

MAX6635 Evaluation Kit

Evaluates: MAX6633/MAX6634/MAX6635

General Description

The MAX6635 evaluation kit (EV kit) is a fully assembled and tested surface-mount PCB that evaluates the MAX6635 12-bit plus sign temperature sensor IC. The MAX6635 accurately measures temperature and provides an undertemperature/overtemperature interrupt and a maximum temperature $\overline{\text{OVERT}}$ output logic signal.

The EV kit is self-powered from the on-board USB interface circuit and selects between four available I²C slave addresses. The MAX6635 EV kit can also evaluate the MAX6633 and MAX6634 ICs. If needed, request free samples from the factory when ordering the MAX6635 EV kit.

The MAX6635 EV kit provides an on-board SMBus™/I²C interface and is connected to the computer through the universal serial bus (USB) port. The EV kit includes Windows® 2000/XP®- and Windows Vista®-compatible software that provides a graphical user interface (GUI) for control of the MAX6635's programmable features.

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Features

- ◆ Self-Powered from USB Source
- ◆ Optional 3V to 5.5V Single Power Supply
- ◆ 12-Bit Digital Temperature Sensor
- ◆ Selects from Four Available SMBus/I²C Slave Addresses
- ◆ Windows 2000/XP- and Windows Vista (32-Bit)-Compatible Software
- ◆ Also Evaluates MAX6633 and MAX6634
- ◆ On-Board SMBus/I²C Interface Control Through USB
- ◆ Lead(Pb)-Free and RoHS Compliant
- ◆ Fully Assembled and Tested

Ordering Information continued on last page.

*Contact factory for availability and processing to MIL-STD-883.

PART	TYPE
MAX6635EVKIT+	EV Kit

+Denotes lead(Pb)-free and RoHS compliant.

Component List

DESIGNATION	QTY	DESCRIPTION
$\overline{\text{ALERTA}}$, $\overline{\text{OVERTA}}$, SCLK, SDATA, VIN	5	PC large red test points
C1, C41, C48–C53, C57	9	0.1 μ F \pm 10%, 50V X7R ceramic capacitors (0603) Murata GRM188R71H104K or TDK C1608X7R1H104K
C2, C3, C11, C12, C36–C39, C42, C44	10	1 μ F \pm 10%, 16V X5R ceramic capacitors (0603) Murata GRM188R71C105K or TDK C1608X5R1C105K
C40, C43, C45	3	10 μ F \pm 10%, 16V X5R ceramic capacitors (0805) KEMET C0805C106K4PAC
C46, C47	2	22pF \pm 5%, 50V C0G ceramic capacitors (0603) Murata GRM1885C1H220J or TDK C1608C0G1H220J

DESIGNATION	QTY	DESCRIPTION
C54, C55	2	10pF \pm 5%, 50V C0G ceramic capacitors (0603) Murata GRM1885C1H100J or TDK C1608C0G1H100J
C56	1	0.033 μ F \pm 10%, 16V X5R ceramic capacitor (0603) Murata GRM188R71C333K or Taiyo Yuden EMK107BJ333KA
D1, D2	2	Green LEDs (0603) Panasonic LNJ314G8TRA
GND(x3)	3	PC large black test points
H1	0	Not installed, 2 x 5-pin JTAG header
JU1, JU2, JU3, JU5, JU7, JU8, JU9	7	3-pin headers
JU4, JU6	2	4-pin headers
J1–J4	0	Not installed, 2-pin headers

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

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Component List (continued)

DESIGNATION	QTY	DESCRIPTION
L1	1	Ferrite bead (0603) TDK MMZ1608R301A Murata BLM18SG700 TN1
P1	1	USB type-B right-angle PC-mount receptacle
R1, R4, R6, R8, R12, R13, R15, R16	8	4.7k Ω \pm 5% resistors (0603)
R9, R48	2	220 Ω \pm 5% resistors (0805)
R10, R11, R14, R17	0	Not installed, resistors (0603)
R35	1	169k Ω \pm 1% resistor (0603)
R36	1	100k Ω \pm 1% resistor (0603)
R37, R38	2	27 Ω \pm 5% resistors (0603)
R39	1	1.5k Ω \pm 5% resistor (0603)
R40	1	2.2k Ω \pm 5% resistor (0603)
R41	1	470 Ω \pm 5% resistor (0603)
R42	1	10k Ω \pm 5% resistor (0603)
R43–R47	0	Not installed, resistors—shorted by PCB trace (0402)
U1	1	12-bit temperature sensor (8 SO) Maxim MAX6635MSA

DESIGNATION	QTY	DESCRIPTION
U2	1	Microcontroller (68 QFN-EP*) Maxim MAXQ2000-RAX+
U3	1	2.5V LDO regulator (5 SC70) Maxim MAX8511EXK25+ (Top Mark: ADV)
U4	1	Adjustable output LDO regulator (5 SC70) Maxim MAX8512EXK+ (Top Mark: ADW)
U5	1	UART-to-USB converter (32 TQFP)
U6	1	93C46 type (64k x 16) 3-wire EEPROM (8 SO)
U7–U10	4	Logic level translators (10 μ MAX [®]) Maxim MAX1840EUB+
Y1	1	16MHz crystal
Y2	1	6MHz crystal
—	9	Shunts (JU1–JU9)
—	1	PCB: MAX6635 EVALUATION KIT+

*EP = Exposed pad.

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Component Suppliers

SUPPLIER	PHONE	WEBSITE
KEMET Corp.	864-963-6300	www.kemet.com
Murata Electronics North America, Inc.	770-436-1300	www.murata-northamerica.com
Panasonic Corp.	800-344-2112	www.panasonic.com
Taiyo Yuden	800-348-2496	www.t-yuden.com
TDK Corp.	847-803-6100	www.component.tdk.com

Note: Indicate that you are using the MAX6635 when contacting these component suppliers.

MAX6635EV Kit Files

FILE	DESCRIPTION
INSTALL.EXE	Installs the EV kit files on your computer
MAX6635.EXE	Application program
FTD2XX.INF	USB device driver file
UNINST.INI	Uninstalls the EV kit software
USB_Driver_Help.PDF	USB driver installation help file

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Quick Start

Required Equipment

- User-supplied Windows 2000XP- or Windows Vista-compatible PC with a spare USB port

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 MAX6635 EV kit is fully assembled and tested. Follow the steps below to verify board operation. **Caution: Do not turn on the power supply until all connections are completed.**

- 1) Verify that shunts are installed across pins 2-3 of jumpers JU1, JU2, JU3, JU5, JU7, and JU8.
- 2) Verify that shunts are installed across pins 1-4 of jumpers JU4 and JU6.
- 3) Verify that a shunt is installed across pins 1-2 of jumper JU9.
- 4) Visit www.maximintegrated.comevkitsoftware to download the latest version of the MAX6635 EV kit software, MAX6635Rxx.ZIP. Save the EV kit software to a temporary folder and uncompress the ZIP file.
- 5) Install the EV kit software on your computer by running the INSTALL.EXE program inside the temporary folder. The program files are copied and icons are created in the Windows **Start | Programs** menu.
- 6) Connect the USB cable from the PC to the EV kit board. A **Building Driver Database** window pops up in addition to a **New Hardware Found** message when installing the USB driver for the first time. If you do not see a window that is similar to the one described above after 30s, remove the USB cable from the board and reconnect it. Administrator privileges are required to install the USB device driver on Windows 2000XP and Windows Vista.
- 7) Follow the directions of the **Add New Hardware Wizard** to install the USB device driver. Choose the **Search for the best driver for your device** option. Specify the location of the device driver to be **C:\Program Files\MAX6635** (default installation directory) using the **Browse** button. During device driver installation, Windows may show a warning message indicating that the device driver Maxim uses does not contain a digital signature. This is not an error condition and it is safe to proceed with installation. Refer to the USB_Driver_Help.PDF document included with the software for additional information.
- 8) Start the MAX6635 EV kit software by opening its icon in the **Start | Programs** menu. The EV kit software main window appears, as shown in Figure 1.
- 9) Normal device operation is verified when **Device Connected** and **MAX6635** are displayed in the bottom-left status bar on the MAX6635 EV kit main window (Figure 1).
- 10) All temperature alarm indicators will be off and grayed out since they are updated from the sensor registers upon startup of the software.
- 11) The EV kit powers up with the MAX6635 power-on default registers' content.
- 12) Follow the procedures below for a quick evaluation of the MAX6635 EV kit:
 - a) Note that the actual room temperature is displayed in the **0x00 Temperature Register** group box.
 - b) In group box **0x03 Maximum Temperature Register**, enter the value 35 and press the **Write** button.
 - c) In group box **0x04 Low Temperature Register**, enter the value 15 and press the **Write** button.
 - d) In group box **0x05 High Temperature Register**, enter the value 30 and press the **Write** button.
 - e) Apply an external heat source to the MAX6635 IC, sufficient to cross the programmed high temperature threshold. The **ALERT-Temp Fault** indicator is highlighted in red and the MAX6635 $\overline{\text{ALERT}}$ pin goes low. Note that the integer part of the temperature must be above THIGH to trip the indicator.
 - f) Increase the applied heat to the MAX6635 IC to cross the programmed maximum temperature threshold. The **OVERT-Max Temp Fault** indicator is highlighted and the MAX6635 $\overline{\text{OVERT}}$ pin goes low. Note that the integer part of the temperature must be above the maximum threshold limit setting to trip the indicator.
 - g) Allow the MAX6635 IC temperature to gradually drop to room temperature and observe how the fault alarms change.
 - h) When the temperature drops below 33°C (maximum temperature - hysteresis temperature), the **OVERT-Max Temp Fault** indicator is grayed out and the MAX6635 $\overline{\text{OVERT}}$ pin goes low.

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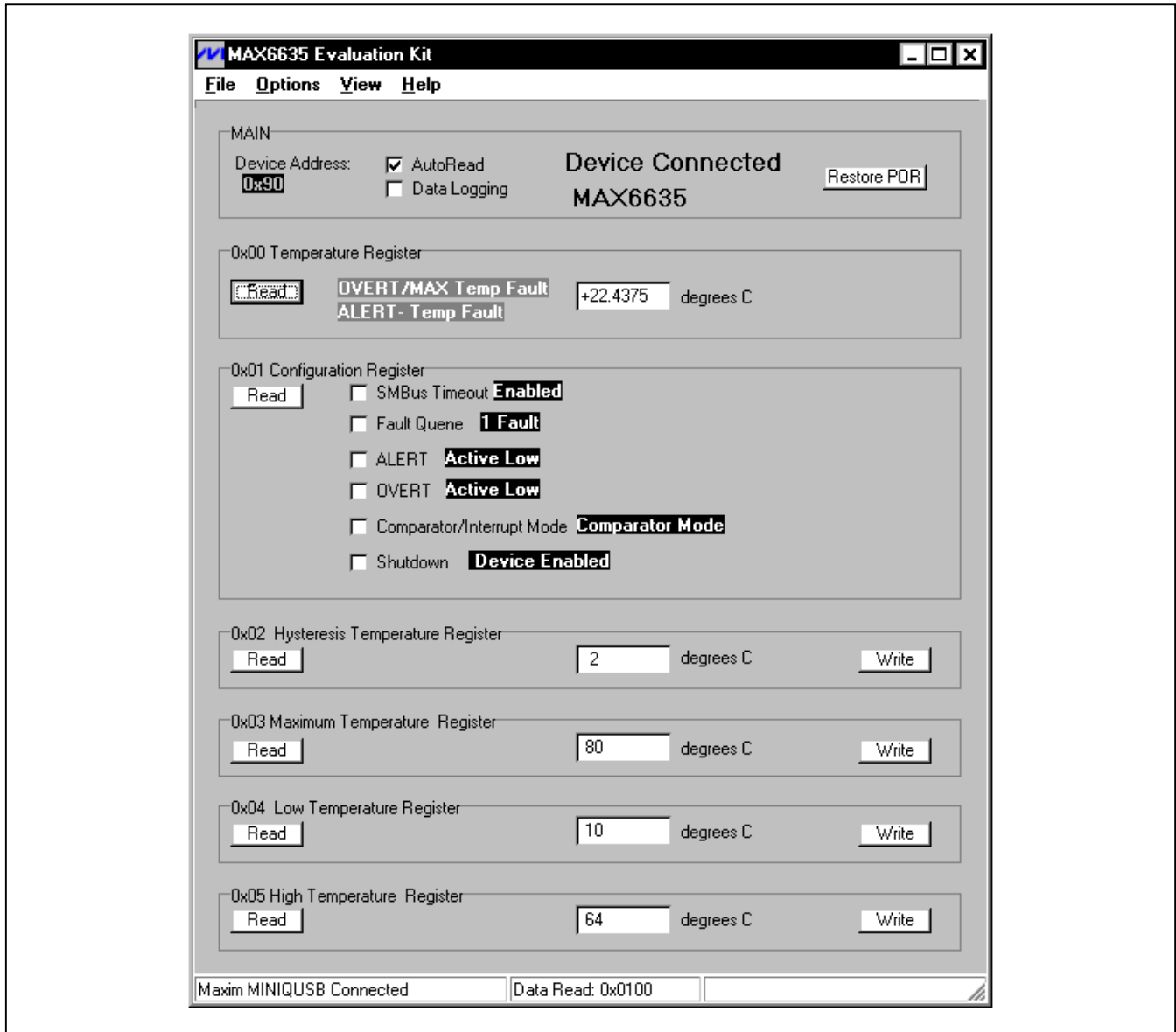


Figure 1. Typical Operating Circuit

- i) When temperature drops below 28°C (high temperature - hysteresis temperature), the **ALERT-Temp Fault** indicator is grayed out and the MAX6635 ALERT pin goes low.
- j) Apply external cooling to the MAX6635 IC, sufficient to cross the programmed low temperature threshold setting. The **ALERT-Temp Fault** indicator is highlighted in red and the MAX6635 ALERT pin goes low.
- k) Allow the MAX6635 temperature to gradually rise to room temperature and observe how the **ALERT-Temp Fault** indicator changes.
- l) When temperature rises above 18°C (low temperature + hysteresis temperature), the **ALERT-Temp Fault** indicator is grayed out and the ALERT pin of the MAX6635 goes low. Note that the integer part of the temperature must be above ($T_{LOW} + T_{HYST}$) to trip the indicators.

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Detailed Description of Software

The MAX6635 EV kit software reliably reads the Temperature register (0x00) with a 0.0625°C resolution. The threshold limit registers (0x02–0x05) set the hysteresis threshold, maximum threshold, and high and low temperature threshold limits, respectively, and use the indicator to signal when threshold limits have been violated. The **0x01 Configuration Register** group box configures the behavior of the SMBus/I²C timeout feature, the fault queue, and open-drain $\overline{\text{ALERT}}$ and $\overline{\text{OVERT}}$ output polarity. The **0x01 Configuration Register** group box also sets the $\overline{\text{ALERT}}$ signal for interrupt- or comparator-mode operation and places the MAX6635 IC in shutdown mode. The MAX6635 supports four different SMBus/I²C slave addresses by configuring jumpers JU7 and JU8. Refer to the MAX6633/MAX6634/MAX6635 IC data sheet for further details.

The software has a demo mode that is available by selecting the **View I Demo Mode** menu item. When in demo mode, all software communication to the EV kit hardware is disabled and most of the software's GUI is non-functional.

Software Startup

Upon starting the program, the MAX6635 EV kit software automatically detects the MAX6635 slave address, configures the kit in AutoRead mode, and places the IC register contents in their respective edit boxes. The bottom-left section of the status bar provides interface board communication status, the bottom-middle section displays the last data read in hexadecimal format, and the bottom-right section provides the last data sent in hexadecimal format.

MAIN

The **MAIN** group box displays the slave ID address, checkboxes to enable/disable the MAX6635 EV kit AutoRead and data-logging functions, and displays whether the EV kit is currently configured in demo mode, or if a valid device is connected (Figure 1). The **AutoRead** checkbox enables periodic polling of all register values. The software determines the **Device Address** when first starting up, by searching all possible I²C device addresses. This device address is automatically updated if slave address-select jumpers are changed while the program is running. A **Restore POR** software GUI button is available to restore the MAX6635 registers to their power-on-reset (POR) state.

Temperature Register

Temperature data is displayed in the **0x00 Temperature Register** group box (Figure 1). To read the sensor temperature, simply press the **Read** button and the sensor temperature will be displayed in the **degrees C** edit box on the software interface with a 0.0625°C resolution. The **AutoRead** checkbox is provided to continuously read and display the temperature and temperature threshold limit registers. Check the **AutoRead** checkbox to activate this function.

Fault indicators are displayed to the left of the temperature data in the **0x00 Temperature Register** group box. When the temp sensor rises above the maximum temperature threshold limit, an indicator asserts red and displays the **OVERT-MAX Temp Fault** message in the **0x00 Temperature Register** group box. The indicator deasserts when the temp sensor falls below the maximum temperature minus the hysteresis temperature register values. A fault indicator (**ALERT-Temp Fault**) is also available for $\overline{\text{ALERT}}$'s low and high temperature threshold faults. See the *Configuration Register* section for further information.

Configuration Register

The **0x01 Configuration Register** group box consists of checkboxes that configure the MAX6635 IC. A check indicates a high status bit, whereas a blank indicates a low status bit. The **SMBus Timeout** checkbox disables the SMBus timeout feature. The **Fault Queue** checkbox determines the number of faults necessary to trigger an $\overline{\text{ALERT}}$ condition. The **ALERT** and **OVERT** checkboxes force the MAX6635 IC $\overline{\text{ALERT}}$ and $\overline{\text{OVERT}}$ polarities to either active-low or active-high.

The **Comparator/Interrupt Mode** checkbox selects between operating the MAX6635 $\overline{\text{ALERT}}$ output in comparator or interrupt mode. In comparator mode, the **ALERT-Temp Fault** indicator turns on when the temperature falls below or rises above the low or high temperature threshold values, respectively. The **ALERT-Temp Fault** indicator turns off when the temperature rises above or falls below the low or high threshold limits (\pm hysteresis temperature threshold setting), respectively. In interrupt mode, the **ALERT-Temp Fault** indicator turns on when the temperature rises above or falls below the high or low threshold limits and turns off only after performing a read operation of the Temperature register. Upon the temperature rising above or falling below the low or high threshold limits (\pm hysteresis temperature

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threshold setting) respectively, the **ALERT-Temp Fault** turns on again and turns off only after performing another read operation of the Temperature register. Refer to the MAX6633/MAX6634/MAX6635 IC data sheet for additional information.

The **Shutdown** checkbox places the MAX6635 IC in shutdown mode. Highlighted to the right of each checkbox is the current state of MAX6635 Configuration register status bit. The MAX6635 Configuration register is immediately updated upon selecting/deselecting the checkbox.

Setting Temperature Threshold Registers (0x02-0x05)

Group boxes **0x02 Hysteresis Temperature Register**, **0x03 Maximum Temperature Register**, **0x04 Low Temperature Register**, and **0x05 High Temperature Register** contain the current values of the MAX6635 IC hysteresis, maximum, low, and high temperature registers in degrees Celsius. The registers can be updated by writing the appropriate value in the respective edit

box and pressing the **Write** button. The MAX6635 IC register and the corresponding edit box are simultaneously updated and read after pressing the **Write** button. The current contents of the temperature threshold registers can also be read by pressing the respective **Read** button.

Simple SMBus Commands

There are two methods for communicating with the MAX6635 IC, through the MAX6635 EV kit software main window (Figure 1), or through the interface window available by selecting the **View | Advanced User Interface** menu item from the menu bar. The **Advanced User Interface** window (Figure 2) includes a **2-wire interface** tab that allows for execution of the frequently used commands. The utility configures the 2-wire serial-interface parameters, such as start and stop bits, acknowledgements, and clock timing. The 2-wire interface screen allows sending general-purpose 2-wire commands using the **SMBusWriteByte**, **SMBusWriteWord**, **SMBusReadByte**, and **SMBusReadWord** protocols.

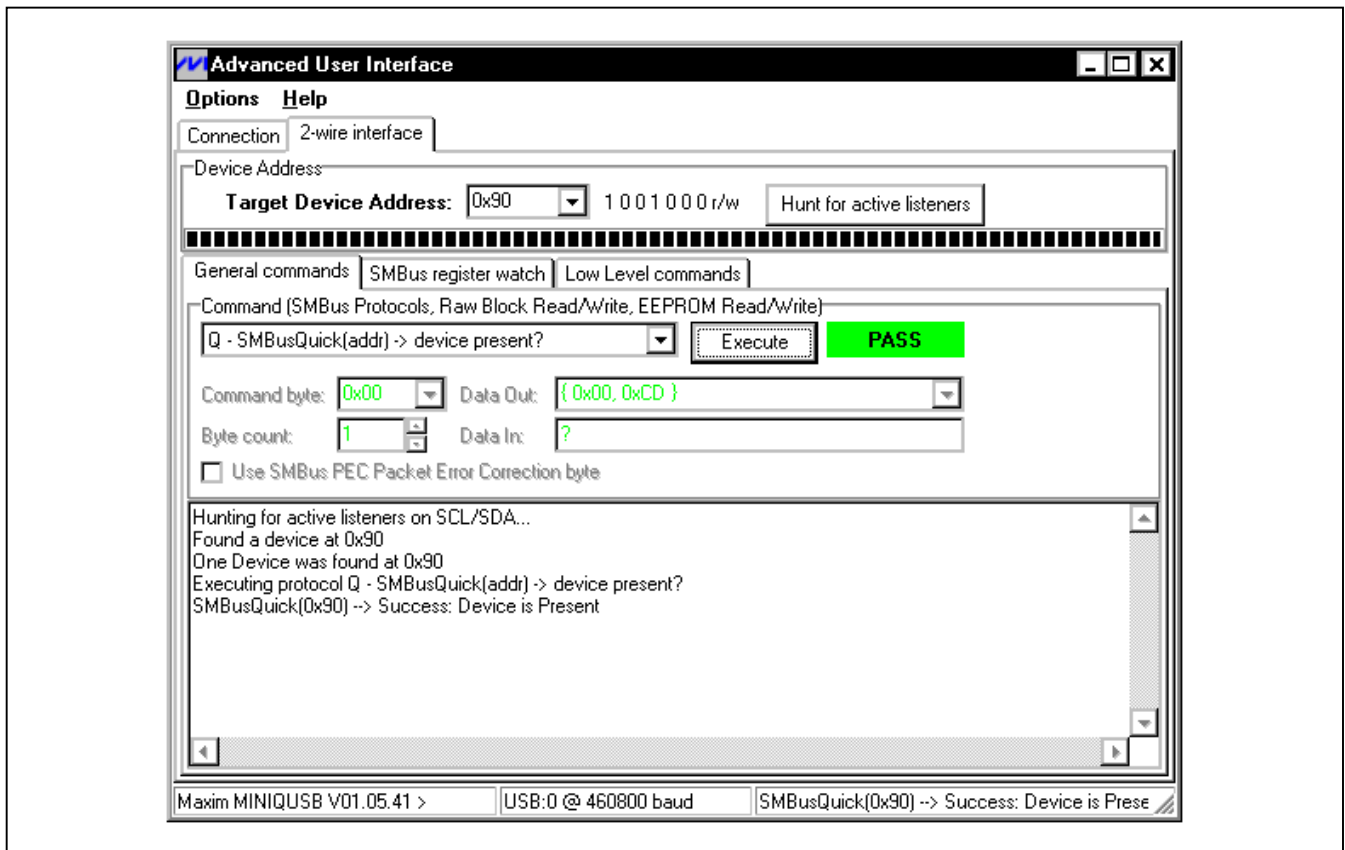


Figure 2. Command Module Interface Window

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The interface utility only accepts inputs and outputs in hexadecimal number format. Note that the advanced user interface is not synchronized with the MAX6635 EV kit GUI controls once launched. The EV kit software should be resynchronized by checking the **Read** checkboxes when navigating from the **Advanced User Interface** window to the software GUI controls.

General Troubleshooting

Problem: Software reports it cannot find the interface board

- Is the interface board power LED (D1) lit?
- Is the USB communications cable connected?
- Has Windows plug-and-play detected the board? Bring up **Control Panel -> System -> Device Manager** and look at what device nodes are indicated for USB. If there is an “unknown device” node attached to the USB, uninstall it—this forces plug-and-play to try again.

Problem: Unable to find U1

- Is the MAX6635 power LED (D2) lit?
- Is power applied to the MAX6635 EV kit VIN PCB pad or jumper JU9 configured to pins 1-2 to receive power from the interface board? This is required for powering the MAX6635.
- Are jumpers JU1 and JU2 (SDA and SCL signals, respectively) configured correctly? See Table 1.

Detailed Description of Hardware

The MAX6635 EV kit is a fully assembled and tested surface-mount PCB that evaluates the MAX6635 12-bit plus sign temperature sensor IC in an 8-pin SO package. The MAX6635 accurately measures temperature to $\pm 1\%$, provides an undertemperature/overtemperature $\overline{\text{ALERT}}$ interrupt output, a maximum temperature $\overline{\text{OVERT}}$ output, and integrates a timeout feature that offers protection against SMBus/I²C bus lockups.

Table 1. MAX6635 EV Kit Jumper Descriptions (JU1–JU9)

JUMPER	SHUNT POSITION	DESCRIPTION
JU1	1-2	Connects the MAX6635 to user-supplied SDA signal at the SDATA PCB pad
	2-3*	Connects the MAX6635 to the on-board SDA signal
JU2	1-2	Connects the MAX6635 to user-supplied SCL at the SCLK PCB pad
	2-3*	Connects the MAX6635 to the on-board SCL signal
JU3	1-2	Connects $\overline{\text{OVERT}}$ signal to user accessible $\overline{\text{OVERTA}}$ PCB pad
	2-3*	Connects the MAX6635 $\overline{\text{OVERT}}$ signal to the on-board controller
JU4	1-2	MAX6633: Connects pin A3 to VCC, logic-high
	1-3	MAX6633: Connects pin A3 to GND, logic-low
	1-4*	MAX6634: Connects $\overline{\text{ALERT}}$ to user-accessible $\overline{\text{ALERTA}}$ PCB pad or on-board SMBus/I ² C interface MAX6635: Connects $\overline{\text{OVERT}}$ to user-accessible $\overline{\text{OVERTA}}$ PCB pad or on-board SMBus/I ² C interface
JU5	1-2	Connects $\overline{\text{ALERT}}$ signal to user-accessible $\overline{\text{ALERTA}}$ PCB pad
	2-3*	Connects the MAX6635 to the $\overline{\text{ALERT}}$ on-board controller
JU6	1-2	MAX6633/MAX6634: Connects pin A2 to VCC, logic-high
	1-3	MAX6633/MAX6634: Connects pin A2 to GND, logic-low
	1-4*	MAX6635: Utilizes the MAX6635 $\overline{\text{ALERT}}$ function. Connects $\overline{\text{ALERT}}$ to user accessible $\overline{\text{ALERTA}}$ PCB pad or on-board SMBus/I ² C interface.
JU7	1-2	Connects pin A1 of the MAX6635 to VCC, logic-high
	2-3*	Connects pin A1 of the MAX6635 to GND, logic-low
JU8	1-2	Connects pin A0 of the MAX6635 to VCC, logic-high
	2-3*	Connects pin A0 of the MAX6635 to GND, logic-low
JU9	1-2*	Connects the MAX6635 to on-board +3.3V supply
	2-3	Connects the MAX6635 to user-supplied 3V to 5.5V supply at VIN PCB pad

*Default position.

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The EV kit is self-powered from the on-board USB interface circuitry's 3.3V output, or can be operated with an external supply providing 3V to 5.5V applied at the VIN and GND PCB pads. Logic level translators U7–U10 provide proper SMBus/I²C interface operation when using a 3V to 5.5V external power supply. The MAX6635 EV kit can also evaluate the MAX6633/MAX6634 ICs by configuring the appropriate EV kit jumpers. If needed, request free samples of the MAX6633/MAX6634 ICs from the factory when ordering the MAX6635 EV kit.

The MAX6635 EV kit provides an on-board SMBus/I²C interface and is connected to the computer through the USB port. The EV kit can also be configured to operate the MAX6635 in stand-alone operation using signals applied at the EV kit's SCLK, SDATA, and GND PCB pads. The EV kit includes Windows 2000/XP- and Windows Vista-compatible software that provides a GUI for control of the MAX6635's programmable features and selects between four available slave addresses of the MAX6635 IC.

User-Supplied SMBus/I²C Interface (JU1, JU2)

To use the MAX6635 EV kit with a user-supplied SMBus/I²C interface, install shunts across pins 1-2 of jumpers JU1 and JU2. Connect your SDA and SCL signals to the corresponding SDATA, SCLK, and GND pads on the MAX6635 EV kit board. SDATA and SCLK signals can be monitored using their corresponding test points. See Tables 2 and 3 for proper jumper configuration when using external data and clock sources.

$\overline{\text{OVERT}}$ and $\overline{\text{ALERT}}$ (JU3–JU6)

The MAX6635 IC $\overline{\text{OVERT}}$ and $\overline{\text{ALERT}}$ outputs can be configured to be monitored by the EV kit's on-board microcontroller or the $\overline{\text{OVERTA}}$ and $\overline{\text{ALERTA}}$ PCB pads using jumpers JU3/JU4 and JU5/JU6, respectively. See Tables 4 and 5 for proper jumper configuration of the $\overline{\text{OVERT}}$ and $\overline{\text{ALERT}}$ outputs. **Shunts must always be installed across pins 1-4 of jumpers JU4 and JU6 when evaluating the MAX6635 IC.**

Table 2. Component Suppliers

SHUNT POSITION	MAX6635 SDA PIN	SDA SOURCE
1-2	Connects to SDATA PCB pad	SDA signal supplied by an external source
2-3	Connects to EV kit level translator circuitry	SDA supplied by USB Interface

Table 3. Operating Mode

SHUNT POSITION	MAX6635 SCL PIN	SCL SOURCE
1-2	Connects to SCLK PCB pad	SCL signal supplied by an external source
2-3	Connects to EV kit level translator circuitry	SCL supplied by USB Interface

Table 4. $\overline{\text{OVERT}}$ Configuration (JU3, JU4)

SHUNT POSITION		MAX6635 $\overline{\text{OVERT}}$ PIN	EV KIT FUNCTION
JU3	JU4		
1-2	1-4	Connects to $\overline{\text{OVERTA}}$ PCB pad	Signal monitored at $\overline{\text{OVERTA}}$ PCB pad
2-3	1-4	Connects to EV kit microcontroller	Signal monitored by on-board controller

Table 5. $\overline{\text{ALERT}}$ Configuration (JU5, JU6)

SHUNT POSITION		MAX6635 $\overline{\text{ALERT}}$ PIN	EV KIT FUNCTION
JU5	JU6		
1-2	1-4	Connects to $\overline{\text{ALERTA}}$ PCB pad	Signal monitored at $\overline{\text{ALERTA}}$ PCB pad
2-3	1-4	Connects to EV kit microcontroller	Signal monitored by on-board controller

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For proper JU3–JU6 jumper configuration when evaluating the MAX6633/MAX6634, see Table 1 and refer to the MAX6633/MAX6634/MAX6635 IC data sheet for additional information.

Setting the SMBus/I²C Slave Address (JU7, JU8)

The MAX6635 has four available slave addresses that can be selected by configuring jumpers JU7 and JU8. The MAX6634 has eight available slave addresses that can be selected by configuring jumpers JU4, JU7, and JU8. The MAX6633 has 16 available slave addresses that can be selected by configuring jumpers JU3, JU4, JU7, and JU8. The default configuration of the EV kit sets the slave address to 0x90. Refer to the MAX6633/MAX6634/MAX6635 IC data sheet for additional information on slave ID addresses when evaluating the MAX6633/MAX6634 ICs.

Power-Supply Options (JU9)

Jumper JU9 selects between the MAX6635 EV kit's power-supply options; either on-board through the USB interface circuit or an external user-supplied DC power supply. The voltage from the USB interface is stepped down to 3.3V using the MAX8512 LDO regulator. The power applied at the VIN PCB pad has a 3V to 5.5V range. See Table 7 for proper jumper configuration for powering the MAX6635 IC.

Table 6. MAX6635 Slave ID Address Configuration (JU7, JU8)

SHUNT POSITION		SMBus/I ² C SLAVE ADDRESS
JU7	JU8	
1-2	1-2	0x96
1-2	2-3	0x94
2-3	1-2	0x92
2-3	2-3	0x90

Table 7. MAX6635 EV Kit Power-Supply Connections (JU9)

SHUNT POSITION	MAX6635 VCC PIN	VCC SOURCE
1-2	Connects to on-board +3.3V	USB circuitry
2-3	Connects to VIN PCB pad	External source (3V to 5.5V)

Evaluating the MAX6633/MAX6634

The MAX6635 EV kit can also be configured to evaluate the MAX6633 or MAX6634 using jumpers JU4 and JU6. Note that the MAX6633/MAX6634 pinouts differ slightly from the MAX6635 pinout. Refer to the *Pin Configurations* section in the MAX6633/MAX6634/MAX6635 IC data sheet for proper IC pinouts. See Tables 8 and 9 for proper JU4 and JU6 jumper configurations when evaluating the MAX6633/MAX6634/MAX6635.

When evaluating the MAX6633 IC, jumpers JU4 and JU6 are used, in conjunction with jumpers JU7 and JU8, to select the MAX6633 16 available slave addresses. For the MAX6634, jumper JU4 connects the ALERT signal to the on-board SMBus/I²C interface and jumper JU6 is used in conjunction with jumpers JU7 and JU8, to select the MAX6634's eight available slave addresses.

To evaluate the MAX6633 or MAX6634, replace the MAX6635 (U1). After launching the GUI software, select the proper Maxim part number using the **Option | Device** menu item from the EV kit's main menu bar.

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Table 8. Jumper JU4 Configuration

SHUNT POSITION	PART	SIGNAL FUNCTION
1-2	MAX6633	Connects pin A3 to VCC, logic-high; sets slave ID address
1-3		Connects pin A3 to GND, logic-low; sets slave ID address
1-4	MAX6634	Connects $\overline{\text{ALERT}}$ output to either external signal or on-board controller
	MAX6635	Connects $\overline{\text{OVERT}}$ output to either external signal or on-board controller

Table 9. Jumper JU6 Configuration

SHUNT POSITION	PART	SIGNAL FUNCTION
1-2	MAX6633/MAX6634	Connects pin A2 to VCC, logic-high; sets slave ID address
1-3	MAX6633/MAX6634	Connects pin A2 to GND, logic-low; sets slave ID address
1-4	MAX6635	Connects $\overline{\text{ALERT}}$ output to either external signal or on-board controller

MAX6635 Evaluation Kit

Evaluates: MAX6633/MAX6634/MAX6635

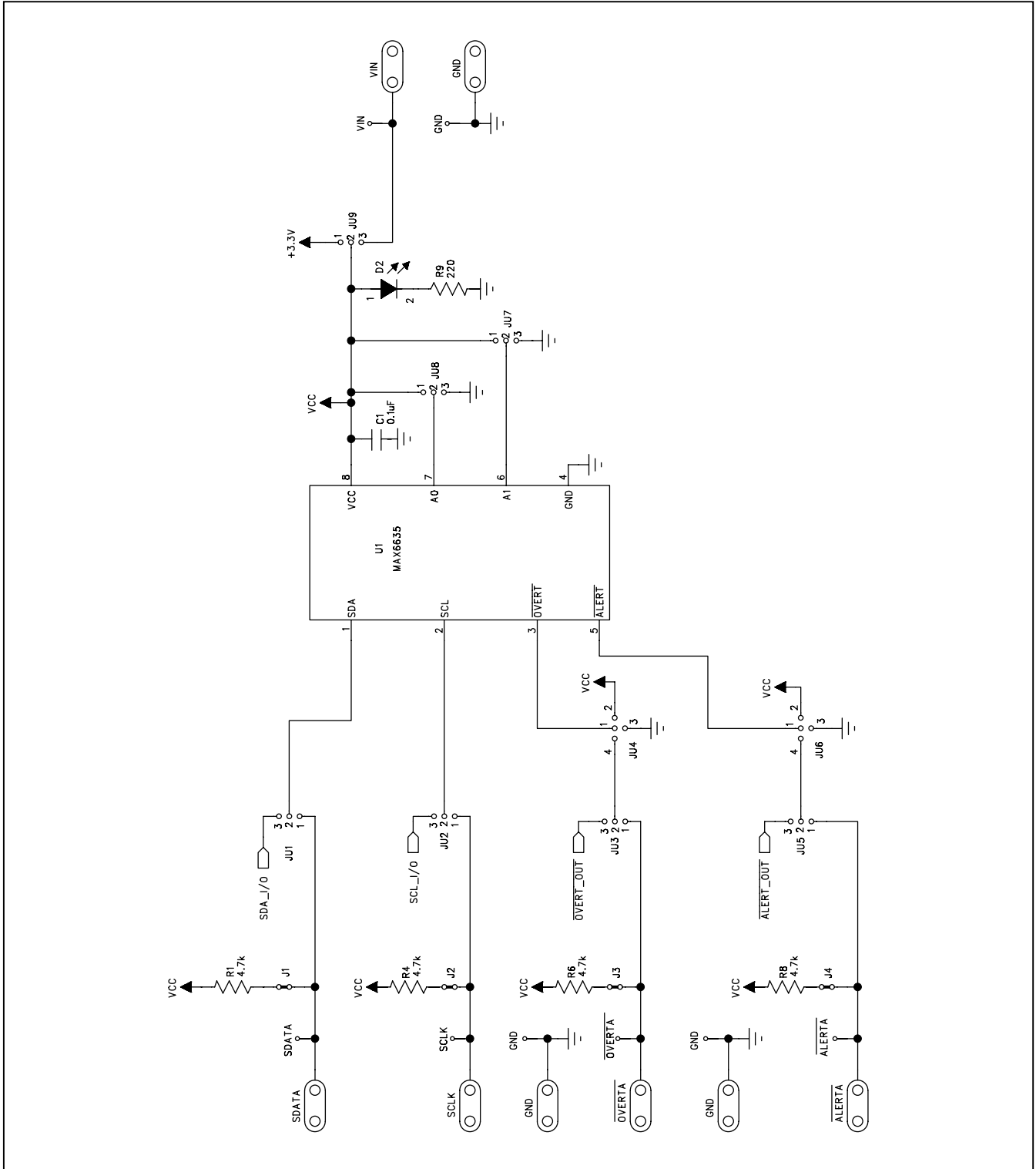


Figure 3a. MAX6635 EV Kit Schematic (Sheet 1 of 3)

MAX6635 Evaluation Kit

Evaluates: MAX6633/MAX6634/MAX6635

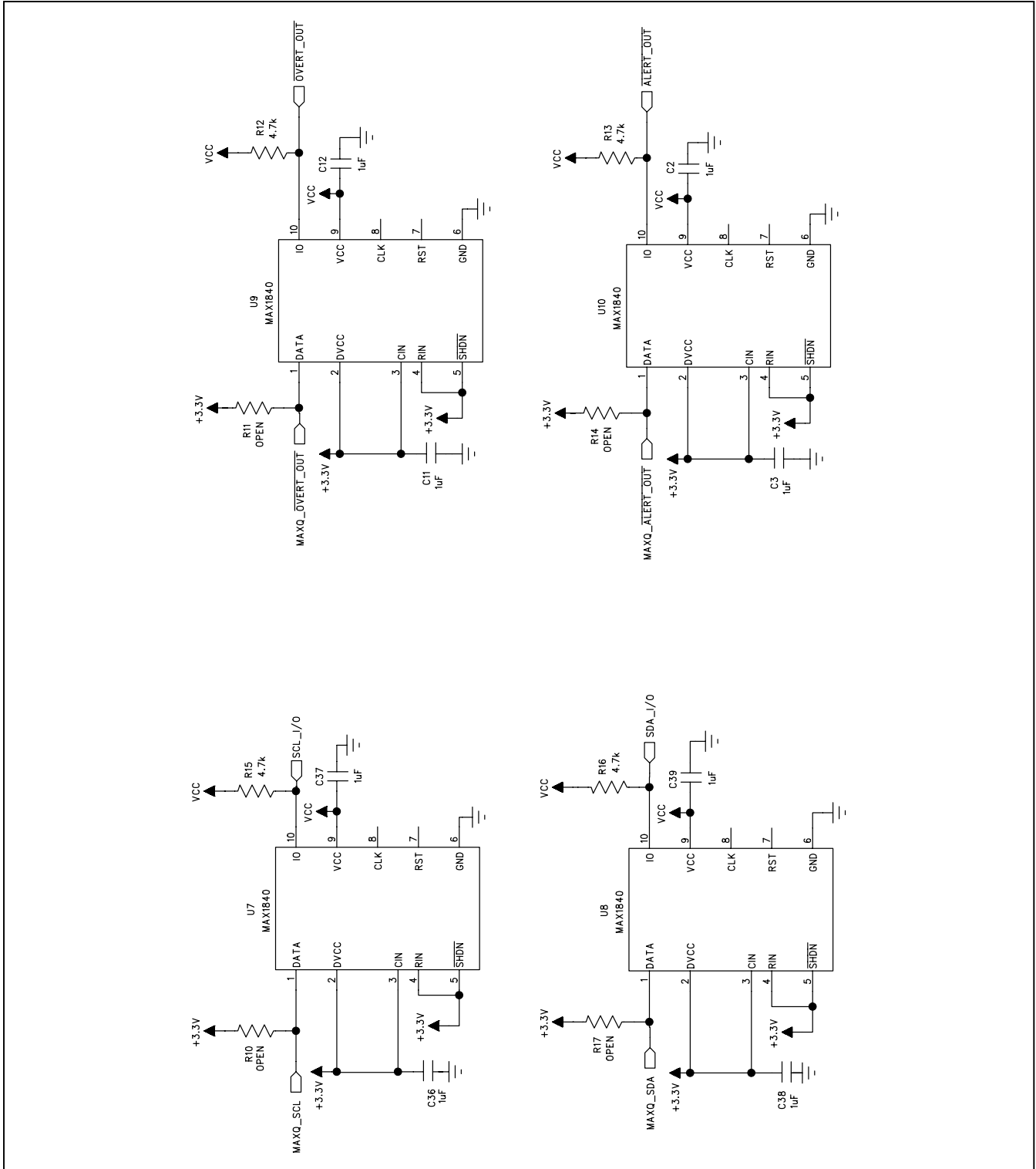


Figure 3b. MAX6635 EV Kit Schematic (Sheet 2 of 3)

MAX6635 Evaluation Kit

Evaluates: MAX6633/MAX6634/MAX6635

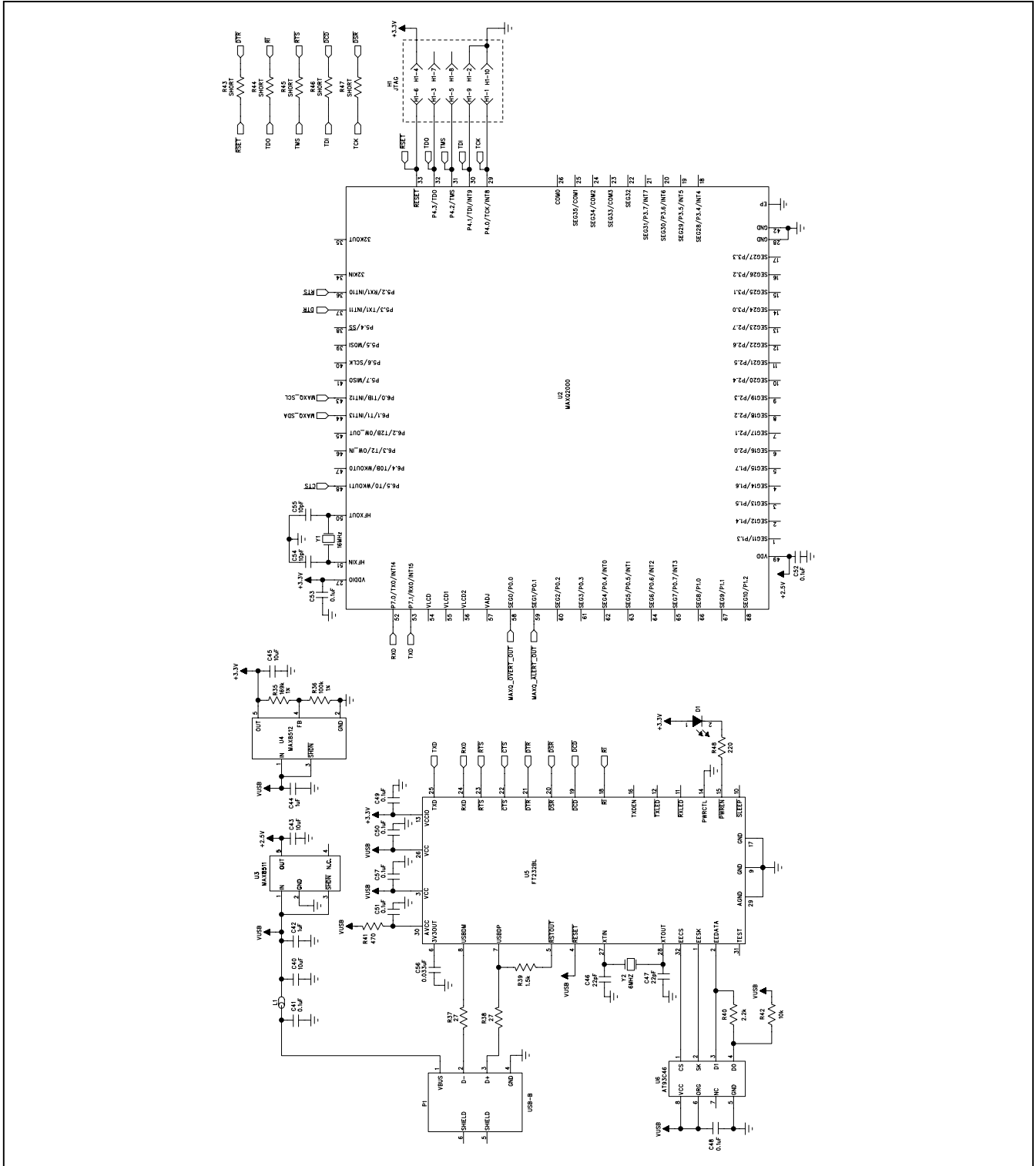


Figure 3c. MAX6635 EV Kit Schematic (Sheet 3 of 3)

MAX6635 Evaluation Kit

Evaluates: MAX6633/MAX6634/MAX6635

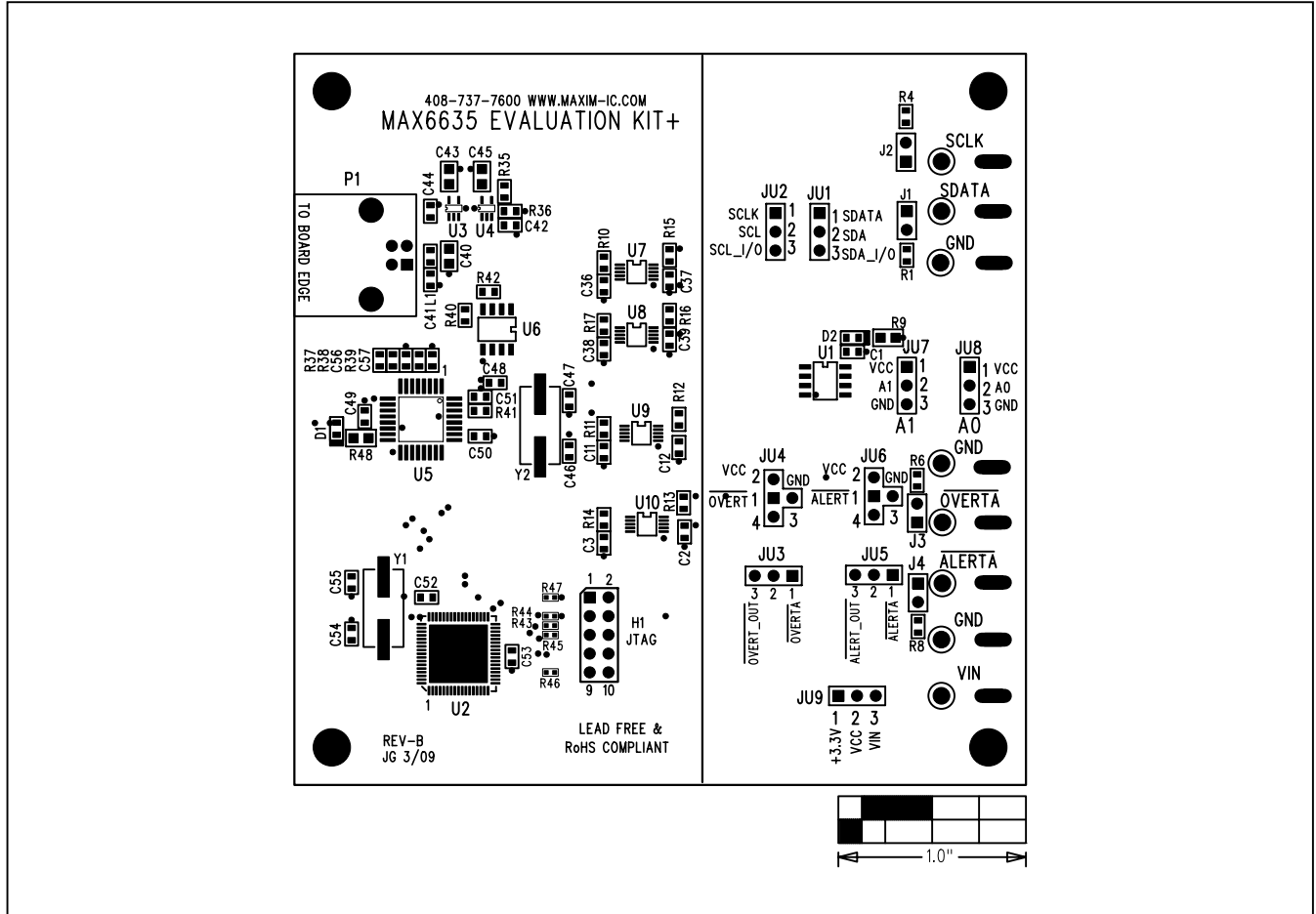


Figure 4. MAX6635 EV Kit Component Placement Guide—Component Side

MAX6635 Evaluation Kit

Evaluates: MAX6633/MAX6634/MAX6635

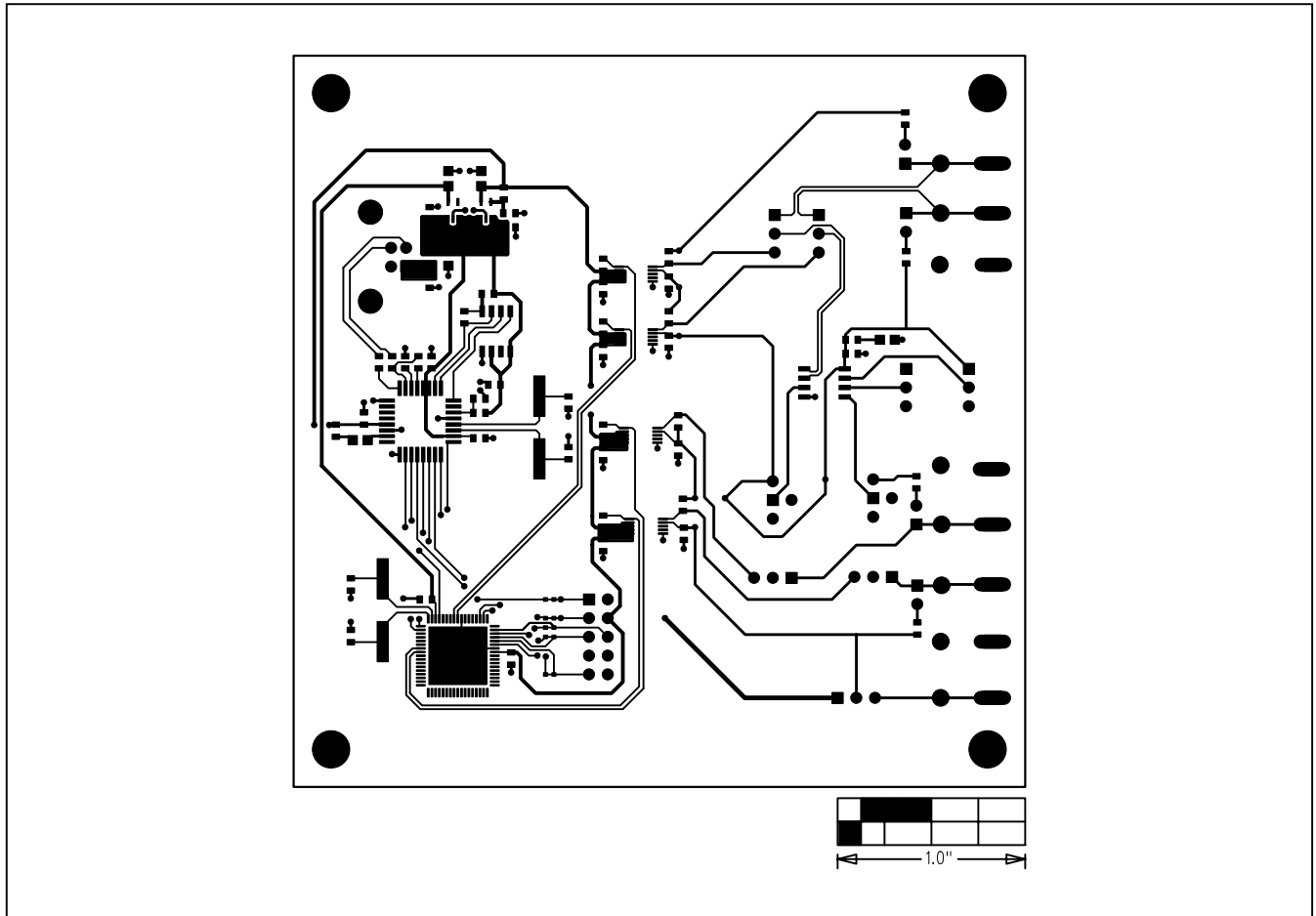


Figure 5. MAX6635 EV Kit PCB Layout—Component Side

MAX6635 Evaluation Kit

Evaluates: MAX6633/MAX6634/MAX6635

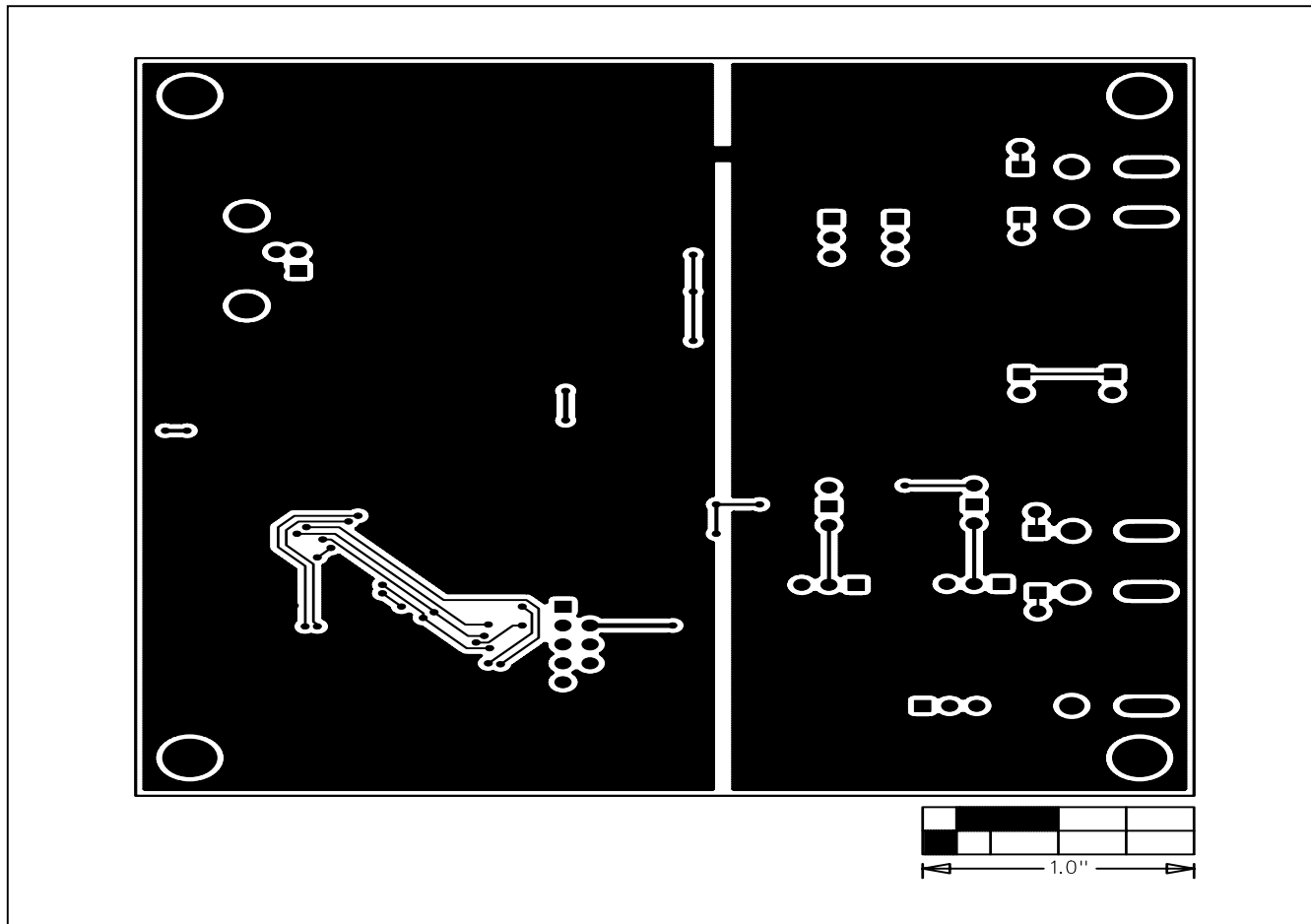


Figure 6. MAX6635 EV Kit PCB Layout—Solder Side



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