

# MORNSUN®

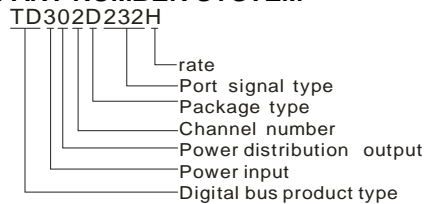
## DUAL HIGH SPEED RS232 ISOLATION TRANSCEIVER

—TD302D232H(3.3V Power supply)  
TD502D232H(5.0V Power supply)



RoHS

### PART NUMBER SYSTEM



### FEATURES

- I Meet EIA/TIA-232-F standard
- I High speed data rate : 115200bps
- I 2500VDC isolation voltage (input 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

### GENERAL DESCRIPTION

Dual high speed 232 isolation transceiver TD302D232H/ TD502D232H series are integrated isolation power, Signal isolation chip and RS232 transceiver chip in one of the RS232 interface integrated isolation module.

The main function of Products is to switch from logic level to 232 protocols 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 232 protocols network connection easily.

### SELECTION GUIDE

Model	Power Input
TD302D232H	3.0V~3.6V
TD502D232H	4.5V~5.5V

### ELECTRICAL CHARACTERISTICS

Input Of Power Supply	Static current	TD302D232H≤60 mA, TD502D232H≤35mA
	power dissipation	≤0.25W
Input	Serial interface	Compatible with the UART control port of +5V and +3.3V
	Pin current	I <sub>TXD</sub> <2mA ; I <sub>RXD</sub> <2mA
Output	Protocols interface	RS-232 interface

### TRANSMISSION SPECIFICATIONS

Data Rate	115200bps(max.)
Data delay	100μs(max.)

### ISOLATION SPECIFICATIONS

Electrical Isolation	Two-port isolation (input and output)
Isolation Voltage	2500VDC(Tested for 1 minute and leakage current < 5Ma, humidity < 95%)

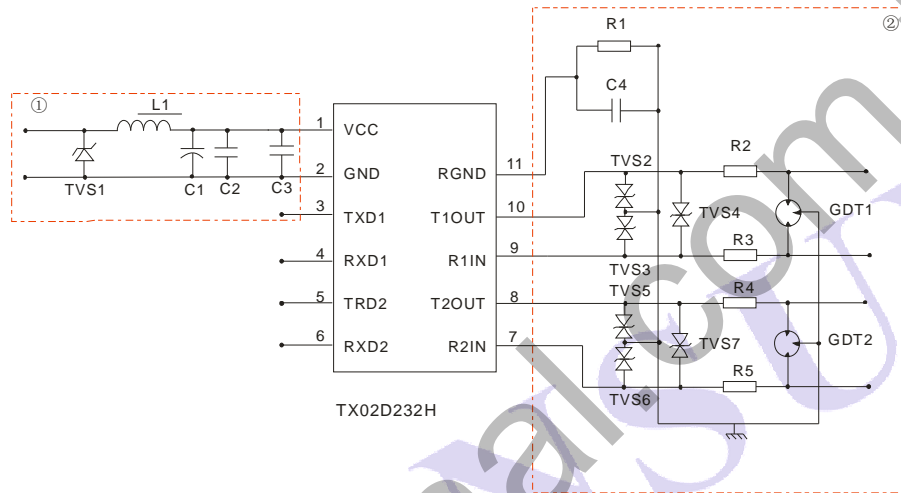
### EMC SPECIFICATIONS

EMI	CE	CISPR22/EN55022	CLASS A	(External Circuit Refer to Figure 1-①)	
	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)	
			Signal Port ±1KV	perf. Criteria B (External Circuit Refer to Figure 1-②)	
	Surge	IEC/EN61000-4-5	Power Port ±1KV/2KV	perf. Criteria B (External Circuit Refer to Figure 1-①)	
			Signal Port ±4KV/6KV	perf. Criteria B (External Circuit Refer to Figure 1-②)	
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%
The Max. Case Temperature	50°C (Ta=25°C)
Cooling	Free air convection
Size	DIP12 package 19.9*16.9*7.05 (L*W*H) (mm)
Weight	4 g
Application Environment	No dust, fierce vibration, impulsion and corrosive gas

## EMC RECOMMENDED CIRCUIT

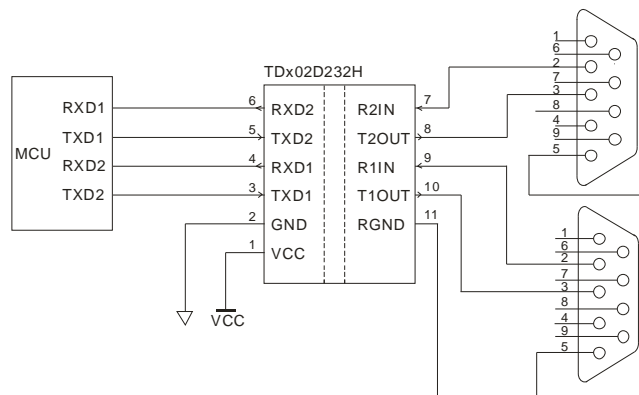


(Figure 1)

Recommended external circuit parameters:

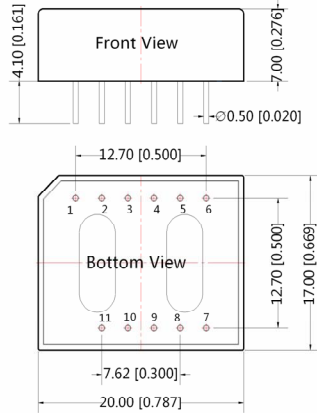
Model	TD302D232H	TD502D232H
C1	220uF/10V(Electrolytic capacitor)	
TVS1	SMCJ5.0A	SMCJ6.5A
C2,C3	1μF/25V	
L1	130μH	
C4	1000pF/2000V	
R1	1MΩ	
TVS2,TVS3 TVS5,TVS6	SMBJ18CA	
TVS4,TVS7	SMBJ30CA	
R2,R3,R4,R5	10Ω/2W(Wire-wound resistor)	
GDT1,GDT2	B3D090L-C	

## TYPICAL APPLICATIONS CIRCUIT DIAGRAM



## OUTLINE DIMENSIONS, RECOMMENDED FOOTPRINT & PACKAGING

### MECHANICAL DIMENSIONS



#### PIN CONNECTION

Pin	Designation	Function
1	VCC	Input Power +
2	GND	GND
3	TXD1	TTL/CMOS Input
4	RXD1	TTL/CMOS Output
5	TXD2	TTL/CMOS Input
6	RXD2	TTL/CMOS Output
7	RZIN	RS-232 Input
8	T2OUT	RS-232 Output
9	R1IN	RS-232 Input
10	T1OUT	RS-232 Output
11	RGND	Isolation Power Output RGND

Note:

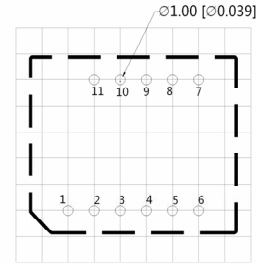
Unit :mm[inch]

Pin diameter tolerances : $\pm 0.1\text{mm}[\pm 0.004\text{inch}]$

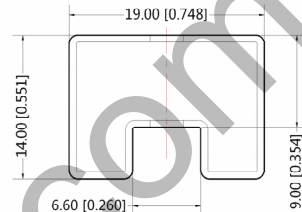
General tolerances: $\pm 0.25\text{mm}[\pm 0.010\text{inch}]$



### RECOMMENDED FOOTPRINT DETAILS



### TUBE PACKAGING DIMENSIONS



Note:

Unit :mm[inch]

General tolerances:  $\pm 0.50\text{mm}[\pm 0.020\text{inch}]$

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)

## 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 near you 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  $T_a=25^\circ\text{C}$ , 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 MORNSUN FAE for more details.
4. Contact us for your specific requirement.
5. Specifications are subject to change without prior notice.

### MORNSUN Science & Technology Co.,Ltd.

Address: No. 5, Kehui St. 1, Kehui development center, Science Ave., Guangzhou Science City, Luogang district, Guangzhou,P.R.China.

Tel: 86-20-38601850

Fax:86-20-38601272

E-mail: [info@mornsun.cn](mailto:info@mornsun.cn)

<http://www.mornsun-power.com>