

MORNSUN®

DUAL ISOLATION HIGH SPEED H-485 TRANSCEIVER

— TD31IP485H(3.3V Power supply)
 TD51IP485H(5.0V Power supply)

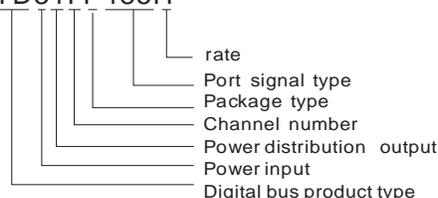


FEATURES

- I Baud rate high up to 115200bps
- I Connect up to 32 nodes on one bus
- I 2500VDC isolation voltage (input and output)
- I 2500VDC isolation voltage (output and output)
- I Integrated high efficiency isolated DC/DC converter
- I Operating temperature range: -40°C ~ +85°C
- I ESD protection, perfect EMC recommend circuit

PART NUMBER SYSTEM

TD31IP485H



GENERAL DESCRIPTION

Dual double isolation high speed h-485 isolated transceiver module TD31IP485H/TD51IP485H series are transceiver isolation module with integrated twin power isolation, electrical isolation, and RS-485 interface bus protector. It has two way independent of RS485 network function, and the two-port RS485 networks are isolated. 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, six road light coupling and 2 RS - 485 transceivers and device is only need to adopt a RS485 isolation module now. Simplify the customers on the isolation requirements of the design.

SELECTION GUIDE

Model	Power Input
TD31IP485H	3.17V~3.45V
TD51IP485H	4.75V~5.25V

ELECTRICAL CHARACTERISTICS

Input Of Power Supply	Static current	TD31IP485H≤50mA , TD51IP485H≤30mA
	power dissipation (max)	≤0.4W
	Send current	TD31IP485H≤121mA , TD51IP485H≤80mA
Input	Serial interface	Compatible with + 5 V and + 3.3 V UART Interface
	Pin current	$I_{TXD}<2mA$; $I_{RXD}<2mA$; $I_{CON}<5mA$
Output	485 Bus interface	Standard interface RS485, pull-up and pull-down resistor, whose value is 4.7K Ω , have been set to A/B line.

TRANSMISSION CHARACTERISTICS

Transmission Rate	115200 bps (max)					
Data Delay	The delay time from the receiving data switch to the send data : 30 μ s(min), 100 μ s(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
	Receiving Status	0	0	0	1	Normal
		Control	Input	Output		
		CON	A-B	RXD		
		1	0.2V	1		
1	-0.2V	0				

ISOLATION CHARACTERISTICS

Electrical Isolation	Three-port isolation(input and output , output and output)
Isolation Voltage	2.5KVDC(Tested for 1minute 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)
	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		

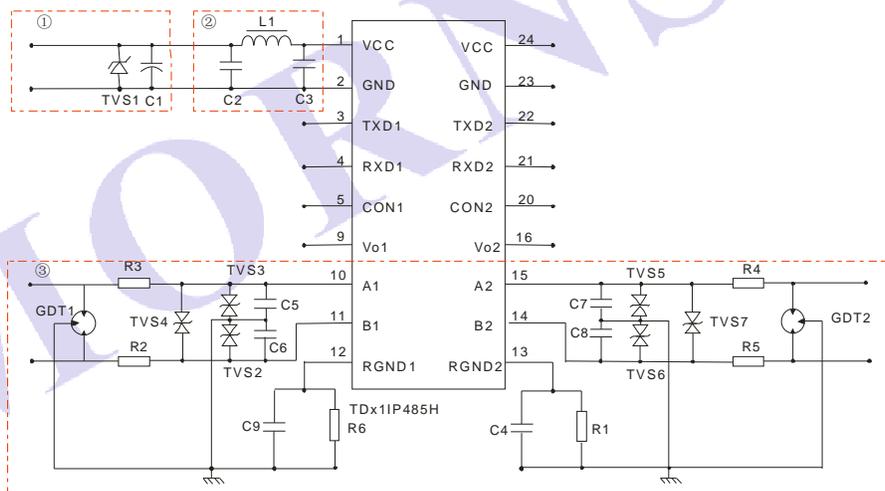
OTHER CHARACTERISTICS

Environmental Temperature	Operating temperature: -40°C ~ +85°C
	Transport and storage temperature: -50°C ~ +105°C
Size	31.8*20.3*9.5(mm)
Weight	11 g
Application Environment	No dust, fierce shocking, 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

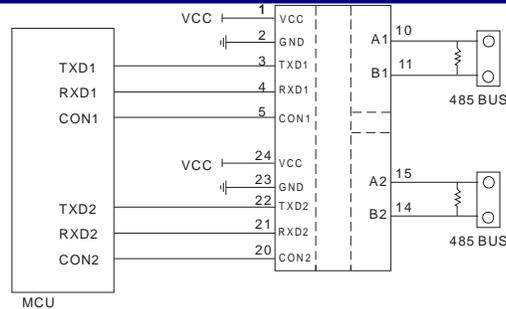


(Figure 1)

Recommended external circuit parameters:

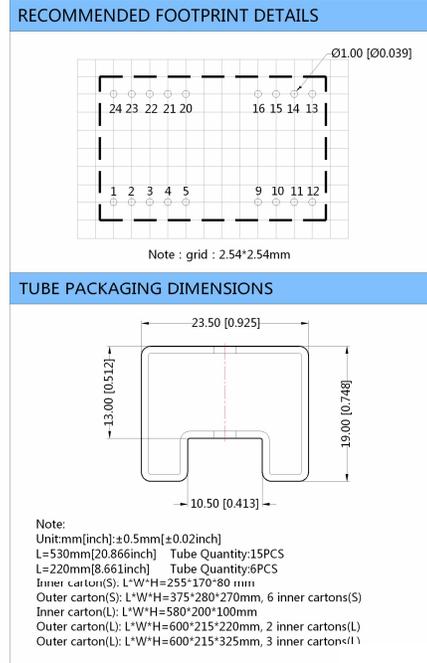
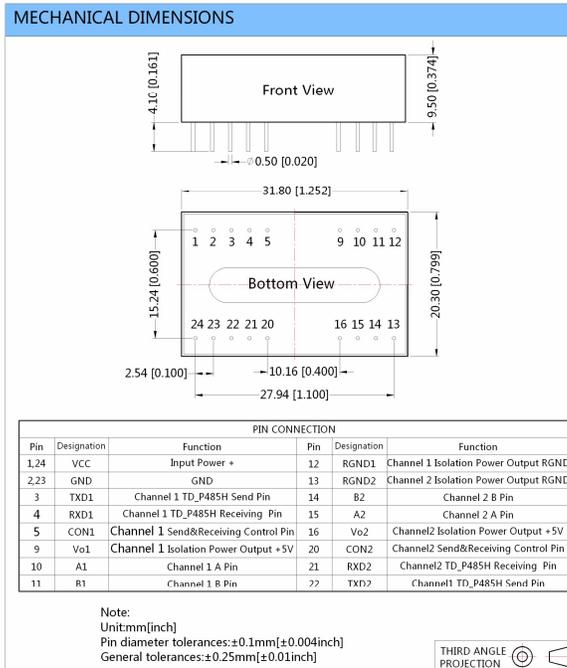
Model	TD31IP485H	TD51IP485H
C1	220uF/10V(Electrolytic capacitor)	
TVS1	SMCJ5.0A	SMCJ6.5A
C2,C3	1μF/25V	
L1	10μH	
C4,C9	1000pF/2000V	
R1,R6	1MΩ	
TVS2,TVS3 TVS5,TVS6 TVS4,TVS7	SMBJ15CA	
R2,R3,R4,R5	10Ω/2W(Wire-wound resistor)	
C5,C6,C7,C8	100pF/100V	
GDT1,GDT2	B3D090L-C	

TYPICAL APPLICATIONS CIRCUIT DIAGRAM



Note: 1 pin and 24 pin are internal connected, 23 pin and 2 pin are internal connected.

OUTLINE DIMENSIONS, RECOMMENDED FOOTPRINT & PACKAGING



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

1. 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 where purchased or MORNSUN FAE as soon as possible.
2. 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.

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 the test setup and methods are based on our corporate standards.
3. All characteristics are meant for listed model, non-standard models may perform differently, you can contact MORNSUN FAE for more details.
4. Contact us for your specific requirement.
5. Specifications are subject to change without prior notice.

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