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## MAX25605 Evaluation Kit

Evaluates: MAX25605

### General Description

The MAX25605 evaluation kit (EV kit) provides a proven design to evaluate the MAX25605 6-switch sequential LED controller for automotive lighting systems. The MAX25605 EV kit demonstrates a complete sequential lighting design, including an on-board timing circuit, two MAX25611 LED drivers configured as boost-to-battery (battery referenced buck-boost), and two MAX25605 sequential LED controllers. Additionally, the EV kit has 12 yellow LEDs installed and comes with an acrylic shield to cover the LEDs for eye protection. The board includes mechanical switches to easily demonstrate different sequence settings and modes of operation. Refer to the MAX25611 and the MAX25605 data sheets for detailed information regarding these ICs.

### Benefits and Features

- LED Driver, Timing Circuit, Sequencer, LEDs, and LED Cover
- Demonstrates Dim Up and Dim Down Sequence
- Sequence Timing Adjustment Potentiometer
- Toggle Switches to Easily Evaluate Different Modes of Operation
- Hazard Light Mode
- No Software or Graphical User Interface (GUI) Required

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

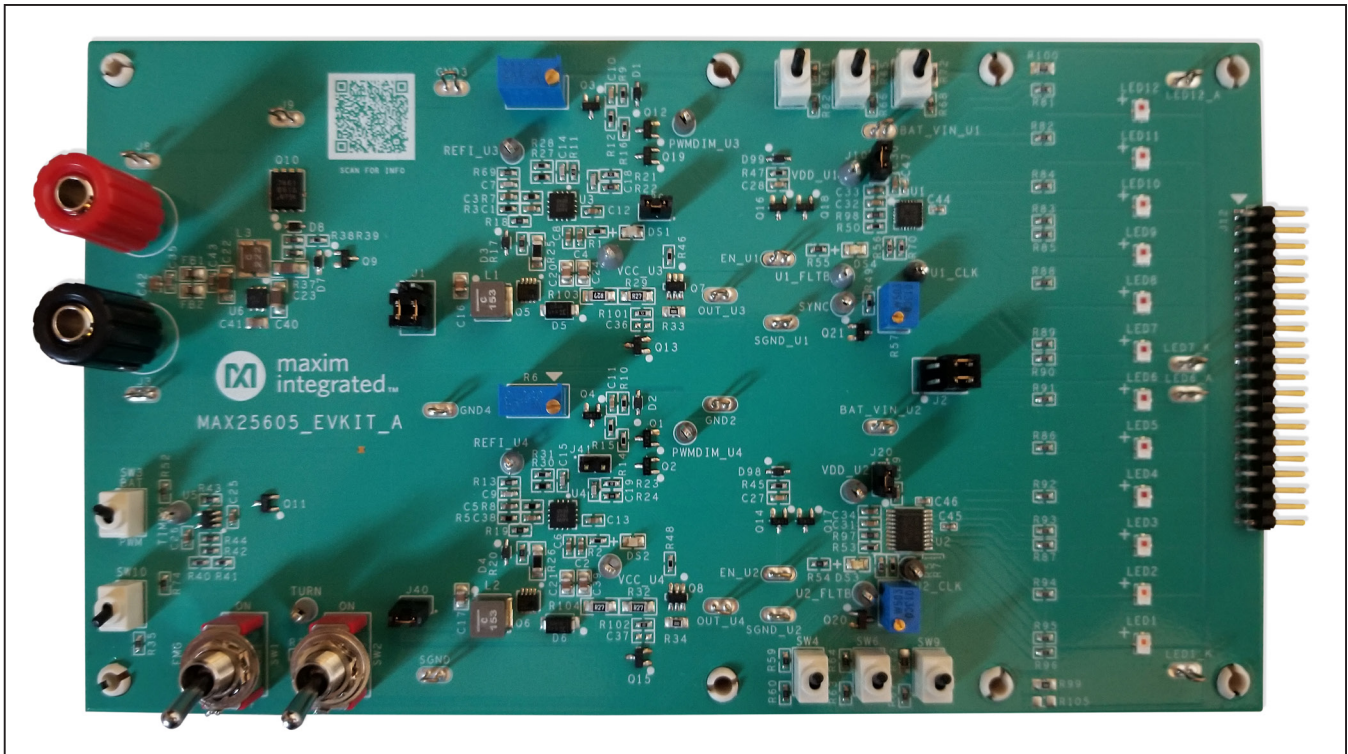


Figure 1. MAX25605EVKIT#

**Quick Start**

**Required Equipment**

- MAX25605 EV kit
- Acrylic LED cover (included)
- 12V, 3A DC power supply

**Procedure**

The 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 made. Additional caution should be taken; the on-board LEDs are very bright when illuminated.**

- 1) Verify that all jumpers and switches are in their default positions, as shown in [Figure 1](#).
- 2) Verify that the acrylic shield is covering the LEDs.
- 3) Connect the positive terminal of the 12V supply to the J8 PCB pad or the red banana plug TP1 receptacle.

- 4) Connect the negative or ground terminal of the 12V supply to the J3 PCB pad or the black banana plug TP2 receptacle.
- 5) Turn on the DC power supply.
- 6) Toggle the S2 switch to the ON position.
- 7) Verify that the LEDs sequence on and off.

**Detailed Description**

The MAX25605 EV kit provides a proven design to evaluate the MAX25605 LED sequencer. The EV kit is set up for buck-boost (boost-to-battery) configuration and operates from a 6V–18V DC supply voltage. The EV kit is configured to deliver up to 700mA to a series LED string. The EV kit includes 12 yellow LEDs from the SYNIOS P2720 family from OSRAM®-Opto Semiconductors, rated for up to 1A of current. See [Figure 2](#) for a block diagram of the evaluation board.

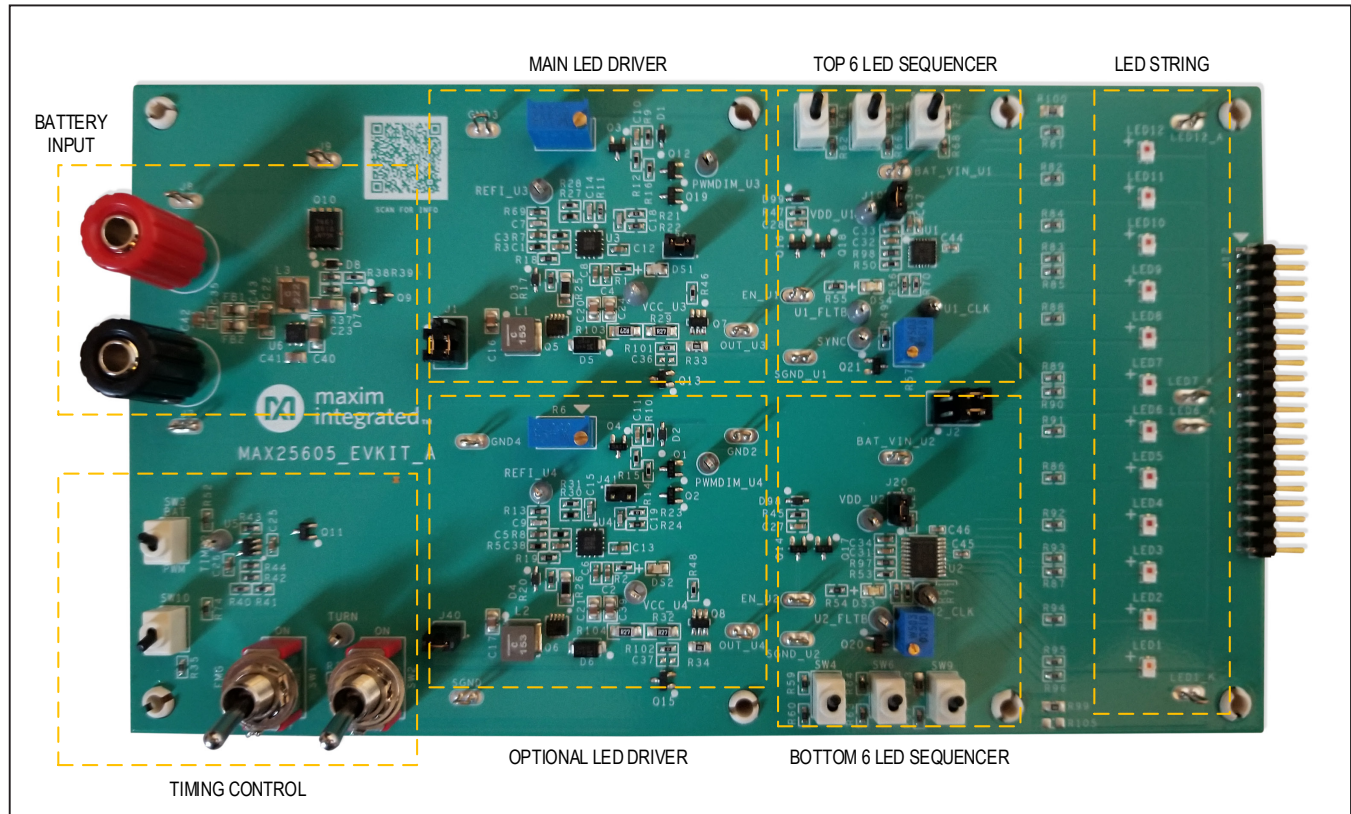


Figure 2. EV Kit Block Diagram

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### Timing Circuit

A relaxation oscillator circuit is implemented on the EV kit to generate the 1.25Hz signal for demonstrating a turn signal. The SW2 enables or disables the oscillator circuit and is the main control to enable or disable the LED driver and LED sequencers.

### Control Options

There are two different control methods demonstrated on the board:

- 1) The timing circuit can drive the PWM input of the LED driver and the EN input of the sequencers.
- 2) The timing circuit can drive a battery switch which controls power for the entire board.

The turn signal control method is set based on the position of SW3. Either method is an acceptable way to implement a turn signal system using the MAX25605 LED sequencer.

### LED Drivers

There are two MAX25611 buck-boost (boost-to-battery) LED drivers installed on the EV kit. By default, the EV kit is configured to drive all 12 LEDs in a single string

configuration with the U3 LED driver. The board can be configured to drive the 12 LEDs as two separate strings of 6 series LEDs. In this configuration, U3 drives the top 6 LEDs and U4 drives the bottom 6 LEDs. The LED current can be adjusted by the potentiometers R4 and R6 which control U3 and U4, respectively.

### Sequencer Programming

The MAX25605 sequencer devices are configured through resistor settings. The EV kit includes SW4–SW9 to easily change between different resistor options which demonstrate some of the features of the device. See [Table 2](#) for a detailed description of each switch position. The switches change the resistor values on the A0, A1, and A2 pins of the MAX25605. These inputs are sampled during power up ( $V_{IN}$  rising above the UVLO threshold). Potentiometers R57 and R58 adjust the resistance on the CLK input which controls the sequence individual step time ( $T_{SEQ}$ ) between approximately 2ms and 55ms. The CLK input is the only resistor programming option that is continuously active during normal operation, as opposed to the A0, A1, and A2 programming inputs which are sampled only during the IN power up.

**Table 1. Default Shunt Positions and Jumper Description**

| JUMPER | SHUNT POSITION | DESCRIPTION  |
|--------|----------------|--|
| J1     | 1–3 and 2–4    | $V_{BAT}$ connected to optional second LED driver (U4).  |
|        | 3–5 and 4–6*   | Optional second LED driver, U4, not used.  |
|        | Open           | Optional second LED driver, U4, not used.  |
| J2     | 1–3 and 2–4    | Two strings of 6 series LEDs. LEDs 1 through 6 are driven by U4 and LEDs 7 through 12 are driven by U3. The second LED driver, U4, should be connected to $V_{BAT}$ when this setting is used. |
|        | 3–5 and 4–6*   | One string of 12 series LEDs driven by the primary LED driver, U3.   |
| J10    | 1–2*           | Input power supplied to U1, the MAX25605 sequencer controlling LEDs 7 through 12.  |
| J20    | 1–2*           | Input power supplied to U2, the MAX25605 sequencer controlling LEDs 1 through 6.   |
| J30    | 1–2*           | Input power supplied to U3, MAX25611 LED driver.   |
| J40    | 1–2*           | Input power supplied to U4, optional second MAX25611 LED driver.   |
| J41    | 1–2            | PWMDIM of U4 MAX25611 LED driver connected to EN net of the sequencers.  |
|        | Open*          | PWMDIM of U4 MAX25611 LED driver not connected to EN net of the sequencers.  |

\*Default position.

**Table 2. Switch Settings**

| SWITCH | SWITCH POSITION | DESCRIPTION  |
|--------|-----------------|--|
| S1     | OFF*            | Hazard light mode is disabled. The MAX25605 devices sequence the LEDs when enabled.  |
|        | ON              | Hazard light mode is enabled. The MAX25605 devices do not shunt any current from the LED string, resulting in the entire LED string being ON or OFF depending only on the LED driver.  |
| S2     | OFF*            | The on-board 1.25Hz oscillator circuit is disabled. If SW3 is in the BAT position, the LEDs are statically off. If SW3 is in the PWM position, the LEDs are statically on after sequencing once.   |
|        | ON              | The on board 1.25Hz oscillator circuit is enabled. The LEDs continuously cycle on and off.   |
| SW3    | PWM             | The 1.25Hz timing circuit output is connected to PWM of LED driver and EN of sequencer. Battery power to the board is fixed and the sequencing is done by toggling the PWM and EN inputs. The SW4 through SW9 sequencer configuration resistors are sampled only once, either at power up or at the moment SW3 is toggled from BAT to PWM. |
|        | BAT*            | The 1.25Hz timing circuit output is connected to battery switch, toggling the battery line for the board which causes the sequence to reset and start again on each new pulse. The SW4 through SW9 sequencer configuration resistors are resampled on each 1.25Hz cycle.   |
| SW4    | DOWN            | U2 configured to DIM DOWN, with all LEDs starting out on, then LED6 turning off, followed by LED5 and continuing down to LED1.   |
|        | UP*             | U2 configured to DIM UP, with all LEDs starting out off, then LED1 turning on, followed by LED2 and continuing up to LED6.   |
| SW5    | DOWN            | U1 configured to DIM DOWN, with all LEDs starting out on, then LED12 turning off, followed by LED11 and continuing down to LED7.   |
|        | UP*             | U1 configured to DIM UP, with all LEDs starting out off, then LED7 turning on, followed by LED8 and continuing up to LED12.  |
| SW6    | DOWN            | U2 configured to wait for 1 SYNC pulse before starting to sequence. If SW7 is in the DOWN position, U1 starts the sequence and sends a SYNC pulse to U2 to continue the sequence.  |
|        | UP*             | U2 configured to wait for 0 SYNC pulses before starting to sequence. This means U2 begins the sequence at the rising edge of the EN signal.  |
| SW7    | DOWN            | U1 configured to wait for 0 SYNC pulses before starting to sequence. This means U1 begins the sequence at the rising edge of the EN signal.  |
|        | UP*             | U1 configured to wait for 1 SYNC pulse before starting to sequence. If SW6 is in the UP position, U2 starts the sequence and sends a SYNC pulse to U1 to continue the sequence.  |
| SW8    | DOWN            | U1 LED fading enabled.   |
|        | UP*             | U1 LED fading disabled.  |
| SW9    | DOWN            | U2 LED fading enabled.   |
|        | UP*             | U2 LED fading disabled.  |
| SW10   | DOWN*           | Hazard light option 1 method enabled. Hazard light is achieved by pulling the EN input of the sequencers low.  |
|        | UP              | Hazard light option 2 method is enabled. Hazard light is achieved by reducing the RCLK value of the MAX25605 sequencer. This option only works when the sequencers are configured to DIM UP (SW4 and SW5 in UP position).  |

\*Default position.

**Dim Up and Dim Down**

The MAX25605 EV kit is configured by default to “dim up”, meaning the LEDs are off at the beginning of the sequence, then turn on one-by-one until all 12 LEDs are on at the end of the sequence. To demonstrate a “dim down” sequence, toggle SW4–SW7 from the default up position to the down position. The “dim down” sequence starts with all 12 LEDs turning on, then each LED turns off one-by-one until all 12 LEDs are off at the end of the sequence.

**Hazard Light Mode**

The MAX25605 LED sequence can be bypassed, to allow the LEDs to all turn on and turn off at the same time. SW1 demonstrates this feature. When both SW1 and SW2 are in the ON position, the LEDs alternate on and off at the 1.25Hz rate, but without the single-LED sequence. All 12 LEDs turn on and turn off at the same time.

**LED Fade**

The MAX25605 has an optional logarithmic fade function. Rather than an LED stepping from 0% to 100% on each sequence step, the LED is PWM-switched on and off with a gradual change in PWM duty cycle, resulting in a smoother appearing transition of each LED in the sequence. The MAX25605 accommodates fade duration settings of 1, 2, or 3  $t_{SEQ}$  periods. The EV kit includes SW8 and SW9 which toggle the A2 resistor value of the MAX25605 devices to either disable fade or enable it with a duration of 2  $t_{SEQ}$  periods. The fade feature is typically used in applications with a smaller number of LEDs, where each sequence step becomes more noticeable.

**Acrylic Shield**

The MAX25605 EV kit comes with 12 yellow LEDs installed that are very bright, especially at the maximum current setting. It is recommended to use the included acrylic shield to cover the LEDs during operation.

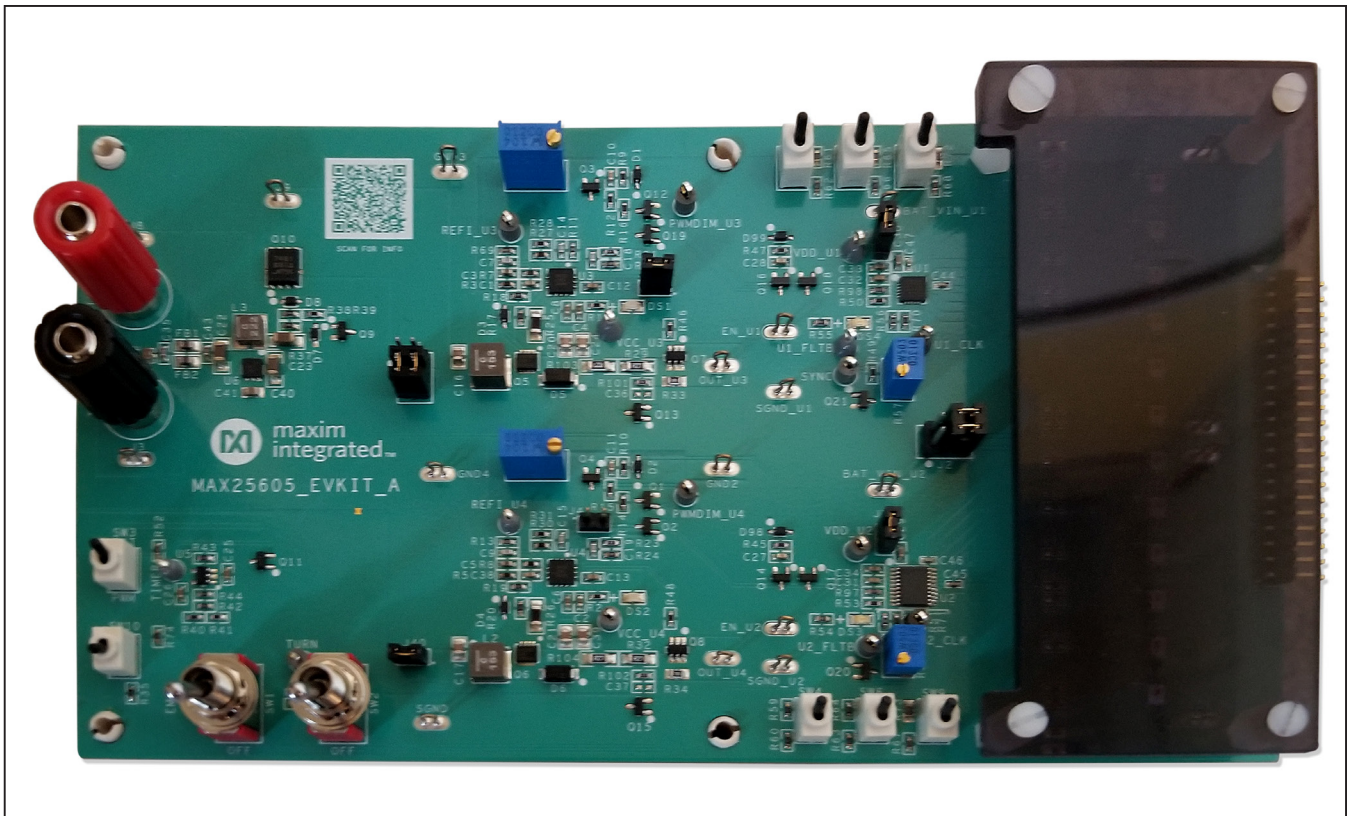


Figure 3. MAX25605EVKIT# with Acrylic Shield Installed

## Ordering Information

| PART           | TYPE   |
|----------------|--------|
| MAX25605EVKIT# | EV Kit |

#Denotes RoHS compliant.

## MAX25605 EV Kit Bill of Materials

| REF_DES   | QTY | MFG PART #   | MANUFACTURER  | VALUE        | DESCRIPTION  |
|---|-----|--|---|--------------|--|
| BAT_VIN_U1,<br>BAT_VIN_U2,<br>EN_U1, EN_U2,<br>GND2-GND4,<br>J3, J8, J9,<br>LED1_K, LED6_A,<br>LED7_K, LED12_A,<br>OUT_U3, OUT_U4,<br>SGND, SGND_U1,<br>SGND_U2 | 19  | 9020 BUSS  | WEICO WIRE  | MAXIMPAD     | EVK KIT PARTS; MAXIM PAD; WIRE;<br>NATURAL; SOLID; WEICO WIRE; SOFT<br>DRAWN BUS TYPE-S; 20AWG                     |
| C1, C38   | 2   | C0603C103K2RAC   | KEMET   | 0.01 $\mu$ F | CAPACITOR; SMT (0603); CERAMIC CHIP;<br>0.01 $\mu$ F; 200V; TOL = 10%; MODEL = ;<br>TG = -55°C TO +125°C; TC = X7R |
| C2, C4  | 2   | C0603C475K8PAC;<br>LMK107BJ475KA;<br>CGB3B1X5R1A475K;<br>C1608X5R1A475K080AC;<br>CL10A475KP8NNN                            | KEMET;<br>TAIYO YUDEN;<br>TDK; TDK;<br>SAMSUNG<br>ELECTRONICS | 4.7 $\mu$ F  | CAPACITOR; SMT (0603); CERAMIC CHIP;<br>4.7 $\mu$ F; 10V; TOL = 10%;<br>TG = -55°C TO +85°C; TC = X5R              |
| C3, C5  | 2   | C0603C105K4RAC;<br>GRM188R71C105KA12;<br>C1608X7R1C105K080AC;<br>EMK107B7105KA;<br>CGA3E1X7R1C105K080AC;<br>0603YC105KAT2A | KEMET;<br>MURATA;<br>TDK; TAIYO YUDEN;<br>TDK; AVX            | 1 $\mu$ F    | CAPACITOR; SMT (0603); CERAMIC CHIP;<br>1 $\mu$ F; 16V; TOL = 10%; MODEL = ;<br>TG = -55°C TO +125°C; TC = X7R     |
| C6, C8, C26,<br>C29, C30  | 5   | CC0603KRX7R0BB104;<br>GRM188R72A104KA35;<br>HMK107B7104KA;<br>06031C104KAT2A;<br>GRM188R72A104K                            | YAGEO;<br>MURATA; TAIYO<br>YUDEN; AVX;<br>MURATA              | 0.1 $\mu$ F  | CAPACITOR; SMT (0603); CERAMIC CHIP;<br>0.1 $\mu$ F; 100V; TOL = 10%;<br>TG = -55°C TO +125°C; TC = X7R            |
| C7, C9, C14,<br>C15, C18, C19   | 6   | GRM1885C1H102JA01;<br>C1608C0G1H102J080AA;<br>GCM1885C1H102JA16  | MURATA; TDK;<br>MURATA  | 1000PF       | CAPACITOR; SMT (0603); CERAMIC CHIP;<br>1000PF; 50V; TOL = 5%;<br>TG = -55°C TO +125°C                             |
| C16, C17, C20,<br>C21, C24, C39   | 6   | C2012X7R1H225K125AC  | TDK   | 2.2 $\mu$ F  | CAPACITOR; SMT (0805);<br>CERAMIC CHIP; 2.2 $\mu$ F; 50V; TOL = 10%;<br>TG = -55°C TO +125°C; TC = X7R             |
| C22, C23,<br>C40  | 3   | GRM31CR71H475KA12;<br>GRJ31CR71H475KE11;<br>GXM31CR71H475KA10;<br>UMK316AB7475KL   | MURATA;<br>MURATA;<br>MURATA;<br>TAIYO YUDEN                  | 4.7 $\mu$ F  | CAPACITOR; SMT (1206); CERAMIC CHIP;<br>4.7 $\mu$ F; 50V; TOL = 10%; MODEL = ;<br>TG = -55°C TO +125°C; TC = X7R   |

## MAX25605 EV Kit Bill of Materials (continued)

| REF_DES  | QTY | MFG PART #  | MANUFACTURER   | VALUE            | DESCRIPTION   |
|--|-----|---|--|------------------|---|
| C25, C31,<br>C32   | 3   | C1608X5R1E225K;<br>TMK107ABJ225KA;<br>TMK107BJ225KA;<br>GRM188R61E225KA12                         | TDK;<br>TAIYO YUDEN; TAIYO<br>YUDEN; MURATA                  | 2.2 $\mu$ F      | CAPACITOR; SMT (0603); CERAMIC CHIP;<br>2.2 $\mu$ F; 25V; TOL = 10%; MODEL = ;<br>TG = -55°C TO +85°C; TC = X5R                         |
| C35, C43   | 2   | C0603C102K1GAC;<br>C1608C0G2A102K080AA  | KEMET;<br>TDK  | 1000PF           | CAPACITOR; SMT (0603); CERAMIC CHIP;<br>1000PF; 100V; TOL = 10%; MODEL = C0G;<br>TG = -55°C TO +125°C; TC =                             |
| C41  | 1   | GRM21BR61A106KE19;<br>ECJ-2FB1A106;<br>CL21A106KPCLQNC;<br>GRM219R61A106KE44                      | MURATA;<br>PANASONIC;<br>SAMSUNG<br>ELECTRONICS;<br>MURATA   | 10 $\mu$ F       | CAPACITOR; SMT (0805); CERAMIC CHIP;<br>10UF; 10V; TOL = 10%; MODEL = ;<br>TG = -55°C TO +85°C; TC = X5R                                |
| C42  | 1   | NFM21HC223R1H3  | MURATA   | 0.022 $\mu$ F    | CAP; SMT (0805); 0.022UF; 20%; 50V;<br>CERAMIC CHIP   |
| C44-C47  | 4   | C0402C103K5RAC;<br>GRM155R71H103KA88;<br>C1005X7R1H103K050BE;<br>CL05B103KB5NNN;<br>UMK105B7103KV | KEMET; MURATA;<br>TDK; SAMSUNG<br>ELECTRONIC; TAIYO<br>YUDEN | 0.01 $\mu$ F     | CAPACITOR; SMT (0402); CERAMIC CHIP;<br>0.01 $\mu$ F; 50V; TOL = 10%; TG = -55°C TO<br>+125°C; TC = X7R                                 |
| D1-D4,<br>D98, D99   | 6   | 1N4148WS-7-F  | DIODES<br>INCORPORATED                                       | 1N4148WS-7-F     | DIODE; SWT; SMT (SOD-323);<br>PIV = 75V; IF = 0.3A  |
| D5, D6   | 2   | B160-13-F   | DIODES<br>INCORPORATED                                       | B160-13-F        | DIODE; SCH; SMA; PIV = 60V; IF = 1A   |
| D7   | 1   | BZX384B5V1-E3-08  | VISHAY<br>SEMICONDUCTORS                                     | 5.1V             | DIODE; ZNR; SMT (SOD-323);<br>Vz = 5.1V; Izm = 0.002A   |
| D8   | 1   | TDZ15J  | NEXPERIA   | 15V              | DIODE; ZNR; SMT (SOD-323F);<br>VZ = 15V; IZ = 0.005A  |
| DS1, DS2   | 2   | SML-LXT0805GW   | LUMEX OPTO<br>COMPONENTS INC.                                | SML-LXT0805GW-TR | DIODE; LIGHT EMITTING GREEN;<br>SMT (0805); IF(PEAK) = 0.15A; I(STEADY) =<br>0.025A; PD = 0.105W; VF = 2.0V                             |
| DS3, DS4   | 2   | APT2012SURCK  | KINGBRIGHT   | APT2012SURCK     | DIODE; LED; SMD CHIP LED LAMP; RED;<br>SMT; PIV = 1.95V; IF = 0.02A   |
| EMG, PWMDIM_U3,<br>PWMDIM_U4,<br>REF1_U3,<br>REF1_U4, SYNC,<br>TIMER, TURN,<br>U1_CLK, U1_FLTB,<br>U2_CLK, U2_FLTB,<br>VCC_U3, VCC_U4,<br>VDD_U1, VDD_U2 | 16  | 5123  | KEYSTONE   | N/A              | TEST POINT; PIN DIA = 0.125IN;<br>TOTAL LENGTH = 0.35IN;<br>BOARD HOLE = 0.063IN; GRAY; PHOSPHOR<br>BRONZE WIRE<br>SILVER PLATE FINISH; |

## MAX25605 EV Kit Bill of Materials (continued)

| REF_DES                      | QTY | MFG PART #                              | MANUFACTURER  | VALUE                     | DESCRIPTION   |
|------------------------------|-----|---|---|---------------------------|---|
| FB1, FB2                     | 2   | BLM21PG220SN1                           | MURATA  | 22                        | INDUCTOR; SMT (0805); FERRITE-BEAD; 22; TOL = ±25%; 6A; -55°C TO +125°C   |
| J1, J2                       | 2   | PEC03DAAN                               | SULLINS ELECTRONICS CORP.   | PEC03DAAN                 | CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 6PINS; -65°C TO +125°C  |
| J10, J20, J30, J40, J41      | 5   | PCC02SAAN                               | SULLINS   | PCC02SAAN                 | CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 2 PINS; -65°C TO +125°C   |
| J12                          | 1   | PBC20SBAN                               | SULLINS CONNECTOR   | PBC20SBAN                 | CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY HEADERS; RIGHT ANGLE; 20 PINS;   |
| JU1, JU2                     | 2   | MNT-102-BK-G                            | SAMTEC  | MNT-102-BK-G              | CONNECTOR; FEMALE; 0.100IN MULTI POSITION SHUNT; OPEN TOP; JUMPER; STRAIGHT; 4PINS  |
| JU10, JU20, JU30, JU40       | 4   | SNT-100-BK-G                            | SAMTEC  | SNT-100-BK-G              | TEST POINT; SHUNT AND JUMPER; STR; TOTAL LENGTH = 6.10MM; BLACK; INSULATION = GLASS FILLED POLYESTER; CONTACT = PHOSPHOR BRONZE |
| L1, L2                       | 2   | XAL5050-153ME                           | COILCRAFT   | 15µH                      | INDUCTOR; SMT; COMPOSITE; 15µH; 20%; 3.9A   |
| L3                           | 1   | XAL4020-222ME                           | COILCRAFT   | 2.2µH                     | INDUCTOR; SMT; COMPOSITE CORE; 2.2µH; TOL = ±20%; 4A  |
| LED1-LED12                   | 12  | KY DMLS31.23-8J7L-46-M3W3               | OSRAM   | KY DMLS31.23-8J7L-46-M3W3 | DIODE; LED; YELLOW; SMT; VF = 2.55V; IF = 0.7A  |
| MECH1-MECH4                  | 4   | 1902B                                   | GENERIC PART  | 1902B                     | STANDOFF; FEMALE-THREADED; HEX; 4-40IN; 3/8IN; NYLON  |
| Q1-Q4, Q9, Q12, Q14, Q16-Q21 | 13  | 2N7002;<br>2N7002;<br>2N7002;<br>2N7002 | DIODES INCORPORATED;<br>ST MICRO ELECTRONICS;<br>ON SEMICONDUCTOR;<br>MICRO COMMERCIAL COMPONENTS | 2N7002                    | TRAN; ; NCH; SOT-23; PD-(0.33W); IC-(0.5A); VCEO-(60V); -55°C TO +150°C   |
| Q5, Q6                       | 2   | BUK9M19-60E                             | NEXPERIA  | BUK9M19-60E               | TRAN; NCH; 60V; LPAK; PD-(62W); I-(38A); V-(60V)  |
| Q7, Q8                       | 2   | FDC3535                                 | FAIRCHILD SEMICONDUCTOR   | FDC3535                   | TRAN; P-CHANNEL POWER TRENCH MOSFET; PCH; SSOT-6; PD-(1.6W); I-(-2.1A); V-(-80V)  |
| Q10                          | 1   | SI7461DP-T1-GE3                         | VISHAY SILICONIX  | SI7461DP-T1-GE3           | TRAN; P-CHANNEL 60V MOSFET; PCH; SO-8; PD-(1.9W); I-(-8.6A); V-(-60V)   |



## MAX25605 EV Kit Bill of Materials (continued)

| REF_DES  | QTY | MFG PART #   | MANUFACTURER   | VALUE     | DESCRIPTION  |
|--|-----|--|--|-----------|--|
| Q11  | 1   | FDN342P  | FAIRCHILD<br>SEMICONDUCTOR                             | FDN342P   | MOSFET, P-CHANNEL, SOT-23,<br>PD = 0.5W, ID = -2.0A, VDSS = -20V,<br>VGS = ±12V, RDS (on) = 0.062Ω |
| Q13, Q15   | 2   | MMBT2907A  | FAIRCHILD<br>SEMICONDUCTOR                             | MMBT2907A | TRAN; SMALL SIGNAL TRANSISTOR;<br>PNP; SOT-23; PD-(0.35W); IC-(-0.6A);<br>VCEO-(-60V)              |
| R1, R2, R12,<br>R14-R16, R39,<br>R46, R48,<br>R70, R71     | 11  | CRCW06032K0FK;<br>ERJ-3EKF2001;<br>RC0603FR-072KL;<br>CRCW06032K00FK                           | VISHAY;<br>PANASONIC;<br>YAGEO;<br>VISHAY              | 2K        | RESISTOR, 0603, 2KΩ, 1%, 100PPM,<br>0.10W, THICK FILM  |
| R3, R5   | 2   | CRCW0603100KFK;<br>RC0603FR-07100KL;<br>RC0603FR-13100KL;<br>ERJ-3EKF1003;<br>AC0603FR-07100KL | VISHAY DALE;<br>YAGEO; YAGEO;<br>PANASONIC             | 100K      | RESISTOR; 0603; 100K; 1%; 100PPM;<br>0.10W; THICK FILM   |
| R4, R6   | 2   | 3296W-1-104LF  | BOURNS   | 100K      | RESISTOR; THROUGH-HOLE-RADIAL<br>LEAD; 100KΩ; 10%; 100PPM; 0.5W;<br>MOLDER CERAMIC OVER METAL FILM |
| R7, R8   | 2   | CRCW060349R9FK   | VISHAY DALE  | 49.9      | RESISTOR; 0603; 49.9Ω; 1%; 100PPM;<br>0.10W; THICK FILM  |
| R9, R10, R28,<br>R31, R40, R41, R45,<br>R47, R49, R50, R53 | 11  | CRCW060310K0FK;<br>ERJ-3EKF1002;<br>AC0603FR-0710KL;<br>RMC0603FT10K0                          | VISHAY DALE;<br>PANASONIC; YAGEO                       | 10K       | RESISTOR; 0603; 10K; 1%; 100PPM;<br>0.10W; THICK FILM  |
| R11, R21,<br>R23, R51, R56,<br>R81-R96, R101,<br>R102      | 23  | CRCW06030000ZS;<br>MCR03EZPJ000;<br>ERJ-3GEY0R00; CR0603AJ/-<br>000ELF                         | VISHAY; ROHM<br>SEMICONDUCTOR;<br>PANASONIC;<br>BOURNS | 0         | RESISTOR; 0603; 0Ω; 0%; JUMPER;<br>0.10W; THICK FILM   |
| R13, R52,<br>R69   | 3   | CRCW06031M00FK;<br>MCR03EZPFX1004  | VISHAY DALE; ROHM                                      | 1M        | RESISTOR, 0603, 1M Ω, 1%,<br>100PPM, 0.10W, THICK FILM   |
| R17, R20   | 2   | CRCW06033K32FK   | VISHAY DALE  | 3.32K     | RESISTOR; 0603; 3.32K; 1%;<br>100PPM; 0.10W; THICK FILM  |
| R18, R19   | 2   | CRCW06032R00FN   | VISHAY DALE  | 2         | RESISTOR, 0603, 2Ω, 1%, 100PPM,<br>0.10W, THICK FILM   |
| R22, R24   | 2   | CRCW0603100RFK;<br>ERJ-3EKF1000;<br>RC0603FR-07100RL   | VISHAY DALE;<br>PANASONIC                              | 100       | RESISTOR; 0603; 100Ω; 1%;<br>100PPM; 0.10W; THICK FILM   |
| R25, R26   | 2   | ERJ-8CWFR043   | PANASONIC  | 0.043     | RESISTOR; 1206; 0.043Ω; 1%;<br>75PPM; 1W; THICK FILM   |

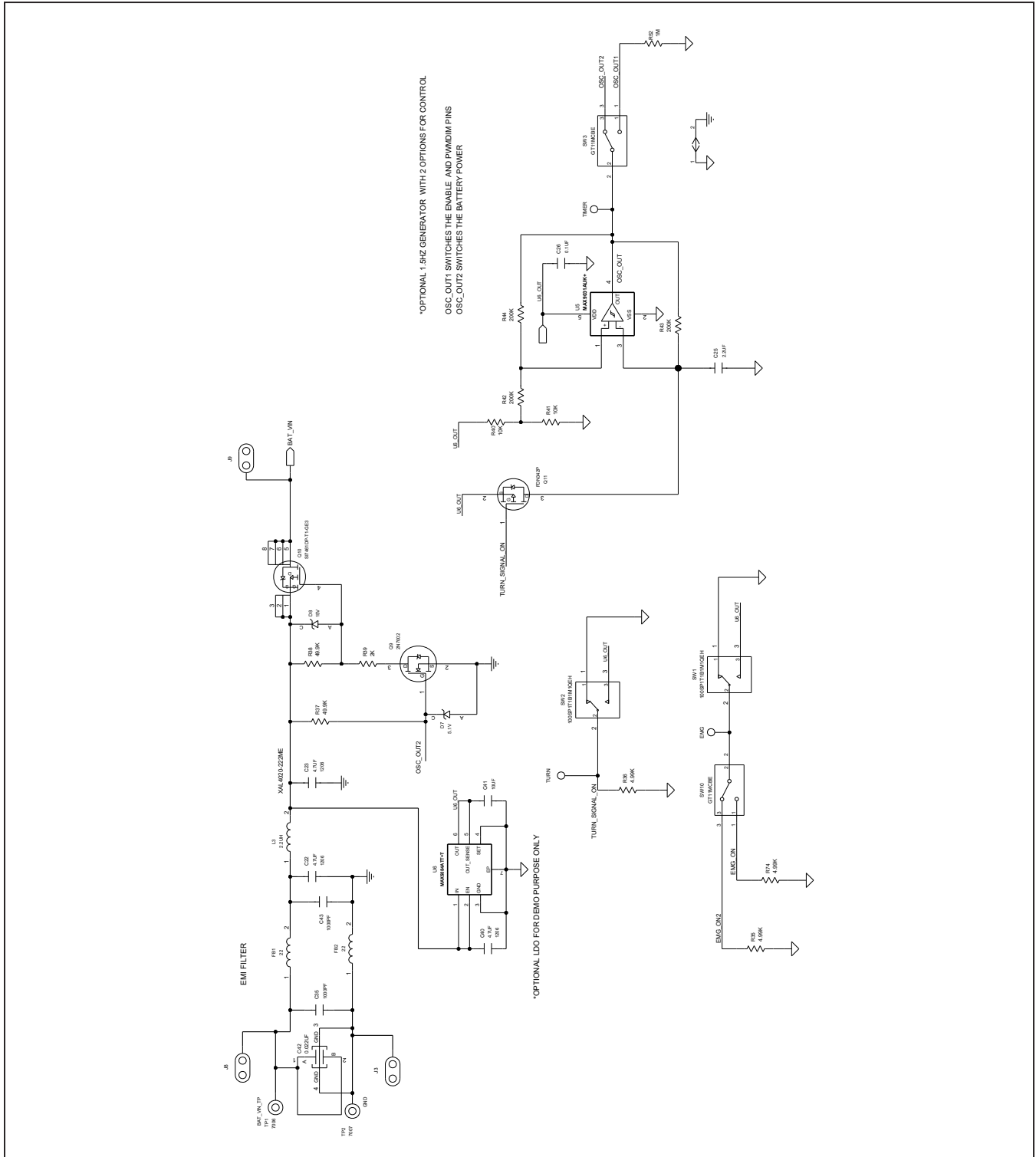
## MAX25605 EV Kit Bill of Materials (continued)

| REF_DES              | QTY | MFG PART #                      | MANUFACTURER              | VALUE            | DESCRIPTION   |
|----------------------|-----|---------------------------------|---------------------------|------------------|---|
| R27, R30             | 2   | CRCW0603390KFK                  | VISHAY DALE               | 390K             | RESISTOR, 0603, 390K $\Omega$ , 1%, 100PPM, 0.10W, THICK FILM   |
| R29, R32, R103, R104 | 4   | ERJ-8BQFR27                     | PANASONIC                 | 0.27             | RESISTOR; 1206; 0.27 $\Omega$ ; 1%; 250PPM; 0.5W; THICK FILM  |
| R33, R34, R99, R100  | 4   | CRCW08050000ZS;<br>RC2012J000   | DIGI-KEY                  | 0                | RESISTOR; 0805; 0 $\Omega$ ; JUMPER; 0.125W; THICK FILM   |
| R35, R36, R74        | 3   | CRCW06034K99FK;<br>ERJ-3EKF4991 | VISHAY DALE;<br>PANASONIC | 4.99K            | RESISTOR; 0603; 4.99K $\Omega$ ; 1%; 100PPM; 0.10W; THICK FILM  |
| R37, R38             | 2   | CRCW060349K9FK;<br>ERJ-3EKF4992 | VISHAY DALE;<br>PANASONIC | 49.9K            | RESISTOR; 0603; 49.9K $\Omega$ ; 1%; 100PPM; 0.10W; THICK FILM  |
| R42-R44              | 3   | CRCW06032003FK                  | VISHAY DALE               | 200K             | RESISTOR; 0603; 200K $\Omega$ ; 1%; 100PPM; 0.10W; THICK FILM   |
| R54, R55             | 2   | CRCW0603330RFK                  | VISHAY DALE               | 330              | RESISTOR; 0603; 330 $\Omega$ ; 1%; 100PPM; 0.10W; THICK FILM  |
| R57, R58             | 2   | 3266W-1-503LF                   | BOURNS                    | 50K              | RESISTOR; THROUGH-HOLE-RADIAL LEAD; SQUARE TRIMMING POTENTIOMETER; 12 TURNS; 50K $\Omega$ ; 10%; 100PPM; ; TADJ; MOLDER CERAMIC OVER METAL FILM |
| R59, R61, R63, R65   | 4   | CRCW060395R3FK                  | VISHAY DALE               | 95.3             | RESISTOR; 0603; 95.3 $\Omega$ ; 1%; 100PPM; 0.10W; THICK FILM   |
| R60, R62             | 2   | CRCW06031K05FK                  | VISHAY DALE               | 1.05K            | RESISTOR; 0603; 1.05K $\Omega$ ; 1%; 100PPM; 0.10W; THICK FILM  |
| R64, R66             | 2   | CRCW06032000FK                  | VISHAY DALE               | 200              | RESISTOR; 0603; 200 $\Omega$ ; 1%; 100PPM; 0.10W; THICK FILM  |
| R67, R68             | 2   | NRC06F4220TRF                   | NIC COMPONENTS CORP.      | 422              | RESISTOR; 0603; 422 $\Omega$ ; 1%; 100PPM; 0.10W; THICK FILM  |
| R72, R73             | 2   | CRCW08051K62FK;<br>RM10F1621CT  | VISHAY DALE;<br>CAL-CHIP  | 1.62K            | RESISTOR; 0805; 1.62K $\Omega$ ; 1%; 100PPM; 0.125W; THICK FILM   |
| R97, R98             | 2   | CRCW060382K0FK                  | VISHAY DALE               | 82K              | RESISTOR, 0603, 82K $\Omega$ , 1%, 100PPM, 0.10W, THICK FILM  |
| SCREW1-SCREW6        | 6   | 561-P440.375                    | GENERIC PART              | P440.375         | MACHINE SCREW; SLOTTED; PAN; 4-40IN; 3/8IN; NYLON   |
| SPACER1-SPACER8      | 8   | 9032                            | KEystone                  | 9032             | MACHINE FABRICATED; ROUND-THRU HOLE SPACER; NO THREAD; M3.5; 5/8IN; NYLON   |
| SW1, SW2             | 2   | 100SP1T1B1M1QE H                | E-SWITCH                  | 100SP1T1B1M1QE H | SWITCH; SPDT; THROUGH HOLE; STRAIGHT; +28VDC; 5A; RINSULATION = 1G $\Omega$   |

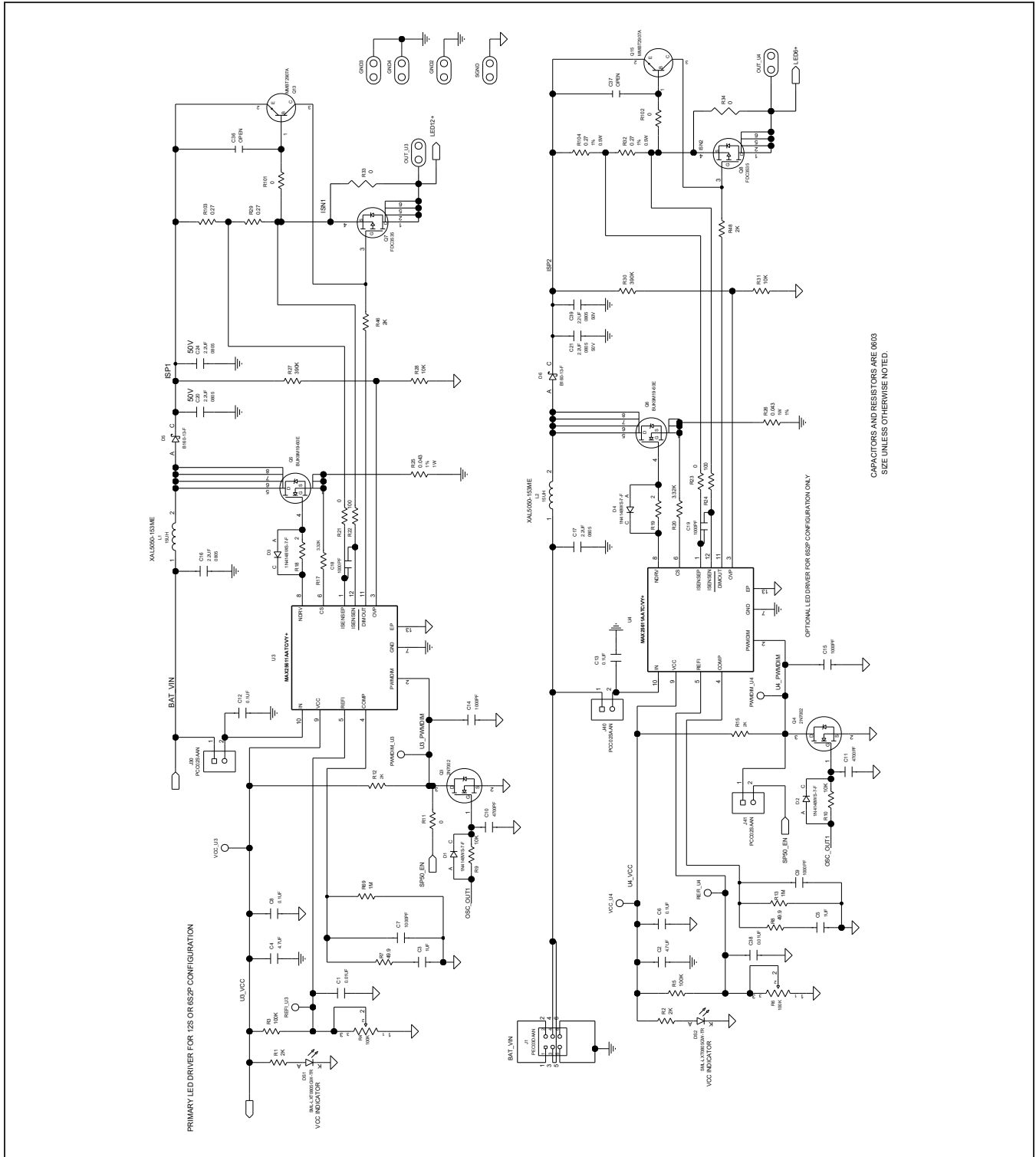
## MAX25605 EV Kit Bill of Materials (continued)

| REF_DES  | QTY | MFG PART #       | MANUFACTURER | VALUE            | DESCRIPTION  |
|----------|-----|------------------|--------------|------------------|--|
| SW3-SW10 | 8   | GT11MCBE         | C&K          | GT11MCBE         | SWITCH; TGL; TH; STRAIGHT; 20V;<br>GT SERIES; RCOIL = 0.05Ω;<br>RINSULATION = 1GΩ  |
| TP1      | 1   | 7006             | KEYSTONE     | 7006             | CONNECTOR; PANELMOUNT;<br>BINDING POST;<br>STRAIGHT THROUGH; 1PIN; RED   |
| TP2      | 1   | 7007             | KEYSTONE     | 7007             | CONNECTOR; PANELMOUNT;<br>BINDING POST;<br>STRAIGHT THROUGH; 1PIN; BLACK   |
| U1       | 1   | MAX25605ATP/VY+  | MAXIM        | MAX25605ATP/VY+  | EVKIT PART - IC; MAX25605ATP/VY+;<br>6 SWITCH SEQUENTIAL CONTROLLER;<br>TQFN20-EP; PACKAGE CODE:<br>T2044Y+3C; PACKAGE OUTLINE<br>NUMBER: 21-100068;<br>LAND PATTERN NUMBER: 90-0037 |
| U2       | 1   | MAX25605AUP/V+   | MAXIM        | MAX25605AUP/V+   | EVKIT PART - IC; MAX25605AUP/V+;<br>6 SWITCH SEQUENTIAL CONTROLLER;<br>TQFN20-EP; PACKAGE CODE: U20E+3C;<br>PACKAGE OUTLINE: 21-100132;<br>PACKAGE LAND PATTERN: 90-100049           |
| U3, U4   | 2   | MAX25611AATC/VY+ | MAXIM        | MAX25611AATC/VY+ | IC; CTRL; AUTOMOTIVE HIGH-VOLTAGE<br>HB LED CONTROLLER; TQFN12-EP  |
| U5       | 1   | MAX9031AUK+      | MAXIM        | MAX9031AUK+      | IC; COMP; LOW-COST; ULTRA-SMALL;<br>SINGLE; SINGLE-SUPPLY COMPARATORS;<br>SOT23-5  |
| U6       | 1   | MAX5084ATT+      | MAXIM        | MAX5084ATT+T     | IC; VREG; LOW-QUIESCENT-CURRENT<br>LINEAR REGULATOR; TDFN6   |
| PCB      | 1   | MAX25605         | MAXIM        | PCB              | PCB:MAX25605   |
| COVER1   | 1   | MAX25605_COVER   | MAXIM        | MAX25605_COVER   | COVER; EVKIT; MAX25605;<br>4.2INX1.9INX0.125IN; ACRYLIC  |

MAX25605 EV Kit Schematic

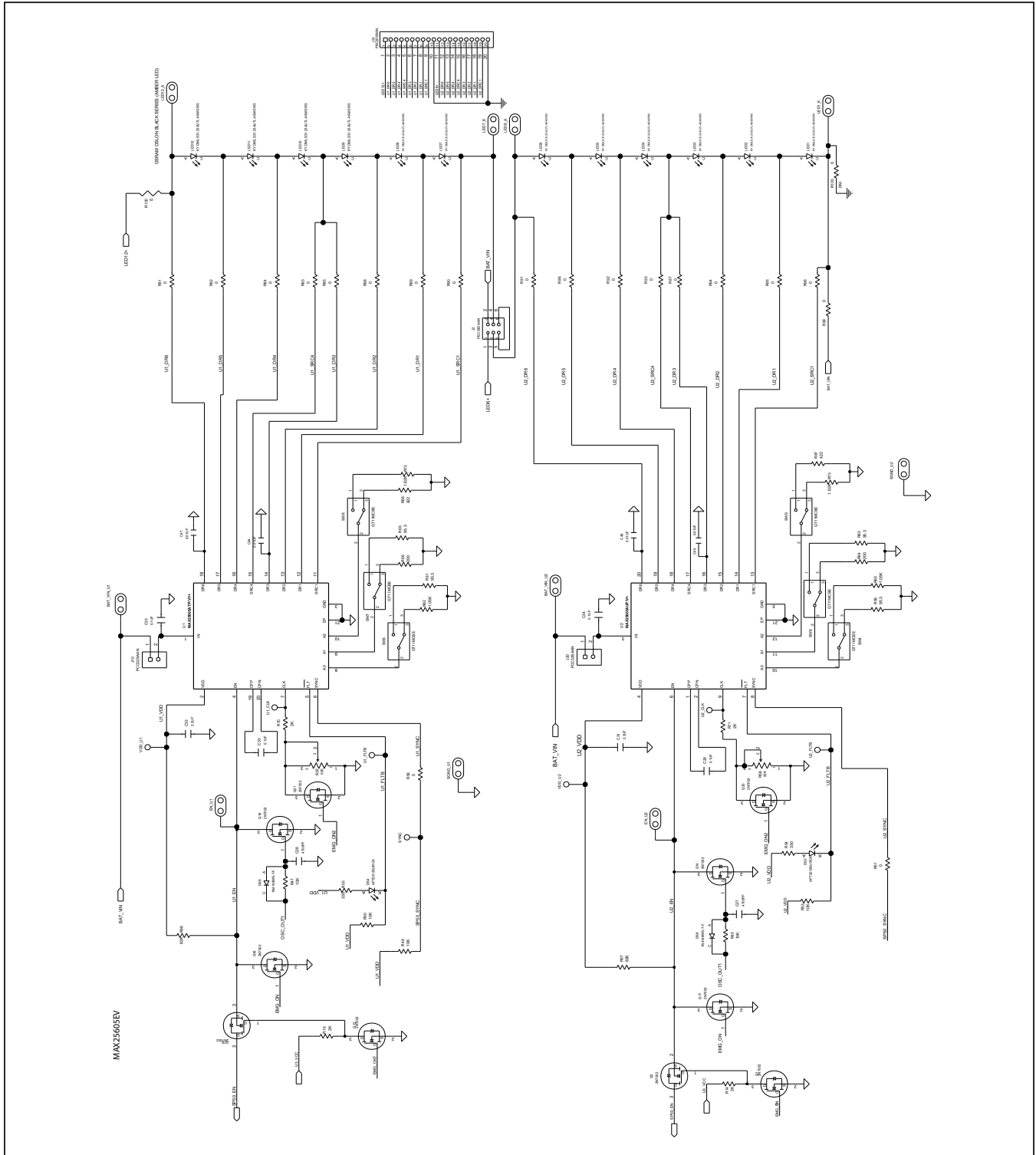


MAX25605 EV Kit Schematic (continued)

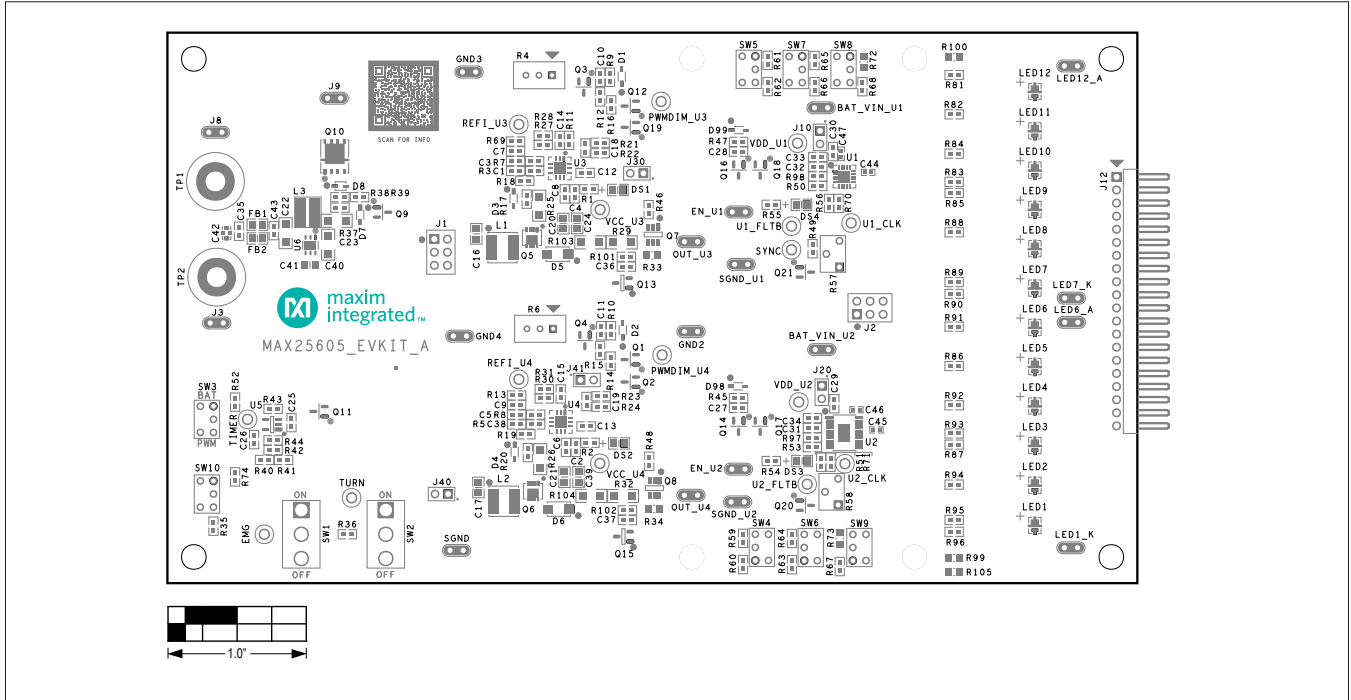


CAPACITORS AND RESISTORS ARE 0603  
SIZE UNLESS OTHERWISE NOTED.

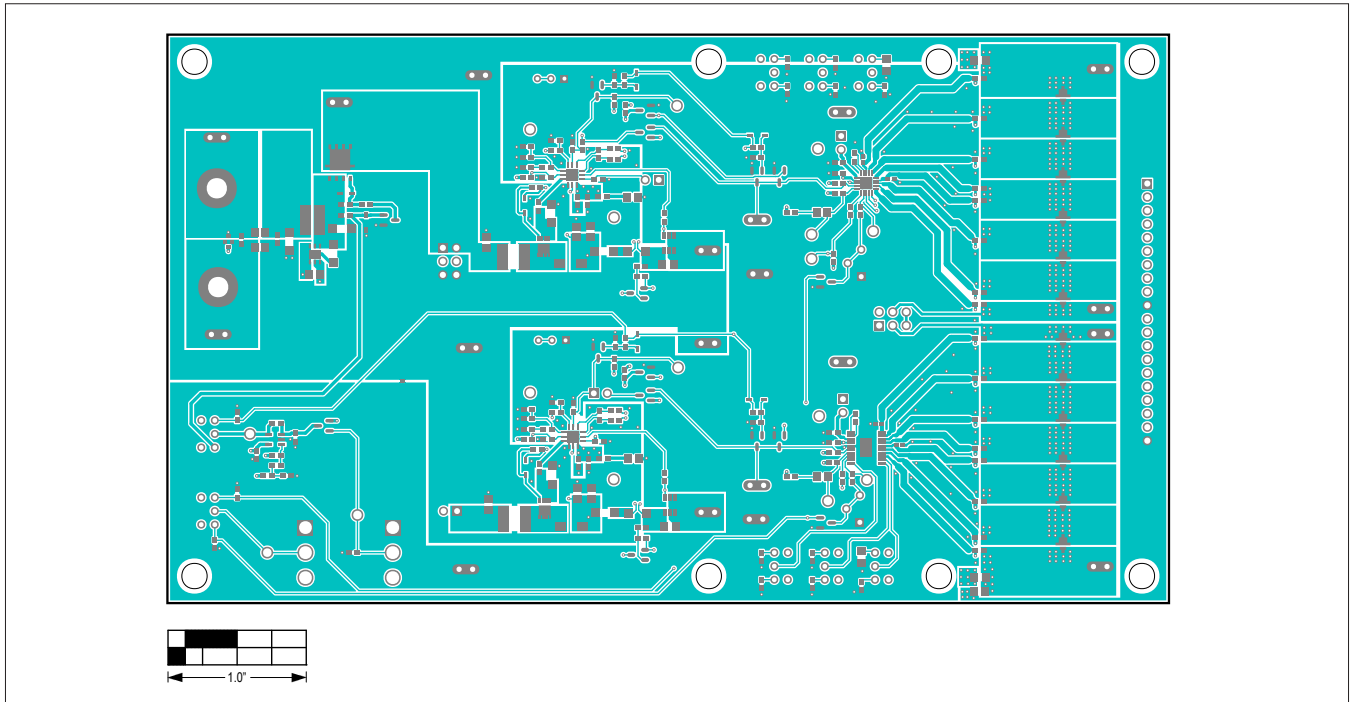
MAX25605 EV Kit Schematic (continued)



MAX25605 EV Kit PCB Layouts

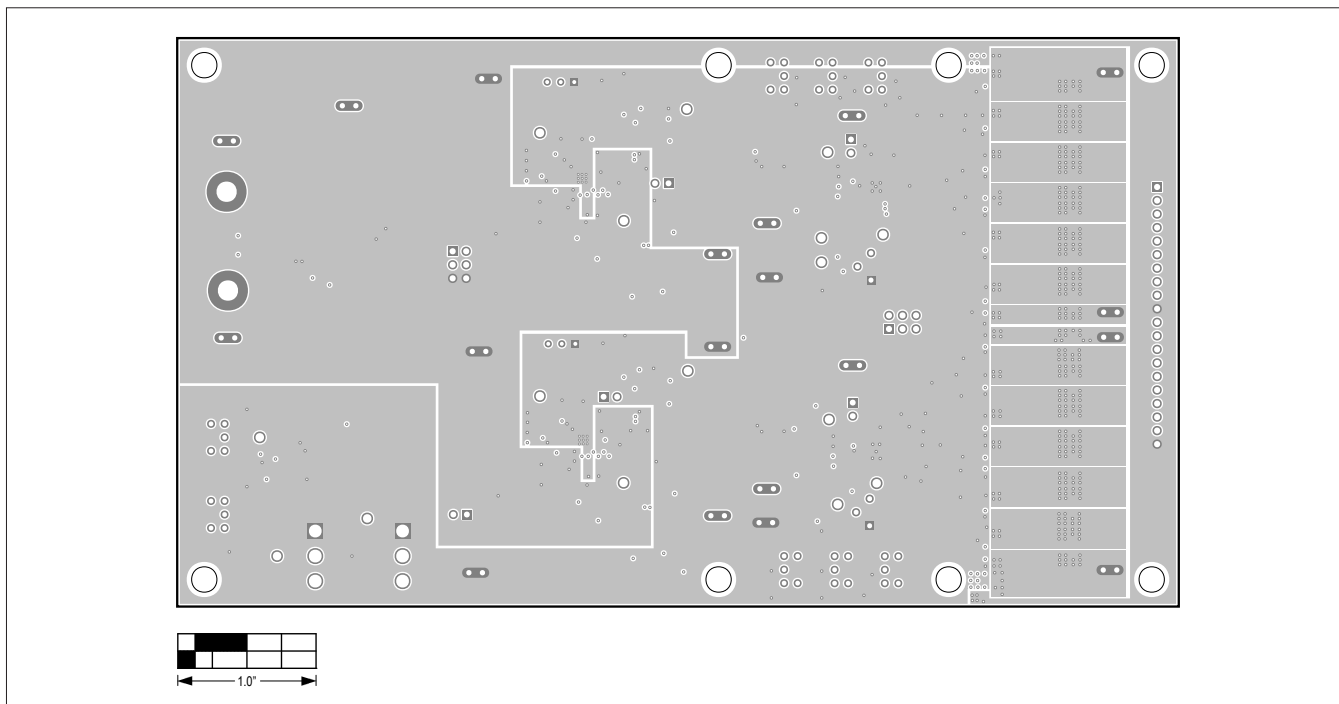


MAX25605 EV Kit PCB Layout—Top Silkscreen

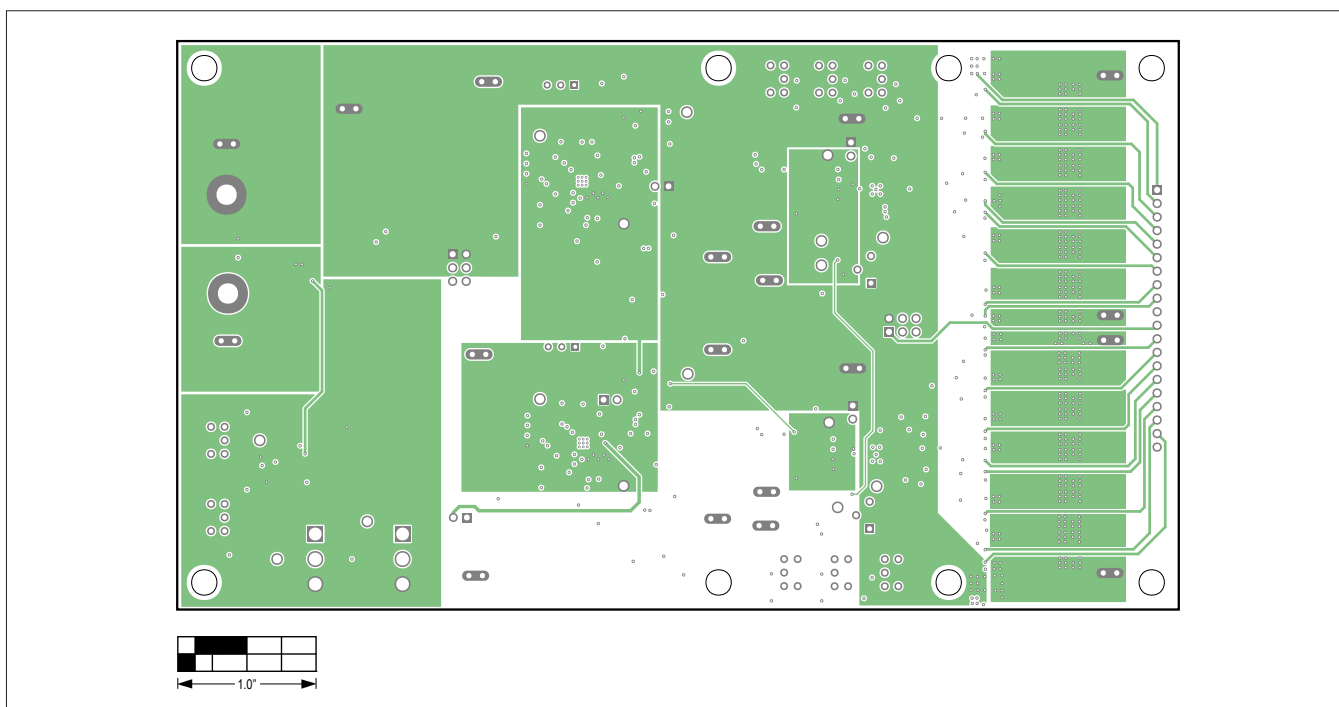


MAX25605 EV Kit PCB Layout—Top View

MAX25605 EV Kit PCB Layouts (continued)



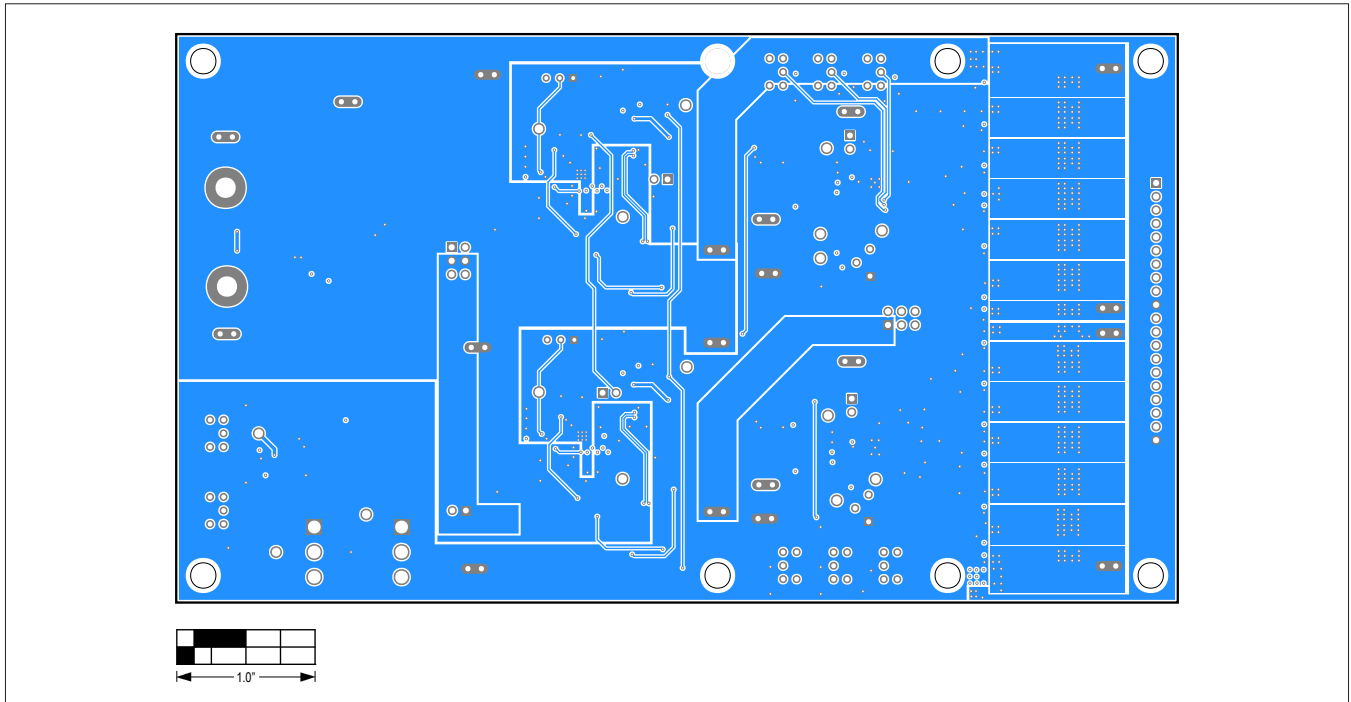
MAX25605 EV Kit PCB Layout—Layer 2



MAX25605 EV Kit PCB Layout—Layer 3



MAX25605 EV Kit PCB Layouts (continued)



MAX25605 EV Kit PCB Layout—Bottom View

## Revision History

| REVISION NUMBER | REVISION DATE | DESCRIPTION     | PAGES CHANGED |
|-----------------|---------------|-----------------|---------------|
| 0               | 9/20          | Initial release | —             |

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