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## MAX31826 Evaluation System

Evaluates: MAX31826

### General Description

The MAX31826 evaluation system (EV system) demonstrates the MAX31826 1-Wire<sup>®</sup> 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<sup>®</sup> 7/8/8.1/10-compatible software provides a user-friendly interface that demonstrates the features of the MAX31826.

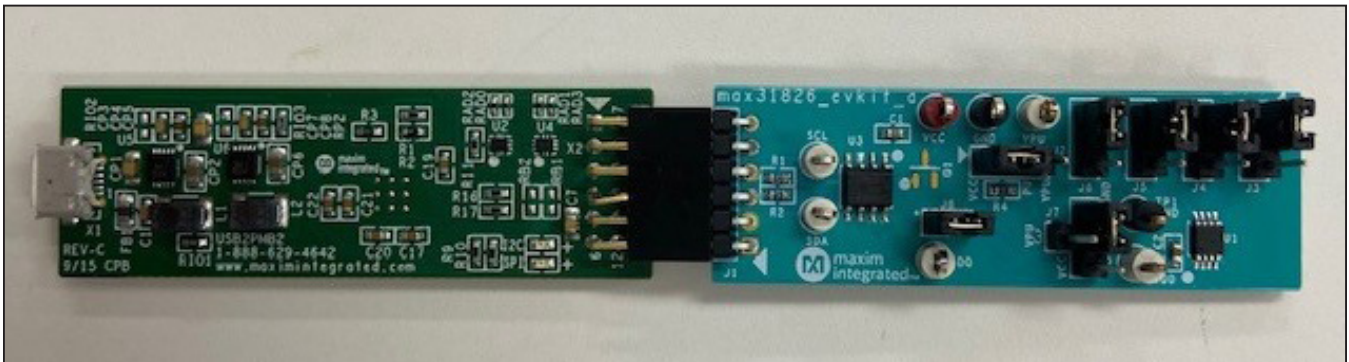
The MAX31826 EV kit contains an on-board DS2482 I<sup>2</sup>C to 1-Wire converter and comes with the 8-pin  $\mu$ MAX<sup>®</sup> MAX31826MUA+ installed.

### Features

- On-Board I<sup>2</sup>C to 1-Wire Converter (DS2482)
- Proven PCB Layout
- Fully Assembled and Tested
- Windows XP<sup>®</sup>, Windows 7/8/8.1/10-Compatible Software

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

### MAX31826 EV Kit Photo



$\mu$ 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 <sub>DD</sub> 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 <sub>DD</sub> to VCC power supply of the USB2PMB2.
	1-3	Connects V <sub>DD</sub> to user supplied VPU.
	1-4	Connects V <sub>DD</sub> 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

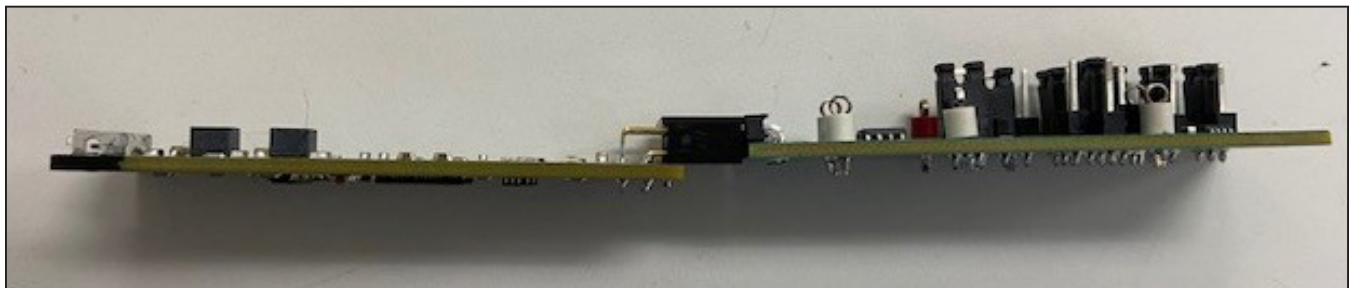


Figure 1. MAX31826 Side View

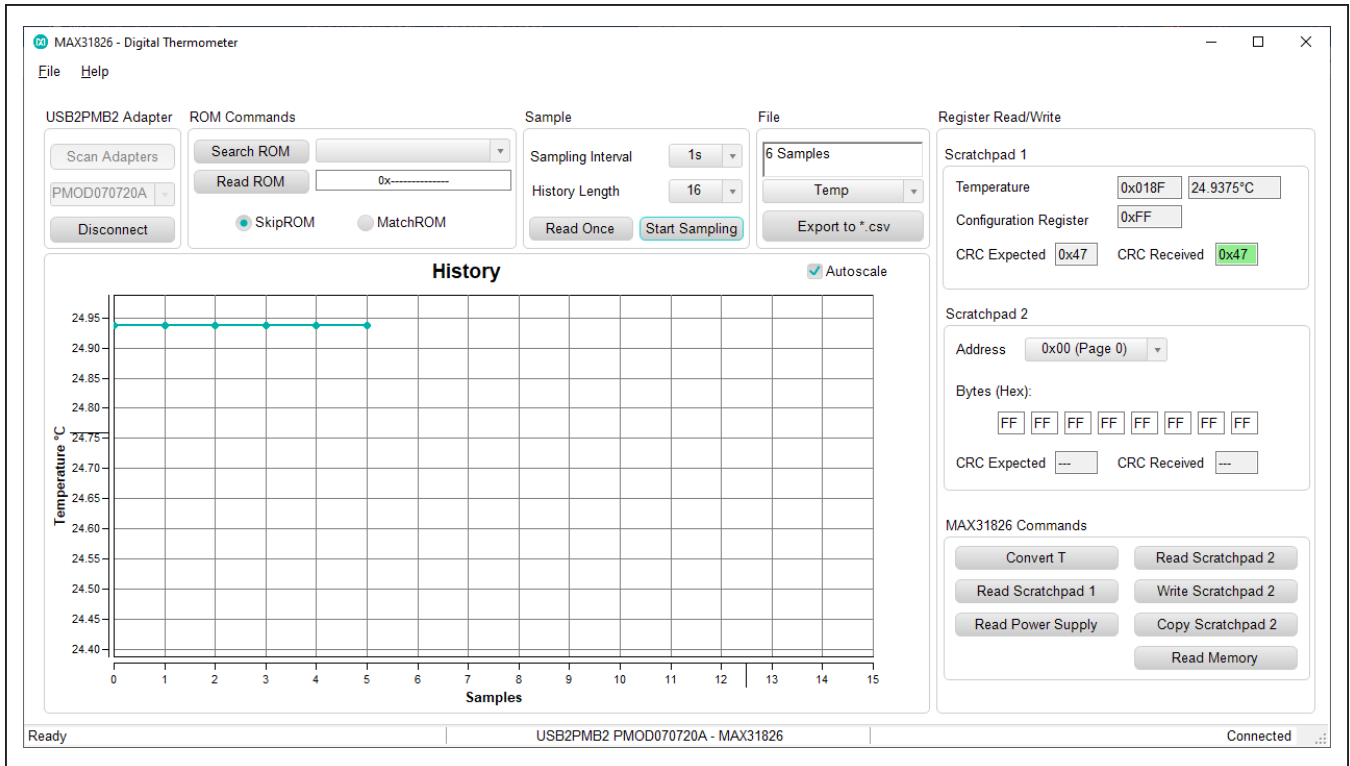


Figure 2. Main Window- Measuring Temperature on the MAX31826

## 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 I<sup>2</sup>C slave for the USB2PMB2.

#### User-Supplied I<sup>2</sup>C and I/O

To evaluate the EV kit with a user-supplied I<sup>2</sup>C 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.

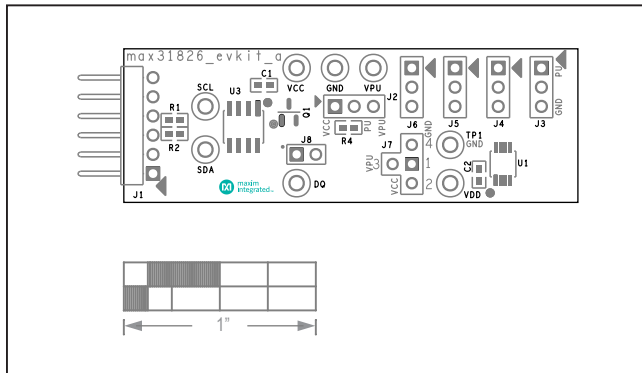
PMod is a trademark of Digilent Inc.

## MAX31826 EV Kit Bill of Materials

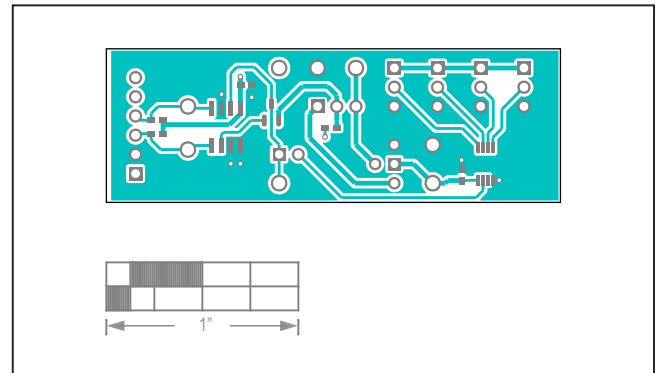
ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION	COMMENTS
1	C1, C2	-	2	GCJ188R71H104KA12; GCM188R71H104K; CGA3E2X7R1H104K080AA	MURATA;MURATA;TDK	0.1UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 0.1UF; 50V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R; AUTO	
2	DQ, SCL, SDA, VDD, VPU	-	5	5007	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					



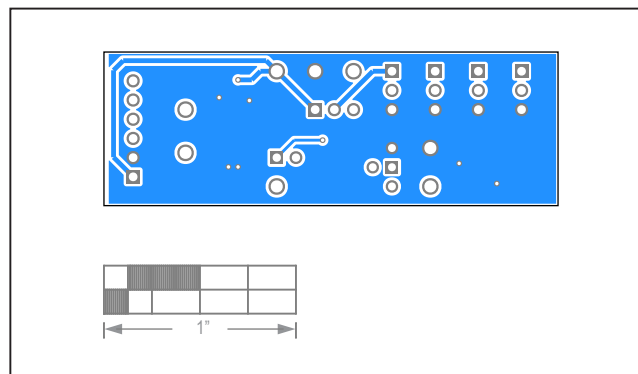
### MAX31826 EV Kit PCB Layout



MAX31826 EV Kit PCB Layout—Silk Top



MAX31826 EV Kit PCB Layout—Top



MAX31826 EV Kit PCB Layout—Bottom