

MAX22507E Evaluation Kit

Evaluates: MAX22507E/MAX22508E

General Description

The MAX22507E evaluation kit (EV kit) is a fully assembled and tested PCB that demonstrates the functionality of the MAX22507E and the MAX22508E full-duplex high speed RS-485/RS-422 transceiver. The EV kit includes on-board termination for easy point-to-point evaluation. The EV kit is assembled using MAX22507E in a 10-pin TDFN package, but also provides equivalent functional evaluation for the MAX22508E, which is offered in a 8-pin SOIC package.

Features

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

Quick Start

Required Equipment

- MAX22507E EV kit
- 5V, 500mA DC power supply
- 50MHz 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 5V and connect the DC power supply to the V_{CC} test point (TP1). Connect the ground terminal of the 5V supply to the GND test point (TP2).
- 3) Turn on the power supply.
- 4) Set the signal/function generator to output a 25MHz 0V-to-5V square wave.
- 5) Connect the signal/function generator to the DI test point (TP7).
- 6) Using the oscilloscope, verify that the Y (TP11), Z (TP12), and RO (TP4) outputs switch as the DI signal toggles.

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

Detailed Description of Hardware

The MAX22507E EV kit is a fully assembled and tested circuit board for evaluating the MAX22507E high speed full-duplex RS-485/RS-422 transceiver (U1). The EV kit can be powered from a single supply and 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. The MAX22508E does not feature the driver enable (DE) or receiver enable (\overline{RE}) pins. To emulate the functional performance of the MAX22508E, tie DE high (J4 is 1–2) and \overline{RE} low (J2 is 2–3).

Driver and Receiver Enable

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 jumpers and close J5. Note that J5 is not installed, by default. Install the J5 jumper to use this functionality.

Loopback Configuration

To test the MAX22507E in a loopback configuration, close the J13 and J15 jumpers. J13 connects the A input to the Y output. J15 connects the B input to the Z output.

Termination for an End-of-Line Transceiver

The MAX22507E EV kit includes 120Ω termination resistors between the Y and Z driver outputs (R6) and between the A and B receiver inputs (R7) on the MAX22507E.

Table 1. Jumper Table (J3–J6, J8, J14)

JUMPER	SHUNT POSITION	DESCRIPTION
J2	1–2	\overline{RE} is high. The RS-485 receiver is disabled.
	2–3*	\overline{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 \overline{RE} are not connected together. J5 is DNI by default.
	Closed	DE and \overline{RE} are connected together.
J13	Open	A is not connected to Y.
	Closed*	A is connected to Y.
J15	Open	B is not connected to Z.
	Closed*	B is connected to Z.

*Default position.

Ordering Information

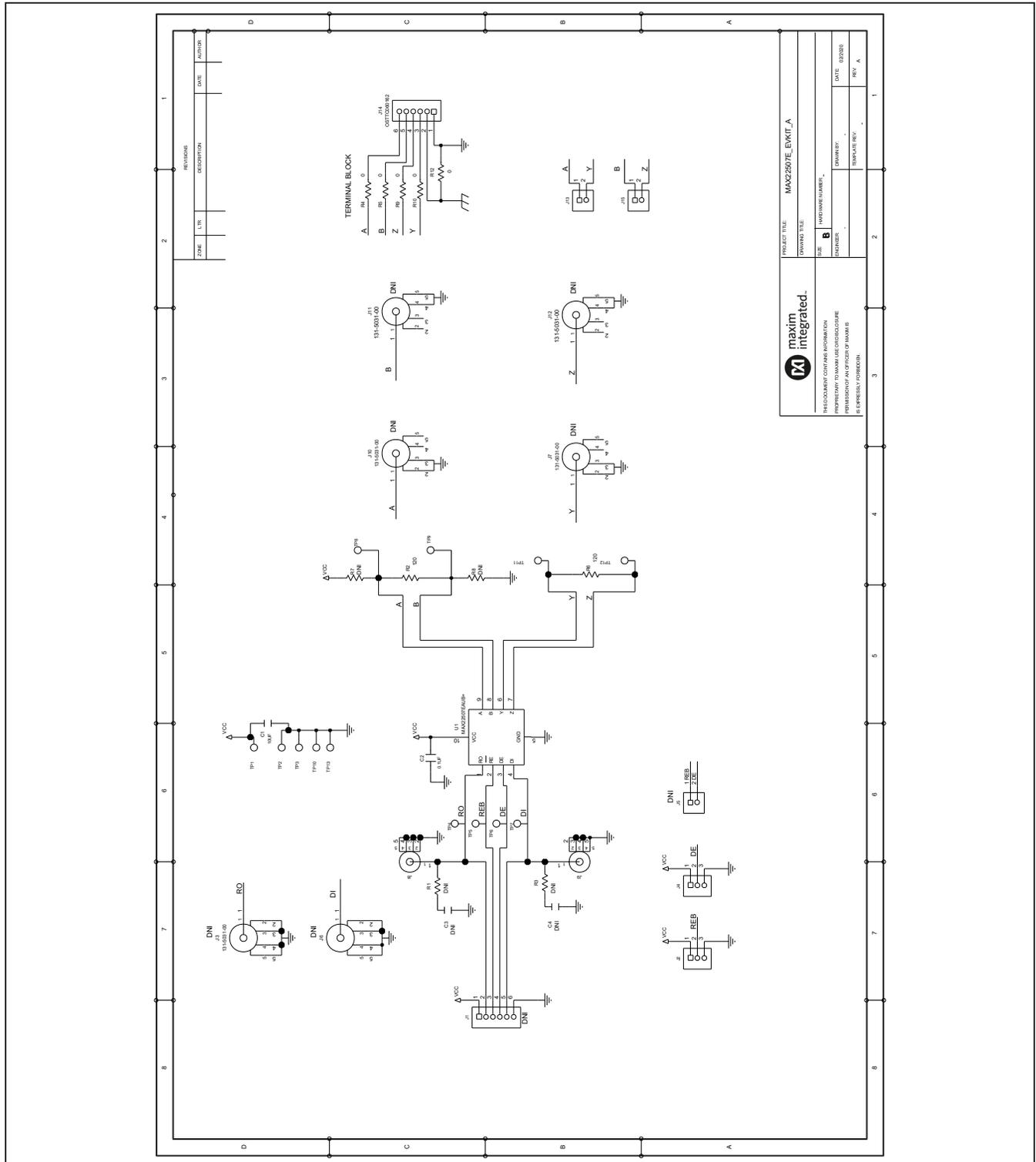
PART	TYPE
MAX22507EEVKIT#	EV Kit

#Denotes RoHS compliance.

MAX22507E EV Kit Bill of Materials

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
1	C1	-	1	GRM21BR61A106KE19; ECJ-2FB1A106; CL21A106KPCLQNC; GRM219R61A106KE44	MURATA;PANASONIC;SAMSUNG ELECTRONICS;MURATA	10UF	CAPACITOR; SMT (0805); CERAMIC CHIP; 10UF; 10V; TOL=10%; MODEL=; TG=-55 DEGC TO +85 DEGC; TC=X5R
2	C2	-	1	C0603C104K5RAC; C1608X7R1H104K; ECJ-1VB1H104K; GRM188R71H104KA93; CGJ3E2X7R1H104K080AA; C1608X7R1H104K080AA; CL10B104KB8NNN; CL10B104KB8NFN	KEMET;TDK;PANASONIC;MURATA; TDK;TDK;SAMSUNG ELECTRO-MECHANICS;SAMSUNG ELECTRONICS	0.1UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 0.1UF; 50V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R;
3	J2, J4	-	2	PCC03SAAN	SULLINS	PCC03SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 3PINS; -65 DEGC TO +125 DEGC
4	J8, J9	-	2	5-1634503-1	TE CONNECTIVITY	5-1634503-1	CONNECTOR; FEMALE; THROUGH HOLE; LOW PROFILE BNC PCB SOCKET; STRAIGHT; 5PINS
5	J13, J15	-	2	PCC02SAAN	SULLINS	PCC02SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 2PINS; -65 DEGC TO +125 DEGC
6	J14	-	1	OSTTC060162	ON-SHORE TECHNOLOGY INC	OSTTC060162	CONNECTOR; FEMALE; THROUGH HOLE; OSTTC-5.0 SERIES 2-INTERLOCK; RIGHT ANGLE; 6PINS
7	R2, R6	-	2	CRCW0805120RFK	VISHAY DALE	120	RESISTOR; 0805; 120 OHM; 1%; 100PPM; 0.125W; THICK FILM
8	R4, R5, R9, R10, R12	-	5	CRCW06030000ZS; MCR03EZPJ000; ERJ-3GEY0R00	VISHAY DALE;ROHM;PANASONIC	0	RESISTOR; 0603; 0 OHM; 0%; JUMPER; 0.10W; THICK FILM
9	SPACER1-SPACER4	-	4	9032	KEYSTONE	9032	MACHINE FABRICATED; ROUND-THRU HOLE SPACER; NO THREAD; M3.5; 5/8IN; NYLON
10	TP1	-	1	5010	KEYSTONE	N/A	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; RED; PHOSPHOR BRONZE WIRE SIL;
11	TP2, TP3, TP10, TP13	-	4	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;
12	TP4-TP9, TP11, TP12	-	8	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;
13	U1	-	1	MAX22507EAUB+	MAXIM	MAX22507EAUB+	EVKIT PART - IC; 50MBPS FULL-DUPLEX RS-485/RS-422 TRANSCEIVERS WITH HIGH EFT IMMUNITY; PACKAGE OUTLINE DRAWING: 21-0061; PACKAGE CODE: U10+6C; PACKAGE LAND PATTERN: 90-0330
14	PCB	-	1	MAX22507E	MAXIM	PCB	PCB:MAX22507E
15	C3, C4	DNP	0	C0402C103K5RAC; GRM155R71H103KA88; C1005X7R1H103K050BE; CL05B103KB5NNN; UMK105B7103KV	KEMET;MURATA;TDK;SAMSUNG ELECTRONIC;TAIYO YUDEN	0.01UF	CAPACITOR; SMT (0402); CERAMIC CHIP; 0.01UF; 50V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R
16	J1	DNP	0	PBC06SAAN	SULLINS ELECTRONICS CORP.	PBC06SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 6PINS; -65 DEGC TO +125 DEGC
17	J3, J6, J7, J10-J12	DNP	0	131-5031-00	TEKTRONIX	131-5031-00	CONNECTOR; WIREMOUNT; 3 GHZ 20X LOW CAPACITANCE PROBE; STRAIGHT; 5PINS
18	J5	DNP	0	PCC02SAAN	SULLINS	PCC02SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 2PINS; -65 DEGC TO +125 DEGC
19	R1, R3	DNP	0	CRCW0402100RFK; 9C04021A1000FL; RC0402FR-07100RL	VISHAY DALE;PANASONIC; YAGEO PHYCOMP	100	RESISTOR; 0402; 100 OHM; 1%; 100PPM; 0.063W; THICK FILM
20	R7, R8	DNP	0	CRCW06031K00FK;ERJ-3EKF1001	VISHAY DALE;PANASONIC	1K	RESISTOR; 0603; 1K; 1%; 100PPM; 0.10W; THICK FILM
TOTAL			35				

MAX22507E EV Kit Schematic



Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	3/21	Initial release	—

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