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MAX5527 Evaluation Kit

Evaluates: MAX5527/MAX5528/MAX5529

General Description

The MAX5527 evaluation kit (EV kit) is a fully assembled and tested surface-mount circuit board that evaluates the MAX5527 digital potentiometer. Included software generates the required signals for one-time-programmable (OTP) operation and allows easy control of the wiper position. An on-board 8-pin µMAX® socket eases replacement of the device. The EV kit connects to a standard IBM-compatible PC parallel (printer) port.

Windows® 98/2000/XP-compatible software provides a user-friendly interface to exercise the MAX5527's features. The program is menu driven and offers a graphic user interface.

This EV kit can also be used to evaluate the MAX5528 and MAX5529 digital potentiometers.

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Features

♦ **On-Board 8-Pin µMAX Socket**

♦ **Windows 98/2000/XP Evaluation Software**

♦ **Software Adjusts and Programs Wiper Position**

♦ **Fully Assembled and Tested**

Ordering Information

PART	TEMP RANGE	IC PACKAGE
MAX5527EVKIT	0°C to +70°C	8 µMAX

Note: *To evaluate the MAX5528 or the MAX5529, request a free sample of the MAX5528GUA or MAX5529GUA with the MAX5527EVKIT.*

Component List

DESIGNATION	QTY	DESCRIPTION
C1	1	4.7µF ±20%, 6.3V X5R ceramic capacitor (0805) TDK C2012X5R0J475M
C2	1	22µF ±20%, 16V X5R ceramic capacitor (1812) TDK C4532X5R1C226M
D1	1	Green surface-mount LED
D2	1	Dual Schottky diode (SOT23) Diodes Inc BAT54C or Fairchild BAT54C or General Semiconductor BAT54C
J1	1	DB-25 right-angle plug (male)
R1	1	1.6kΩ ±5% resistor (1206)

DESIGNATION	QTY	DESCRIPTION
U1	1	8-pin µMAX socket Wells-CTI 656-1082211
U1**	5	Digital potentiometer (8-pin µMAX) MAX5527GUA
U2	1	Low-voltage, analog switch (6-pin SOT23) MAX4544EUT
U3	1	Low-voltage level translator (10-pin µMAX) MAX1840EUB
—	1	MAX5527 EV kit PC board
—	1	MAX5527 EV kit software, CD-ROM*

*The latest version of the EV kit software can be downloaded at www.maxim-ic.com.

**Five MAX5527GUA (U1) devices are in an ESD-protected bag.

For pricing, delivery, and ordering information, please contact Maxim/Dallas Direct! at 1-888-629-4642,or visit Maxim's website at www.maxim-ic.com.

Component Suppliers

SUPPLIER	PHONE	WEBSITE
Diodes Inc.	805-446-4800	www.diodes.com
Fairchild Semiconductor	888-522-5372	www.fairchildsemi.com
General Semiconductor	760-804-9258	www.gensemi.com
TDK	847-803-6100	www.component.tdk.com
Wells-CTI	623-581-5330	www.wellscti.com

Note: *Indicate that you are using the MAX5527/MAX5528/ MAX5529 when contacting these component suppliers.*

MAX5527 EV Kit Files

FILE	DESCRIPTION
INSTALL.EXE	Installs the EV kit files to the PC
MAX5527.EXE	Application program
UNIST.INI	Uninstalls the EV kit software
PORT95NT.EXE	LPT driver required by the EV kit software

Quick Start

Recommended Equipment

- DC power supply capable of supplying between 2.7V and 5.5V at 100mA

- A fixed DC power supply capable of supplying 11V at 20mA

- An ohmmeter

- A parallel printer port (this is a 25-pin socket on the back of the computer)

- A computer running Windows 98/2000/XP **Note:** The DriverLINX Port I/O LPT driver must be installed on this machine. If it is not, run the PORT95NT.EXE program included with the EV kit software.

- A standard 25-pin, straight-through, male-to-female cable (printer extension cable) to connect the computer's parallel port to the MAX5527EVKIT

Procedure

The MAX5527 EV kit is fully assembled and tested. Follow the steps below to verify board operation. **Do not turn on the power supply until all connections are completed:**

1) Connect a cable from the computer's parallel port to the MAX5527EVKIT. To avoid damaging the EV kit or your computer, do not use a 25-pin SCSI port or any other connector that is physically similar to the 25-pin parallel printer port. The parallel port is typically labeled LPT or PRINTER.

2) Adjust the variable power supply to 5V.

3) Ensure that the variable power supply is turned off.

4) Ensure that the fixed 11V power supply is turned off.

5) Connect the positive terminal of the variable power supply to the pad labeled VDD.

6) Connect the ground return of the variable power supply to the corresponding pad labeled GND.

7) Connect the positive terminal of the fixed 11V power supply to the pad labeled PV.

8) Connect the ground return of the fixed 11V power supply to the corresponding pad labeled GND.

9) Connect the positive terminal of the ohmmeter to the pad marked H.

10) Connect the ground return of the ohmmeter to the pad marked W.

11) Install the software by running the INSTALL.EXE program. The install program copies the files and creates icons for them in the Windows Start menu.

12) Turn on the 5V variable power supply.

13) Turn on the 11V fixed power supply.

14) Start the MAX5527 program by opening its icon in the Start menu.

15) Wait until the program automatically detects the MAX5527 and displays the main window (Figure 1). The MAX5527 is now in its default power-on-reset (POR) mode (wiper is at midscale for an unprogrammed device).

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Detailed Description of Software

Each button corresponds to a command used to set the wiper position or program the device.

Wiper Control

The wiper position is adjusted sequentially through the tap positions using a simple 2-wire interface. To increment the wiper position, press the **Up** button. To decrement the wiper position, press the **Down** button.

Programming OTP

To program the power-on-reset (POR) wiper position into the MAX5527's OTP memory:

1) Set the **Lockout Bit** checkbox appropriately

   • Checked disables up/down digital interface after programming.

   • Unchecked enables up/down digital interface after programming.

2) Adjust wiper to desired position using **Up** and **Down**.

3) Press the **Program OTP** button.

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Note: The wiper is still adjustable using the **Up** and **Down** buttons immediately after OTP programming with the **Lockout Bit** checked. The wiper will not be locked until a complete power cycle occurs, which includes disabling the parallel port. Follow the directions in the *Resetting the MAX5527* section to perform a complete power cycle.

Resetting the MAX5527

To reset the device:

1) Turn off the power supply connected to PV.

2) Turn off the power supply connected to VDD.

3) Check the **Disable Parallel Port** checkbox. (This ensures the device is not powered through the interface.)

4) Disconnect any power supply connected to the H, W, and L pads.

5) Turn on the power supply connected to VDD.

6) Turn on the power supply connected to PV.

7) Uncheck the **Disable Parallel Port** checkbox.

Detailed Description of Hardware

The MAX5527 EV kit is a complete programming platform for the MAX5527 digital potentiometer. Parallel port signals are level translated through a MAX1840 to ensure reliable operation. The EV kit also includes an 8-pin µMAX socket to ease the programming of multiple devices.
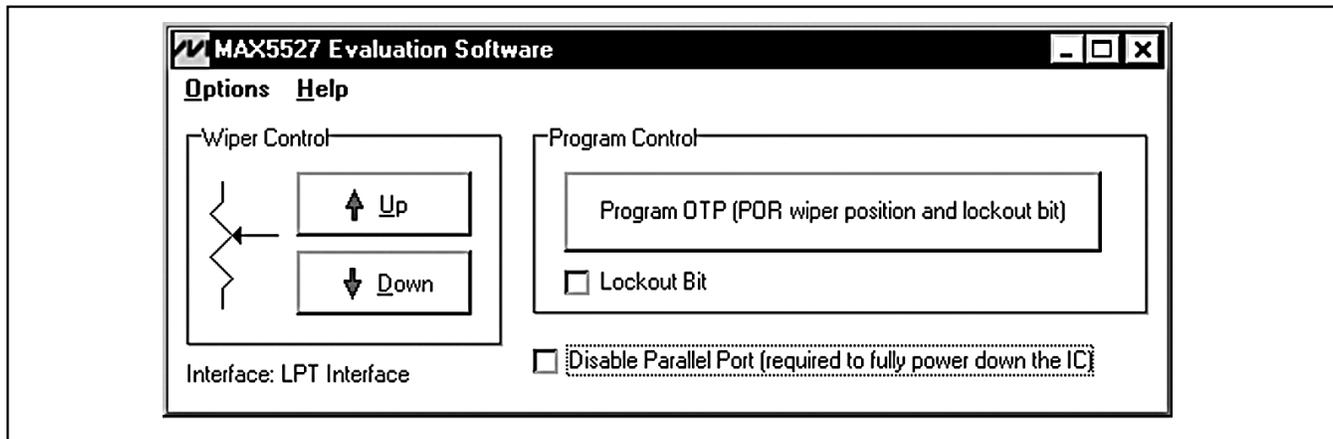

Figure 1. MAX5527 EV Kit Software Main Window
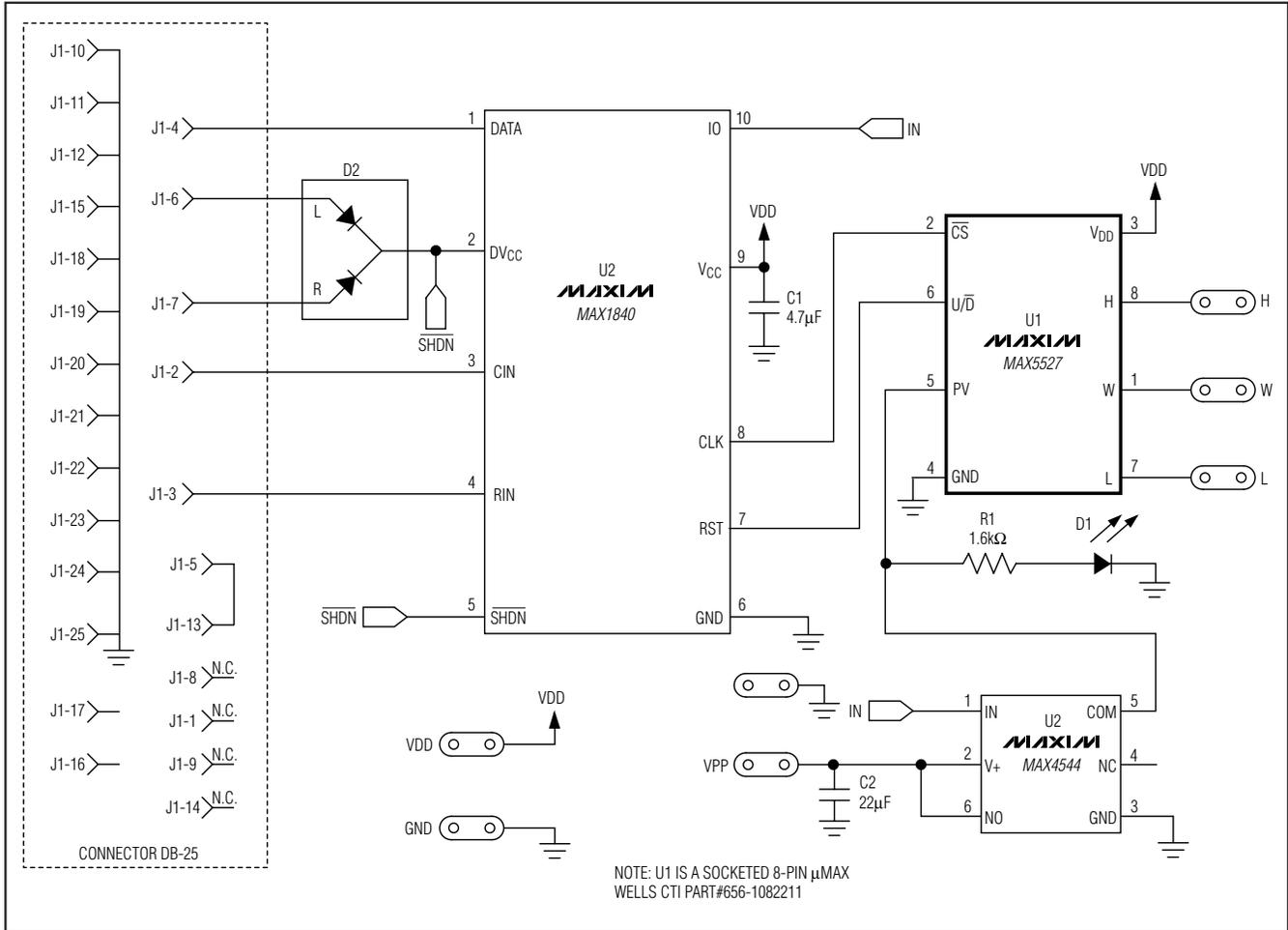
MAX5527 Evaluation Kit
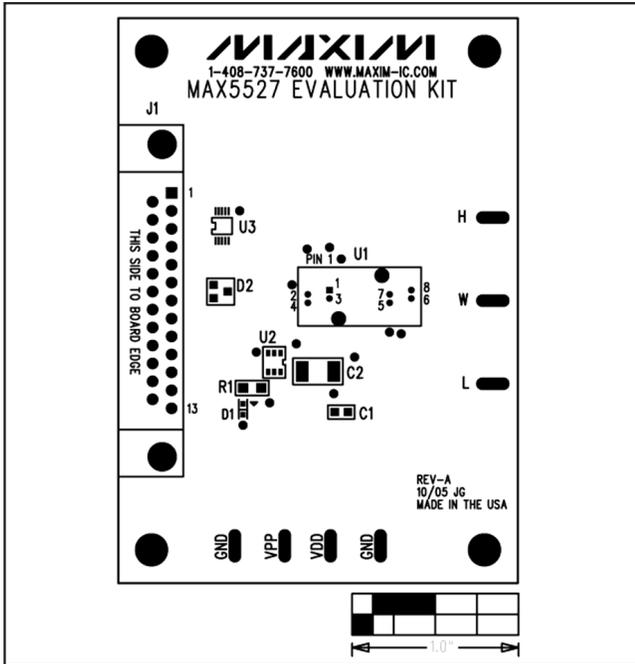
Figure 2. MAX5527 EV Kit Schematic

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Figure 3. MAX5527 EV Kit Component Placement Guide—Component Side
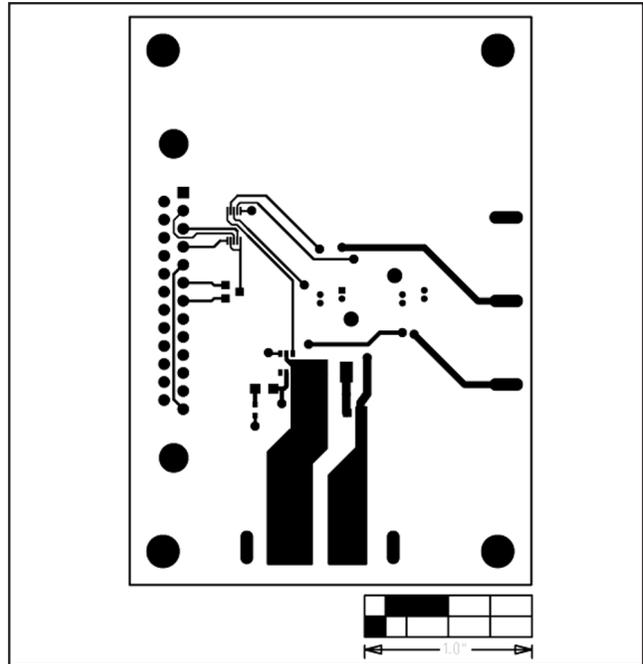

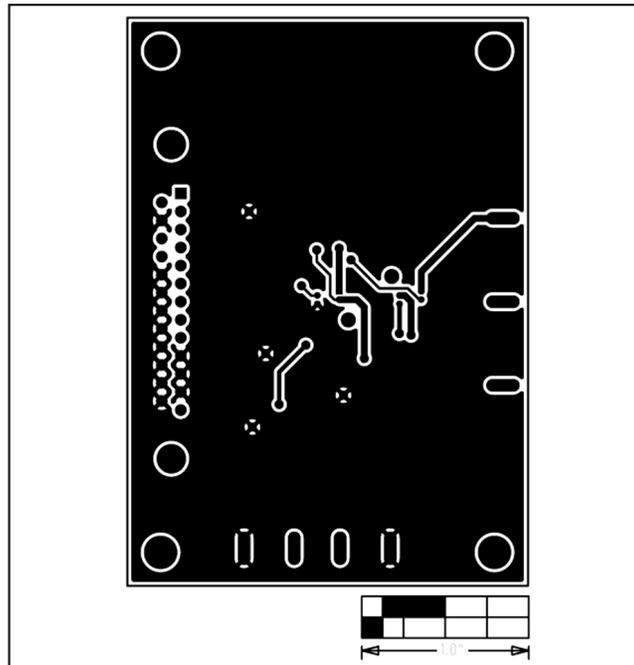Figure 4. MAX5527 EV Kit PC Board Layout—Component Side

Figure 5. MAX5527 EV Kit PC Board Layout—Solder Side

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Maxim Integrated Products, 120 San Gabriel Drive, Sunnyvale, CA 94086 408-737-7600 _____ **5**