2	GND	GND
3	TXD	TD_D485 Send Pin
4	RXD	TD_D485 Receiving Pin
5	CON	Send&Receiving Control Pias
8	B	BPin
9	A	APin
10	RGND	Isolation Power Output RGND

Note:
 Unit :mm[inch]
 Pin diameter tolerances :±0.1mm[±0.004inch]
 General tolerances:±0.25mm[±0.010inch]

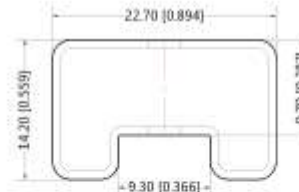
THIRD ANGLE PROJECTION

RECOMMENDED FOOTPRINT DETAILS



Note: Grid 2.54*2.54mm

TUBE PACKAGING DIMENSIONS



Note:
 Unit :mm[inch]
 General tolerances: ± 0.50mm[± 0.020inch]
 L=220mm[8.661inch] Tube Quantity: 10 pcs
 L=530mm[20.866inch] Tube Quantity: 25 pcs
 Inner carton(S): L*W*H=255*170*80 mm;
 Outer carton(S): L*W*H=375*280*270mm, 6 inner cartons(S);
 Inner carton(L): L*W*H=580*200*100mm;
 Outer carton(L): L*W*H=600*215*220mm, 2 inner cartons(L);
 Outer carton(L): L*W*H=600*215*325mm, 3 inner cartons(L);

Note:

1. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. In this datasheet, all test methods and setup are based on our corporate standards.
3. All characteristics are meant for listed model, non-standard models may perform differently, you can contact MORN SUN FAE for more details.
4. Contact us for your specific requirement.
5. Specifications are subject to change without prior notice.

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