Click here to ask an associate for production status of specific part numbers.

Evaluates: MAX25069, MAX25169

MAX25169 Evaluation Kit

General Description

The MAX25169 evaluation kit (EV kit) demonstrates the MAX25069/MAX25169 IC, which is a highly integrated power supply plus LED backlight driver for automotive TFT-LCD applications. The EV kit is a fully assembled and tested surface-mount PCB that provides a complete power-management solution for automotive displays. The EV kit demonstrates one current-mode boost converter with sequencing switch (HVINP–AVDD), one current mode inverting regulator (NAVDD), positive and negative gate-voltage controllers (VG_{ON}), and (VG_{OFF}), and a boost converter that powers a six-string LED driver.

The EV kit can be configured to operate in a stand-alone mode or an I²C mode.

The *TFT-LCD Power Section* of the EV kit operates from a 2.65V to 5.5V DC supply voltage. The BOOST regulator (HVINP) is configured in bipolar Mode from 4.9V to 10.5V or in unipolar Mode from 11.7V to 18V output that provides up to 300mA. The inverting regulator (NAVDD) generates a negative output that tracks the voltage of the boost converter and provides up to 200mA. The gate-driver power supplies consist of regulated charge pumps that generate in Bipolar Mode from 8.4V to 21V or in Unipolar Mode from 12.6V to 31.5V (VG_{ON}), and (VG_{OFF}) from -4V to -18V. They can deliver up to 15mA each, depending on the AVDD setting.

The *HB LED Driver Section* demonstrates a step-up DC-DC pre-regulator followed by six channels of linear current sinks. The step-up pre-regulator switches at 2.2MHz or 400kHz and operates as a current-mode controlled regulator capable of providing up to 900mA for the current sinks. Each LED channel can operate up to 36V and provides up to 150mA.

The LED driver portion of the EV kit operates from a DC supply voltage of 3V up to the High-Brightness (HB) LED string-forward voltage. The EV kit also demonstrates the IC's other features, such as adjustable output voltage, extensive diagnostics to aid in fulfilling ASIL-B safety level, thermal shutdown, phase-shifted pulse-width-modulation (PWM) dimming, etc.

Dimming can be performed either externally using a PWM signal applied to the DIM pad or internally by programming the desired dimming frequency and individual duty cycle through I²C. The hybrid dimming feature can be enabled through a register bit to reduce EMI.

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The EV kit provides an I²C interface that can operate in conjunction with the PICO BOARD MAX32625 or a third-party I²C master such as a general-purpose microcontroller.

The EV kit also includes Windows®-compatible software that provides a simple graphical user interface (GUI) for exercising the features of the IC.

Features and Benefits

- Demonstrates Robustness of MAX25069 or MAX25169 ASIL Version
- 2.65V to 5.5V Input Range for TFT-LCD Power Section
- Wide 4.5V to 36V Input Range for LED Driver Section
- Selectable Switching Frequency (2.1MHz or 420kHz) with Spread-Spectrum Option on TFT Power Section.
- 2.2MHz or 400kHz Resistor-Programmable Switching Frequency with Spread-Spectrum Option on LED Driver Section with Six 150mA LED drivers.
- Synchronization input for 400kHz to 2.2MHz Switching Frequency
- Default Output Voltages (Stand-Alone Mode)
  - 6.8V Output at 200mA (Boost Converter)
  - -6.8V Output at -200mA (Inverting Regulator)
  - 12.8V Output at 15mA (Positive-Charge Pump Regulator)
  - -9.5V Output at 15mA (Negative-Charge Pump Regulator)
- On-Board Programmability for Other Values in the Available Set.
- Phase-Shift Dimming Option
- Demonstrates Cycle-by-Cycle Current Limit and Thermal-Shutdown Features
- Demonstrates Wide Dimming Ratio
- Demonstrates Hybrid Dimming for Better EMI and Acoustic Performance and Higher Dimming Ratio
- Demonstrates Fade In/Out for Smooth Brightness Transition
- Designed to Show Thermal Foldback Function
- I²C Programmability
- Dedicated GUI
- Full Sequencing Flexibility
- Proven PCB Layout
- Fully Assembled and Tested

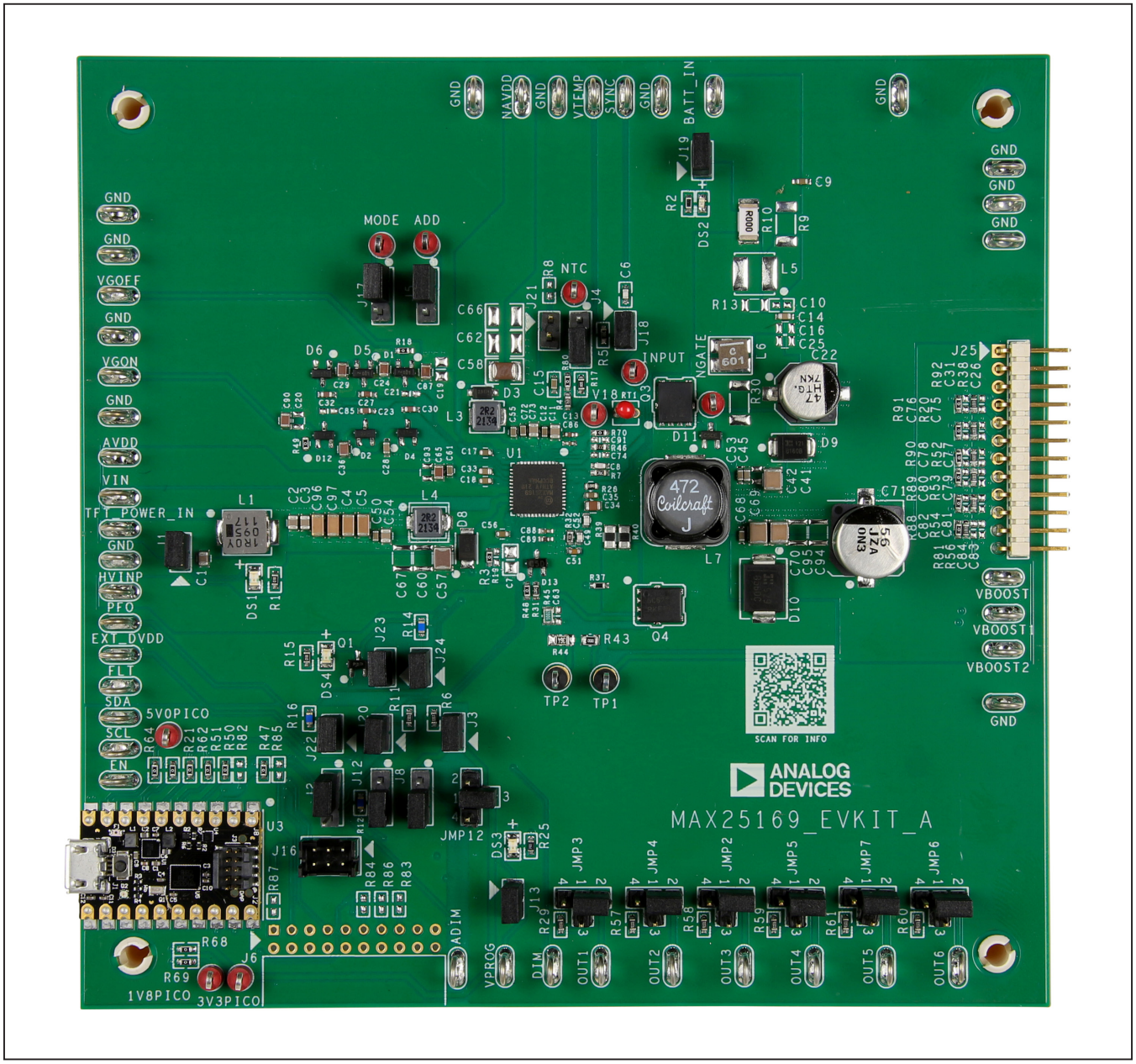
***Ordering Information* appears at end of data sheet.**

319-100947; Rev 0; 9/22

MAX25169 EV Kit Files

FILE	DESCRIPTION
MAX25169GUISetupV01.exe	Windows GUI Installer

MAX25169 EV Kit Board Photo



Quick Start

Required Equipment

- MAX25169 EV kit
- 2.65V to 5.5V, 3A DC power supply
- 4.5V to 36V, 10A DC power supply
- Digital voltmeters (DVM)
- Six series-connected HB LED strings (10 LEDs each) rated to no less than 150mA
- Current probe to measure the HB LED current
- USB cable
- Windows®-compatible PC with a spare USB port

Procedure

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

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.

Caution: Do not turn on the power supply until all connections are completed.

Stand-Alone Mode

1) Verify that the jumper J1 is closed (DS1 green LED connected).
2) Verify that the jumper J2 has a shunt installed across pins 1-2 (ADIM SEL).
3) Ensure that J3 (SDA PU) has no jumper installed.
4) Verify that the jumper J4 has a shunt installed across pins 1-2 (TEMP IC pin connected to V18).
5) Verify that the jumper J5 (ADD_SEL) has a shunt installed across pins 2-3 (ADD pin connected to GND).
6) Ensure that the J8 (VPROG SUP) has no jumper installed.
7) Verify that the jumper J12 (EN) has a shunt installed across pins 1-2 (Pullup).
8) Ensure that the J13 (VPROG) has no jumper installed.
9) Verify that the jumper J17 (MOD_SEL) has a shunt installed across pins 1-2 (MODE pin connected to V18).
10) Verify that the jumper J18 (SYNC) is closed (2.2MHz switching frequency selected).
11) Verify that the jumper J19 is closed (DS2 green LED connected).
12) Ensure that J20 (SCL PU) has no jumper installed.
13) Ensure that J21 (NTC) has no jumper installed.
14) Verify that the jumper the J22 is closed (PFO pin Pullup connected to DVDD).
15) Verify that the jumper J23 is closed (POWER LED short detection enabled).
16) Verify that the jumper J24 is closed (FLT pin Pullup connected to DVDD).
17) Verify that the jumper JMP12 (DVDD SEL) has a shunt installed across pins 1-2 (DVDD connected to V_{IN}).
18) Verify that the jumpers JMP2, JMP3, JMP4, JMP5, JMP6, and JMP7 have shunts installed across pins 1-2 (bleed resistors connected, all current sinks enabled).
19) Connect the positive terminal of the 2.65V to 5.5V, 3A DC power supply to the TFT_POWER_IN pad. Connect the negative terminal of the power supply to a GND pad.
20) Connect the positive terminal of the 4.5V to 36V, 10A DC-DC power supply to the BATT IN pad. Connect the negative terminal of the power supply to a PGND PCB pad.
21) Connect a DVM across the OUT1 and GND pads.
22) Connect a DVM across one of the TFT output pads (AVDD, NAVDD, VG_{ON}, VG_{OFF}) and one GND pad.
23) Connect the six LED strings from BOOST to the OUT1, OUT2, OUT3, OUT4, OUT5, and OUT6 pads.
24) Clip the current probe across the channel 1 HB LED+ wire to measure the LED current.
25) Turn on the 2.8V to 5.5V, 3A DC power supply, and set it to 3.3V. The green LED (DS1) should be on at this point.
26) Turn on the 4.5V to 36V, 10A DC power supply, and set it to 12V. The green LED (DS2) should be on, and the LED strings should be on at this point.
27) Verify the presence of the following default TFT voltages: AVDD = 6.8V NAVDD = -6.8V; VG_{ON} = 12.8V; VG_{OFF} = -9.5V.
28) Measure the voltage from each of the OUT_ to PGND and verify the lowest voltage is approximately 0.7V.
29) Measure the LED current using the current probe and verify all the channels.
30) Verify that the red LED (DS4) is off.

I²C Mode

1) Visit www.maximintegrated/evkitsoftware to download the latest version of the EV kit software, MAX25169GUISetupVxx.exe
2) Install the EV kit software (GUI) on your PC by running the MAX25169 GUISetupVxx.exe program. The EV kit software application will be installed together with the required PICO drivers.
3) Verify that the jumper J1 is closed (DS1 green LED connected).
4) Verify that the jumper J2 has a shunt installed across pins 2-3 (SDA SEL).
5) Verify that the jumper J3 (SDA PU) is closed (SDA Pullup connected to DVDD).
6) Verify that the jumper J4 has a shunt installed across pins 1-2 (TEMP IC pin connected to V18).
7) Verify that the jumper J5 (ADD_SEL) has a shunt installed across pins 2-3 (ADD pin connected to GND). The configuration for this I2C Address is 0x8C.
8) Verify that the jumper J8 (VPROG SUP) has a shunt installed across pins 2-3 (VPROG Boost powered by V_{IN}).
9) Verify that the jumper J12 (EN) has a shunt installed across pins 1-2 (Pullup).
10) Verify that the jumper J13 (VPROG) is closed.
11) Verify that the jumper J17 (MOD_SEL) has a shunt installed across pins 2-3 (MODE pin connected to GND).
12) Verify that the jumper J18 (SYNC) is closed (2.2MHz switching frequency selected).
13) Verify that the jumper J19 is closed (DS2 green LED connected).
14) Verify that the jumper J20 (SCL PU) is closed (SCL Pull up connected to DVDD).
15) Ensure that J21 (NTC) has no jumper installed.
16) Verify that the jumper J22 is closed (PFO pin Pullup connected to DVDD).
17) Verify that the jumper J23 is closed (POWER LED short detection enable).
18) Verify that the jumper J24 is closed (FLT pin Pullup connected to DVDD).
19) Verify that the jumper JMP12 (DVDD SEL) has a shunt installed across pins 1-3 (DVDD connected to 3V3PICO). Pico Board Maximum Supply Voltage is 3.6V. DVDD should be connected to 3V3PICO if TFT POWER IN is 5V.
20) Verify that the jumpers JMP2, JMP3, JMP4, JMP5, JMP6, and JMP7 have shunts installed across pins 1-2 (bleed resistors connected, all current sinks enabled).
21) Connect the USB cable between the PC and the Pico Board.
22) Connect the positive terminal of the 2.65V to 5.5V, 3A DC power supply to the TFT_POWER_IN pad. Connect the negative terminal of the power supply to a GND pad.
23) Connect the positive terminal of the 4.5V to 36V, 10A DC-DC power supply to the BATT IN pad. Connect the negative terminal of the power supply to a PGND PCB pad.
24) Connect a DVM across the OUT1 and GND pads.
25) Connect a DVM across one of the TFT output pads (AVDD, NAVDD, VG_{ON}, VG_{OFF}) and one GND pad.
26) Connect the six LED strings from BOOST to the OUT1, OUT2, OUT3, OUT4, OUT5, and OUT6 pads.
27) Clip the current probe across the channel 1 HB LED+ wire to measure the LED current.
28) Connect the USB cable between the PC and the Pico Board.
29) Turn on the 2.8V to 5.5V, 3A DC power supply, and set it to 3.3V. The green LED (DS1) should be on.
30) Turn on the 4.5V to 36V, 10A DC power supply, and set it to 12V. The green LED (DS2) should be on.
31) Launch the EV kit software application.
32) Flag Dev Enable checkbox to ON
33) From the EV kit software toolbar, select Device → Scan for Address. The GUI scans the I²C bus for available slave addresses on the bus and selects the first one (in this case, the MAX25169 I²C address with J5 settings is 8CH). Click OK once the MAX25169 I²C address has been found.

34) Verify that the status bar in the bottom-right corner of the GUI displays **EV Kit: Connected**, See *Figure 1*.
35) In the **General Settings** group box click the **START** button.
36) In the indicators **SEQ_ON** and **FLTB** pin status should be green.
37) For more details on how to use the GUI and all the features available, click on the GUI Help menu item.
38) Verify the presence of the following default TFT voltages: AVDD = 6.8V, NAVDD = - 6.8V, VG_{ON} = 12.8V, and VG_{OFF} = -9.5V.
39) Measure the voltage from each of the OUT_ to PGND and verify the lowest voltage is approximately 0.7V.
40) Measure the LED current using the current probe and verify all the channels.
41) Verify that the red LED (DS4) is off.

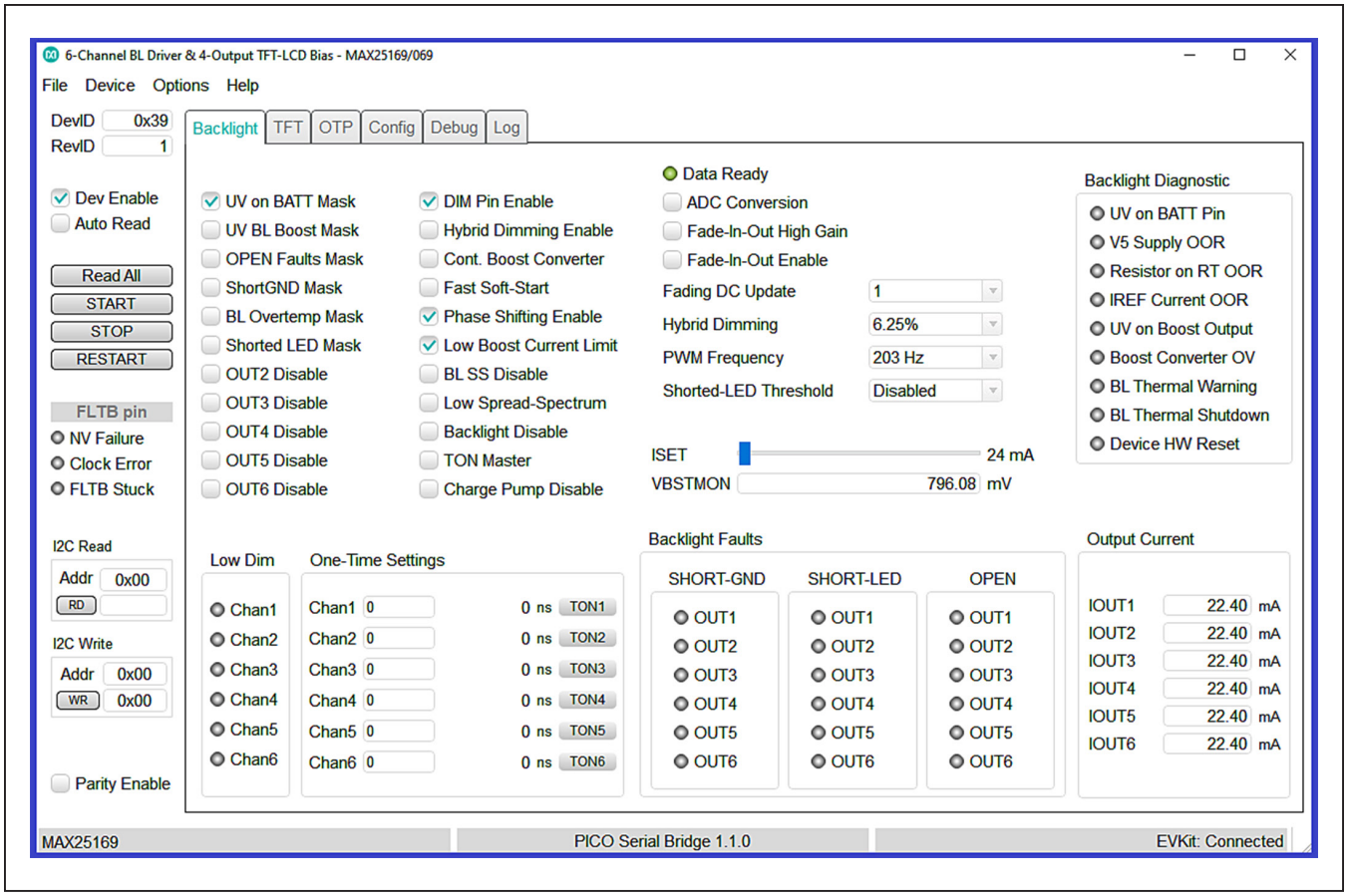


Figure 1. MAX25169 Evaluation Kit Software (GUI)

Detailed Description of Hardware

The MAX25169 EV kit consists of two sections with separate power supply inputs.

The *TFT-LCD Power Section* operates from a DC supply voltage of 2.65V up to 5.5V.

The *HB LED Driver Section* operates from a DC supply of 4.5V up to 36V.

TFT-LCD Power Section

The EV kit TFT-LCD power section feature two source-driver power supplies (AVDD and NAVDD accessible through the AVDD and NAVDD PCB pads on the EV kit) and the two gate-driver power supplies (VG_{ON} and VG_{OFF} accessible through the VG_{ON} and VG_{OFF} PCB pads on the EV kit).

The source-driver power supplies consist of a synchronous current-mode boost converter and a current mode inverting buck-boost converter that switch at 2.1MHz or 420kHz. (See *Table 1*–*4*).

The boost converter (AVDD) is configured in bipolar Mode from 4.9V to 10.5V or in unipolar Mode from 11.7V to 18V output that provides up to 300mA. The default setting is 6.8V (Bipolar Mode). The AVDD voltages can be regulated by I^2C in 0.1V steps. The inverting regulator (NAVDD) generates a negative output that tracks the voltage of the boost converter and provides up to 200mA.

Test points are also provided for easy access to the device's V18 regulator output, ADD and MODE pins.

The positive gate-driver power supplies (VG_{ON}) consist of regulated charge pumps that generate in Bipolar Mode from 8.4V to 21V or in Unipolar Mode from 12.6V to 31.5V The default setting is 12.8V. (See *Table 5*).

The negative gate-driver power supplies (VG_{OFF}) consist of regulated charge pumps that generate from -4V to -18V (VG_{OFF}). The default setting is -9.5V. (See *Table 5*).

The VG_{ON} voltages can be regulated by I^2C with 0.2V steps in Bipolar Mode and 0.3V steps in Unipolar Mode.

The VG_{OFF} voltages can be regulated by I^2C in 0.25V steps.

TFT Power LED Enable (J1)

A green LED (DS1) is used to indicate that the EV kit is powered on. The LED can be disconnected from the power supply, allowing precise current-consumption evaluation. (See *Table 6*).

Table 1. Boost Converter Inductor

f_{SW}	HVINP/AVDD
2.1MHz	2.2µH*
420kHz	10µH

**Default configuration.*

Table 2. Boost Converter Capacitors

f_{SW}	HVINP
2.1MHz	0.1µF–10µF*
420kHz	0.1µF–2x10µF

**Default configuration.*

Table 3. Inverting regulator Inductor

f_{SW}	NAVDD
2.1MHz	2.2µH*
420kHz	10µH

**Default configuration.*

Table 4. Inverting Capacitors

f_{SW}	NAVDD
2.1MHz	0.1µF–10µF*
420kHz	0.1µF–2x10µF

**Default configuration.*

Table 5. Flying Capacitors

f_{SW}	CFLY
2.1MHz	22nF*
420kHz	100nF

**Default configuration.*

Table 6. Jumper Functions (J1)

SHUNT POSITION	DS1 POWER LED
1-2*	Connected
Open	Disconnected

**Default position.*

SDA/ADIM SEL (J2)

The SDA/ADIM pin has a double functionality I2C I/O Data or Analog Dimming input in Stand Alone. Place the jumper across pins 2-3 on J12 when the device is on I2C Mode. In stand-alone mode, this pin is the analog dimming input (if unused, connect to GND) (see *Table 7*).

SDA Voltages (J3)

SDA voltage supplies can be selected between the V_{IN} and 3V3PICO (see *Table 15*). Alternatively, the user can force an external voltage as a digital reference (see *Table 8*).

SCL Voltages (J20)

SCL voltage supplies can be selected between the V_{IN}, 3V3PICO (see *Table 15*). Alternatively, the user can force an external voltage as digital reference. (see *Table 9*).

Table 7. Jumper Functions (J2)

SHUNT POSITION	SDA/ADIM SEL	OPERATIVE MODE
1-2	ADIM	Stand Alone
2-3*	I2C I/O Data	I2C Mode

**Default position.*

Table 8. Jumper Functions SDA Pull up (J3)

SHUNT POSITION	DS1 POWER LED
1-2*	On-board 1.5kΩ pullup to DVDD
Open	Externally provided

**Default position.*

Table 9. Jumper Functions SCL Pull up (J20)

SHUNT POSITION	DS1 POWER LED
1-2*	On-board 1.5kΩ pullup to DVDD
Open	Externally provided

**Default position.*

Table 10. MAX25169 Jumper Functions AVDD (J5) and MODE (J17)

ADD	MODE	ADDRESS	OPERATIVE MODE
1-2	1-2	0X8E	I2C Read Only
1-2	2-3	0X8E	I2C Read Write
2-3	2-3	0X8C	I2C Read Write
2-3	1-2		Stand Alone

ADD SEL (J5) and MODE SEL (J17)

The operation mode of the device is controlled by the ADD and MODE pins as shown in *Table 10* for MAX25169 and *Table 11* for MAX25069. The IC's 7-bit I2C slave address can be selected between three options using J5 and J17. Additionally, the stand-alone mode can be selected with this jumper.

NVM Programming (J8, J13)

The EV kit is equipped with a low voltage boost regulator able to provide the V_{PROG} voltage (8.5V) needed for NVM programmability. The V_{PROG} is controlled by the GUI and enabled only during the burning procedure. In order to use this feature, J13 jumper must be installed and J8 can be used to select the boost circuitry input voltage (see *Table 12* and *13*).

To store the contents of registers 0x07–0x15 to non-volatile memory a voltage source of 8.5V should be connected to the V_{PROG} pin.

Table 11. MAX25069 Jumper Functions AVDD (J5) and MODE (J17)

ADD	MODE	ADDRESS	OPERATIVE MODE
1-2	1-2	0X9E	I2C Read Only
1-2	2-3	0X9E	I2C Read Write
2-3	2-3	0X9C	I2C Read Write
2-3	1-2		Stand Alone

Table 12. Jumper Functions V_{PROG} Supply (J8)

SHUNT POSITION	V_{PROG} BOOST INPUT SUPPLY
1-2	EXT_DVDD
2-3*	V_{IN}

**Default position.*

Table 13. Jumper Functions V_{PROG} Supply (J13)

SHUNT POSITION	V_{PROG} BOOST OUTPUT SUPPLY
1-2*	+8.5V power V_{PROG} pin

**Default position.*

Enable EN (J12)

The EV kit features an enable input that can be used in stand-alone mode to enable/disable the device and place it in shutdown mode.

To enable the EV kit whenever power is applied to the TFT_POWER_INPUT PCB pad, place the jumper across pins 1-2 on jumper J12. To enable the EV kit using an external enable signal, place the jumper across pins 1-2 on J12 and apply a logic signal on the EN PCB input pad on the EV kit.

Place the jumper across pins 2-3 on J12 or left open until the device is in shutdown mode. (see *Table 14*)

Digital Domain Voltage DVDD SEL (JMP12).

The EV kit exposes open-drain digital signals (EN, FLT, PFO, SDA, and SCL) that are pulled up to what is referred to as the digital domain voltage. Digital domain voltage can be selected between the EV kit input voltage (V_{IN}), 3V3PICO from PICO Board, or an external voltage EXT_DVDD.

The PICO Boards GPIOs are not 5V Voltage tolerant. Use 3V3PICO Board or EXT_DVDD supply to 3.3V when TFT_POWER_IN is greater than 3.3V (see *Table 15*).

PFO Voltage (J22)

PFO voltage supplies can be selected between the V_{IN} and 3V3PICO (see *Table 15*). Alternatively, the user can force an external voltage as a digital reference (see *Table 16*).

PFO is an open-drain output which indicates that the voltage on the IN pin is below a threshold setting in the register PFO Output Falling.

Fault LED Enable (J22)

A red LED (DS4) is used to indicate a fault condition. The LED can be disconnected from the power supply, allowing precise current-consumption evaluation (see *Table 17*).

FLT Voltage (J24)

Allows the fault signal FLTB to be sent to GUI or an external device (see *Table 18*).

HB LED Driver Section

The MAX25169 EV kit LED Driver section demonstrates the HB LED drivers with an integrated step-up DC-DC pre-regulator followed by six linear current sinks to drive up to six strings of LEDs. The pre-regulator switches at 2.2MHz (or at 400kHz) and operates as a current-mode-controlled regulator, providing up to 900mA for the linear current sinks as well as overvoltage protection.

Table 14. Jumper Functions (J12)

SHUNT POSITION	EN PIN	OPERATIVE MODE
1-2*	Connected to DVDD with 10kΩ pull up	Enabled device
2-3	Connected to GND with 10kΩ pull down	Disable device
Open	Connected to 100kΩ internal pull down	Disable device

**Default position.*

Table 15. Jumper Functions DVDD SEL (JMP12)

SHUNT POSITION	EN PIN
1-2	V_{IN}
1-3*	3V3PICO
1-4	EXT_DVDD

**Default position.*

Table 16. Jumper Functions PFO (J22)

SHUNT POSITION	PFO VOLTAGE PULL UP
1-2*	On-board 1.5kΩ pullup to DVDD
Open	Externally provided

**Default position.*

Table 17. Jumper Functions Fault LED (J23)

SHUNT POSITION	DS4 FAULT LED
1-2*	Connected
Open	Disconnected

**Default position.*

Table 18. Jumper Functions Fault LED (J24)

SHUNT POSITION	DS4 FAULT LED
1-2*	Connected
Open	External Signal

**Default position.*

The cycle-by-cycle current limit is set by the feedback loop while resistors R44 and R45 set the overvoltage protection voltage to 36V. The pre-regulator power section consists of external mosfet Q4, inductor L7, and switching diode D10. The EV kit circuit operates from a 3V DC supply voltage up to the HB LED forward string voltage.

Each of the six linear current sinks (OUT1–OUT6) can operate at up to 36V sinking up to 150mA per channel. The six channels' linear current sinks are configurable for 23mA to 150mA by writing to I^2C registers.

Each of the six channels can be disabled independently either by writing to I^2C registers or by acting on jumpers JMP2, JMP3, JMP4, JMP5, JMP6, and JMP7 (see *Table 17*), which are used to disable outputs selectively when the HB LED string is not connected.

The EV kit features PCB pads to facilitate connecting HB LED strings for evaluation. The BOOST PCB pads provide connections for connecting each HB LED string's anode to the DC-DC pre-regulator output. The OUT1–OUT6 PCB pads provide connections for connecting each HB LED string's cathode to the respective current sink. Capacitors C31, C76, C78, C82, and C84 are optional and can be included in the design to prevent oscillations and provide stability when using long, untwisted HB LED connecting cables during lab evaluation. These capacitors are not required if the connection between the LED driver and the HB LEDs is a low-inductance connection.

A DIM PCB pad is provided for using a digital PWM signal to control the brightness of the HB LEDs.

Test points are also provided for easy access to INPUT, NGATE pins, and the NTC sensor non-grounded terminal.

Table 19. Selecting OUT_ Channels Operating State (JMP3, JMP4, JMP5, JMP6, and JMP7)

OUT_	JUMPER	SHUNT POSITION	CHANNEL OPERATION
OUT1	JMP3	1-2*	Channel 1 operational; connect an HB LED string** between VOUT and OUT1. Bleed resistor connected.
		1-3	Channel 1 not used. OUT1 current sink disabled.
		1-4	Channel 1 shorted to GND to simulate a fault.
OUT2	JMP4	1-2*	Channel 2 operational; connect an HB LED string** between VOUT and OUT2. Bleed resistor connected.
		1-3	Channel 2 not used. OUT2 current sink disabled.
		1-4	Channel 2 shorted to GND to simulate a fault.
OUT3	JMP2	1-2*	Channel 3 operational; connect an HB LED string** between VOUT and OUT3. Bleed resistor connected.
		1-3	Channel 3 not used. OUT3 current sink disabled.
		1-4	Channel 3 shorted to GND to simulate a fault.
OUT4	JMP5	1-2*	Channel 4 operational; connect an HB LED string** between VOUT and OUT4. Bleed resistor connected.
		1-3	Channel 4 not used. OUT4 current sink disabled.
		1-4	Channel 4 shorted to GND to simulate a fault.
OUT5	JMP7	1-2*	Channel 5 operational; connect an HB LED string** between VOUT and OUT5. Bleed resistor connected.
		1-3	Channel 5 not used. OUT5 current sink disabled.
		1-4	Channel 5 shorted to GND to simulate a fault.
OUT6	JMP6	1-2*	Channel 6 operational; connect an HB LED string** between VOUT and OUT6. Bleed resistor connected.
		1-3	Channel 6 not used. OUT6 current sink disabled.
		1-4	Channel 6 shorted to GND to simulate a fault.

Switching Frequency

Jumper J18 is used to set the switching frequency to either 2.2MHz or 400kHz. When J18 is closed, the switching frequency is set to 2.2MHz. When J18 is open, the switching frequency is nominally 400kHz.

The EV kit is optimized for 2.2MHz switching operation by default. When selecting a switching frequency of 400kHz the boost inductor should be changed to maintain acceptable efficiency (see *Table 20*). Other component value adjustments may be needed.

The internal oscillator frequency is programmable between 400kHz and 2.2MHz using a timing resistor (R_{RT}) connected from the RT pin to GND. Use the following equation to calculate the value of R_{RT} for the desired switching frequency (f_{SW}).

$$R_{RT}\,(k\Omega) = \frac{26.4 \times 10^6}{f_{SW}} - 0.32$$

To synchronize the oscillator with an external clock AC-couple the external clock to the RT input. The value of the capacitor used for AC-coupling is C_{SYNC} = 10pF and the duty cycle of the external clock should be 50%.

The spread-spectrum feature can be enabled/disabled by checking/unchecking BL SS Disable. Two different spread-spectrum levels can be selected ±6% or ±3% by checking/unchecking Low Spread Spectrum.

Battery Power LED Enable (J19)

A green LED (DS2) is used to indicate that the EV kit is powered on. The LED can be disconnected from the power supply, allowing precise current-consumption evaluation. See *Table 22* for shunt positions.

Temperature Foldback

The EV kit is designed to evaluate the temperature foldback. The NTC temperature sensor RT1 is connected between GND and R4 connected to the V18 supply, with a further resistor R17 connected from the junction of the NTC a to the TEMP pin.

When the temperature reaches temperature T1 (set by R4) the current in the LEDs is reduced linearly. The slope of the current reduction is set by R17. To implement this functionality Jumper J4 should be connected between pins 2-3. See *Table 23* [Jumper Functions (J4)] for shunt positions.

Table 20. L7 Boost Inductor

f_{SW}	BOOST INDUCTOR
2.2MHz	4.7µH*
400kHz	10µH

**Default position.*

Table 21. Switching Frequency (J18)

SHUNT POSITION	RT PIN	EV KIT OPERATION
Closed*	RT connected to GND through 64.9kΩ // 14.3kΩ resistor	2.2MHz switching frequency
Open	RT connected to GND through 64.9kΩ resistor	400kHz switching frequency

**Default position.*

Table 22. Jumper Functions (J19)

SHUNT POSITION	DS2 POWER LED
1-2*	Connected
Open	Disconnected

**Default position.*

Table 23. Jumper Functions (J4)

SHUNT POSITION	TEMPERATURE FOLDBACK
1-2	Disable
2-3	Enable

MAX32625PICO# PICO Board

The MAX25169 EV kit uses a MAX32625PICO# for translating commands from the GUI via a USB cable plugged into a USB port into I2C read and write commands for the MAX25169–MAX25069. The MAX32625 PICO board is soldered directly on the EV kit.

The operating temperature range of the MAX32625PICO# is limited to -30°C and +85°C.

To evaluate the EV kit to temperatures more than 85°C, it is mandatory to remove the PICO board from the EV kit and connect the interface I^2C to the J16 connector.

The MAX32625PICO board is loaded with the proper firmware to run the GUI. However, if a different firmware is desired, new firmware can be loaded by following these steps:

1) Disconnect the **MAX32625PICO** board from the computer and the EV kit.
2) Press and hold the small button on the **MAX32625PICO** board. Continue to hold the button pressed in and plug the MAX32625PICO board into the computer by the USB cable. Plugging the PICO board into the computer with the button pressed will erase any previous firmware which was installed.
3) New driver **Maintenance** shows up on the computer. **Release** the button at this time.
4) **Drag** and **drop** the firmware binary file to the maintenance driver folder. After a few seconds, the indicator light on the MAX32625PICO board should change from **red** to **green**, indicating that the new firmware was successfully loaded. This step assumes the USB port on your computer is capable of passing data out of the computer to a peripheral device.
5) Now **disconnect** the MAX32625PICO board from the computer. The firmware update is completed.

Figure 2. MAX32625 PICO BOARD

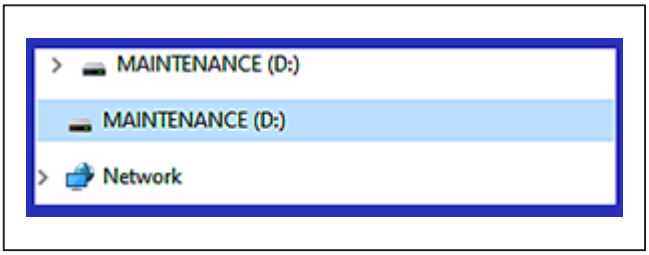


Figure 3. Maintenance Driver

Ordering Information

PART	TYPE
MAX25169EVKIT#	EV Kit

#Denotes RoHS compliant.

MAX25169 EV Kit Bill of Materials

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
1	1V8PICO, 3V3PICO, 5V0PICO, ADD, INPUT, MODE, NGATE, NTC, V18	—	9	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;
2	ADIM, AVDD, BATT_IN, DIM, EN, EXT_DVDD, FLT, GND1-GND13, HVINP, NAVDD, OUT1-OUT6, PFO, SCL, SDA, SYNC, TFT_POWER_IN, VBOOST, VBOOST1, VBOOST2, VGOFF, VGON, VIN, VPROG, VTEMP	—	41	9020 BUSS	WEICO WIRE	MAXIMPAD	EVK KIT PARTS; MAXIM PAD; WIRE; NATURAL; SOLID; WEICO WIRE; SOFT DRAWN BUS TYPE-S; 20AWG
3	C1-C3, C11, C54, C73	—	6	CL21B106KOQNNN; GRM21BZ71C106KE15; GMC21X7R106K16NT	SAMSUNG; MURATA; CAL-CHIP	10UF	CAP; SMT (0805); 10UF; 10%; 16V; X7R; CERAMIC
4	C4, C5, C96, C97	—	4	GCM31CR71A226KE02	MURATA	22UF	CAP; SMT (1206); 22UF; 10%; 10V; X7R; CERAMIC
5	C6, C47, C52	—	3	C0603C100K1GAC	KEMET	10PF	CAP; SMT (0603); 10PF; 10%; 100V; C0G; CERAMIC
6	C8	—	1	C0603H101J5GAC	KEMET	100PF	CAP; SMT (0603); 100PF; 5%; 50V; C0G; CERAMIC
7	C9, C12, C15, C17, C18, C35, C50, C53, C55, C56, C61, C68, C72	—	13	CC0603KRX7R0BB104; GRM188R72A104KA35; HMK107B7104KA; 06031C104KAT2A; GRM188R72A104K	YAGEO; MURATA; TAIYO YUDEN; AVX;MURATA	0.1UF	CAP; SMT (0603); 0.1UF; 10%; 100V; X7R; CERAMIC
8	C13	—	1	GRT155R70J105KE01	MURATA	1UF	CAP; SMT (0402); 1UF; 10%; 6.3V; X7R; CERAMIC
9	C14, C28, C33, C39, C45, C98, C99	—	7	UMK107AB7105KA; CC0603KRX7R9BB105	TAIYO YUDEN; YAGEO	1UF	CAP; SMT (0603); 1UF; 10%; 50V; X7R; CERAMIC
10	C22	—	1	EEE-TG1H470UP	PANASONIC	47UF	CAP; SMT (CASE_F); 47UF; 20%; 50V; ALUMINUM-ELECTROLYTIC
11	C23, C27, C30, C32	—	4	GRM188R72A223KAC4; C0603C223K1RAC; HMK107B7223KA; C1608X7R2A223K080AA	MURATA; KEMET; TAIYO YUDEN; TDK	22000PF	CAP; SMT (0603); 22000PF; 10%; 100V; X7R; CERAMIC
12	C24, C29, C36, C87, C90	—	5	C2012X7S2A105K125AB; GRJ21BC72A105KE11; GRM21BC72A105KE01	TDK; MURATA; MURATA	1UF	CAP; SMT (0805); 1UF; 10%; 100V; X7S; CERAMIC
13	C34, C65	—	2	CGA4J3X7R1H225K125AB; CGA4J3X7R1H225K125AE	TDK;TDK	2.2UF	CAP; SMT (0805); 2.2UF; 10%; 50V; X7R; CERAMIC
14	C37, C38, C40	—	3	CL10B106MQ8NRN	SAMSUNG ELECTRONICS	10UF	CAP; SMT (0603); 10UF; 20%; 6.3V; X7R; CERAMIC
15	C41, C69, C70	—	3	GRM32EC72A106KE05	MURATA	10UF	CAP; SMT (1210); 10UF; 10%; 100V; X7S; CERAMIC
16	C49	—	1	06035C101JAT	AVX	100PF	CAP; SMT (0603); 100PF; 5%; 50V; X7R; CERAMIC
17	C51	—	1	C0603C473K1RAC	KEMET	0.047UF	CAP; SMT (0603); 0.047UF; 10%; 100V; X7R; CERAMIC
18	C57, C58	—	2	CGA6P3X7S1H106M250AB	TDK	10UF	CAP; SMT (1210); 10UF; 20%; 50V; X7S; CERAMIC
19	C71	—	1	50HVP56M	SUNCON	56UF	CAP; SMT; 56UF; 20%; 50V; ALUMINUM-ELECTROLYTIC
20	C86, C88	—	2	GCM155R71H223JA55	MURATA	22000PF	CAP; SMT (0402); 22000PF; 5%; 50V; X7R; CERAMIC
21	C89	—	1	C1005X7S1A225K050BC	TDK	2.2UF	CAP; SMT (0402); 2.2UF; 10%; 10V; X7S; CERAMIC
22	C92	—	1	CC0603KRX7R6BB224	YAGEO	0.22UF	CAP; SMT (0603); 0.22UF; 10%; 10V; X7R; CERAMIC
23	D1, D2, D4-D6, D12	—	6	BAT54S	DIODES INCORPORATED	BAT54S	DIODE; SCH; SCHOTTKY DIODE; SMT (SOT-23); PIV=30V; IF=0.2A
24	D3	—	1	NRVTS245ESFT1G	ON SEMICONDUCTOR	NRVTS245ESFT1G	DIODE; SCH; SMT (SOD-123FL); PIV=45V; IF=2.0A
25	D7	—	1	CMDSH05-4	CENTRAL SEMICONDUCTOR CORP	CMDSH05-4	DIODE; SCH; SURFACE MOUNT LOW VF SILICON SCHOTTKY DIODE; ; SMT (SOD-323); PIV=40V; IF=0.5A

MAX25169 EV Kit Bill of Materials (continued)

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
26	D8	—	1	PMEG6030ETP	NXP	PMEG6030ETP	DIODE; SCH; SMT (SOD-128); PIV=60V; IF=3A
27	D9	—	1	B160B-13-F	DIODES INCORPORATED	B160B-13-F	DIODE; SCH; SMB (DO-214AA); PIV=60V; IF=1A
28	D10	—	1	B560CQ-13-F	DIODES INCORPORATED	B560CQ-13-F	DIODE; SCH; SMC (DO-214AB); PIV=60V; IF=5A
29	D11	—	1	CMPD914E	CENTRAL SEMICONDUCTOR	CMPD914E	DIODE; SWT; SMT (SOT23-3); PIV=150V; IF=0.1A
30	D13	—	1	CMPD914	CENTRAL SEMICONDUCTOR	CMPD914	SMALL SIGNAL DIODE
31	DS1	—	1	LTST-C170GKT	LITE-ON ELECTRONICS INC	LTST-C170GKT	DIODE; LED; STANDARD; GREEN; SMT (0805); PIV=2.1V; IF=0.01A
32	DS2	—	1	LGL29K-F2J1-24-Z	OSRAM	LGL29K-F2J1-24-Z	DIODE; LED; SMARTLED; GREEN; SMT; PIV=1.7V; IF=0.02A
33	DS3, DS4	—	2	LTST-C170EKT	LITE-ON ELECTRONICS INC	LTST-C170EKT	DIODE; LED; STANDARD; RED; SMT (0805); PIV=2.0V; IF=0.02A
34	J1, J3, J13, J18-J24	—	10	PBC02SAAN	SULLINS ELECTRONICS CORP.	PBC02SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 2PINS
35	J2, J4, J5, J8, J12, J17	—	6	PEC03SAAN	SULLINS	PEC03SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 3PINS
36	J16	—	1	DF11-6DP-2DSA(24)	HIROSE ELECTRIC CO LTD	DF11-6DP-2DSA(24)	CONNECTOR; MALE; THROUGH HOLE; DF11 SERIES; DOUBLE-ROW CONNECTOR; STRAIGHT; 6PINS;
37	J25	—	1	HTSW-112-11-G-S-RA	SAMTEC	HTSW-112-11-G-S-RA	CONNECTOR; MALE; THROUGH HOLE; SQUARE POST HEADER; RIGHT ANGLE; 12PINS ;
38	JMP2-JMP7, JMP12	—	7	22-28-4043	MOLEX	22-28-4043	CONNECTOR; MALE; THROUGH HOLE; FLAT VERTICAL BREAKAWAY; STRAIGHT; 4PINS
39	L1	—	1	ETQ-P3M1R0YFN	PANASONIC	1UH	INDUCTOR; SMT; COMPOSITE; 1UH; 20%; 10.7A
40	L2	—	1	LQH32CN220K23	MURATA	22UH	INDUCTOR; 1210; 22UH; +/-10%; 0.25A; -40DEGC TO +85DEGC
41	L3, L4	—	2	74437324022	WURTH ELECTRONICS INC	2.2UH	INDUCTOR; SMT; SHIELDED; 2.2UH; 20%; 3.25A
42	L6	—	1	XAL4020-601ME	COILCRAFT	0.60UH	INDUCTOR; SMT; CORE MATERIAL= COMPOSITE; 0.60UH; TOL=+/-20%; 11.7A
43	L7	—	1	MSS1278T-472ML	COILCRAFT	4.7UH	INDUCTOR; SMT; FERRITE BOBBIN CORE; 4.7UH; TOL=+/-0.2; 6.2A; -40 DEGC TO +125 DEGC
44	Q1	—	1	BSS84	FAIRCHILD SEMICONDUCTOR	BSS84	ENHANCEMENT MODE FIELD EFFECT TRANSISTOR, P-CHANNEL, SOT-23, PD=0.36W, ID=-0.13A, VDSS=-50V, -55degC TO +150degC
45	Q3	—	1	NVMFS5C677NLT1G	ON SEMICONDUCTOR	NVMFS5C677NLT1G	TRAN; NCH; POWER MOSFET; SO-8FL; PD-(3.5W); I-(36A); V-(60V)
46	Q4	—	1	NTMFS5C673NLT1G	ON SEMICONDUCTOR	NTMFS5C673NLT1G	TRAN; NCH; MOSFET; SO-8FL; PD-(46W); I-(50A); V-(60V)
47	R1, R15	—	2	CR0603-FX-1001ELF; RC0603FR-071KL	BOURNS;YAGEO	1K	RES; SMT (0603); 1K; 1%; +/-100PPM/DEGC; 0.1000W
48	R2	—	1	CRCW06033K00FK	VISHAY DALE	3K	RES; SMT (0603); 3K; 1%; +/-100PPM/DEGC; 0.1000W
49	R3, R18, R21, R47-R51, R62-R70, R80, R81, R88-R92	—	24	CRCW06030000ZS; MCR03EZPJ000; ERJ-3GEY0R00; CR0603AJ/-000ELF	VISHAY; ROHM SEMICONDUCTOR; PANASONIC;BOURNS	0	RES; SMT (0603); 0; JUMPER; JUMPER; 0.1000W
50	R4	—	1	CRCW06036K04FK	VISHAY DALE	6.04K	RES; SMT (0603); 6.04K; 1%; +/-100PPM/DEGC; 0.1000W
51	R5	—	1	ERJ-3EKF1432	PANASONIC	14.3K	RES; SMT (0603); 14.3K; 1%; +/-100PPM/DEGC; 0.1000W
52	R6, R11	—	2	CRCW06031K50FK	VISHAY DALE	1.5K	RES; SMT (0603); 1.5K; 1%; +/-100PPM/DEGC; 0.1000W
53	R7	—	1	ERJ-3EKF6492	PANASONIC	64.9K	RES; SMT (0603); 64.9K; 1%; +/-100PPM/DEGC; 0.1000W
54	R10	—	1	LRC-LRZ2010LF-R000	TT ELECTRONICS	0	RES; SMT (2010); 0; JUMPER; CURRENT SENSE
55	R12, R14, R16, R27	—	4	CHPHT0603K1002FGT	VISHAY SFERNICE	10K	RES; SMT (0603); 10K; 1%; +/-100PPM/DEGC; 0.0125W
56	R17	—	1	RNCP0603FTD2K00	STACKPOLE ELECTRONICS INC.	2K	RES; SMT (0603); 2K; 1%; +/-100PPM/DEGC; 0.1250W

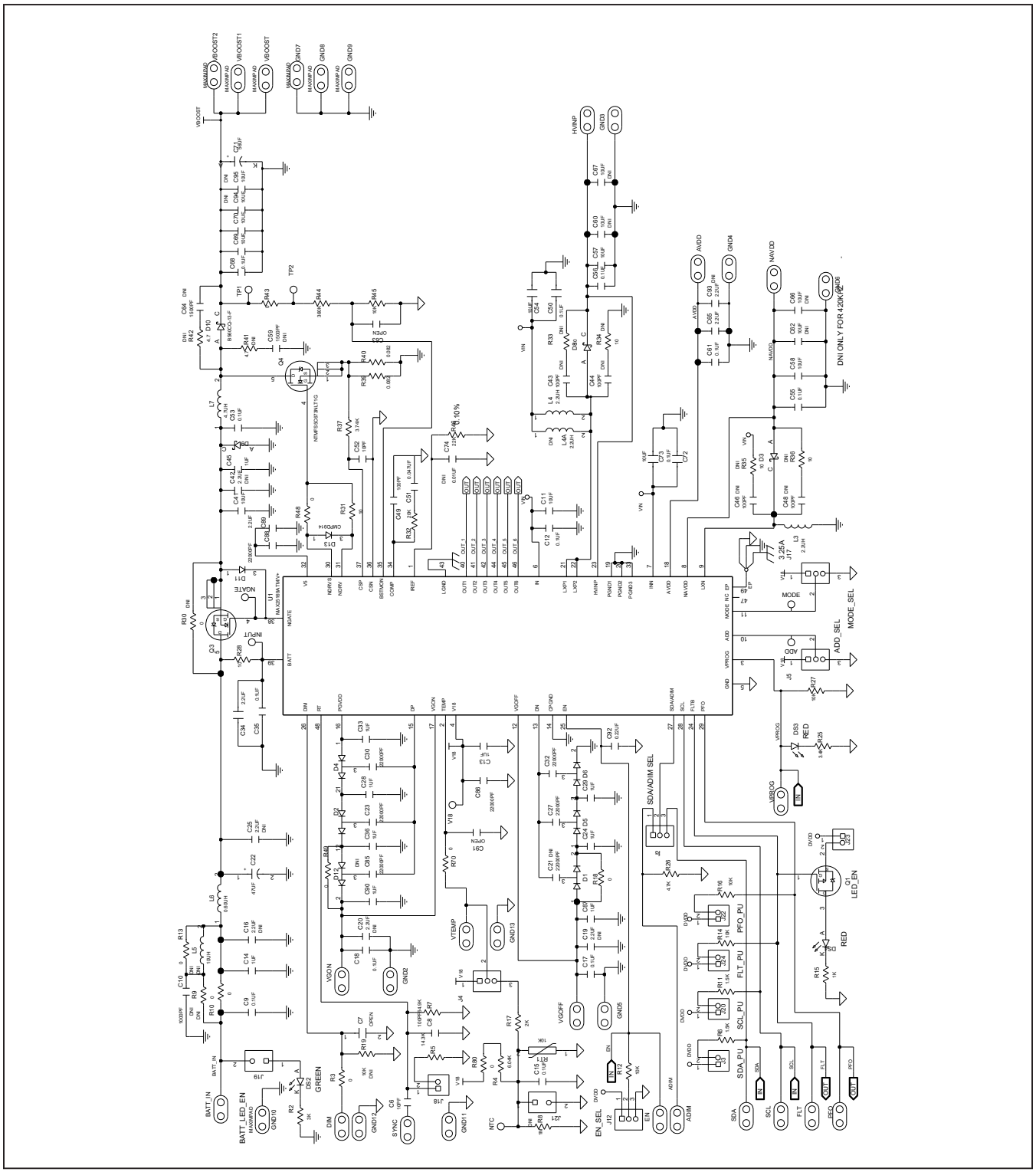
MAX25169 EV Kit Bill of Materials (continued)

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
57	R20, R22, R38, R52-R54, R56	—	7	CRCW0603100KFK; RC0603FR-07100KL; RC0603FR-13100KL; ERJ-3EKF1003; AC0603FR-07100KL	VISHAY DALE; YAGEO;YAGEO; PANASONIC;YAGEO	100K	RES; SMT (0603); 100K; 1%; +/-100PPM/DEGC; 0.1000W
58	R23	—	1	CRCW0603510KFK	VISHAY DALE	510K	RES; SMT (0603); 510K; 1%; +/-100PPM/DEGC; 0.1000W
59	R24	—	1	CRCW060386K6FK	VISHAY DALE	86.6K	RES; SMT (0603); 86.6K; 1%; +/-100PPM/DEGC; 0.1000W
60	R25	—	1	CRCW06033K40FK	VISHAY DALE	3.4K	RES; SMT (0603); 3.4K; 1%; +/-100PPM/DEGC; 0.1000W
61	R26	—	1	CRCW06034K70FK	VISHAY DALE	4.7K	RES; SMT (0603); 4.7K; 1%; +/-100PPM/DEGC; 0.1000W
62	R28, R31	—	2	CRCW060310R0FK; MCR03EZPFX10R0; ERJ-3EKF10R0	VISHAY; ROHM SEMICONDUCTOR; PANASONIC	10	RES; SMT (0603); 10; 1%; +/-100PPM/DEGC; 0.1000W
63	R29, R57-R61	—	6	CRCW06039K10FKEAC	VISHAY	9.1K	RES; SMT (0603); 9.1K; 1%; +/-100PPM/DEGK; 0.1000W
64	R32	—	1	MCR03EZPFX2002; ERJ-3EKF2002; CR0603-FX-2002ELF; CRCW060320K0FK; RMCF0603FT20K0	ROHM;PANASONIC; BOURNS;VISHAY; STACKPOLE ELECTRONICS INC	20K	RES; SMT (0603); 20K; 1%; +/-100PPM/DEGC; 0.1000W
65	R37	—	1	CRCW06033K74FK	VISHAY DALE	3.74K	RES; SMT (0603); 3.74K; 1%; +/-100PPM/DEGC; 0.1000W
66	R39, R40	—	2	ERJ-8BWFR082	PANASONIC	0.082	RESISTOR; 1206; 0.082 OHM; 1%; 100PPM; 1W; THICK FILM
67	R43	—	1	CRCW08050000ZS; RC2012J000	VISHAY; SAMSUNG ELECTRONICS	0	RES; SMT (0805); 0; JUMPER; JUMPER; 0.1250W
68	R44	—	1	RG2012N-364-W	SUSUMU CO LTD	360K	RES; SMT (0805); 360K; 0.05%; +/-10PPM/DEGC; 0.1250W
69	R45	—	1	TNPW080510K0BE; ERA-6YEB103V	VISHAY DALE; PANASONIC	10K	RES; SMT (0805); 10K; 0.10%; +/-25PPM/DEGK; 0.1250W
70	R46	—	1	CPF0603B22KE	TE CONNECTIVITY	22K	RES; SMT (0603); 22K; 0.10%; +/-25PPM/DEGC; 0.0630W
71	RT1	—	1	NTCLE100E3103G	VISHAY	10K	THERMISTOR; THROUGH HOLE-RADIAL LEAD; 10K OHM; TOL=+/-2%
72	SPACER1-SPACER4	—	4	9032	KEYSTONE	9032	MACHINE FABRICATED; ROUND-THRU HOLE SPACER; NO THREAD; M3.5; 5/8IN; NYLON
73	TP1, TP2	—	2	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;
74	U1	—	1	MAX25169ATM/V+	MAXIM	MAX25169ATM/V+	EVKIT PART - IC; MAX25169ATM/V+; AUTOMOTIVE I2C-CONTROLLED 6-CHANNEL 150MA BACKLIGHT DRIVER AND 4-OUTPUT TFT-LCD BIAS; PACKAGE OUTLINE DRAWING: 21-0140; LAND PATTERN DRAWING: 90-0464; TQFN48-EP
75	U2	—	1	MAX8571EUT+	MAXIM	MAX8571EUT+	IC; CONV; HIGH-EFFICIENCY LCD BOOST WITH TRUE SHUTDOWN; SOT23-6
76	U3	—	1	MAX32625PICO	MAXIM	MAX32625PICO	MODULE; BOARD; MAX32625PICO BOARD DESIGN FOR MAX32625 ARM CORTEX-M4F; BOARD; LAMINATED PLASTIC WITH COPPER CLAD;
77	PCB	—	1	MAX25169	MAXIM	PCB	PCB:MAX25169
78	C10	DNP	0	GRM1885C1H102JA01; C1608C0G1H102J080AA; GCM1885C1H102JA16	MURATA; TDK;MURATA	1000PF	CAP; SMT (0603); 1000PF; 5%; 50V; C0G; CERAMIC
79	C16, C19, C20, C25, C42	DNP	0	C2012X7R1H225K125AC	TDK	2.2UF	CAP; SMT (0805); 2.2UF; 10%; 50V; X7R; CERAMIC
80	C21, C85	DNP	0	GRM188R72A223KAC4; C0603C223K1RAC; HMK107B7223KA; C1608X7R2A223K080AA	MURATA;KEMET; TAIYO YUDEN;TDK	22000PF	CAP; SMT (0603); 22000PF; 10%; 100V; X7R; CERAMIC

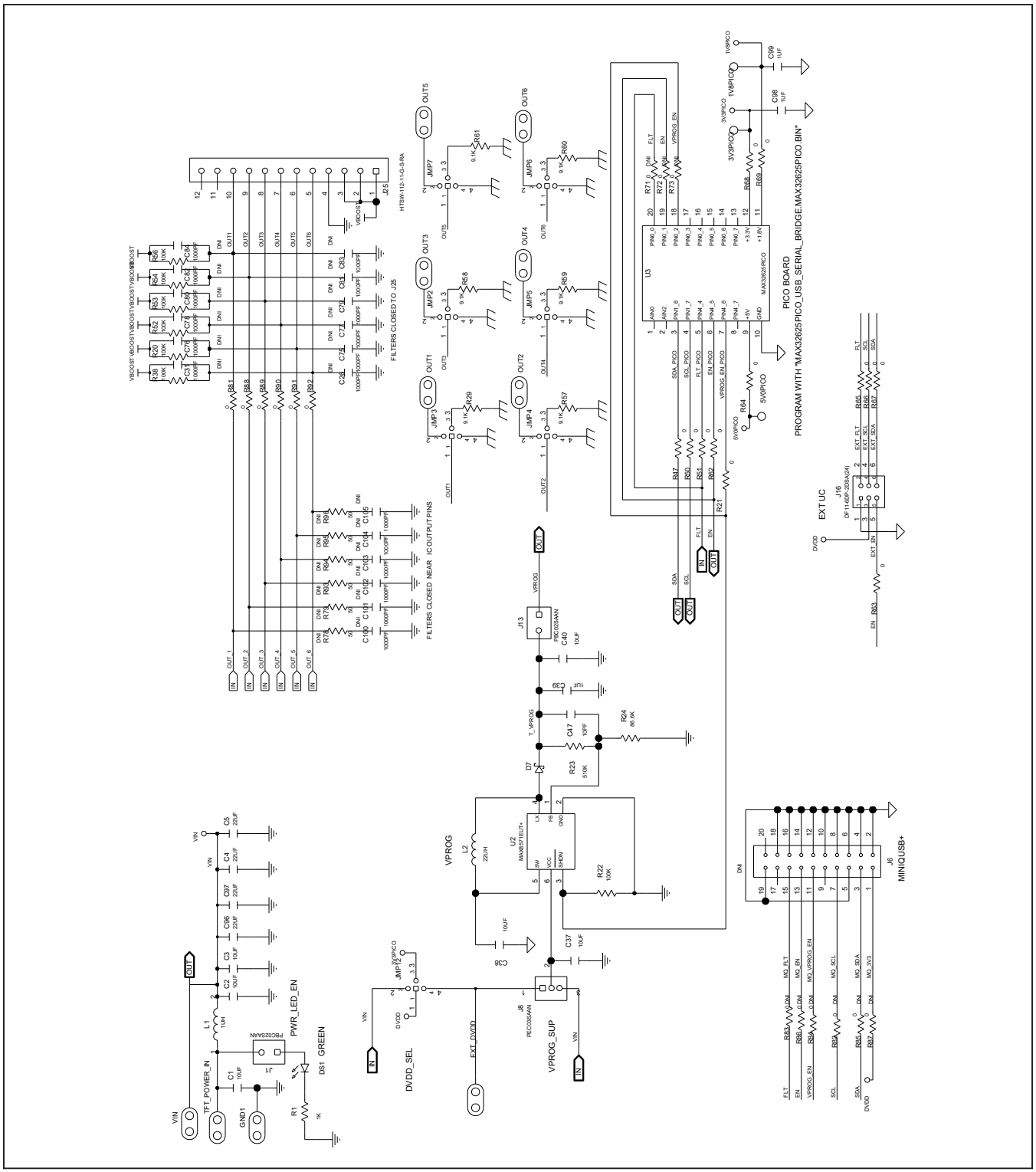
MAX25169 EV Kit Bill of Materials (continued)

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
81	C26, C31, C75-C84, C100-C105	DNP	0	GRM1885C1H102FA01	MURATA	1000PF	CAP; SMT (0603); 1000PF; 1%; 50V; C0G; CERAMIC
82	C43, C44, C46, C48	DNP	0	06035C101JAT	AVX	100PF	CAP; SMT (0603); 100PF; 5%; 50V; X7R; CERAMIC
83	C59, C64	DNP	0	C1608X8R1H152K080; GCM188R91H152KA01	TDK;MURATA	1500PF	CAP; SMT (0603); 1500PF; 10%; 50V; X8R; CERAMIC
84	C60, C67	DNP	0	CGA6P3X7S1H106M250AB	TDK	10UF	CAP; SMT (1210); 10UF; 20%; 50V; X7S; CERAMIC
85	C62, C66	DNP	0	C1210C106K3RAC; GRM32DR71E106K; GCM32ER71E106KA57; CGA6P1X7R1E106K250AC; GCJ32ER71E106KA18	KEMET;MURATA; MURATA;TDK;MURATA	10UF	CAP; SMT (1210); 10UF; 10%; 25V; X7R; CERAMIC
86	C74	DNP	0	CGA3EANP02A103J080AC	TDK	0.01UF	CAP; SMT (0603); 0.01UF; 5%; 100V; C0G; CERAMIC
87	C93	DNP	0	CGA4J3X7R1H225K125AB; CGA4J3X7R1H225K125AE	TDK;TDK	2.2UF	CAP; SMT (0805); 2.2UF; 10%; 50V; X7R; CERAMIC
88	C94, C95	DNP	0	GRM32EC72A106KE05	MURATA	10UF	CAP; SMT (1210); 10UF; 10%; 100V; X7S; CERAMIC
89	J6	DNP	0	803-87-020-20-001101	PRECI-DIP SA	803-87-020-20-001101	EVKIT PART-CONNECTOR; FEMALE; TH; DOUBLE ROW; 2.54MM; RIGHT ANGLE SOLDER TAIL; MATING PIN DIA 0.76MM; RIGHT ANGLE; 20PINS;
90	L4A	DNP	0	74437336022	WURTH ELECTRONICS INC	2.2UH	INDUCTOR; SMT; SHIELDED; 2.2UH; 20%; 4.9A
91	L5	DNP	0	XAL5050-103ME	COILCRAFT	10UH	INDUCTOR; SMT; COMPOSITE CORE; 10UH; TOL=+/-20%; 4.9A
92	R8	DNP	0	CRCW06031M00FK; MCR03EZPFX1004	VISHAY DALE;ROHM	1M	RES; SMT (0603); 1M; 1%; +/-100PPM/DEGC; 0.1000W
93	R9, R30	DNP	0	LRC-LRZ2010LF-R000	TT ELECTRONICS	0	RES; SMT (2010); 0; JUMPER; CURRENT SENSE
94	R13	DNP	0	CRCW12060000ZS	VISHAY DALE	0	RES; SMT (1206); 0; JUMPER; JUMPER; 0.2500W
95	R19	DNP	0	CHPHT0603K1002FGT	VISHAY SFERNICE	10K	RES; SMT (0603); 10K; 1%; +/-100PPM/DEGC; 0.0125W
96	R33-R36	DNP	0	CRCW060310R0FK; MCR03EZPFX10R0; ERJ-3EKF10R0	VISHAY; ROHM SEMICONDUCTOR; PANASONIC	10	RES; SMT (0603); 10; 1%; +/-100PPM/DEGC; 0.1000W
97	R41, R42	DNP	0	ERJ-3RQF4R7	PANASONIC	4.7	RES; SMT (0603); 4.7; 1%; +/-100PPM/DEGC; 0.1000W
98	R71-R73, R82-R87	DNP	0	CRCW06030000ZS; MCR03EZPJ000; ERJ-3GEY0R00; CR0603AJ/-000ELF	VISHAY; ROHM SEMICONDUCTOR; PANASONIC;BOURNS	0	RES; SMT (0603); 0; JUMPER; JUMPER; 0.1000W
99	R78, R79, R93-R96	DNP	0	FC0603E50R0BTBS	VISHAY DALE	50	RES; SMT (0603); 50; 0.10%; +/-25PPM/DEGC; 0.1250W
100	C7	DNP	0	N/A	N/A	OPEN	EVKIT USE ONLY;DUAL PACKAGE OUTLINE 0603 AND 0805 NON-POLAR CAPACITOR
101	C63	DNP	0	N/A	N/A	OPEN	PACKAGE OUTLINE 0603 NON-POLAR CAPACITOR
102	C91	DNP	0	N/A	N/A	OPEN	CAPACITOR; SMT (0603); OPEN; FORMFACTOR
TOTAL			239				

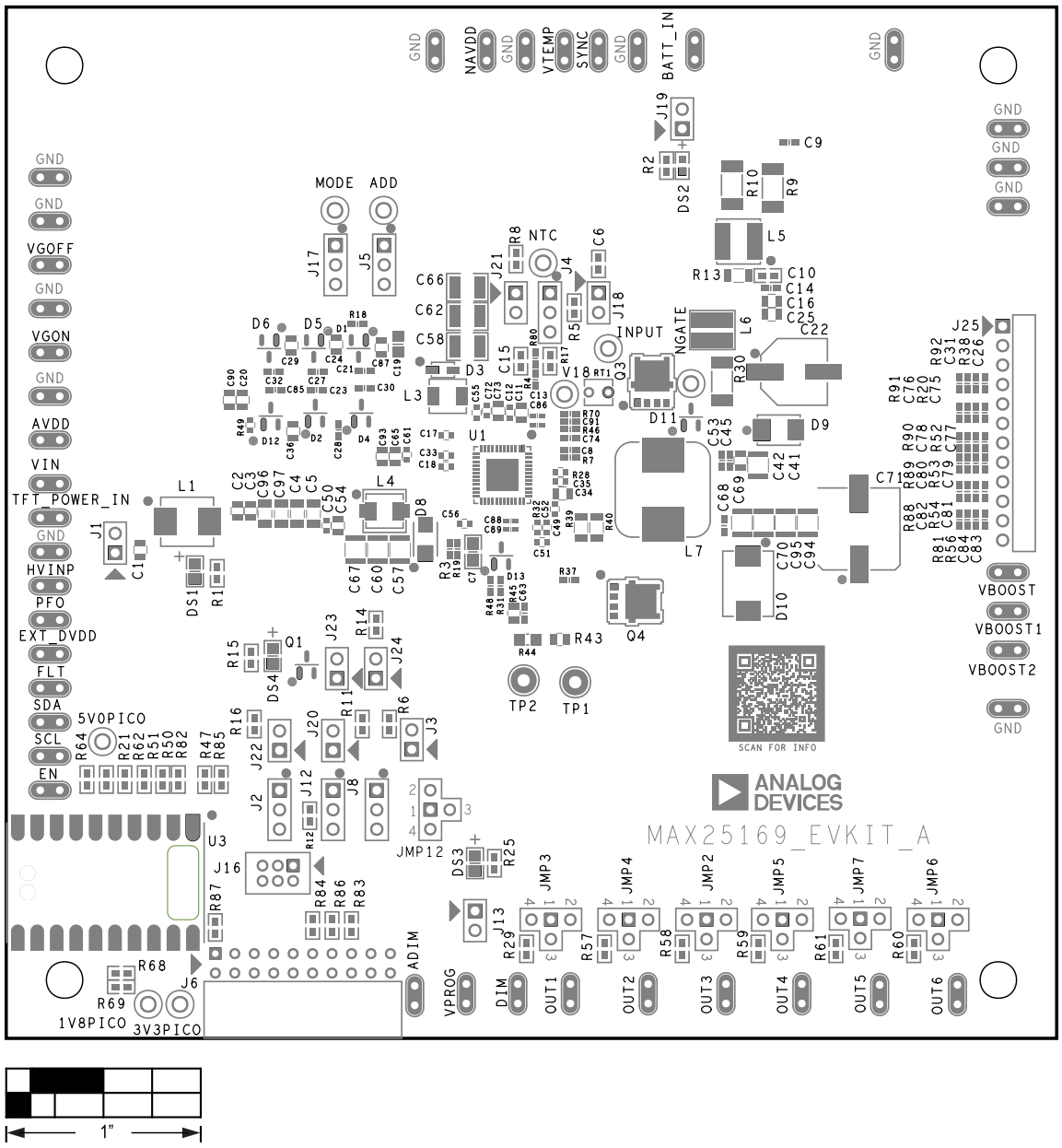
MAX25169 EV Kit Schematic Diagrams



MAX25169 EV Kit Schematic Diagrams (continued)

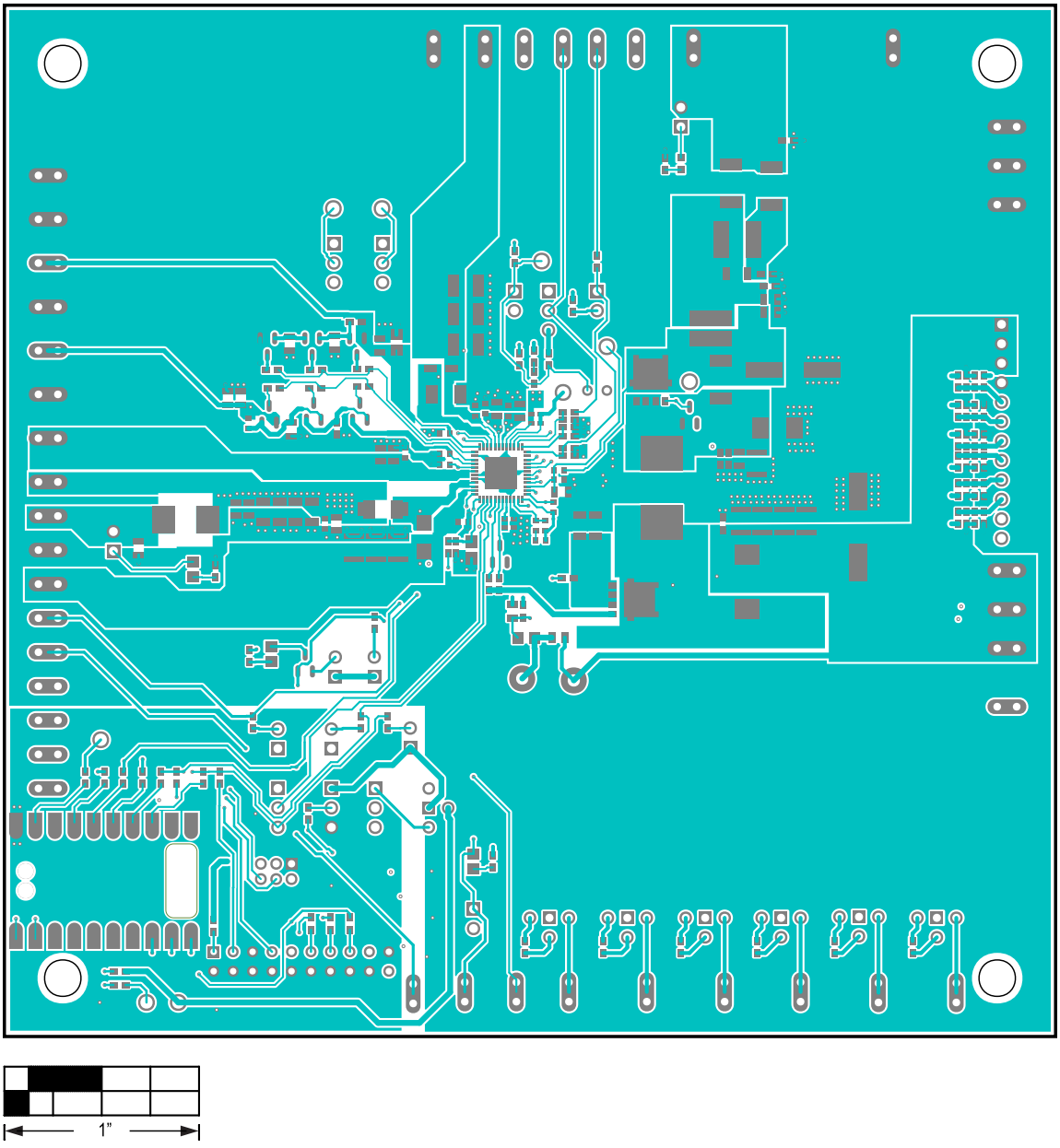


MAX25169 EV Kit PCB Layout Diagrams



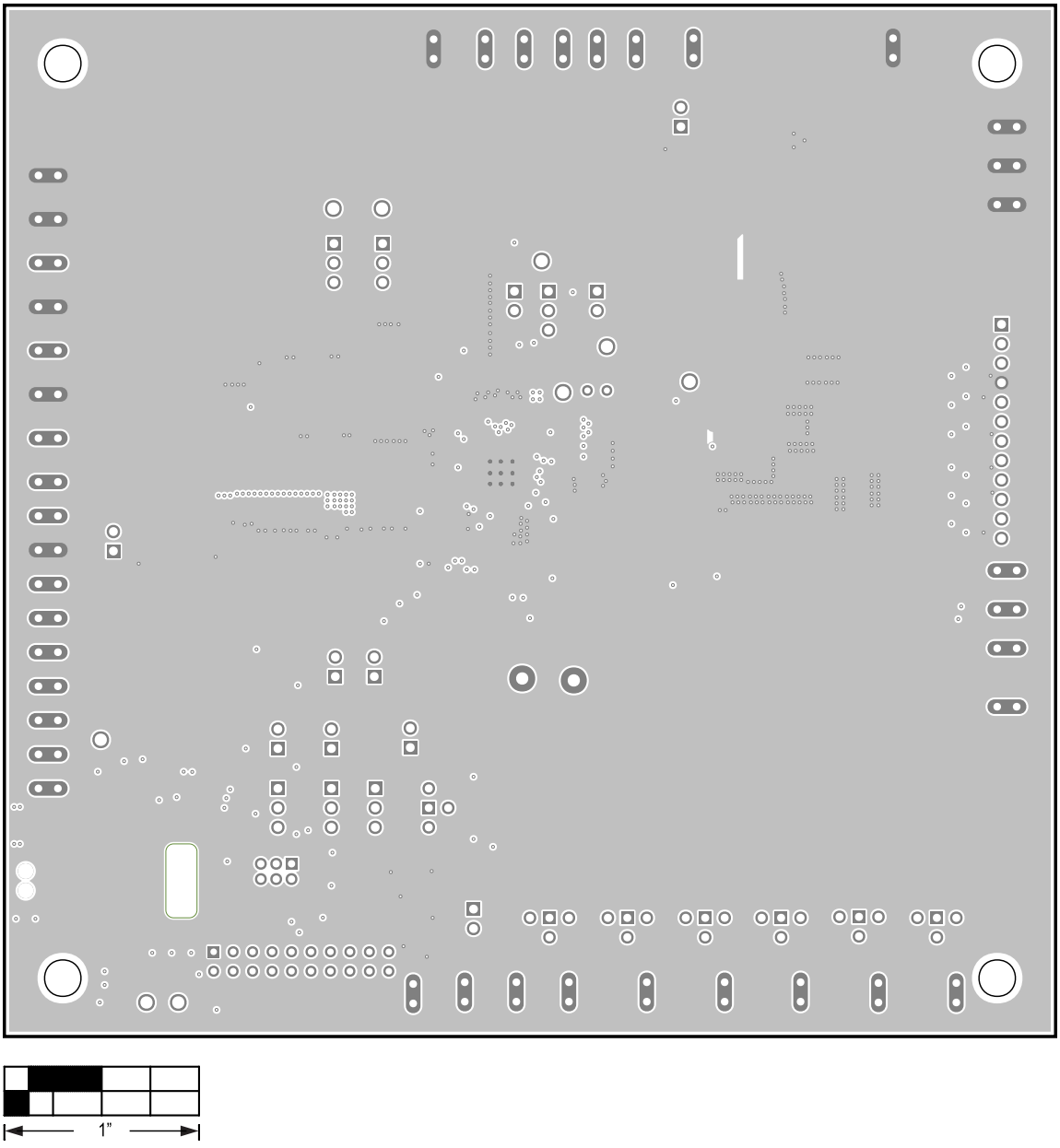
MAX25169 EV Kit Component Placement Guide—Top Silkscreen

MAX25169 EV Kit PCB Layout Diagrams (continued)



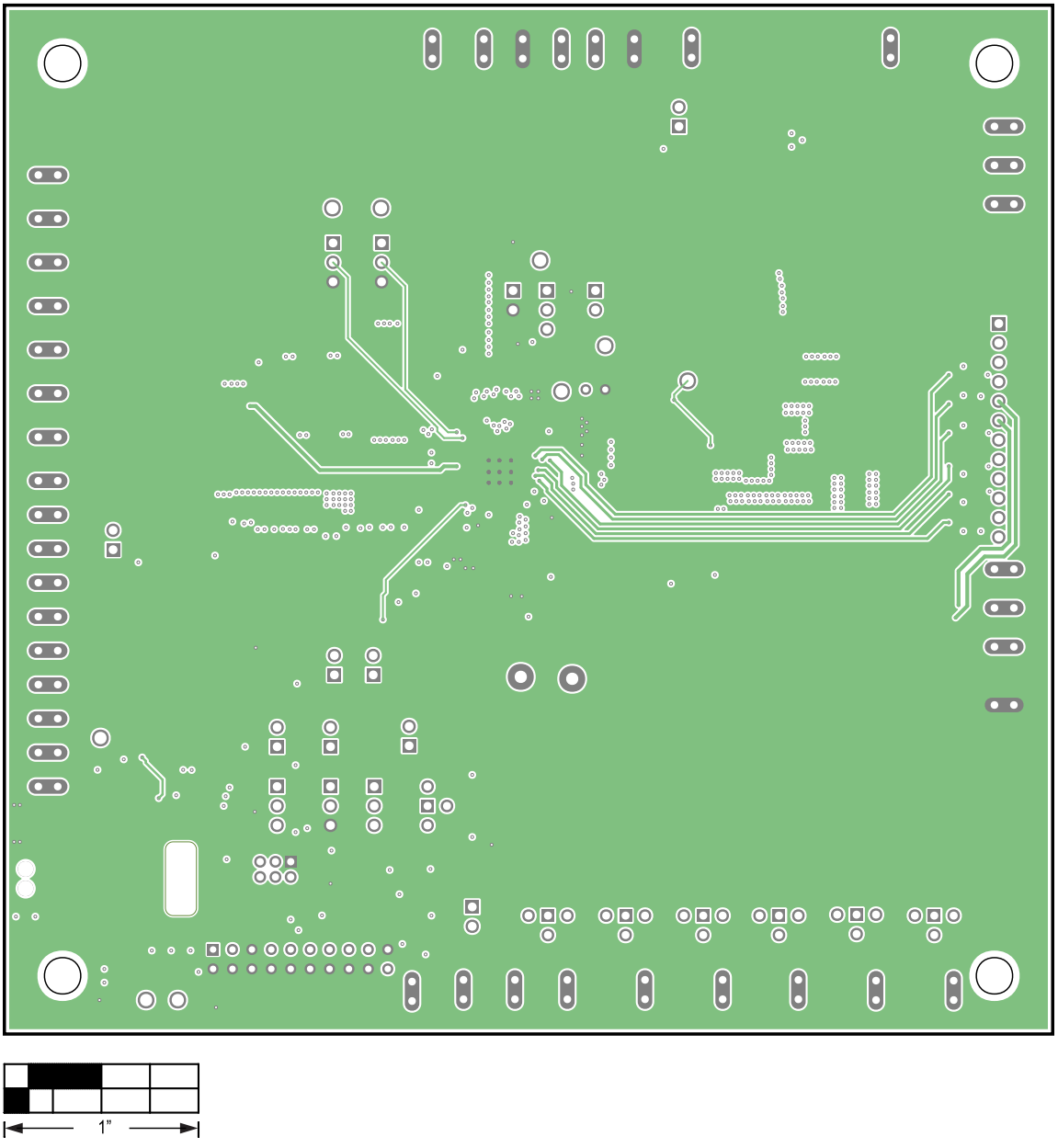
MAX25169 EV Kit PCB Layout Diagram—Top Layer

MAX25169 EV Kit PCB Layout Diagrams (continued)



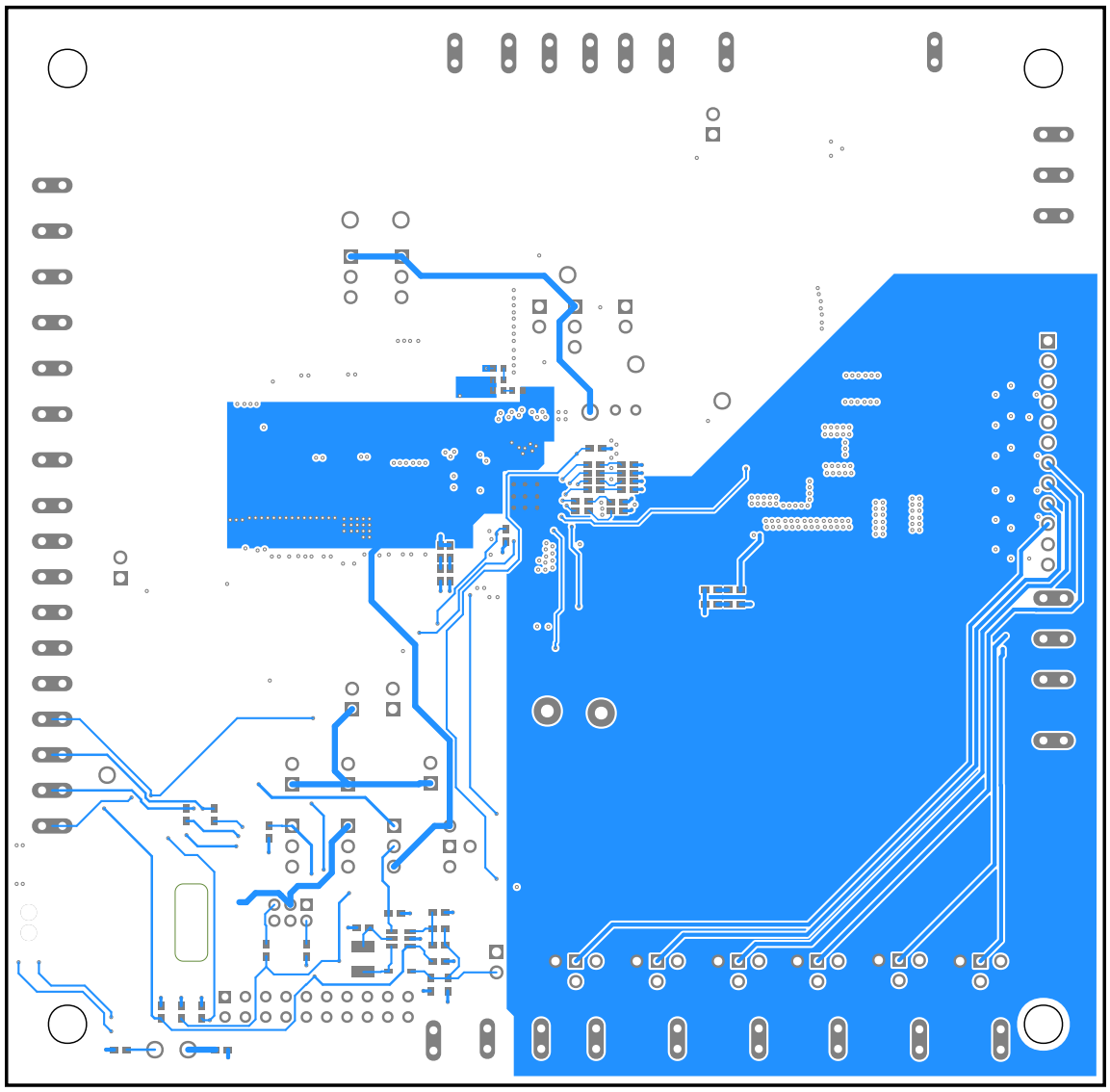
MAX25169 EV Kit PCB Layout Diagram—Internal Layer 2

MAX25169 EV Kit PCB Layout Diagrams (continued)



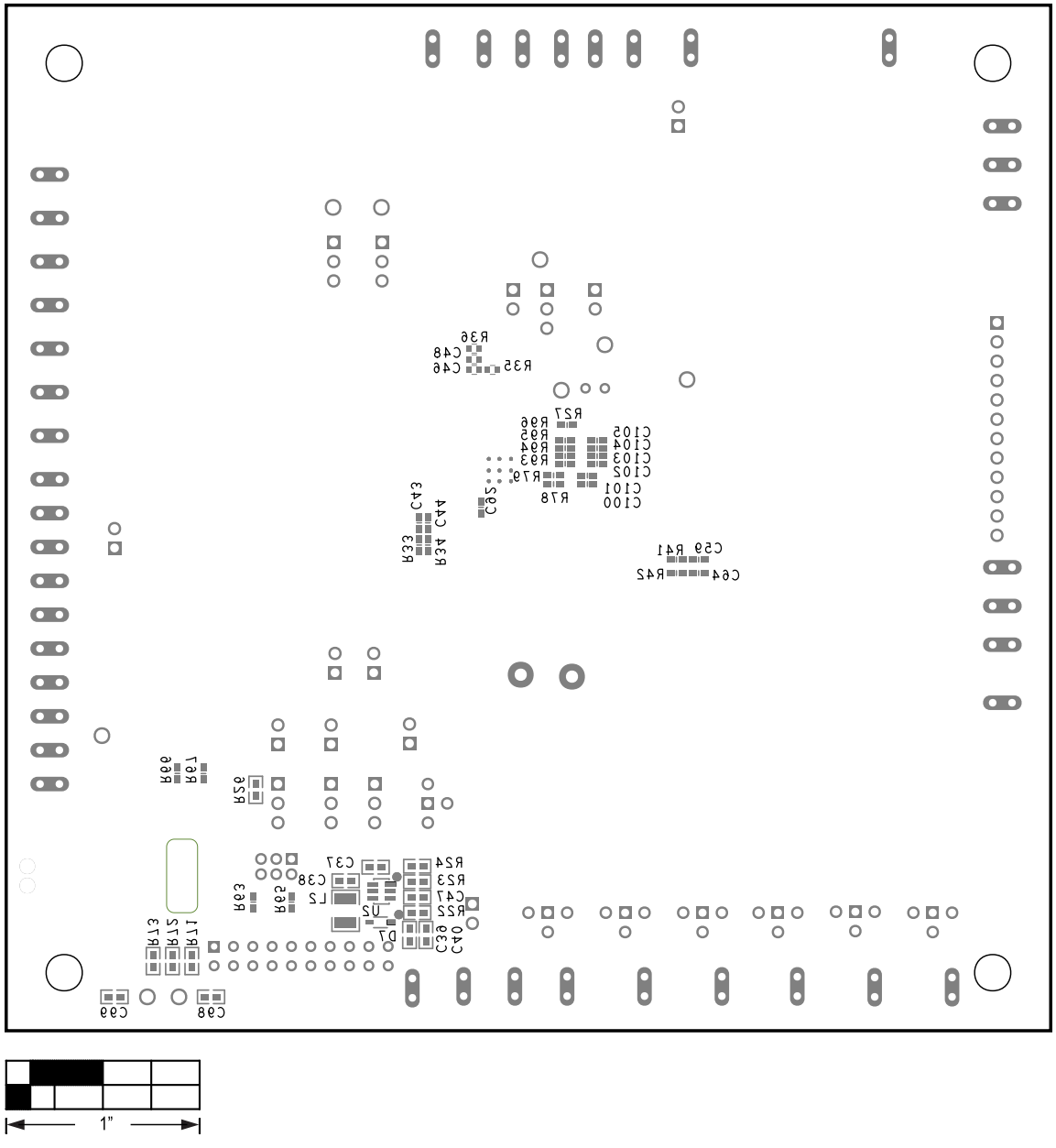
MAX25169 EV Kit PCB Layout Diagram—Internal Layer 3

MAX25169 EV Kit PCB Layout Diagrams (continued)



MAX25169 EV Kit PCB Layout Diagram—Bottom Layer

MAX25169 EV Kit PCB Layout Diagrams (continued)



MAX25169 EV Kit PCB Layout Diagram—Silkscreen Bottom

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	9/22	Initial release	—