Product Typical Feature

- ◆ High baud rate of up to 500Kbps
- ◆ Integrated isolated DC-DC converter
- ◆ Bus Protection
- ◆ Two-port isolation test voltage 3.75kVAC
- ◆ Operating ambient temperature range: -40℃to +85℃
- ◆ The bus supports maximum 256 nodes

Test Condition: Unless otherwise specified, data in the datasheet should be tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25℃.

Application Field

RS485-3V3HSA/ RS485-05HSA Series are transceiver isolation module with integrated power isolation, electrical isolation, and RS485 interface bus protector; The traditional isolation RS485 circuit uses a piece of power isolation module and RS485 transceiver chip to realize the application. Now only a RS485 transceiver module could realize the functions. Simplify the customers on the isolation requirements of the design; Products can be easily embedded in the user equipment, achieve function of RS485 network connection.

Typical Product List

Part No	Input Voltage Range (VDC)
RS485-3V3HSA	3.15V-3.45V
RS485-05HSA	4.75V-5.25V

Input Specification

Item		Operating Condition		Value
Power Input	Static Current	Products Powered on, no communication	RS485-3V3HSA	≤50mA
			RS485-05HSA	≤40mA
	Send Current	500Kbps square wave communication	RS485-3V3HSA	≤100mA
			RS485-05HSA	≤80mA
Single Input	Series Interface	RS485-3V3HSA		Compatible with +3.3V UART interface only
		RS485-05HSA		Compatible with +5V UART interface only
	Pin Current			I_{TXD}≤2mA; I_{RXD}≤2mA; I_{CON}≤2mA

Bus Interface

Item		Value
Output	RS485 Bus interface	Standard RS485 interface，A、B bus built in 5.1KΩ of the pull-down resistor

Transmission Specifications

Item	Value
Transmission Rate	500Kbps Max
Handoff Delay	≤30us

Number of Nodes	The bus supports maximum 256 nodes				
Transceiver Control	Contrary to common RS485 transceiver control level				
Send Status	Control	Input	Output		
	CON	TXD	A	B	Line State
	0	1	1	0	Normal
	0	0	0	1	Normal
Receive Status	Control	Input	Output		
	CON	A-B	RXD		
	1	≥0.2V	1		
	1	≤-0.2V	0		

General Specifications

Item	Operating Conditions	Value
Electric Isolation		Two-terminal isolation(input and output are mutually isolated)
Isolation Voltage	Lead current≤5mA，humidity≤95%，Test for 60S	3.75kVAC
Operating Temperature		-40℃ to +85℃
Transportation and Shortage Temperature		-55℃ to +105℃
Operating Humidity		10% - 90%
Max.Operating Temperature for Casing		25℃（Typ）
Safety Class		EN60950
Safety Certification		EN60950
Safety Class		CLASS III
Application Environment		The presence of dust, fierce vibration, impulsion and corrosive gas may cause damage to the product

EMC Specifications

Item	Sub	Test Certification	Class
EMI	CE	CISPR22/EN55032	CLASS A (see recommended circuit photo ②)
	RE	CISPR22/EN55032	CLASS A (see recommended circuit photo ②)
EMS	ESD	IEC/EN61000-4-2	Contact ±4KV Perf.Criteria B
	EFT	IEC/EN61000-4-4	Power supply port ±2KV Perf.Criteria B (see recommended circuit photo 1)
		IEC/EN61000-4-4	Signal supply port ±1KV Perf.Criteria B (see recommended circuit photo 1)
	Surge	IEC/EN61000-4-5	Power supply port ±1KV(line to line) (see recommended circuit photo ②)

			Signal supply port ±0.25KV(line to line) / ±0.5KV(line to ground) (see recommended circuit photo 1)
			Signal supply port ±0.5KV(line to line) / ±1KV(line to ground) (see recommended circuit photo 1)
			Signal supply port ±1KV(line to line) / ±2KV(line to ground) (see recommended circuit photo 1)
			Signal supply port ±2KV(line to line) / ±4KV(line to ground) (see recommended circuit photo 1)
			Signal supply port ±4KV(line to line) / ±6KV(line to ground) (see recommended circuit photo 1)

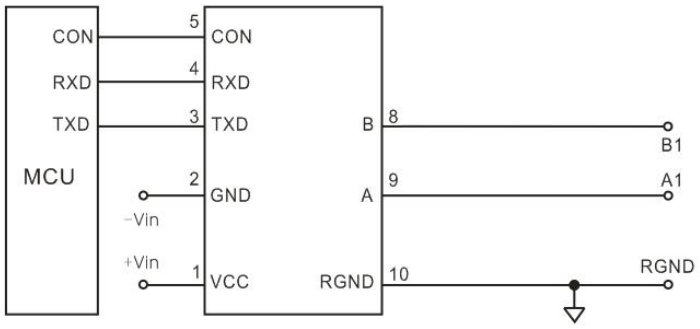
Design Reference

1.Typical Application：

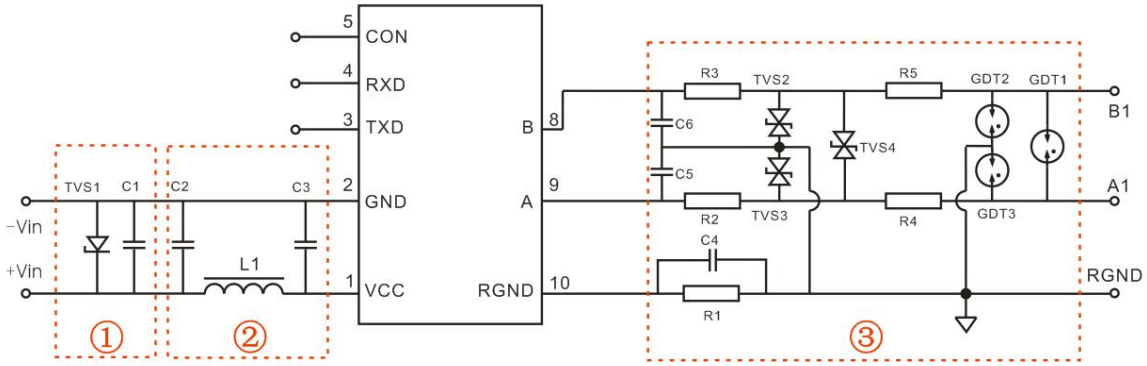
Typical Application RS485 isolated transceiver module is as shown in the photo;

RS485-05HSA module need to use the 5V power supply, the matching level is 5V, not be suitable for 3.3V system level;

RS485-3V3HSA module need to use the 3.3V power supply, the matching level is 3.3V, not be suitable for 5V system level;



2.Recommended Circuit：

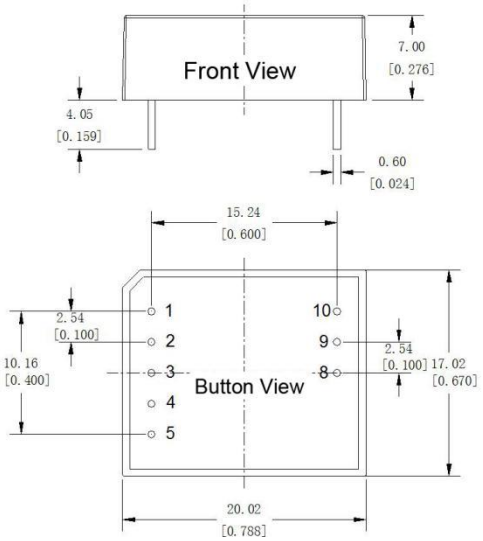


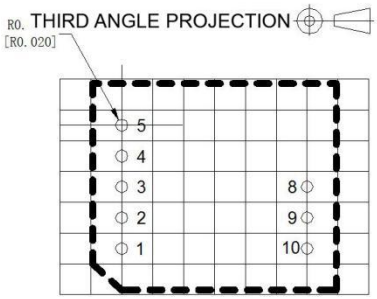
Recommended Parameter：

Component	RS485-3V3HSA		RS485-05HSA		
C1	220uF/10V（Electrolytic capacitor）				
TVS1	SMCJ5.0A		SMCJ6.5A		
C2、C3	1uF/50V				
L	10uH				
C5/C6	100pF/100V				
C4	1nF/2KW				
R1	1MΩ				
TVS2、TVS3,TVS4	SMBJ15CA				
R4/R5	/		Wire-wound resistor 10Ω/2W		
R2/R3	Wire-wound resistor 10Ω/1W	Wire-wound resistor 10Ω/2W	/		
GDT1/GDT2/GDT3	/		G30-A90X	S30-A90X	S50-A90X

/

Dimension





Note：Grid: 2.54*2.54mm

Note:
Unit:mm[inch]
Pin section tolerances: ±0.10mm[±0.004 inch]
General tolerances: ±0.25mm[±0.010inch]

Pin-Out		
Pin	Name	Function
1	VCC	Input Power +
2	GND	GND
3	TXD	Send Pin
4	RXD	Receiving Pin
5	CON	Send & Receiving Control Pin
8	B	RS485H B Pin
9	A	RS485H A Pin
10	RGND	Isolation Power RGND

Package Code	20X17X7mm	0.787X0.669X0.276inch

Design Reference

1. The product should be used under the specification range,hot Hot-swap is not supported, otherwise it will cause permanent damage to it;
2. RS485-05HSA will not support 3.3V system levels, RS485-3V3HSA will not support 5V level;
3. If the product worked beyond the load range or below the minimum load, we cannot ensure that the performance of product is in accordance with all the indexes in this manual;
4. Unless otherwise specified, data in this datasheet should be tested under conditions of Ta=25℃, humidity<75% when inputting nominal voltage and outputting rated load(pure resistance load);
5. All index testing methods in this datasheet are based on our Company's corporate standards;
6. We can provide customized product service;
7. The product specification may be changed at any time without prior notice.