

MAX14882 Evaluation Kit

Evaluates: MAX14882

General Description

The MAX14882 evaluation kit (EV kit) is a fully assembled and tested PCB that demonstrates the functionality of the MAX14882 isolated controller area network (CAN) transceiver. The EV kit operates from a single 3.3V supply and features an on-board isolated power supply to power the secondary side of the circuit.

Features

- Operates from a Single 3.3V Supply
- Terminal Block Connectors for Easy RS-485/RS-422 Evaluation
- 5000VRMS Isolation for 60s
- Fully Assembled and Tested

Quick Start

Required Equipment

- MAX14882 EV kit
- 3.3V, 500mA DC power supply
- Signal/function generator
- Oscilloscope

Procedure

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

- 1) Set the DC power supply to 3.3V.
- 2) Connect the DC power supply to the 3.3V test point (T15). Connect the ground terminal to the GND testpoint (T14).
- 3) Ensure that the jumpers are in their default positions (see [Table 1](#)).
- 4) Turn on the power supply.
- 5) Connect the oscilloscope to the CANH and CANL test points (T12 and T13).
- 6) Set the signal/function generator to output a 500kHz 0-to-3.3V square wave.
- 7) Connect the signal/function generator to the TXD test point (T7).
- 8) Verify that the CANH and CANL outputs switch as the signal toggles.

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

Detailed Description of Hardware

The MAX14882 EV kit is a fully assembled and tested circuit board for evaluating the MAX14882 isolated CAN transceiver (U1). The EV kit is powered from a single 3.3V power supply.

External Power Supply

The power on the EV kit is derived from a single 3.3V source. Connect an external supply to the +3.3V test point (T15) to supply the 3.3V to the logic-side (A) of the circuit. The MAX14882 drives the on-board transformer 1CT:2.4CT to generate the supply voltage needed on the isolated side of the transceiver.

To use an external supply on the isolated side of the board, remove the shunt on the J1 jumper and apply the voltage to the V_{LDO} test point (T8).

Evaluating the Isolated CAN Interface

The MAX14882 EV kit includes test points to access CANH (T12) and CANL (T13) for easy evaluation. To verify operation in a CAN system, connect the transceiver to the network using the P3 terminal block and use the TXD (T7) and RXD (T4) test points, or the P2 jumper pad, to connect the device to a logic controller.

Table 1. Jumper Table (J1-J5)

JUMPER	SHUNT POSITION	DESCRIPTION
J1	1-2*	V_{LDO} is connected to the output of the transformer circuit.
	2-3	V_{LDO} is connected to ground. Connect an external 5V to V_{DDB} to power the isolated side of the MAX14882.
J2	1-2	POL is connected to V_{DDA} .
	2-3*	POL is connected to GNDA.
J3	Open	On-board termination network is not connected to CANH. Open jumpers J3 and J4 to disable on-board termination between CANH and CANL.
	Closed*	On-board termination network is connected between CANH and CANL. Close J4 to enable split termination with the capacitor to GNDB. Open J4 for resistive termination only.
J4	Open	Split termination capacitor is not connected to GNDB. Open J3 and J4 to disable the on-board termination between CANH and CANL.
	Closed*	Split termination capacitor is connected to the GNDB.
J5	1-2	TXD is connected to V_{DDA} .
	2-3*	TXD is connected to GNDA.

*Default position.

Ordering Information

PART	TYPE
MAX14882EVKIT#	EV Kit

#Denotes RoHS compliant.

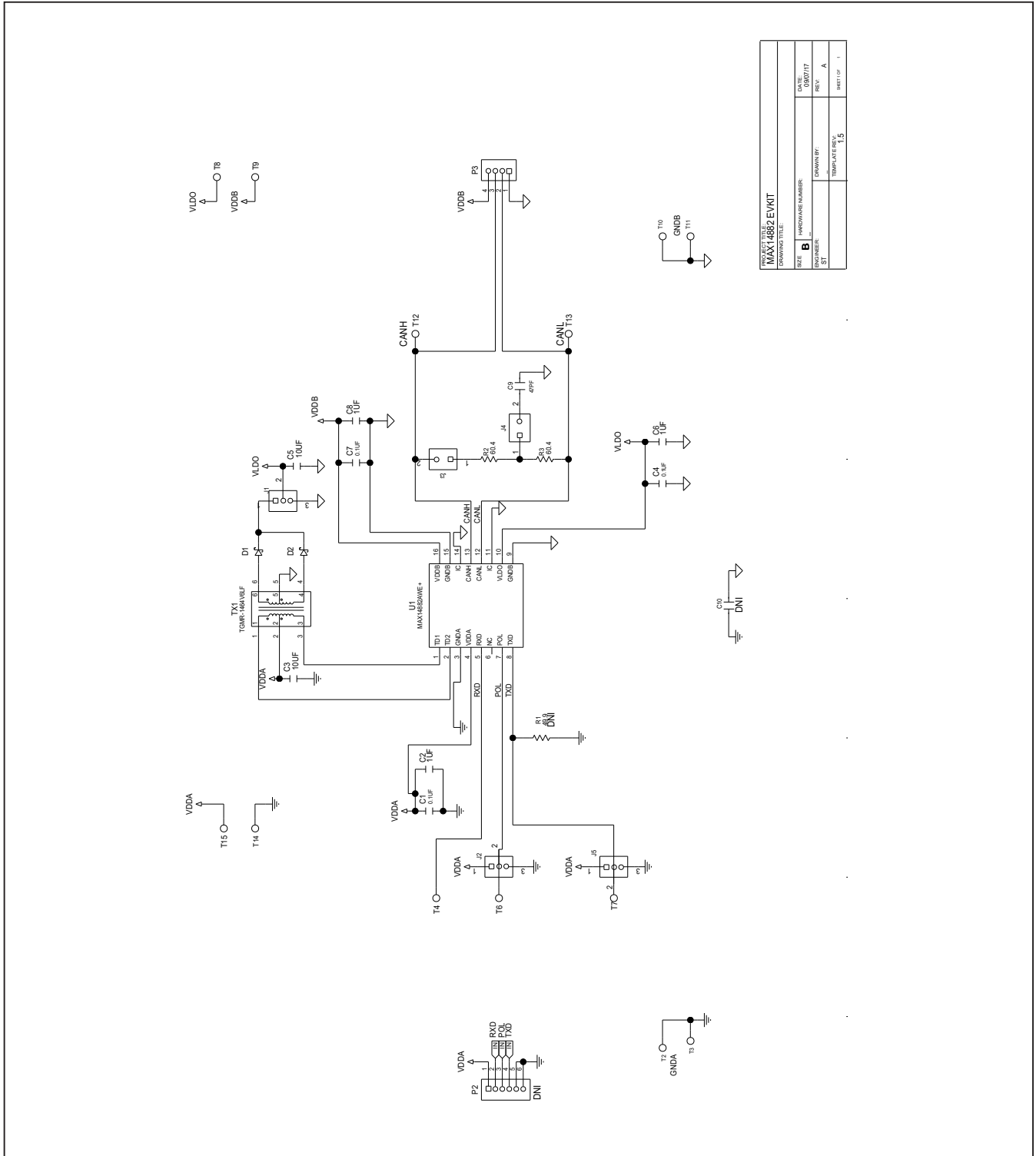
MAX14882 EV Kit Bill of Materials

ITEM	REF DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
1	C1, C4, C7	-	3	8.85E+11	WURTH ELECTRONICS INC	0.1UF	CAP; SMT (0603); 0.1UF; 10%; 25V; X7R; CERAMIC CHIP
2	C2, C6, C8	-	3	GRM188R71E105KA12D; CGA3E1X7R1E105K; TMK107B7105KA; 06033C105KAT2A	MURATA;TDK;TAIYO YUDEN;AVX	1UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 1UF; 25V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R
3	C3, C5	-	2	GRM21BR61E106K; C2012X5R1E106K125AB; C2012X5R1E106K	MURATA;TDK;TDK	10UF	CAPACITOR; SMT (0805); CERAMIC CHIP; 10UF; 25V; TOL=10%; MODEL=; TG=-55 DEGC TO +125 DEGC; TC=X5R
4	C9	-	1	C0603C470J5GAC; 06035A470JAT2A	KEMET;AVX	47PF	CAPACITOR; SMT (0603); CERAMIC CHIP; 47PF; 50V; TOL=5%; MODEL=; TG=-55 DEGC TO +125 DEGC; TC=C0G
5	D1, D2	-	2	MBR0520	MICRO COMMERCIAL COMPONENTS	MBR0520	DIODE; SCH; SCHOTTKY RECTIFIER; SMT (SOD-123); PIV=20V; IF=0.5A; -55 DEGC TO +150 DEGC
6	J1, J2, J5	-	3	61300311121	WURTH ELECTRONICS INC	61300311121	CONNECTOR; MALE; THROUGH HOLE; 2.54MM PIN HEADER; STRAIGHT; 3PINS
7	J3, J4	-	2	PBC02SAAN	SULLINS ELECTRONICS CORP.	PBC02SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 2PINS
8	P3	-	1	1935187	PHOENIX CONTACT	1935187	CONNECTOR; FEMALE; THROUGH HOLE; GREEN TERMINAL BLOCK; STRAIGHT; 4PINS
9	R2, R3	-	2	CRCW080560R4FK	VISHAY DALE	60.4	RESISTOR; 0805; 60.4 OHM; 1%; 100PPM; 0.125W; THICK FILM
10	T2, T3, T10, T11, T14	-	5	5011	N/A	5011	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; BLACK; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;
11	T4, T6, T7, T12, T13	-	5	5014	N/A	5014	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; YELLOW; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;
12	T8, T9, T15	-	3	5010	N/A	5010	TESTPOINT WITH 1.80MM HOLE DIA, RED, MULTIPURPOSE TRANSFORMER; SMT; 1:2.4; POWER TRANSFORMER; DRAFT DATASHEET ONLY
13	TX1	-	1	TGMR-1464V6LF	HALO ELECTRONICS, INC	TGMR-1464V6LF	EVKIT PART-IC; RV57; PACKAGE OUTLINE DRAWING: 21-0042; LAND PATTERN DRAWING: 90-0107; PACKAGE CODE: W16+10; WSOIC16 300MIL
14	U1	-	1	MAX14882AWE+	MAXIM	MAX14882AWE+	PCB:MAX14882
15	PCB	-	1	MAX14882	MAXIM	PCB	
16	C10	DNP	0	B32620A0472J	EPCOS	4700PF	CAPACITOR; THROUGH HOLE-RADIAL LEAD; POLYPROPYLENE; 4700pF; 1000V; TOL=5%; TG=-55degC TO +105degC
17	P2	DNP	0	PBC06SAAN	SULLINS ELECTRONICS CORP.	PBC06SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 6PINS; -65 DEGC TO +125 DEGC
18	R1	DNP	0	CRCW060349R9FK	VISHAY DALE	49.9	RESISTOR; 0603; 49.9 OHM; 1%; 100PPM; 0.10W; THICK FILM

TOTAL

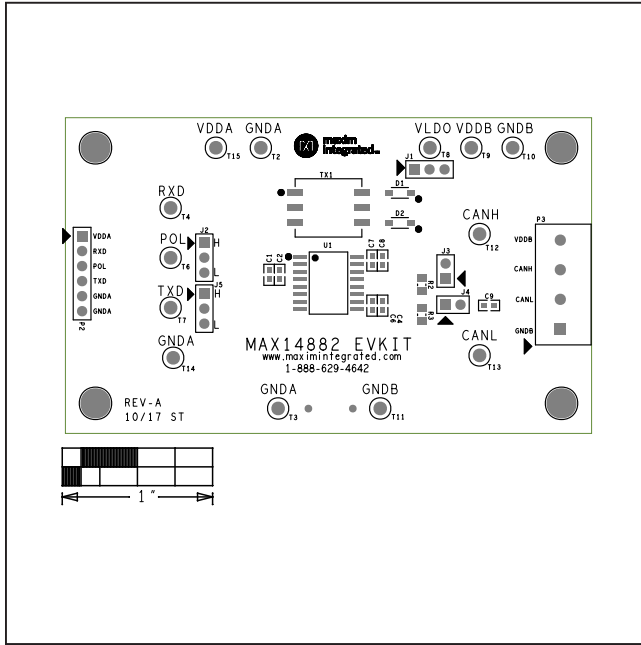
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MAX14882 EV Kit Schematic

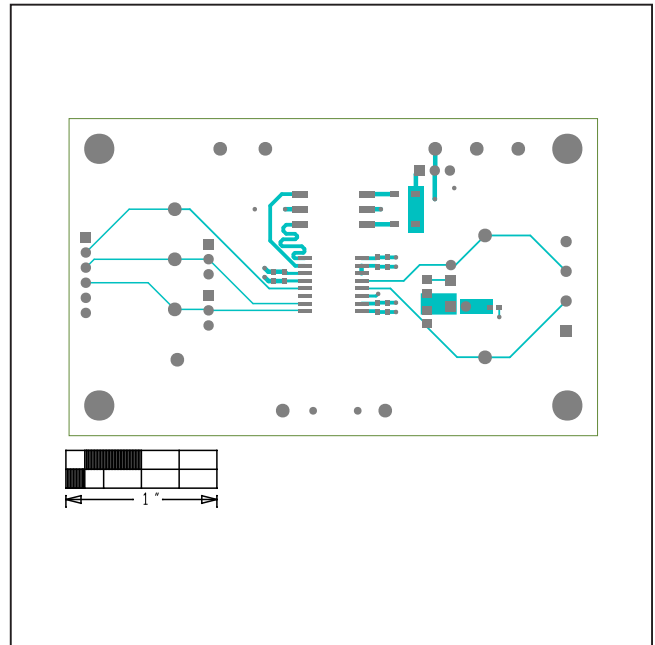


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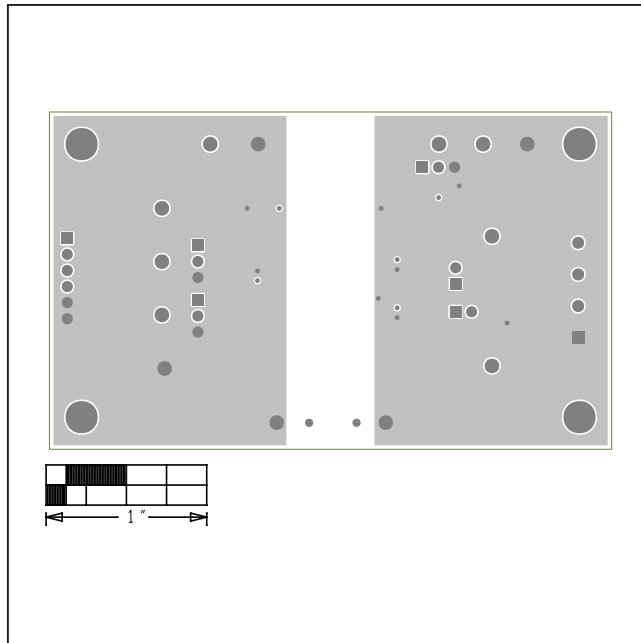
MAX14882 EV Kit PCB Layout Diagrams



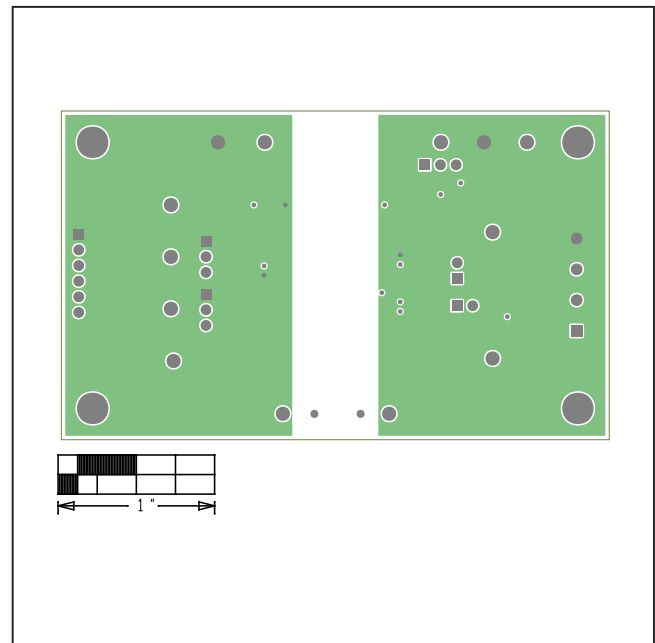
MAX14882 EV Kit—Top Silkscreen



MAX14882 EV Kit—Top

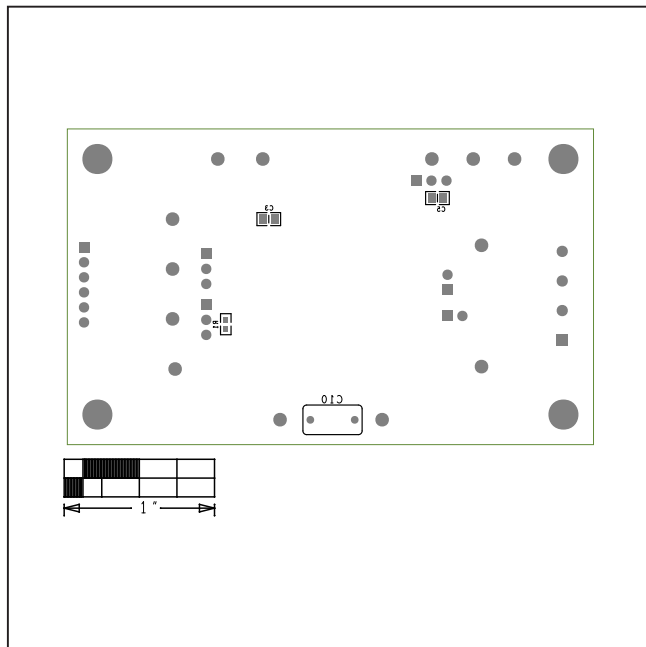


MAX14882 EV Kit—Internal

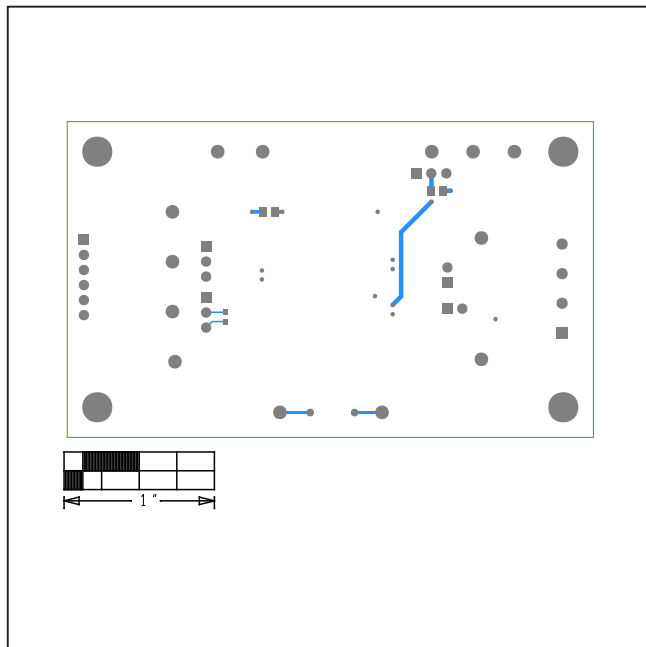


MAX14882 EV Kit—Internal 3

MAX14882 EV Kit PCB Layout Diagrams (continued)



MAX14882 EV Kit—Bottom Silkscreen



MAX14882 EV Kit—Bottom

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	5/18	Initial release	—

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