

## General Description

The MAX22501E evaluation kit (EV kit) is a fully assembled and tested PCB that demonstrates the functionality of the MAX22501E half-duplex, high speed RS-485/RS-422 transceiver. The EV kit operates from a single 3V to 5V supply and includes selectable on-board termination.

## Features

- Operates From a Single 3V to 5V Supply
- Terminal Block and RJ45 Connectors for Easy RS-485/RS-422 Evaluation
- Fully Assembled and Tested

## Quick Start

### Required Equipment

- MAX22501E EV kit
- 3.3V, 500mA DC power supply
- 80MHz Signal/function generator
- Oscilloscope

## Startup Procedure

The EV kit is fully assembled and tested. Follow the steps below to verify board operation.

- 1) Ensure that all jumpers are in their default positions (see [Table 1](#)).
- 2) Set the DC power supply to 3.3V and connect the DC power supply between VCC (TP1) and GND (TP2) test points on the EV kit.
- 3) Connect the oscilloscope probes to the DI input (TP7), A (TP8), B(TP9), and RO (TP4).
- 4) Turn on the power supply.
- 5) Set the signal/function generator to output a 30MHz 0-to-3V square wave.
- 6) Connect the signal/function generator to the DI test point.
- 7) Using the oscilloscope, verify that the A, B, and RO- outputs switch as the DI signal toggles.

[Ordering Information](#) appears at end of data sheet.

## Detailed Description of Hardware

The MAX22501E EV kit is a fully assembled and tested circuit board for evaluating the MAX22501E high-speed, half-duplex RS-485/RS-422 transceiver (U1). The EV kit can be used for standalone evaluation or can be connected (using the on-board terminal block) to an RS-485/RS-422 network for easy in-system evaluation.

## Driver and Receiver Enable Selection

The EV kit features three jumpers (J2, J4, and J5) to enable/disable the driver and receiver outputs. Set J2 to low (2-3) to enable the receiver. Set J4 to high (1-2) to enable the driver.

To actively control both enables, remove the J2 and J4 shunts and close J5, which connects DE and RE together.

## Termination for an End-of-Line Transceiver

The MAX22501E EV kit includes a 120Ω termination resistor (R2) between the A and B RS-485 driver outputs/receiver inputs on the MAX22501E.

**Table 1. Jumper Table (J2, J4, J5, J6)**

JUMPER	SHUNT POSITION	DESCRIPTION
J2	1-2	RE is high. The RS-485 receiver is disabled.
	2-3*	RE is low. The RS-485 receiver is enabled.
J4	1-2*	DE is high. The RS-485 driver outputs are enabled.
	2-3	DE is low. The RS-485 driver outputs are disabled.
J5	Open	DE and RE are not connected together.
	Closed*	DE and RE are connected together.

\*Default position.

## Ordering Information

PART	TYPE
MAX22501EEVKIT#	EV Kit

#Denotes RoHS compliant.

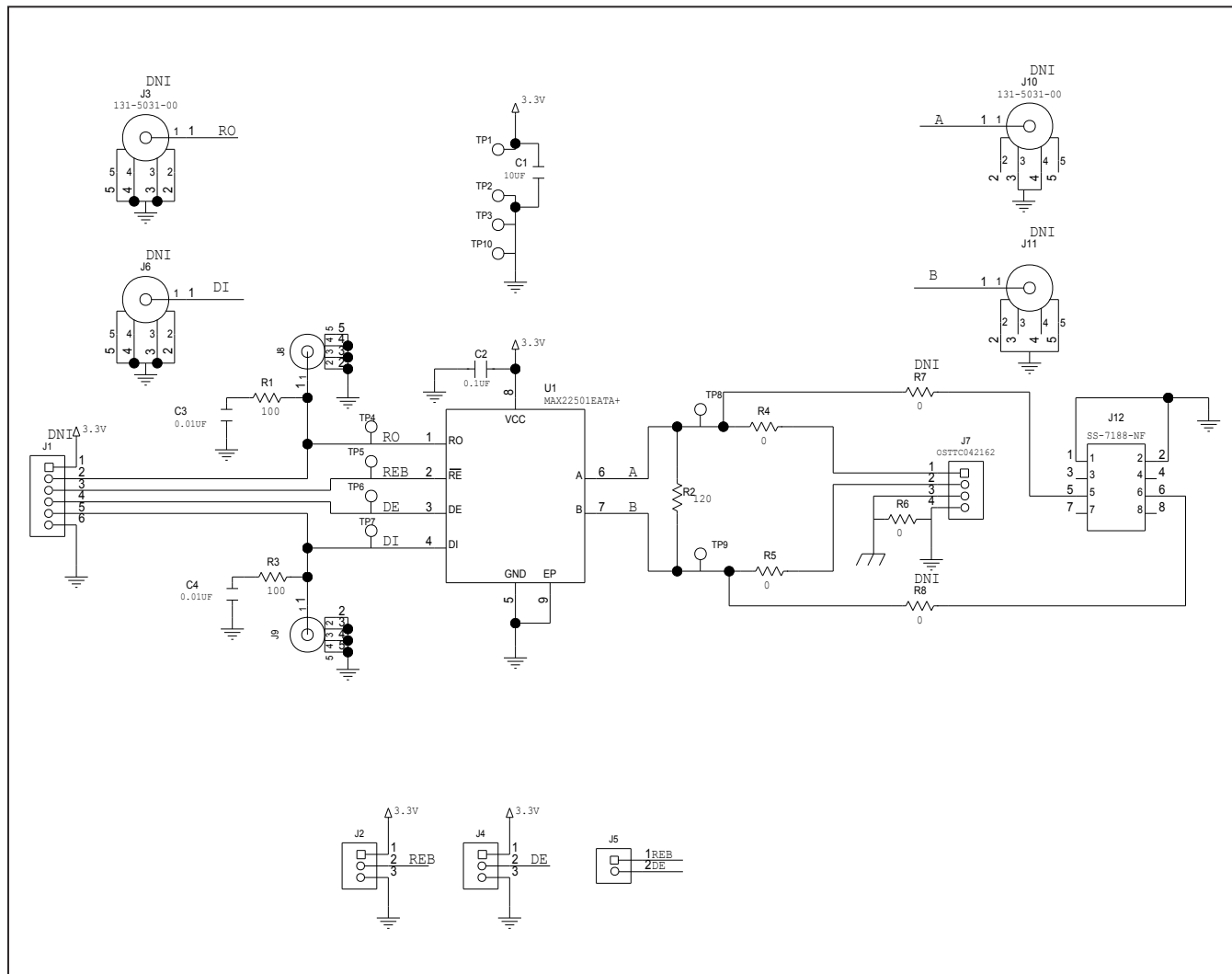
# MAX22501E Evaluation Kit

Evaluates: MAX22501E

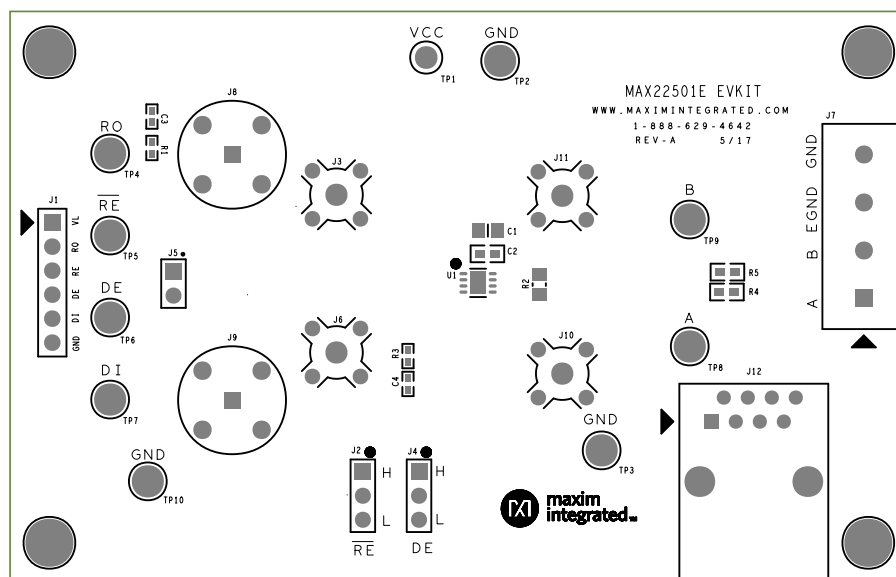
## MAX22501E EV Kit Bill of Materials

ITEM	REF_DES		QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION	COMMENTS
1	C1		1	GRM21BR61A106KE19L; ECJ-2FB1A1; CL21A106KPCLQNC; GRM219R61A106KE4	MURATA; PANASONIC; SAMSUNG ELECTRONICS	10UF	CAPACITOR; SMT (0805); CERAMIC CHIP; 10UF; 10V; TOL=10%; MODEL=; TG=-55 DEGC TO +85 DEGC; TC=X5R	
2	C2		1	C0603C104K5RAC; C1608X7R1H104K	KEMET; TDK	0.1UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 0.1UF; 50V; TOL=10%; TG=- 55 DEGC TO +125 DEGC; TC=X7R;	
3	C3, C4		2	C0402C103K5RAC; GRM155R71H103KA88	KEMET/MURATA	0.01UF	CAPACITOR; SMT (0402); CERAMIC CHIP; 0.01UF; 50V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R	
4	J1	DNI	0	PBC06SAAN	SULLINS ELECTRONICS CORP.	PBC06SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 6PINS; -65 DEGC TO +125 DEGC	
5	J2, J4		2	PCC03SAAN	SULLINS	PCC03SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 3PINS; -65 DEGC TO +125 DEGC	
6	J3, J6, J10, J11	DNI	0	131-5031-00	TEKTRONIX	131-5031-00	CONNECTOR; WIREMOUNT; 3 GHZ 20X LOW CAPACITANCE PROBE; STRAIGHT; 5PINS	
7	J5	DNI	0	PCC02SAAN	SULLINS	PCC02SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 2PINS; -65 DEGC TO +125 DEGC	
8	J7		1	OSTTC042162	ON-SHORE TECHNOLOGY INC	OSTTC042162	CONNECTOR; FEMALE; THROUGH HOLE; TERMINAL BLOCK ONE PIECE WIRE PROTECTOR; COLOR BLUE; RIGHT ANGLE; 4PINS	
9	J8, J9		2	5-1634503-1	TE CONNECTIVITY	5-1634503-1	CONNECTOR; FEMALE; THROUGH HOLE; LOW PROFILE BNC PCB SOCKET; STRAIGHT; 5PINS	
10	J12		1	SS-7188-NF	STEWART CONNECTOR	SS-7188-NF	CONNECTOR; FEMALE; THROUGH HOLE; UNSHIELDED CAT 5/5E NON-FLANGE JACK; RIGHT ANGLE; 8PINS	
11	R1, R3		2	CRCW0402100RFFK; 9C04021A1000FL; RC0402FR-07100RL	VISHAY DALE; PANASONIC; YAGEO PHYCOMP	100	RESISTOR; 0402; 100 OHM; 1%; 100PPM; 0.063W; THICK FILM	
12	R2		1	CRCW0805120RFFK	VISHAY DALE	120	RESISTOR; 0805; 120 OHM; 1%; 100PPM; 0.125W; THICK FILM	
13	R4-R6		3	CRCW060300000ZS; MCR03EZPJ000; ERJ-3GEY0R00	VISHAY DALE/ROHM/PANASONIC	0	RESISTOR; 0603; 0 OHM; 0%; JUMPER; 0.10W; THICK FILM	
14	R7, R8	DNI	0	CRCW060300000ZS; MCR03EZPJ000; ERJ-3GEY0R00	VISHAY DALE/ROHM/PANASONIC	0	RESISTOR; 0603; 0 OHM; 0%; JUMPER; 0.10W; THICK FILM	
15	TP1		1	5010	KEYSTONE	N/A	TESTPOINT WITH 1.80MM HOLE DIA, RED, MULTIPURPOSE;	
16	TP2, TP3, TP10		3	5011	KEYSTONE	N/A	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; BLACK; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;	
17	TP4-TP9		6	5014	KEYSTONE	N/A	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; YELLOW; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;	
18	U1		1	MAX22501EATA+	MAXIM	MAX22501EATA+	EVKIT PART-IC; TDFN8-EP; HIGH SPEED HALF-DUPLEX RS-485 TRANSCIVER FOR LONG CABLE LENGTH; PACKAGE CODE: T833+2; PACKAGE OUTLINE: 21-0137	
19	PCB		1	MAX22501E	MAXIM	PCB	PCB:MAX22501E	-
TOTAL			36					

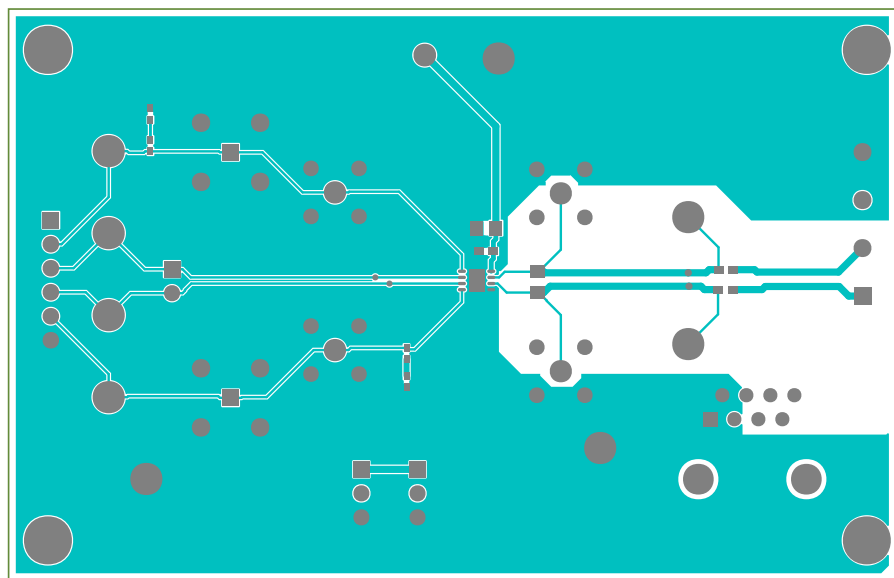
## MAX22501E EV Kit Schematic



## MAX22501E EV Kit PCB Layout Diagrams

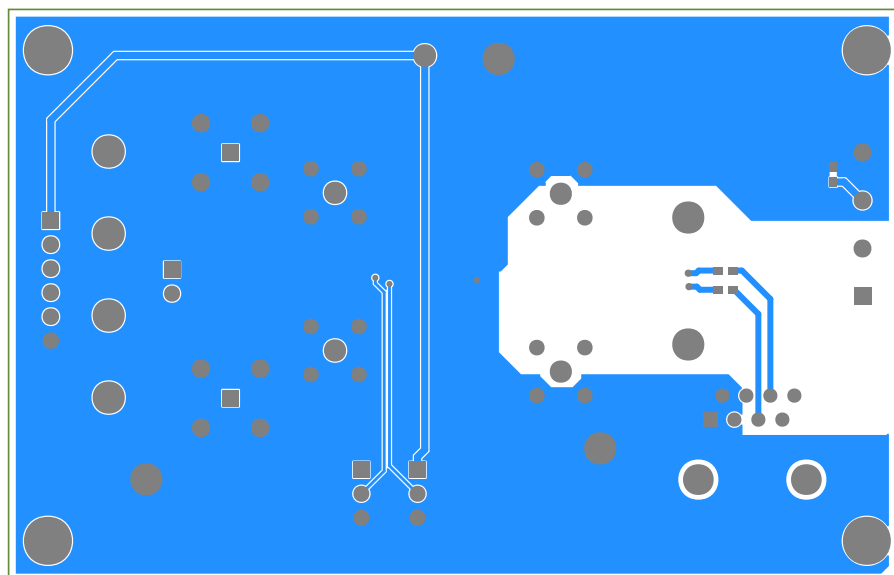


MAX22501E EV Kit—Top Silkscreen

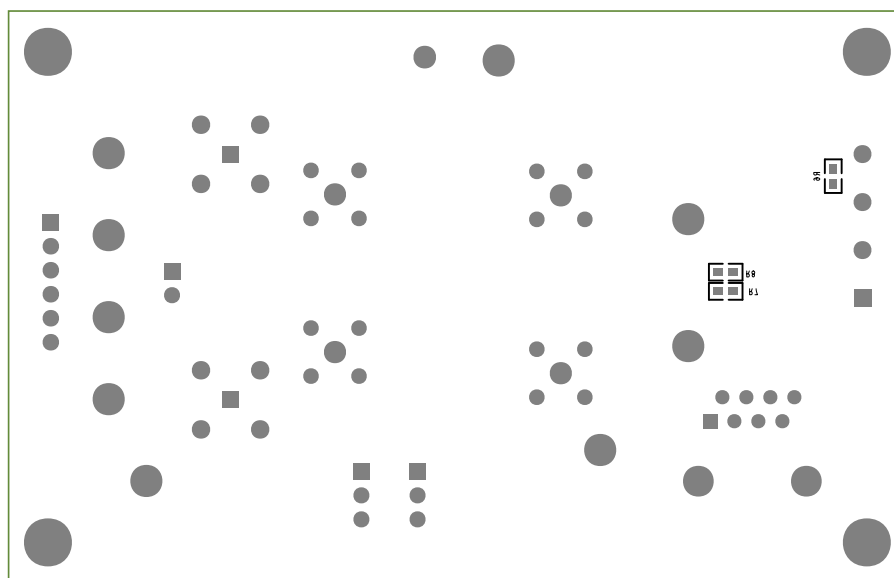


MAX22501E EV Kit—Top

## MAX22501E EV Kit PCB Layout Diagrams (continued)



MAX22501E EV Kit—Bottom



MAX22501E EV Kit—Bottom Silkscreen

## Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	8/17	Initial release	—

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