

## MAX14878EVKIT# Evaluation Kit

Evaluates: MAX14878  
(MAX14878AWA+)

### General Description

The MAX14878EVKIT# evaluation kit (EV kit) is a fully assembled and tested PCB that demonstrates the functionality of the MAX14878AWA+ isolated 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 Connector for Easy CAN Evaluation
- 3500V<sub>RMS</sub> Isolation for 60s
- Fully Assembled and Tested

### Quick Start

#### Required Equipment

- MAX14878EVKIT# EV kit
- 3.3V, 500mA DC power supply
- Signal/function generator
- Oscilloscope

### Startup 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 V<sub>DDA</sub> test point (TP3). Connect the ground terminal to the GNDA test point (TP4).
- 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 (TP8 and TP9).
- 6) Set the signal/function generator to output a 500kHz 0V-to-3.3V square wave.
- 7) Connect the signal/function generator to the TXD test point (TP2).
- 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 MAX14878EVKIT# EV kit is a fully assembled and tested circuit board for evaluating the MAX14878 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  $V_{DDA}$  test point (TP3) to supply the 3.3V to the logic-side (A) of the circuit. The on-board MAX258 transformer driver and external transformer (T1) generate an isolated supply for powering the isolated side (B) of the board. The MAX8881 generates a regulated 5V for the B-side of the board.

To use an external supply on the isolated side of the board, remove the shunt on the J5 jumper and apply the voltage to the  $V_{DDB}$  test point (TP6).

### Evaluating the Isolated CAN Interface

The MAX14878EVKIT# EV kit includes test points to access CANH (TP8) and CANL (TP9) for easy evaluation. To verify operation in a CAN system, connect the transceiver to the network using the J2 terminal block and use the TXD and RXD test points (TP1 and TP2, respectively) to connect the board to a logic controller.

#### External Protection

For harsh industrial environments, external protection might be necessary to protect the CAN transceiver during normal operation. The MAX14878EVKIT# EV kit includes pads for additional on-board protection that can be used when evaluating the device in a CAN network. Solder diodes to the D3 and D4 TVS diode pads to add additional protection on the CANH and CANL lines when needed.

**Table 1. Jumper Table (J1-J10)**

JUMPER	SHUNT POSITION	DESCRIPTION
J3	Open	On-board termination is not connected to CANH. Open J3 and J6 to disable the on-board termination between CANH and CANL.
	<b>Closed*</b>	On-board termination is connected between CANH and CANL.
J5	Open	$V_{DDB}$ is not powered by the on-board isolated power circuit.
	<b>Closed*</b>	$V_{DDB}$ is powered by the on-board isolated power circuit.
J6	Open	Split termination capacitor is not connected to CANH and CANL. Open J3 and J6 to disable the on-board termination between CANH and CANL.
	<b>Closed*</b>	Split termination capacitance is connected to between CANH/CANL and GND.

\*Default position.

### Ordering Information

PART	TYPE
MAX14878EVKIT#	EV Kit

#Denotes RoHS-compliant device that may include lead(Pb) that is exempt under the RoHS requirements.

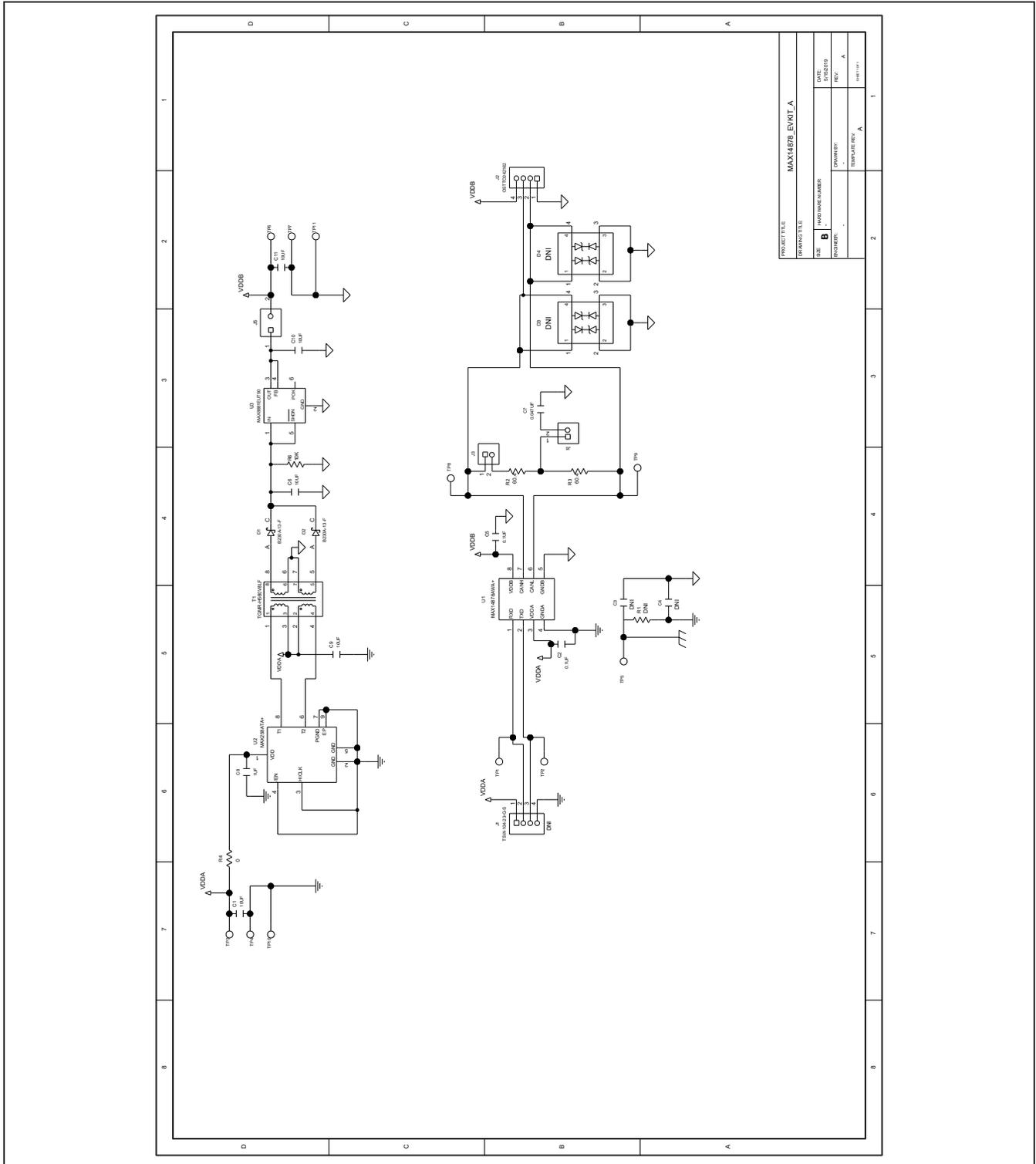
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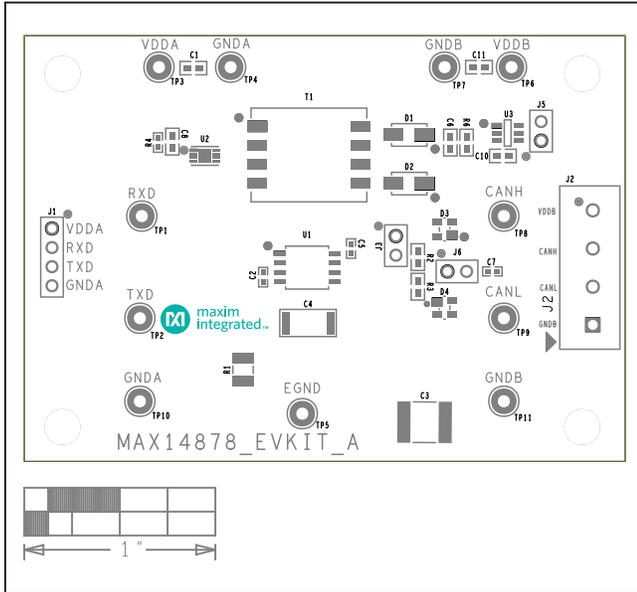
MAX14878EVKIT# EV Kit Bill of Materials

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
1	C1, C6, C9-C11	-	5	GRM188R61C106MA73	MURATA	10UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 10UF; 16V; TOL=20%; MODEL=GRM SERIES; TG=-55 DEGC TO +85 DEGC; TC=X5R
2	C2, C5	-	2	C0402C104J4RAC; GCM155R71C104JA55	KEMET;MURATA	0.1UF	CAPACITOR; SMT (0402); CERAMIC CHIP; 0.1UF; 16V; TOL=5%; MODEL=; TG=-55 DEGC TO +125 DEGC; TC=X7R
3	C7	-	1	C1005X7R1H473K; CGA2B3X7R1H473K050BB; GCM155R71H473KE02	TDK;TDK;MURATA	0.047UF	CAPACITOR; SMT (0402); CERAMIC CHIP; 0.047UF; 50V; TOL=10%; MODEL=; TG=-55 DEGC TO +125 DEGC; TC=X7R
4	C8	-	1	C0603C105K4RAC; GRM188R71C105KA12; C1608X7R1C105K080AC; EMK107B7105KA; GCM188R71C105KA64; CGA3E1X7R1C105K080AC	KEMET;MURATA; TDK;TAIYO YUDEN; MURATA;TDK	1UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 1UF; 16V; TOL=10%; MODEL=; TG=-55 DEGC TO +125 DEGC; TC=X7R
5	D1, D2	-	2	B230A-13-F	DIODES INCORPORATED	B230A-13-F	DIODE; SCH; SMT (DO-214AA); PIV=100V; IF=2A; -65 DEGC TO +150 DEGC
6	J2	-	1	OSTTC042162	ON-SHORE TECHNOLOGY INC	OSTTC042162	CONNECTOR; FEMALE; THROUGH HOLE; TERMINAL BLOCK ONE PIECE WIRE PROTECTOR; COLOR BLUE; RIGHT ANGLE; 4PINS
7	J3, J5, J6	-	3	TSW-102-23-G-S	SAMTEC	TSW-102-23-G-S	CONNECTOR; THROUGH HOLE; SINGLE ROW; STRAIGHT; 2PINS; -55 DEGC TO +125 DEGC
8	MH1-MH4	-	4	9032	KEYSTONE	9032	MACHINE FABRICATED; ROUND-THRU HOLE SPACER; NO THREAD; M3.5; 5/8IN; NYLON
9	R2, R3	-	2	CRCW060360R4FK	VISHAY DALE	60.4	RESISTOR; 0603; 60.4 OHM; 1%; 100PPM; 0.10W; THICK FILM
10	R4	-	1	RC0402JR-070RL; CR0402-16W-000RJT	YAGEO PHYCOMP; VENKEL LTD.	0	RESISTOR; 0402; 0 OHM; 5%; JUMPER; 0.063W; THICK FILM
11	R6	-	1	CRCW060310K0FK; ERJ-3EKF1002	VISHAY DALE; PANASONIC	10K	RESISTOR; 0603; 10K; 1%; 100PPM; 0.10W; THICK FILM
12	T1	-	1	TGMR-H560V8LF	HALO ELECTRONICS INC	TGMR-H560V8LF	TRANSFORMER; SMT; 1:1.2:2; ISOLATION MODULE
13	TP1, TP2, TP8, TP9	-	4	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;
14	TP3, TP6	-	2	5010	KEYSTONE	N/A	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; RED; PHOSPHOR BRONZE WIRE SIL;
15	TP4, TP5, TP7, TP10, TP11	-	5	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;
16	U1	-	1	MAX14878AWA+	MAXIM	MAX14878AWA+	EVKIT PART - IC; TXRX; 4KV ISOLATED CAN TRANSCEIVERS; WSOIC8; PACKAGE CODE: W8MS+1; PACKAGE OUTLINE NUMBER: 21-0262 ;LAND PATTERN NUMBER: 90-0258
17	U2	-	1	MAX258ATA+	MAXIM	MAX258ATA+	IC; DRV; 0.5A; PUSH-PULL TRANSFORMER DRIVER FOR ISOLATED POWER SUPPLY; TDFN8-EP 2X3
18	U3	-	1	MAX8881EUT50+	MAXIM	MAX8881EUT50	IC; VREG; ULTRA-LOW-IQ, LOW-DROPOUT LINEAR REGULATORS WITH POK; SOT23-6
19	PCB	-	1	MAX14878	MAXIM	PCB	PCB:MAX14878
20	C3	DNP	0	VJ2220Y332KXUSTX1	VISHAY VITRAMON	3300PF	CAP; SMT (2220); 3300PF; 10%; 250V; X7R; CERAMIC CHIP
21	C4	DNP	0	GA352QR7GF102KW01	MURATA	1000PF	CAP; SMT (2211); 1000PF; 10%; 250V; X7R; CERAMIC CHIP
22	D3, D4	DNP	0	LCDA24C-1.TCT	SEMTECH	24V	DIODE; TVS; SMT (SOT-143); VRM=24V; IPP=10A
23	J1	DNP	0	TSW-104-23-G-S	SAMTEC	TSW-104-23-G-S	CONNECTOR; THROUGH HOLE; SINGLE ROW; STRAIGHT; 4PINS
24	R1	DNP	0	CRCW12100000Z0	VISHAY DALE	0	RESISTOR; 1210; 0 OHM; 0%; JUMPER; 0.5W; THICK FILM
TOTAL			39				

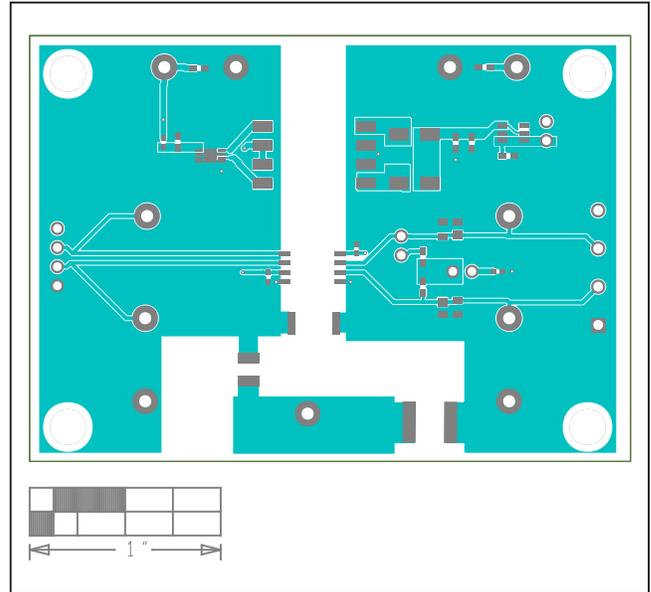
MAX14878EVKIT# EV Kit Schematic



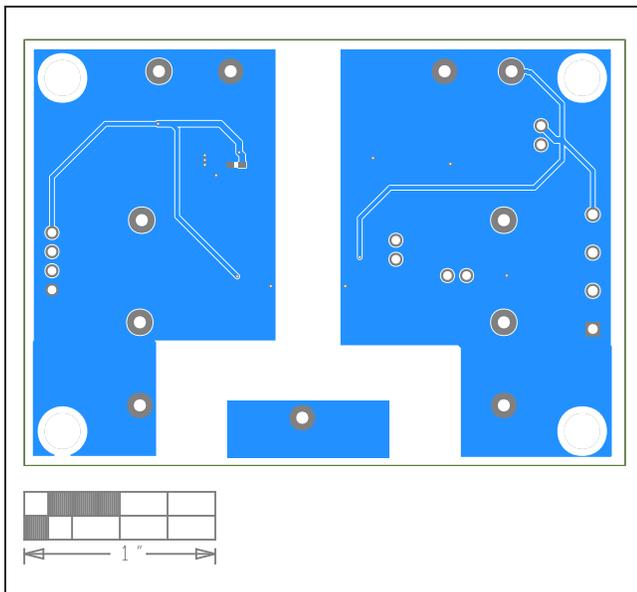
MAX14878EVKIT# EV Kit PCB Layout Diagrams



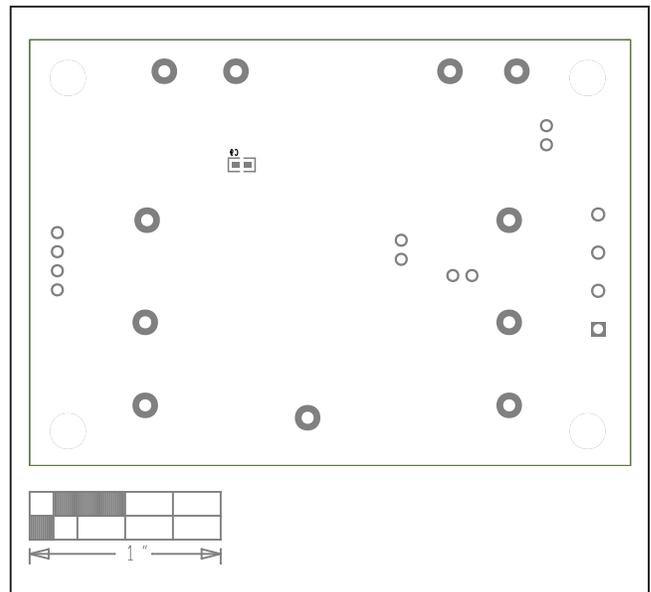
MAX14878EVKIT# EV Kit—Top Silkscreen



MAX14878EVKIT# EV Kit—Top



MAX14878EVKIT# EV Kit—Bottom



MAX14878EVKIT# EV Kit—Bottom Silkscreen

### Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	11/19	Initial release	—
.1		Updated the title	1-6

For pricing, delivery, and ordering information, please visit Maxim Integrated's online storefront at <https://www.maximintegrated.com/en/storefront/storefront.html>.

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