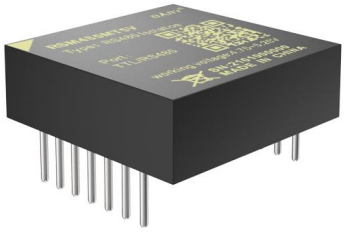
RSM485MT5V Product Specifications

Single-channel high-speed RS485 isolated transceiver module

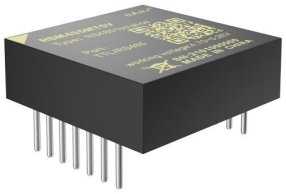


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Chengdu Ebyte Electronic Technology Co.,Ltd.

Ⅰ Product description

1.1. Introduction



RSM485MT5V is a single-channel half-duplex high-speed RS485 isolation transceiver module, which integrates high-reliability isolation power supply and high-strength signal isolation chip, as well as a standard RS485 protocol transceiver module integrating RS485 transceiver chip and bus protection device.

The main function of the product is to convert TTL logic level to differential level of RS485 protocol, or convert RS485 differential signal to TTL level.

The product comes with an isolated power supply with an output of 5V/50mA and a maximum power of 0.25W.

The electrical isolation of input and output is 3000VDC, and the ultra-thin plastic-encapsulated design product can be easily embedded in user equipment to realize the connection function of RS485 protocol network.

The RS485 port module has a built-in TVS transient suppression device, which protects the port from inrush current caused by ESD, EFT and lightning.

1.2. Features

- Ultra-small size: 25.4*25.4*8mm;
- Communication rate: 1200~256000bps;
- Maximum contacts: 64;
- Isolation voltage: 3000V;
- Isolation voltage output: 5V/50mA 0.25W;
- 5V/50mA；Isolated output voltage: 5V/50mA;
- Working temperature: -40～+85℃;
- Isolated power supply: high-strength isolation DC-DC is integrated on-chip;
- Port protection: built-in TVS transient surge peak suppression;

Ⅱ Specifications

2.1. Limit parameters

Serial Num	Limit parameters	Minimum	Maximum	Remark

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ber				
1	Input voltage	4.5	5.5	Vdc (Output about 6V at no load)
2	Output voltage	4.8	6	V
3	Maximum output current	0	50	mA (5V output maximum current must not exceed 50mA, otherwise it may be permanently damaged)
4	Operating temperature	-40	+85	ta=40℃, tc=85℃

2.2. Working parameters

Serial Number	Main Parameters	Minimum	Typical value	Maximum	Remark
Input	Input voltage	4.75	5	5.25V	Vdc (It is not recommended to input more than 5.25V)
	Input ripple	-	-	<350	mV
	Input Current	250	-	-	It is recommended to be greater than 300mA
	Communication level	2.8	3.3	5.25	V
	CON_High	3	-	5.5	V
	CON_Low	0	-	0.8	V
Output Transmission	Output voltage	5.2	5.3	5.4	VIN=5V (no load)
	DC-DC efficiency	-	75	-	% (at maximum load)
	Transmission rate	1200	-	256000	bps
	number of nodes	-	-	128	piece (Up to 128 nodes supported)
	Transceiver switching delay	2	-	5	us
	Transceiver control	3	3.3	5.25	V
	Communication level TTL	2.8	3.3	5.25	V
Isolation withstand voltage	Input/ Output	2750	3000	-	VDC(时间 1 分钟，漏电流<5mA)
Environment	Operating temperature	-40	25	+85	ta=40℃,tc=85℃
	Working humidity	20	-	90	% no condensation
	Storage temperature	-40	+25	+85	℃ Dry storage at room temperature
	Storage humidity	20	-	90	%Dry storage at room temperature
Other	Product Size	25.4*25.4*8mm			
	Product weight	-	7.5	-	g

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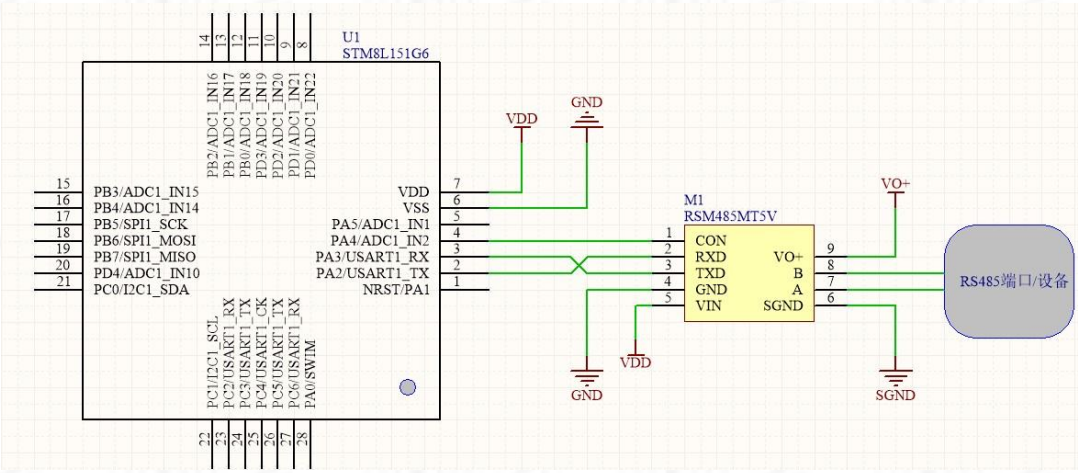
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Ⅲ Basic operation

3.1. Notes

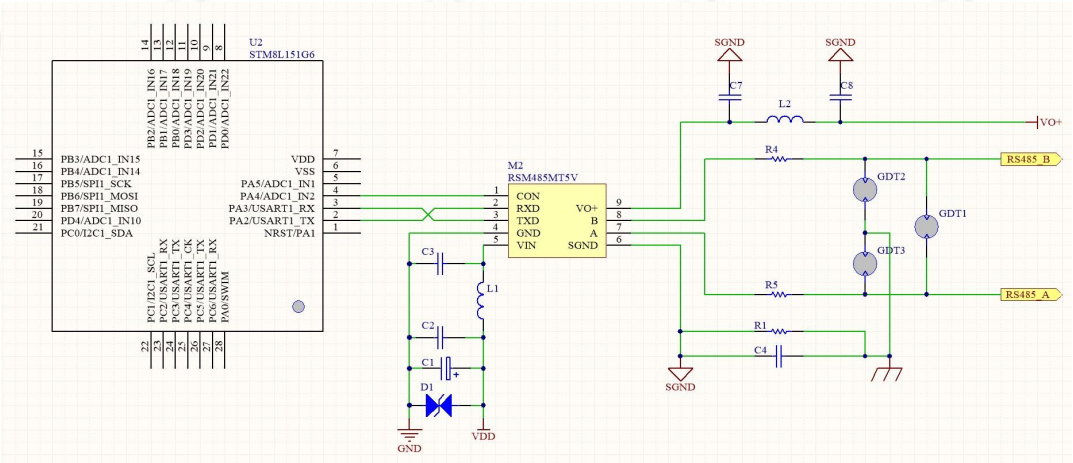
- Before use, please read the technical manual carefully, if you have any questions, please contact the technical support of our company;
- The maximum input voltage must not exceed 5Vdc, otherwise the isolated power output of the module will exceed >5.5V, and you don't need to care if it is not used;
- If the user needs to use the module's own isolated 5V power output, please pay attention that the input voltage should not be higher than 5V, and don't need to care if it is not used;
- If the user needs to use the module's own isolated 5V power output, it is recommended to add a first-level voltage regulator, and no need to care if it is not used;
- During routine maintenance, the input power should be disconnected first;
- Please do not install the product in hazardous areas;
- The power supply of the product adopts DC power supply, and it is strictly forbidden to use AC power supply;
- It is strictly forbidden to disassemble the product without permission to prevent the equipment from failing or malfunctioning;
- The operation of this module requires certain professional skills, and rigorous non-professional life can operate it!
- This product has no power reverse connection protection, please pay attention to the positive and negative poles, the wrong connection will cause permanent damage to the module;
- 。The products have been strictly inspected and quality controlled before leaving the factory. If there is any abnormal work or suspected internal module failure, please contact the nearest agent or our company's technical support in time.

3.2. Typical application



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3.3. EMC Solution - Recommended Circuit



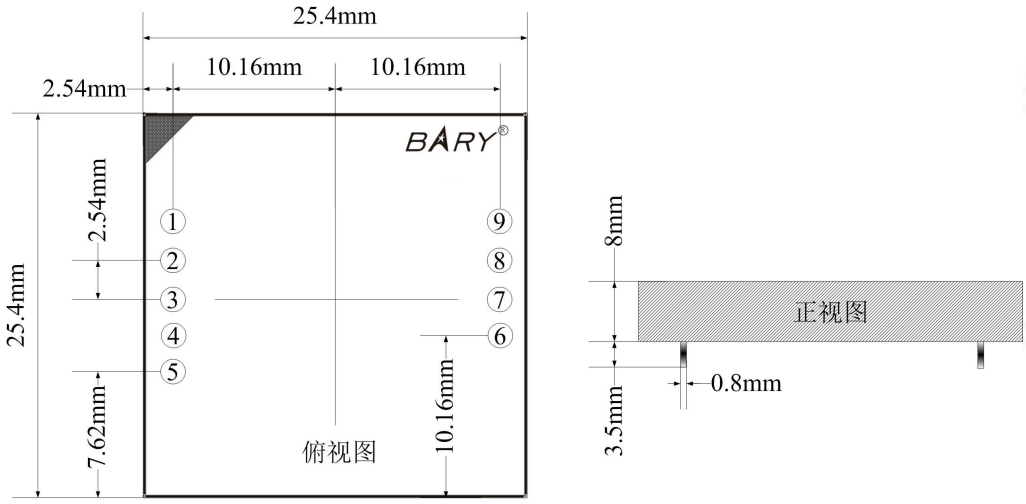
Tag	Strength				
	±V0.5KV	±V1KV	±V2KV	±V4KV	±V6KV
C1	220uF/10V (electrolysis)				
D1	SMCJ5.0CA				
C2,C3	1uF/10V				
L1	10uH				
C4	1nF/2KV				
R1	1M/1/2W				
R4,R5	0R		10R/2W (Wirewound Resistor)		
GDT1,GDT2,GDT3	0R		G30-A90X	S30-90X	S50-90X
*Note: GDT1~3 can be replaced by a three-stage gas discharge tube; the three two-terminal devices in the 4~6KV class can be replaced by a three-stage gas discharge tube, such as B3D090L-C.					

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Ⅳ Mechanical Characteristics and Pin Definition

4.1. Product Dimensions



4.2. Pin Definition

Serial Number	Pin	Direction	Application
1	CON	Input	ransceiver Enable (High = TX, Low = Rec)
2	RXD	Input	Module TTL serial port data input
3	TXD	Output	Module TTL serial port data output
4	GND	Input	DC power input negative
5	VIN	Input	DC power input positive
6	SGND	Output	Isolated voltage output negative
7	A	Input/Output	RS485 bus port A
8	B	Input/Output	RS485 bus port B
9	VO+	Output	Isolated voltage output positive

Ⅴ Product Selection

Product Model	Input Voltage	Output Voltage	Output Current	Interface	Installation Method
RSM485MT5V	4.75~5.25V	5.0V	50mA	RS485/UART_TTL	Plastic plug-in
RSM485HT3S	3.0~5.25V	3.3V	50mA	RS485/UART_TTL	Bare board patch [SMD]

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RSM485HT3D	3.0~5.25V	3.3V	50mA	RS485/UART_TTL	Bare board plug-in [DIP]
RSM485HT5S	4.5~5.25V	5.0V	50mA	RS485/UART_TTL	Bare board patch [SMD]
RSM485HT5D	4.5~5.25V	5.0V	50mA	RS485/UART_TTL	Bare board plug-in [DIP]

Revise History

Serial Number	Version	Revise Date	Revise notes	Maintainer
1	V1.0	20211228	First edition, first published	LJ

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