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MAX31826 Evaluation System

Evaluates: MAX31826

General Description

The MAX31826 evaluation system (EV system) demonstrates the MAX31826 1-Wire[®] digital temperature sensor with 1kB lockable electrically erasable programmable read-only memory (EEPROM). The MAX31826 EV system includes the MAX31826 evaluation kit (EV kit) and the USB2PMB2 module. Windows[®] 7/8/8.1/10-compatible software provides a user-friendly interface that demonstrates the features of the MAX31826.

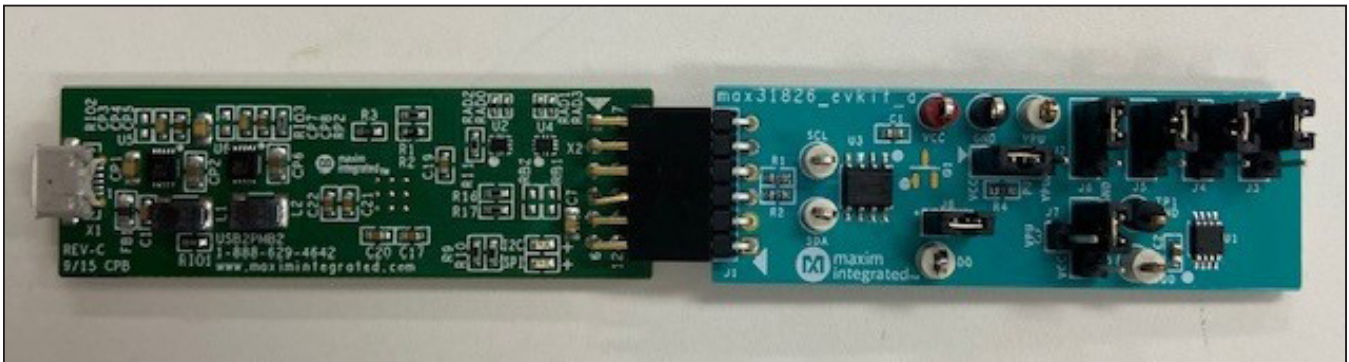
The MAX31826 EV kit contains an on-board DS2482 I²C to 1-Wire converter and comes with the 8-pin μ MAX[®] MAX31826MUA+ installed.

Features

- On-Board I²C to 1-Wire Converter (DS2482)
- Proven PCB Layout
- Fully Assembled and Tested
- Windows XP[®], Windows 7/8/8.1/10-Compatible Software

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

MAX31826 EV Kit Photo



μ Max is a registered trademark of Maxim Integrated Products, Inc.

1-Wire is a registered trademark of Maxim Integrated Products, Inc.

Windows and Windows XP are registered trademarks and registered service marks of Microsoft Corporation.

Quick Start

Required Equipment

- MAX31826 EV System (USB cable included)
- Windows PC
- MAX31826EVKITSetupV100.exe file

Note: In the following sections, software-related items are identified by bolding. Text in **bold** refers to items directly from the EV kit software. Text in **bold and underlined** refers to items from the Windows operating system.

Procedure

The EV system is fully assembled and tested. Follow the steps to verify the board operation:

- 1) Install the MAX31826EVKITSetupV100.exe software on a computer.
- 2) Align the X2 connector (top row) of the USB2PMB2 with the J1 connector of the MAX31826 EV kit. [Figure 1](#) shows the side view of how the two boards are connected. The USB2PMB2 is on the right and the MAX31826 EV kit is on the left.
- 3) Verify that the shunts are in the default position as shown in [Table 1](#).
- 4) Connect the USB cable from the PC to the USB-2PMB2 board.
- 5) Open the EV kit GUI, MAX31826EVKit.exe.
- 6) Click the **Scan Adapters** button. Then, select the option **PMODxxxxxx** (where xxxxxx is numeric), and click the **Connect** button.
- 7) Start evaluating the MAX31826 by clicking the **Start Sampling** button. [Figure 2](#) shows the MAX31826 measuring temperature.

Table 1. Jumper Descriptions

JUMPER	SHUNT POSITION	DESCRIPTION
J2	1-2*	Connects V _{DD} to the pullup resistors for DQ.
	2-3	User-supplied VPU. Connects VPU to the pullup resistors for DQ.
J3	1-2*	Connects AD0 pin to logic high.
	2-3	Connects AD0 pin to ground.
J4	1-2*	Connects AD1 pin to logic high.
	2-3	Connects AD1 pin to ground.
J5	1-2*	Connects AD2 pin to logic high.
	2-3	Connects AD2 pin to ground.
J6	1-2*	Connects AD3 pin to logic high.
	2-3	Connects AD3 pin to ground.
J7	1-2*	Connects V _{DD} to VCC power supply of the USB2PMB2.
	1-3	Connects V _{DD} to user supplied VPU.
	1-4	Connects V _{DD} to ground for parasitic power mode.
J8	Installed*	Connects DQ to on-board master
	Not installed	User Supplied 1-wire. Disconnects DQ from on-board master.

*Default position

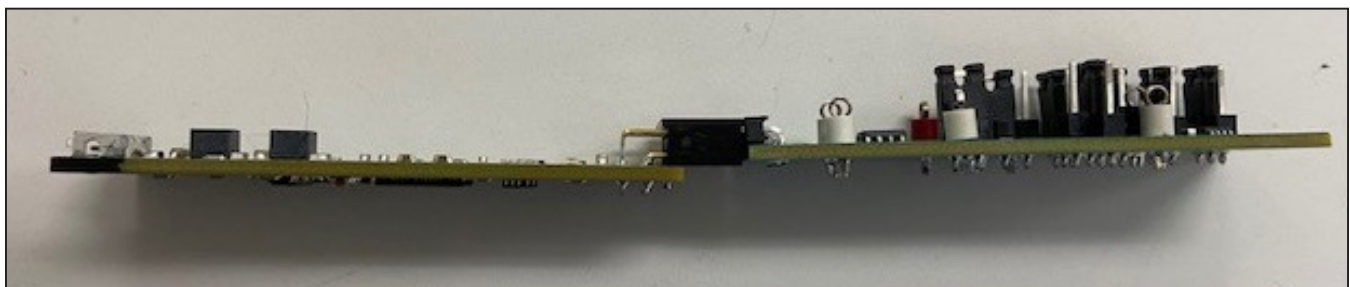


Figure 1. MAX31826 Side View

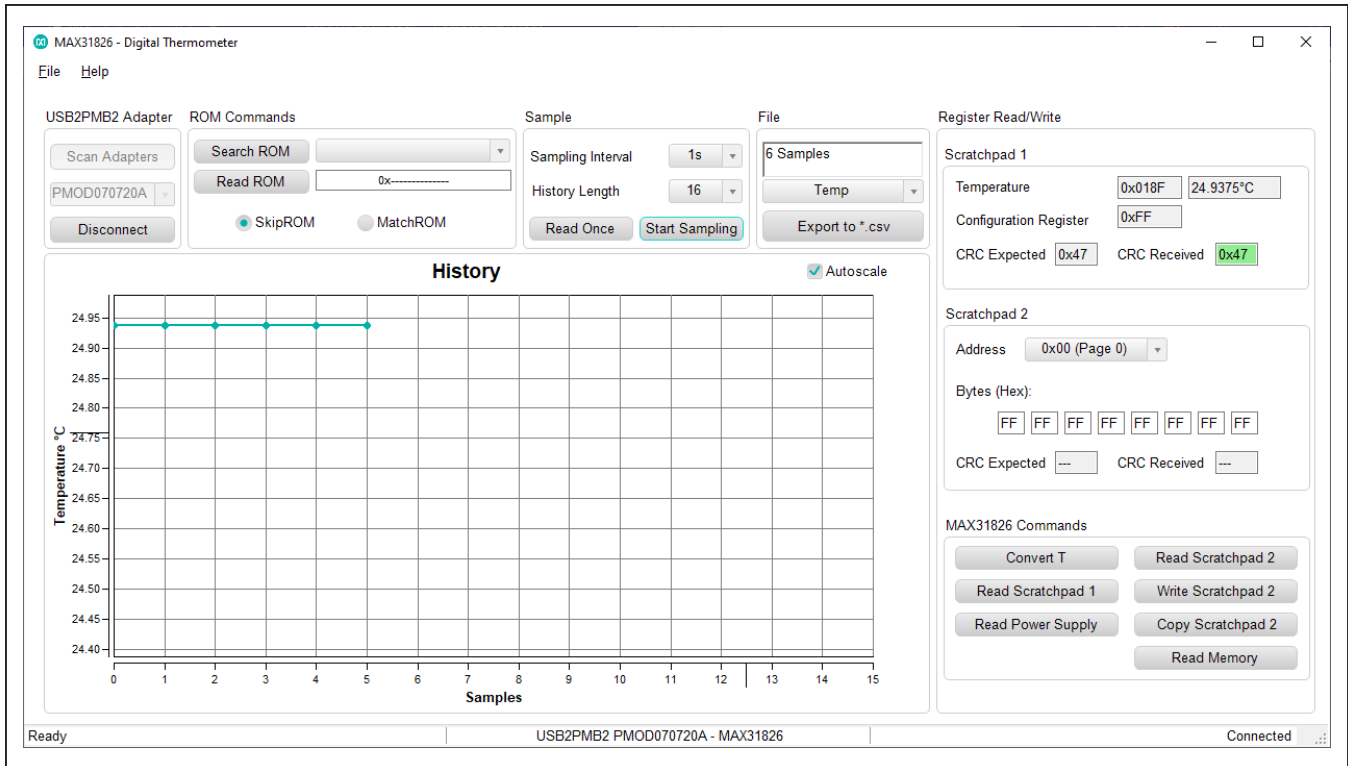


Figure 2. Main Window- Measuring Temperature on the MAX31826

General Description of Software

The main window of the MAX31826 EV kit software contains controls to evaluate the MAX31826 IC.

Scratchpad 1

The **Scratchpad 1** groupbox allows the user to read the address, temperature, and CRC byte.

Address

The address is determined by the logic AD0 to AD3 pins of the MAX31826. By clicking the **Read Scratchpad 1** button, the **Configuration Register** edit box displays one of the 16 unique addresses.

Temperature

When the **Start Sampling** or **Read Once** button is clicked, the temperature is displayed in hexadecimal code, converted temperature, and within the graph.

Scratchpad 2

The **Scratchpad 2** groupbox displays the data written to a page before copying it to the EEPROM. Once the user is satisfied, click the **Copy Scratchpad** button. The content of the memory can be verified by clicking the **Read Memory** button.

ROM

Within the **ROM Commands** groupbox, the controls include Read ROM, MatchROM, SkipROM, and Search ROM.

Logging Data

The temperature and raw code can be saved to a file. Click the **Export to *.csv** button before collecting data.

General Description of Hardware

The MAX31826 EV system demonstrates the MAX31826, 1-Wire temperature sensor with address and alarm. The USB2PMB2 module and the EV kit complete the system. The DS2482 acts as the 1-Wire master for the MAX31826 and as an I²C slave for the USB2PMB2.

User-Supplied I²C and I/O

To evaluate the EV kit with a user-supplied I²C bus, the connector J1 is a PMod™-compatible connector. If the master does not have a PMod-compatible connector, then make a connection directly to the SCL, SDA test points. Make sure the return ground is the same as the DS2482. See [Table 1](#) for jumper position.

User-Supplied 1-Wire Bus

To evaluate the EV kit with a user-supplied 1-Wire bus, see [Table 1](#) for jumper position.

Ordering Information

PART	TYPE
MAX31826EVSYS1#	EV System (EV Kit + Master Board)
MAX31826EVKIT#	EV Kit
USB2PMB2#	Master Board

#Denotes RoHS compliance.

User-Supplied VDD

The MAX31826 is powered through USB by default when a PMod-compatible master module is connected to the J1 connector of the EV kit. If a user-supplied VDD is used, then a PMod master module is not allowed on the J1 connector. In this case, remove the shunt from J7 jumper and apply a voltage between +3.0V and +3.7V at the VDD test point, and ground is connected at the GND test point.

User-Supplied VPU

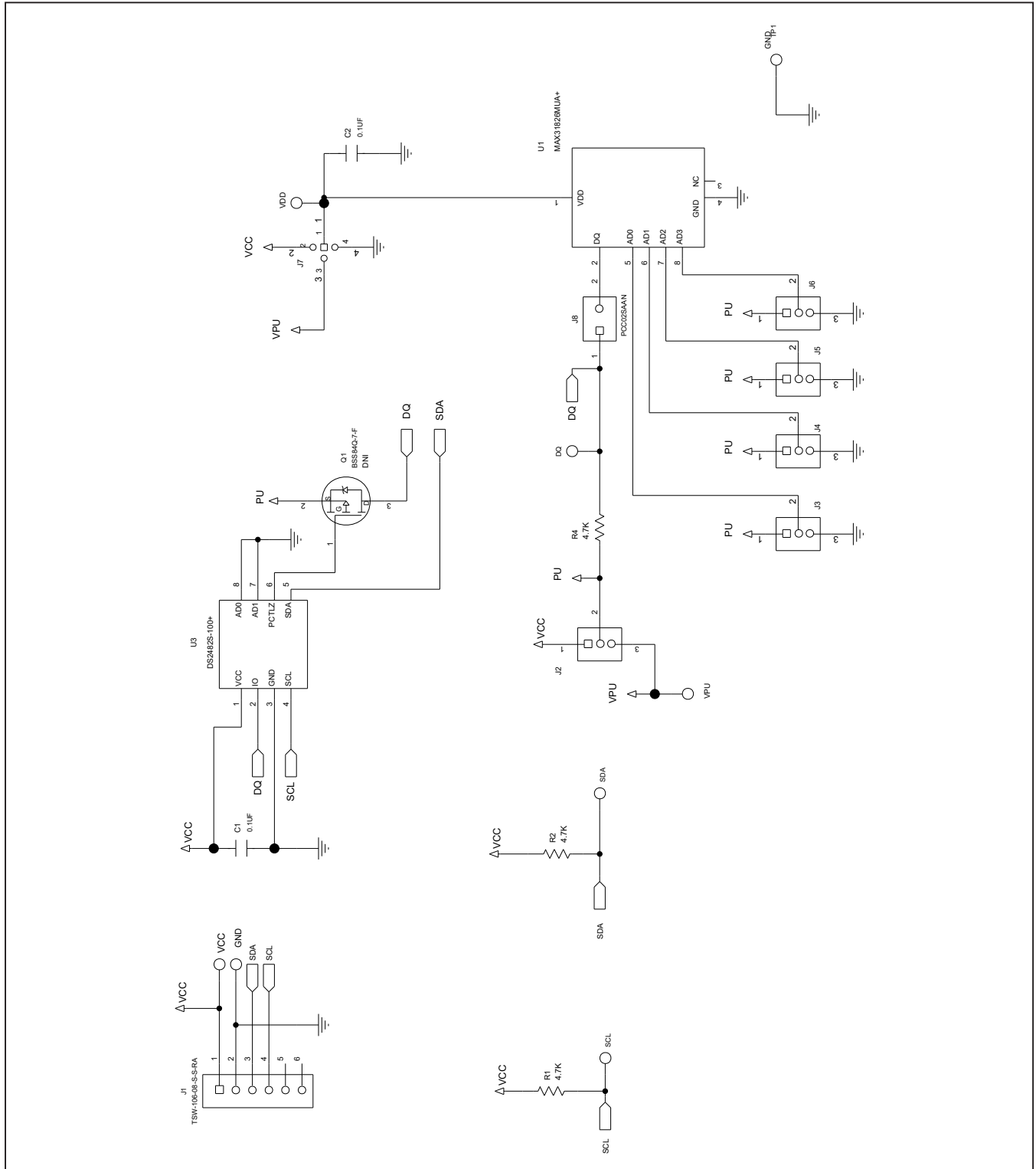
The J2 jumper allows the users to apply their own pullup voltage. When a shunt is on the 2-3 position, apply a voltage between +3.0V and +3.7V at the VPU test point and, ground is connected at the GND test point.

PMod is a trademark of Digilent Inc.

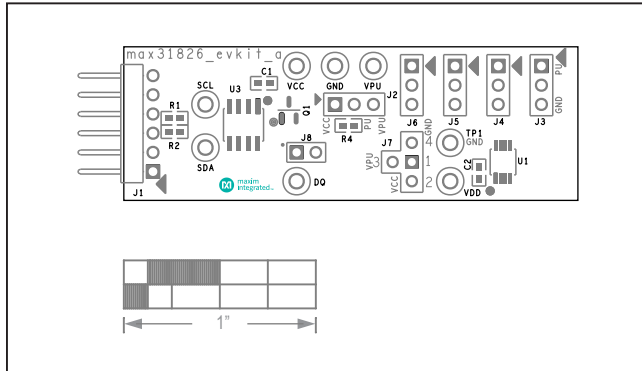
MAX31826 EV Kit Bill of Materials

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION	COMMENTS
1	C1, C2	-	2	GCJ188R71H104KA12; GCM188R71H104K; CGA3E2X7R1H104K080AA	MURATA;MURATA;TDK	0.1UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 0.1UF; 50V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R; AUTO	
2	DQ, SCL, SDA, VDD, VPU	-	5	5007	KEystone	N/A	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.35IN; BOARD HOLE=0.063IN; WHITE; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;	
3	GND, TP1	-	2	5006	KEystone	N/A	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.35IN; BOARD HOLE=0.063IN; BLACK; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;	
4	J1	-	1	TSW-106-08-S-S-RA	SAMTEC	TSW-106-08-S-S-RA	CONNECTOR; MALE; THROUGH HOLE; 0.025 INCH SQUARE POST HEADER; RIGHT ANGLE; 6PINS	
5	J2-J6	-	5	TSW-103-07-T-S	SAMTEC	TSW-103-07-T-S	CONNECTOR; THROUGH HOLE; TSW SERIES; SINGLE ROW; STRAIGHT; 3PINS	
6	J7	-	1	PEC04SAAN	SULLINS ELECTRONICS CORP.	PEC04SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 4PINS	
7	J8	-	1	PCC02SAAN	SULLINS	PCC02SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 2PINS; -65 DEGC TO +125 DEGC	
8	R1, R2, R4	-	3	CRCW06034K70FK	VISHAY DALE	4.7K	RESISTOR; 0603; 4.7K; 1%; 100PPM; 0.10W; THICK FILM	
9	SU1-SU5, SU7	-	6	S1100-B;SX1100-B;STC02SYAN	KYCON;KYCON;SULLINS ELECTRONICS CORP.	SX1100-B	TEST POINT; JUMPER; STR; TOTAL LENGTH=0.24IN; BLACK; INSULATION=PBT;PHOSPHOR BRONZE CONTACT=GOLD PLATED	
10	U1	-	1	MAX31826MUA+	MAXIM	MAX31826MUA+	IC; SNSR; 1-WIRE DIGITAL TEMPERATURE SENSOR WITH 1KB LOCKABLE EEPROM SENSOR; UMAX8	
11	U3	-	1	DS2482S-100+	MAXIM	DS2482S-100+	IC; INFC; SINGLE-CHANNEL 1-WIRE MASTER; NSOIC8	
12	VCC	-	1	5005	KEystone	N/A	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.35IN; BOARD HOLE=0.063IN; RED; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;	
13	PCB	-	1	MAX31826	MAXIM	PCB	PCB:MAX31826	-
14	Q1	DNP	0	BSS84Q-7-F	DIODES INCORPORATED	BSS84Q-7-F	TRAN; PCH; MOSFET; SOT-23; PD-(0.3W); I-(-0.13A); V-(-50V)	DNI
TOTAL			30					

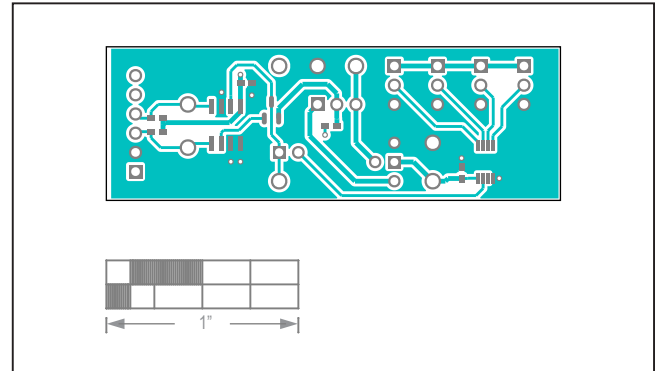
MAX31826 EV Kit Schematic



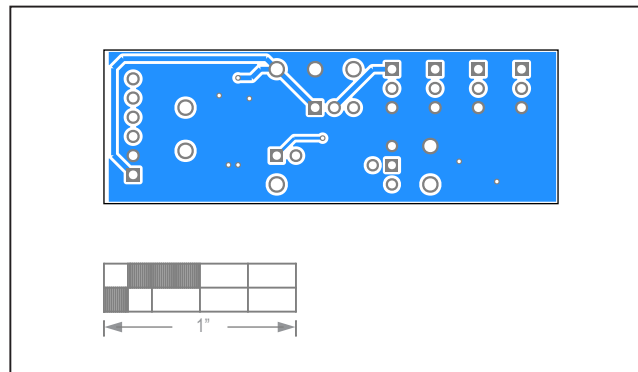
MAX31826 EV Kit PCB Layout



MAX31826 EV Kit PCB Layout—Silk Top



MAX31826 EV Kit PCB Layout—Top



MAX31826 EV Kit PCB Layout—Bottom

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	12/20	Release for market intro	—

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