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

Evaluates: MAX22210

MAX22210 Evaluation Kit

General Description

The MAX22210 evaluation kit (EV kit) provides a proven design to evaluate the +36V, 3.8A (peak) two-phase stepper-motor driver. The MAX22210 EV kit can drive a single stepper motor and provides an on-board microcontroller (MCU) and GUI to drive the MAX22210's inputs and configure the modes of operation. Microstep modes, decay modes, target speeds, and acceleration can also be configured using the GUI.

Benefits and Features

- Easy Evaluation of the MAX22210 Stepper-Motor Driver
- On-Board MCU and GUI to Drive and Configure the MAX22210
  - Configurable Target Speed
  - Configurable Acceleration Profiles
  - Configurable Microstepping and Decay Modes
  - Motor-Coil Current Reporting
  - Configurable Full-Scale Current
- On-Board +3.3V Regulator to Supply I/Os of the MAX22210
- Perforated Board and Headers Allows for Separation of the MAX22210 Circuit
- Windows® 7-, 8-, 10-Compatible Software
- Fully Assembled and Tested
- Proven PCB Layout

MAX22210 EV Kit Files

FILE	DECRIPTION
MAX22210_GUI_setup_v1.2.3.exe	GUI Install File

Quick Start

Required Equipment

- MAX22210 EV Kit
- USB Type-A to Micro USB Type-B Male Cable
- Up to +36V DC, 3.8A Power Supply
- Stepper Motor

It is recommended that the user reads the MAX22210 IC data sheet prior to using the EV kit and GUI.

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

Windows is a registered trademark of Microsoft Corporation.

319-101018; Rev 0; 8/23

One Analog Way, Wilmington, MA 01887 U.S.A. | Tel: 781.329.4700 |

EV Kit Board

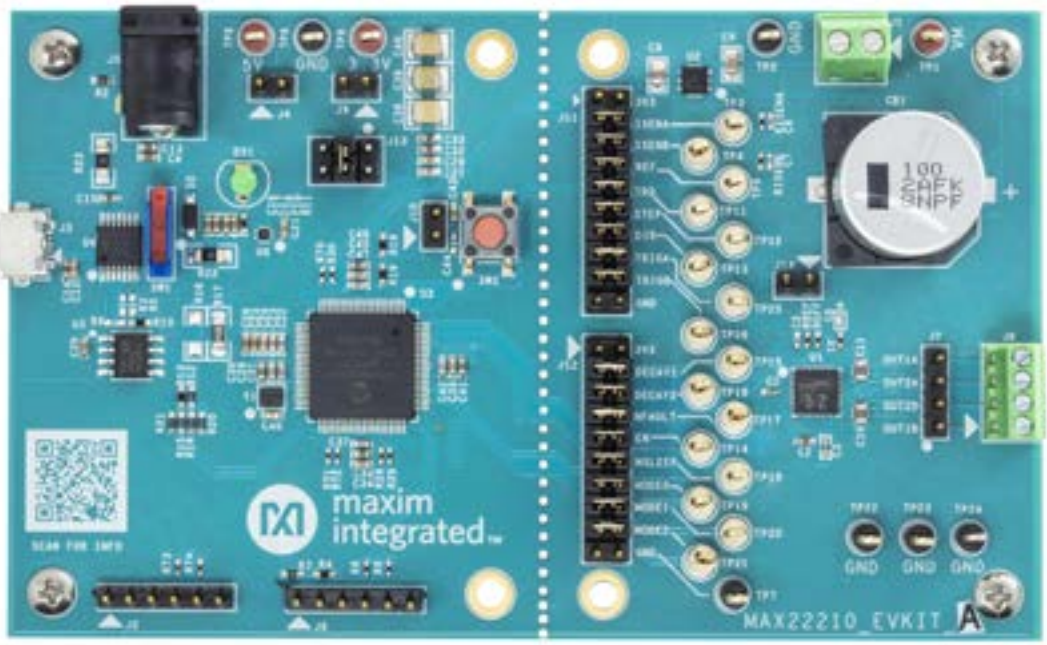


Figure 1. MAX22210 EV Kit Board Photo—Top

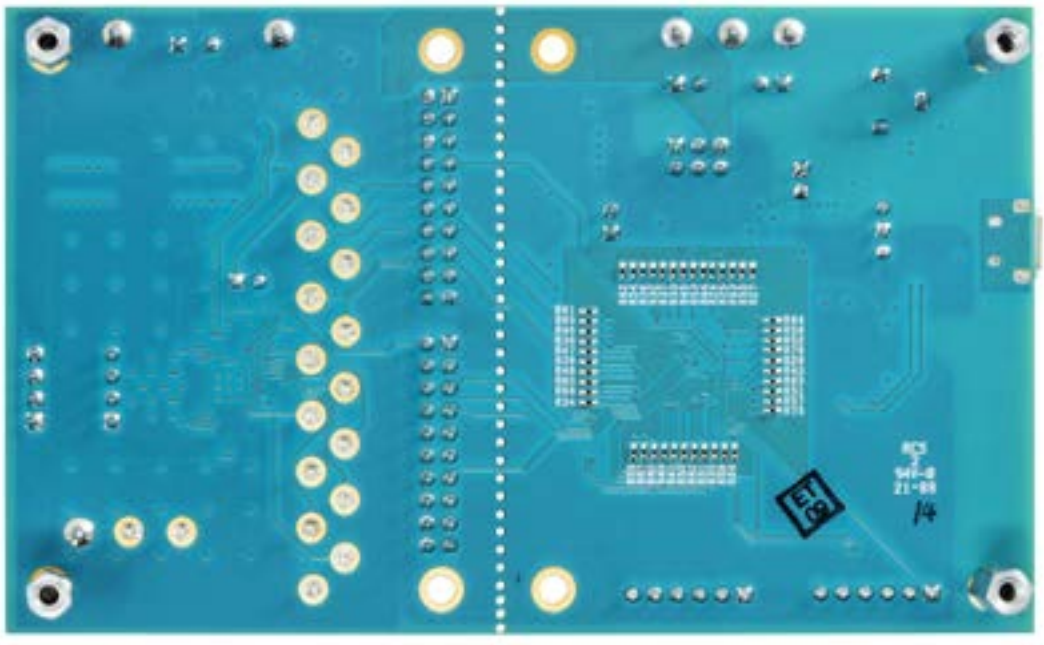


Figure 2. MAX22210 EV Kit Board Photo—Bottom

Software Installation

Note: In the following sections, software-related items are identified by bolding. Text in bold refers to items directly from the EV kit software.

Follow the steps to install the GUI software:

1) Save the **MAX22210_GUI_setup_v1.2.3.exe** file to the user's PC and double click to begin the installation.
2) Click the **Next** button in the welcome screen to begin the GUI installation.
3) Select the install directory and Start Menu folder name.
4) When installation is complete, click the **Finish** button to launch the MAX22210 EV kit GUI.

Procedure

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

1) As with all motor-driver applications, stopping or braking the motor can cause a back EMF (BEMF) current and voltage surge. At high supply voltages, this can cause the supply to rise above the absolute maximum allowable voltage to the supply pins of a motor-driver IC. It is highly recommended that the power supply of the MAX22210 be clamped below +42V to avoid damage to the motor-driver IC.
2) Verify that shunts are installed in the default positions.
3) Connect a stepper motor to the J6 terminal block.
4) Connect the MAX22210 EV kit board to the PC with a USB cable.
5) Launch the MAX22210 EV kit GUI.
6) Click on **Device** in the menu bar and select the COM port of the EV kit board.
   a. The GUI displays the **Selected COM Port**, **Firmware Version**, and **Connected** in the bottom status bar if the connection was a success.
7) Connect a supply (up to +36V) to V_M and adjust the V_M voltage to the desired operating voltage.
8) Turn on the V_M supply.
9) Click on the **WAKE** slider to wake the part from sleep mode.
10) Click on the **ENABLE** slider to enable the part.
11) Select the following settings in the **Motor Control Graph** to begin a first run of the stepper motor.
    a. **Target Speed (PPS)** = 200
    b. **Acceleration Rate (PPSPS)** = 100
    c. **Acceleration Starting/Ending Speed (PPS)** = 100
    d. **Steps to Stop** = 100
    e. **# of Steps** = 500
    f. Select **Full Step** in the **Step Mode** dropdown
12) Click on the **Move # of Steps** slider and for a 200 steps/rotation, confirm that the motor shaft rotates three times with the appropriate acceleration and deceleration profile.

Table 1. Default Shunt Positions

HEADER	SHUNT POSITION	DESCRIPTION
J2	Not installed*	MCU debug header 1
J4	Not installed*	External +5V probe header
J8	Not installed*	MCU debug header 2
J9	Not installed*	External +3.3V probe header
J10	Not installed*	Debug RC capacitor isolation
J11	3-4*	MAX22210 ISENA current output connected to MCU ADC input
	5-6*	MAX22210 ISENB current output connected to MCU ADC input
	7-8*	GND side of REF pin resistor connected to MCU DAC output. If left not installed, install a shunt on header J14 to connect the GND side of the R_{REF} resistor to GND.
	9-10*	MAX22210 HFS input connected to MCU output
	11-12*	MAX22210 STEP input connected to MCU output
	13-14*	MAX22210 DIR input connected to MCU output
	15-16*	MAX22210 TRIGA output connected to MCU output
	17-18*	MAX22210 TRIGB output connected to MCU output
	Pins 1 and 2	+3.3V sourced from LDO option from J13
	Pins 19 and 20	GND
	All not installed	Even row of pins allow access to the MAX22210 pins to be driven or monitored without the use of the on-board MCU
J12	3-4*	MAX22210 DECAY1 input connected to MCU output
	5-6*	MAX22210 DECAY2 input connected to MCU output
	7-8*	MAX22210 $\overline{FAULT}$ output connected to MCU output
	9-10*	MAX22210 EN input connected to MCU input
	11-12*	MAX22210 $\overline{SLEEP}$ input connected to MCU output
	13-14*	MAX22210 MODE0 input connected to MCU output
	15-16*	MAX22210 MODE1 input connected to MCU output
	17-18*	MAX22210 MODE2 input connected to MCU output
	Pins 1 and 2	+3.3V sourced from LDO option from J13
	Pins 19 and 20	GND
	All not installed	Even row of pins allow access to the MAX22210 pins to be driven or monitored without the use of the on-board MCU
J13	1-2	+3.3V sourced from external +3.3V test point (TP8)
	3-4*	+3.3V sourced from +5V USB VBUS voltage
	5-6	+3.3V sourced from V_M voltage

Table 1. Default Shunt Positions (continued)

HEADER	SHUNT POSITION	DESCRIPTION
J14	Not installed*	Allows the MCU to adjust the GND side voltage of the MAX22210's REF resistor. Leave this head not installed when using the GUI to control the full-scale current.
	1-2	Connects the GND side voltage of the MAX22210's 18kΩ REF resistor to GND. Install this header with a shunt if the GUI is not being used to control the full-scale current.
J7	Not installed*	The MAX22210 outputs can be monitored using pins 1 through 4 of header J7
SW1	1-2 (upwards)*	Uses the USB VBUS voltage for the +5V to +3.3V LDO conversion
	2-3 (downwards)	Uses an external +5V voltage applied to TP5 for the +5V to +3.3V LDO conversion

**Indicates default position.*

Detailed Description of Hardware

The MAX22210 EV kit provides a proven layout, evaluation circuit, and software to evaluate the MAX22210 (U1) IC. The EV kit features a DSPIC33CH512MP508T (U3) microcontroller (MCU), a MCP2221A (U4) USB-to-UART/I²C serial converter, and a MIC5528 (U6) +3.3V LDO that enables serial communication between the GUI and EV kit, provides power to the MCU circuit from the USB port, and allows the user to drive and configure the logic inputs of the MAX22210 IC. The EV kit has perforations down the middle of the board to separate the microcontroller from the MAX22210 circuit.

To operate the MAX22210 circuit without the use of the MCU or GUI, depopulate the shunts on headers J11 and J12 and install a shunt on header J14. This sets the maximum fixed IFS current to 2A. The maximum fixed IFS current can be adjusted by changing the R_{REF} resistor to a value from 12kΩ to 60kΩ as shown in the equation below where K_{IFS} = 36KV and HFS_VALUE = 1 when the HFS logic input pin is low, or HFS_VALUE = 0.5 when the HFS logic input pin is high:

$$IFS\_MAX(A) = \frac{K_{IFS}(KV)}{R_{REF}(K\Omega)} \times HFS\_VALUE$$

The value of the full-scale current is proportional to the current flowing from the REF pin of the MAX22210 IC to GND through the R_{REF} resistor. When using the MCU and GUI, the maximum fixed IFS current is scaled from 0% to 100% by applying a voltage (VREF) in the range of 0V to 0.9V to the GND side of the R_{REF} resistor connected to pin 1 of header J14. The IFS value is determined using the following equation:

$$IFS(A) = IFS\_MAX(A) \times \frac{0.9V - VREF(V)}{0.9V}$$

Where IFS_MAX = the fixed maximum full-scale current (IFS) as configured by the R_{REF} resistor on the EV kit board and VREF is the voltage applied to pin 1 of J14. The EV kit board is shipped with R_{REF} = 18kΩ, which sets the fixed maximum full-scale current to 2A or 1A depending on the state of the HFS pin. Refer to the MAX22210 IC data sheet for more information regarding the full-scale current settings.

Detailed Description of Software

The MAX22210 EV kit GUI allows the user to control and communicate with the MAX22210 IC using a PC.

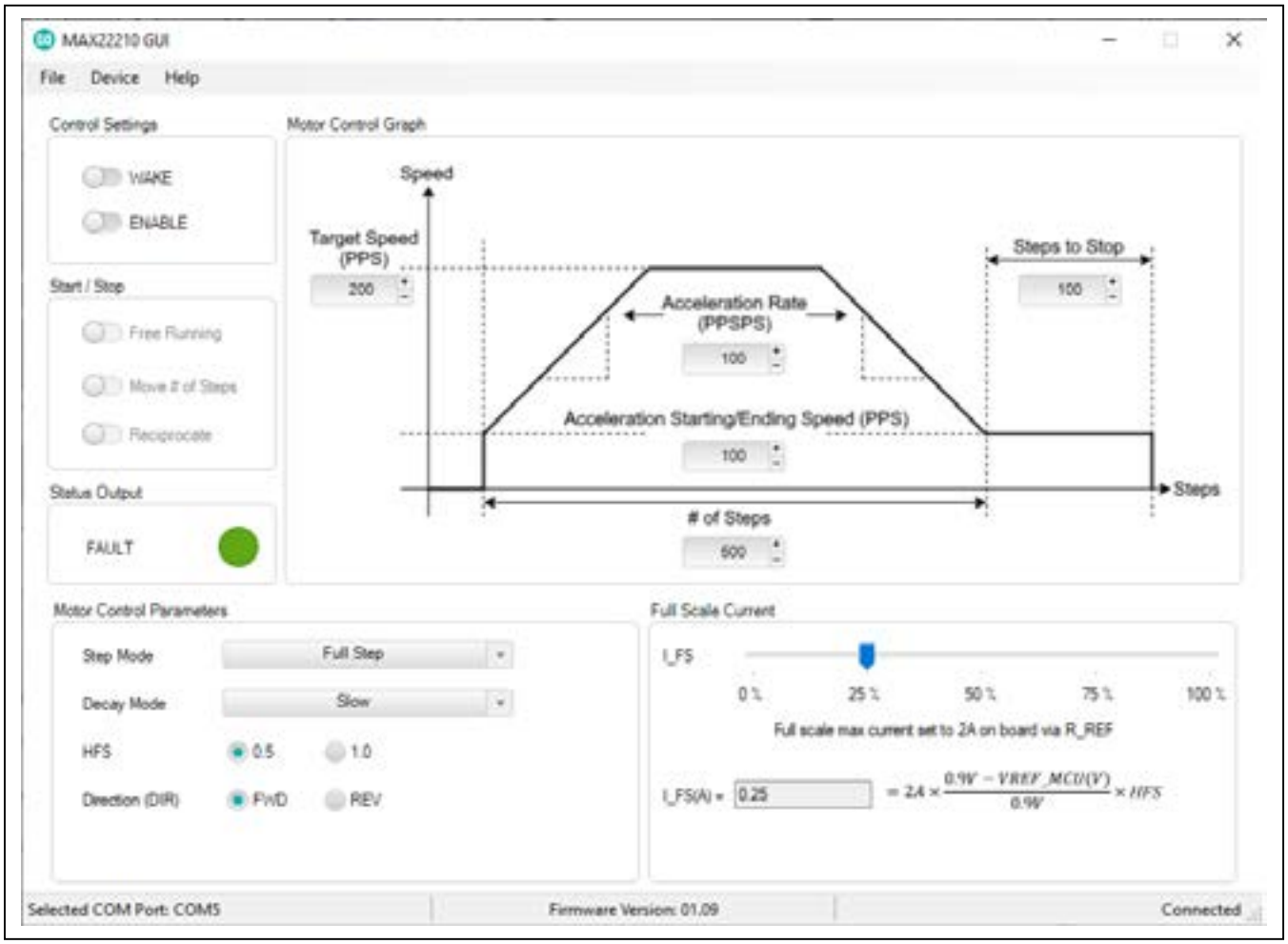


Figure 3. MAX22210 EV Kit GUI

Control Settings

The **Control Settings** group box allows the user to enable or disable the MAX22210 or enter and exit sleep mode (see Figure 4).

Motor-Control Graph

The **Motor Control Graph** group box allows the user to configure the speed and acceleration of the stepper motor (Figure 5). The user can select the **Target Speed (PPS)**, acceleration and deceleration profiles (**Acceleration Rate (PPS)** and **Acceleration Starting/Ending Speed (PPS)**), and number of steps to travel (**# of Steps**). The acceleration profiles have a starting speed and an ending speed which is user defined with an acceleration rate that applies to both the acceleration ramp and deceleration ramp. The user can choose to have the motor stop after the **# of Steps** have been traveled, or an additional number of **Steps to Stop** can be added, which run after the deceleration profile is completed and the **# of Steps** have been traveled. Additional steps prior to the motor stop can be added by entering the value in the **Steps to Stop** field.

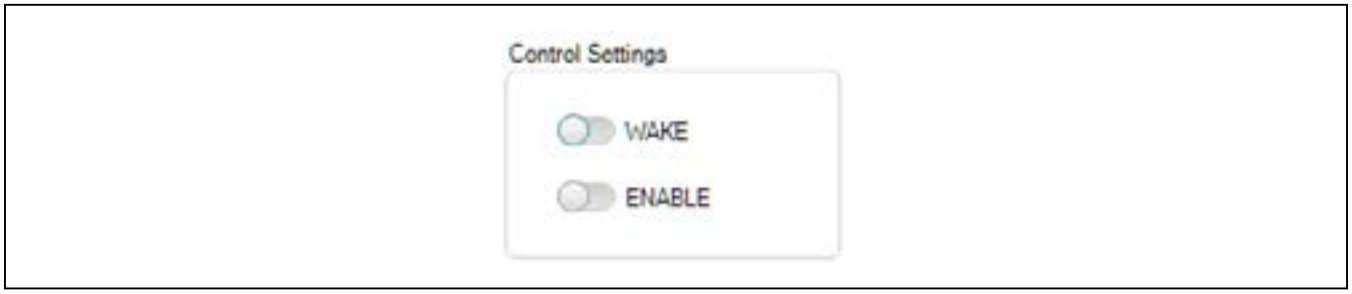


Figure 4. Control-Settings Group Box

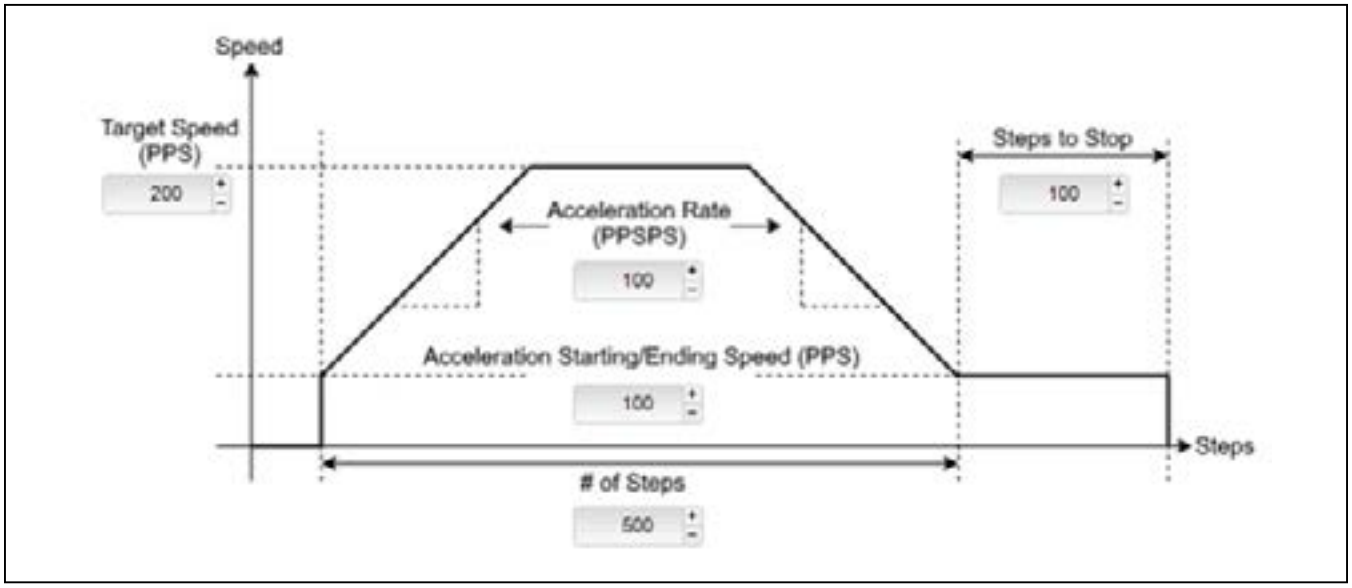


Figure 5. Motor-Control Graph

Start/Stop

The **Start / Stop** group box allows the user to move the motor in one of three modes (see Figure 6). Enabling **Free Running** mode follows the acceleration profile used to reach the target speed and runs until **Free Running** mode is disabled.

Enabling **Move # of Steps** mode follows the acceleration and deceleration profiles (**Acceleration Rate (PPS)** and **Acceleration Starting/Ending Speed (PPS)**), **Target Speed (PPS)**, and **Steps to Stop** selections until the number of steps and steps to stop have been traveled.

Enabling **Reciprocate** mode follows the acceleration and deceleration profiles (**Acceleration Rate (PPS)** and **Acceleration Starting/Ending Speed (PPS)**), **Target Speed (PPS)**, and **Steps to Stop** selections until the user-defined number of steps have been traveled and then reverses direction with the same behavior until the **Reciprocate** slider is disabled.

Status Output

The **Status Output** indicator shows the status of the $\overline{\text{FAULT}}$ pin (see Figure 7). Under normal operation, the on-screen indicator is green. During fault conditions, the on-screen indicator is red.

Motor-Control Parameters

The **Motor Control Parameters** group box (Figure 8) allows the user to select the **Step Mode**, **Decay Mode**, motor current scaling factor (HFS_VALUE (**HFS**)), and motor direction (**Direction DIR**). These parameters correspond to logic input pins on the MAX22210 IC, and the GUI allows the user to drive these pins through the on-board MCU. The **Step Mode** dropdown menu allows the user to select a step mode from **Full Step** up to **1/128 Step**. See Table 2 for more details about the microstep modes. The **Decay Mode** dropdown menu allows the user to select from the various decay modes of the MAX22210. See Table 3 and the *Adaptive Decay Modes* section of the MAX22210 IC data sheet for more details about the decay modes. The **HFS** (output-current full scale) and **Direction (DIR)** selections allow the user to select the torque scaling factor and direction of rotation. The MCU drives the MAX22210 IC's HFS and DIR pins according to the selections made.

Figure 6. Start/Stop Control-Settings Group Box

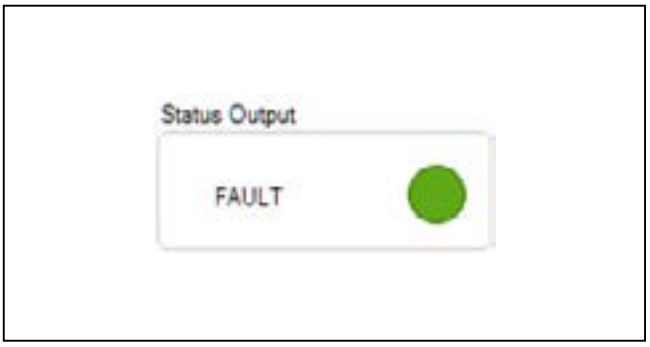


Figure 7. Status-Output Group Box

Figure 8. Motor-Control-Parameters Group Box

Full-Scale Current

The **Full Scale Current** group box allows the user to scale the maximum full-scale current used to drive the stepper motor from 0% to 100% (see Figure 9). The maximum full-scale current is set to 2A by the on-board R_{REF} resistor and can be scaled using the **I_FS** slider.

Table 2. Step-Mode Selection

MODE2	MODE1	MODE0	STEP MODE
0	0	0	Full Step (71% Current)
0	0	1	1/2 Step
0	1	0	1/4 Step
0	1	1	1/8 Step
1	0	0	1/16 Step
1	0	1	1/32 Step
1	1	0	1/64 Step
1	1	1	1/128 Step

Table 3. Decay Modes

DECAY2	DECAY1	INCREASING STEPS	DECREASING STEPS
0	0	Slow	Slow
0	1	Mixed 30% Fast	Mixed 30% Fast
1	0	Mixed 60% Fast	Mixed 60% Fast
1	1	Adaptive	Adaptive

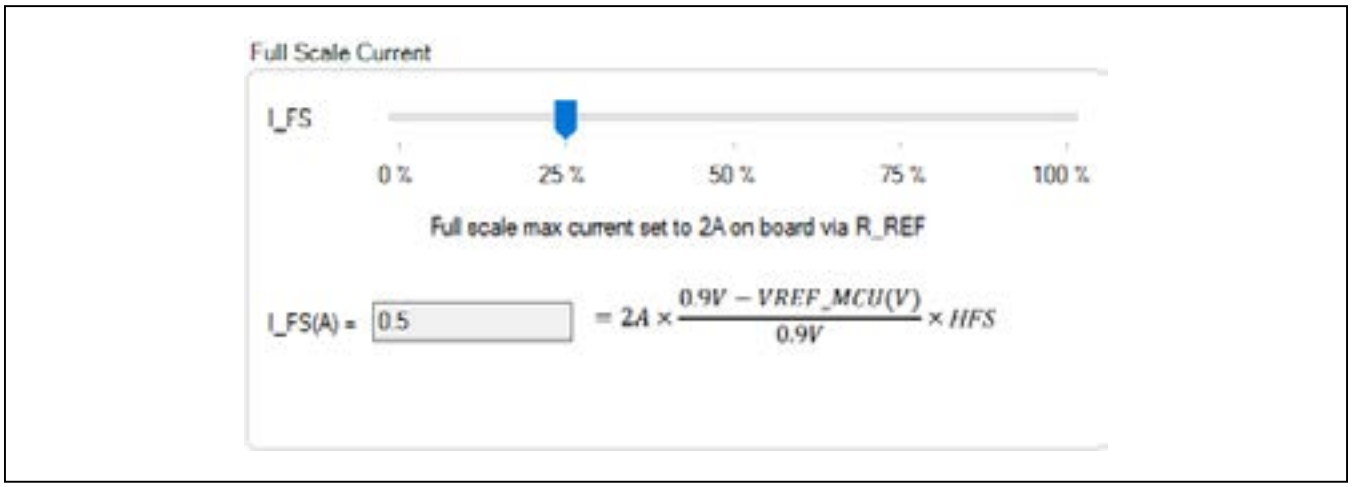


Figure 9. Full-Scale Current, Motor-Control Group Box

Ordering Information

PART	TYPE
MAX22210EVKIT#	EV KIT

#Denotes RoHS compliant.

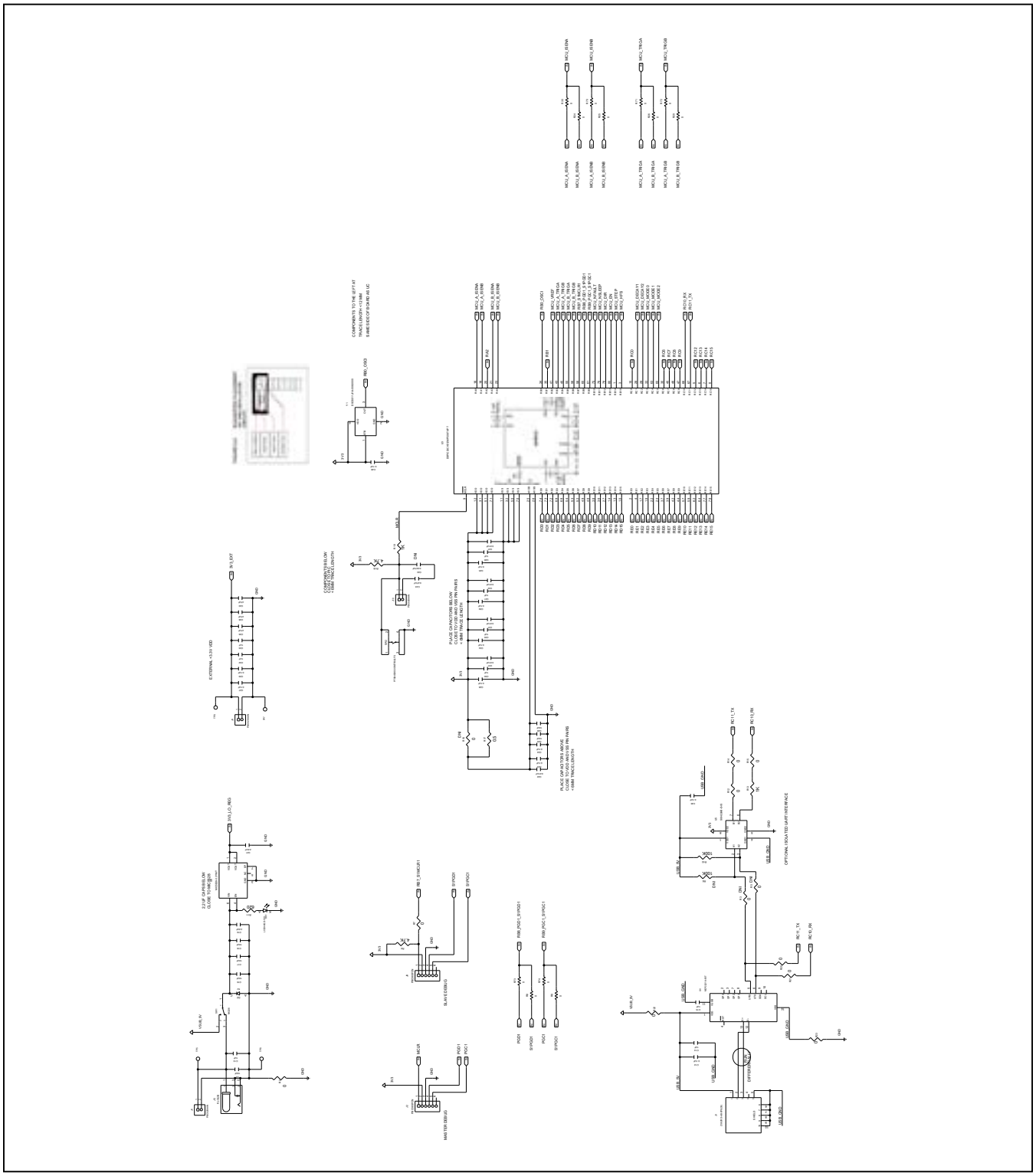
MAX22210 EV Kit Bill of Materials

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION	COMMENTS
1	C1	-	1	CL05A105KO5NNN; CC0402KRX5R7BB105	SAMSUNG;YAGEO	1UF	CAP; SMT (0402); 1UF; 10%; 16V; X5R; CERAMIC	
2	C2	-	1	CGA3E2X7R2A223K080AA	TDK	0.022UF	CAP; SMT (0603); 0.022UF; 10%; 100V; X7R; CERAMIC	
3	C3	-	1	TMK105BJ105MV	TAIYO YUDEN	1UF	CAP; SMT (0402); 1UF; 20%; 25V; X5R; CERAMIC	
4	C4, C16-C18, C25, C26	-	6	GRT188R61C106KE13	MURATA	10UF	CAP; SMT (0603); 10UF; 10%; 16V; X5R; CERAMIC	
5	C8	-	1	GRM21BR70J106K; C2012X7R0J106K125AB; CGA4J1X7R0J106K125AC	MURATA;TDK;TDK	10UF	CAP; SMT (0805); 10UF; 10%; 6.3V; X7R; CERAMIC	
6	C9	-	1	C0805C224K1RAC; GRM21AR72A224KAC5	KEMET;MURATA	0.22UF	CAP; SMT (0805); 0.22UF; 10%; 100V; X7R; CERAMIC	
7	C10, C11	-	2	C2012X7S2A105K125AB; GRJ21BC72A105KE11; GRM21BC72A105KE01	TDK;MURATA;MURATA	1UF	CAP; SMT (0805); 1UF; 10%; 100V; X7S; CERAMIC	
8	C12, C20, C23, C24, C27-C29, C34, C39, C45	-	10	885012206071; C1608X7R1E104K080AA; C0603C104K3RAC; GRM188R71E104KA01; C1608X7R1E104K; 06033C104KAT2A	WURTH ELECTRONICS INC; TDK;KEMET;MURATA;TDK;AVX	0.1UF	CAP; SMT (0603); 0.1UF; 10%; 25V; X7R; CERAMIC	
9	C13-C15, C30, C32, C33, C35, C41, C46	-	9	C0603X5R160-105KNP; EMK107BJ105KA; C1608X5R1C105K080AA; GRM188R61C105K; 0603YD105KAT2A; CL10A105KO8NNN	VENKEL LTD.;TAIYO YUDEN; TDK;MURATA;AVX;SAMSUNG ELECTRO-MECHANICS	1UF	CAP; SMT (0603); 1UF; 10%; 16V; X5R; CERAMIC;	
10	C19, C21	-	2	GRM188R71A225KE15; CL10B225KP8NNN; C1608X7R1A225K080AC; C0603C225K8RAC	MURATA;SAMSUNG; TDK;KEMET	2.2UF	CAP; SMT (0603); 2.2UF; 10%; 10V; X7R; CERAMIC	
11	C22, C31, C37, C42, C47	-	5	C1608C0G1E103J080AA	TDK	0.01UF	CAP; SMT (0603); 0.01UF; 5%; 25V; C0G; CERAMIC;	
12	C36, C38, C40	-	3	C1210C476M4PAC; GRM32ER61C476ME15	KEMET;MURATA	47UF	CAP; SMT (1210); 47UF; 20%; 16V; X5R; CERAMIC	
13	C43	-	1	C0603C474K4RAC; GRM188R71C474K; EMK107B7474KA; C1608X7R1C474K080AC	KEMET;MURATA;TAIYO YUDEN;TDK	0.47UF	CAP; SMT (0603); 0.47UF; 10%; 16V; X7R; CERAMIC	
14	C48	-	1	06033C104JAT2A	AVX	0.1UF	CAP; SMT (0603); 0.1UF; 5%; 25V; X7R; CERAMIC	
15	CB1	-	1	EEV-FK2A101	PANASONIC	100UF	CAP; SMT (CASE_J16); 100UF; 20%; 100V; ALUMINUM-ELECTROLYTIC	
16	D1	-	1	SML-P11UTT86	ROHM	SML-P11UTT86	DIODE; LED; SMT; PIV=1.8V; IF=0.02A ;	
17	D2	-	1	SMF5.0A	MICRO COMMERCIAL COMPONENTS	5V	DIODE; TVS; SMT (SOD-123FL); VRM=5V; IF=21.7A	
18	DS1	-	1	SSL-LX3044GD-12V	LUMEX OPTOCOMPONENTS INC	LX3044GD-12V	GREEN LIGHT EMITTING DIODE	
19	J1	-	1	1727010	PHOENIX CONTACT	1727010	CONNECTOR; FEMALE; THROUGH HOLE; GREEN TERMINAL BLOCK; RIGHT ANGLE; 2PINS	
20	J2, J8	-	2	PBC06SFCN	SULLINS ELECTRONICS CORP.	PBC06SFCN	CONNECTOR; MALE; THROUGH HOLE; .1IN CONTACT CENTER; BREAKAWAY HEADER; STRAIGHT; 6PINS	
21	J3	-	1	ZX62RD-AB-5P8(30)	HIROSE ELECTRIC CO LTD.	ZX62RD-AB-5P8(30)	CONNECTOR; MALE; THROUGH HOLE; MICRO-USB CONNECTOR MEETING REQUIREMENTS OF USB 2.0 STANDARD; RIGHT ANGLE; 5PINS	
22	J4, J9, J10, J14	-	4	PBC02SAAN	SULLINS ELECTRONICS CORP.	PBC02SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 2PINS	
23	J5	-	1	PJ-102B	CUI INC.	PJ-102B	CONNECTOR; MALE; THROUGH HOLE; DC POWER JACK; RIGHT ANGLE; 3PIN	
24	J6	-	1	OSTVN04A150	ON-SHORE TECHNOLOGY INC	OSTVN04A150	CONNECTOR; TERMINAL BLOCK; FEMALE; THROUGH HOLE; STRAIGHT; 4PINS	
25	J7	-	1	PBC04SAAN	SULLINS ELECTRONICS CORP.	PBC04SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 4PINS; -65 DEGC TO +125 DEGC	
26	J11, J12	-	2	PBC10DAAN	SULLINS ELECTRONICS CORP	PBC10DAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 20PINS	
27	J13	-	1	PEC03DAAN	SULLINS ELECTRONICS CORP.	PEC03DAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 6PINS; -65 DEGC TO +125 DEGC	
28	R1	-	1	CRCW04021K40FK; RC0402FR-071K4L	VISHAY DALE;YAGEO PHICOMP	1.4K	RES; SMT (0402); 1.4K; 1%; +/- 100PPM/DEGC; 0.0630W	
29	R2, R7, R12, R14, R15, R20, R21	-	7	CRCW06030000ZS; MCR03EZPJ000; ERJ-3GEY0R00; CR0603AJ/-000ELF	VISHAY;ROHM SEMICONDUCTOR; PANASONIC;BOURNS	0	RES; SMT (0603); 0; JUMPER; JUMPER; 0.1000W	
30	R4, R18	-	2	CRCW06034K70FK	VISHAY DALE	4.7K	RES; SMT (0603); 4.7K; 1%; +/- 100PPM/DEGC; 0.1000W	

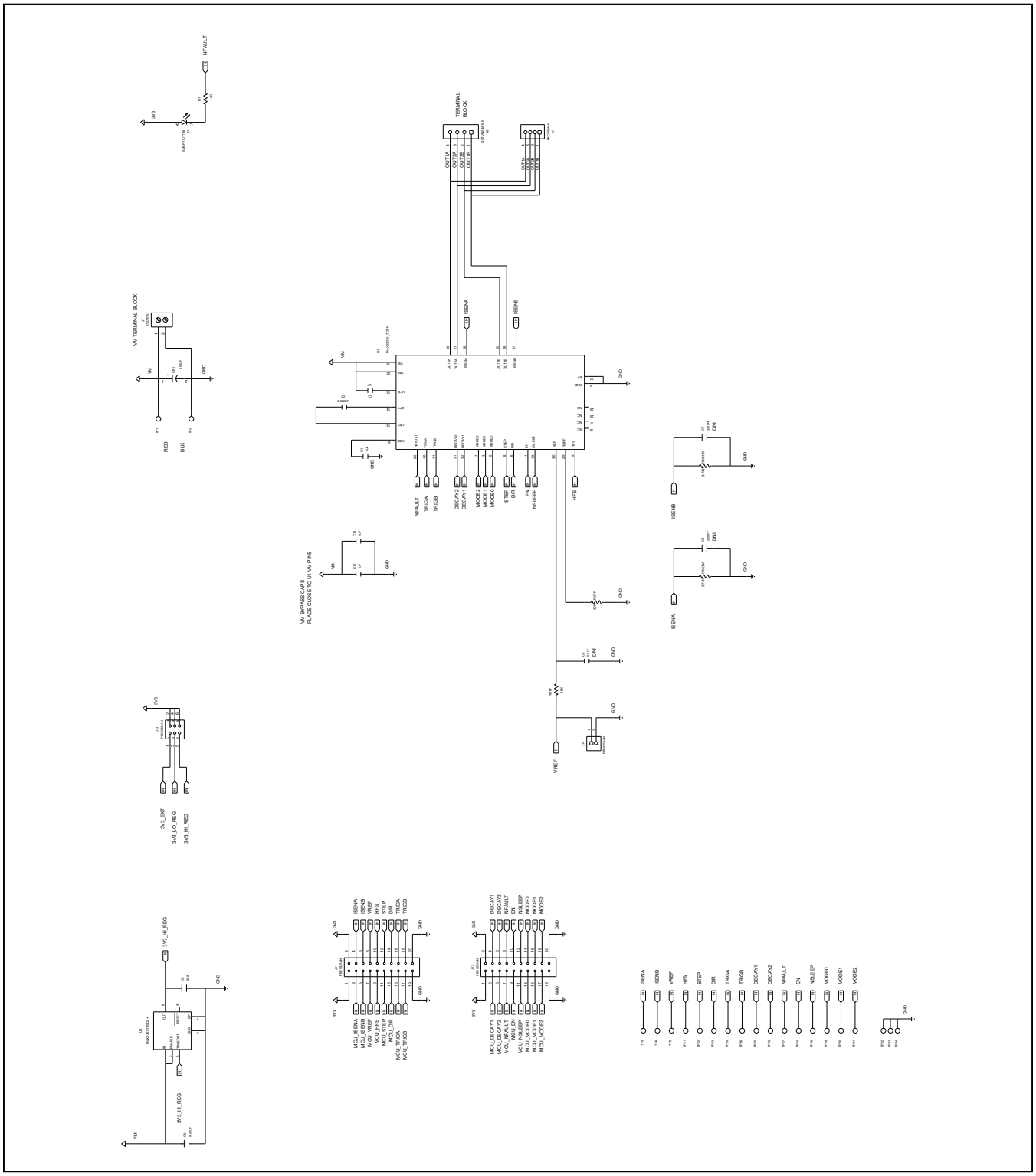
MAX22210 EV Kit Bill of Materials (continued)

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION	COMMENTS
31	R8, R9, R24-R26, R29, R30, R70-R74	-	12	ERJ-2GE0R00	PANASONIC	0	RES; SMT (0402); 0; JUMPER; JUMPER; 0.1000W	
32	R10	-	1	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	
33	R11	-	1	ERJ-3EKF6200	PANASONIC	620	RES; SMT (0603); 620; 1%; +/- 100PPM/DEGC; 0.1000W	
34	R13, R19	-	2	CRCW06031K00FK; ERJ-3EKF1001; CR0603AFX-1001ELF; RMCF0603FT1K00	VISHAY;PANASONIC;BOURNS; STACKPOLE ELECTRONICS INC.	1K	RES; SMT (0603); 1K; 1%; +/- 100PPM/DEGC; 0.1000W	
35	R17	-	1	CSR1206FTR500	STACKPOLE ELECTRONICS INC.	0.5	RES; SMT (1206); 0.5; 1%; +/- 100PPM/DEGC; 0.5000W	
36	R22, R23	-	2	CRCW12060000ZS	VISHAY DALE	0	RES; SMT (1206); 0; JUMPER; JUMPER; 0.2500W	
37	R27, R28, R31-R69, R75, R76	-	43	RC0402FR-0710KL; CR0402-FX-1002GLF	YAGEO;BOURNS	10K	RES; SMT (0402); 10K; 1%; +/- 100PPM/DEGC; 0.0630W	
38	RISENA, RISENB	-	2	ERA-2AEB3741X	PANASONIC	3.74K	RES; SMT (0402); 3.74K; 0.10%; +/- 25PPM/DEGC; 0.0630W	
39	ROFF	-	1	ERJ-2RKF3002	PANASONIC	30K	RES; SMT (0402); 30K; 1%; +/- 100PPM/DEGC; 0.1000W	
40	RREF	-	1	ERJ-2RKF1802	PANASONIC	18K	RES; SMT (0402); 18K; 1%; +/- 100PPM/DEGC; 0.1000W	
41	SW1	-	1	NK236	APEM	NK236	SWITCH; SPDT; THROUGH HOLE; 12V; 0.5A; NK SERIES; RCOIL= OHM; RINSULATION= OHM; APEM	
42	SW2	-	1	PTS645SK50SMTR92LFS	C&K COMPONENTS	PTS645SK50SMTR92LFS	SWITCH; SPST; SMT; STRAIGHT; 12V; 0.05A; TACT SWITCHES; RCOIL=0.1 OHM; RINSULATION=100G OHM	
43	TP1, TP5, TP8	-	3	5010	KEYSTONE	N/A	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; RED; PHOSPHOR BRONZE WIRE SIL;	
44	TP2, TP6, TP7, TP22-TP24	-	6	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;	
45	TP3, TP4, TP9, TP11-TP21, TP25, TP26	-	16	5012	KEYSTONE	N/A	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; WHITE; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;	
46	U1	-	1	MAX22210_TQFN	ANALOG DEVICES	MAX22210_TQFN	EVKIT PART - IC; MAX22210; 36V; 3.8A STEPPER MOTOR DRIVER WITH INTEGRATED CURRENT SENSE AND 128 USTEPS INDEXER; PACKAGE OUTLINE DRAWING: 21-0140; PACKAGE LAND PATTERN: 90-0013; TQFN32-EP	
47	U2	-	1	MAX6765TTSD2+	ANALOG DEVICES	MAX6765TTSD2+	IC; VREG; AUTOMOTIVE MICROPOWER LINEAR REGULATOR WITH SUPERVISOR; TDFN6-EP	
48	U3	-	1	DSPIC33CH512MP508T-I/PT	MICROCHIP	DSPIC33CH512MP508T-I/PT	IC; CTRL; 16-BIT DIGITAL SIGNAL CONTROLLERS WITH HIGH-RESOLUTION PWM AND CAN FLEXIBLE DATA-RATE; TQFP80-EP	
49	U4	-	1	MCP2221A-I/ST	MICROCHIP	MCP2221A-I/ST	IC; CONV; USB 2.0 TO I2C/UART PROTOCOL CONVERTER WITH GPIO; TSSOP14	
50	U5	-	1	SI8422AB-D-IS	SILICON LABORATORIES	SI8422AB-D-IS	IC; DISO; LOW-POWER; SINGLE AND DUAL-CHANNEL DIGITAL ISOLATORS; NSOIC8	
51	U6	-	1	MIC5528-3.3YMT	MICROCHIP	MIC5528-3.3YMT	IC; VREG; HIGH PERFORMANCE 500 MA LDO; TDFN6-EP	
52	Y1	-	1	DSC6011JI1B-008.0000	MICROCHIP	DSC6011JI1B-008.0000	OSCILLATOR; SMT 2.5X2.0; 8MHZ; +/- 50PPM;	
53	PCB	-	1	MAX22210	ANALOG DEVICES	PCB	PCB:MAX22210	-
54	C5	DNP	0	GRM155R61C104KA88	MURATA	0.1UF	CAP; SMT (0402); 0.1UF; 10%; 16V; X5R; CERAMIC	DNI
55	C6, C7	DNP	0	C0402X7R500-222KNE; GRM155R71H222KA01; C1005X7R1H222K050BA	VENKEL LTD.;MURATA;TDK	2200PF	CAP; SMT (0402); 2200PF; 10%; 50V; X7R; CERAMIC	DNI
56	C44	DNP	0	C0603C473K3RAC; GRM188R71E473KA01	KEMET;MURATA	0.047UF	CAP; SMT (0603); 0.047UF; 10%; 25V; X7R; CERAMIC;	
57	R3, R5	DNP	0	CRCW06030000ZS; MCR03EZPJ000; ERJ-3GEY0R00; CR0603AJ/-000ELF	VISHAY;ROHM SEMICONDUCTOR; PANASONIC;BOURNS	0	RES; SMT (0603); 0; JUMPER; JUMPER; 0.1000W	DNI
58	R6	DNP	0	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	
59	R16	DNP	0	CRCW12060000ZS	VISHAY DALE	0	RES; SMT (1206); 0; JUMPER; JUMPER; 0.2500W	
TOTAL			173					

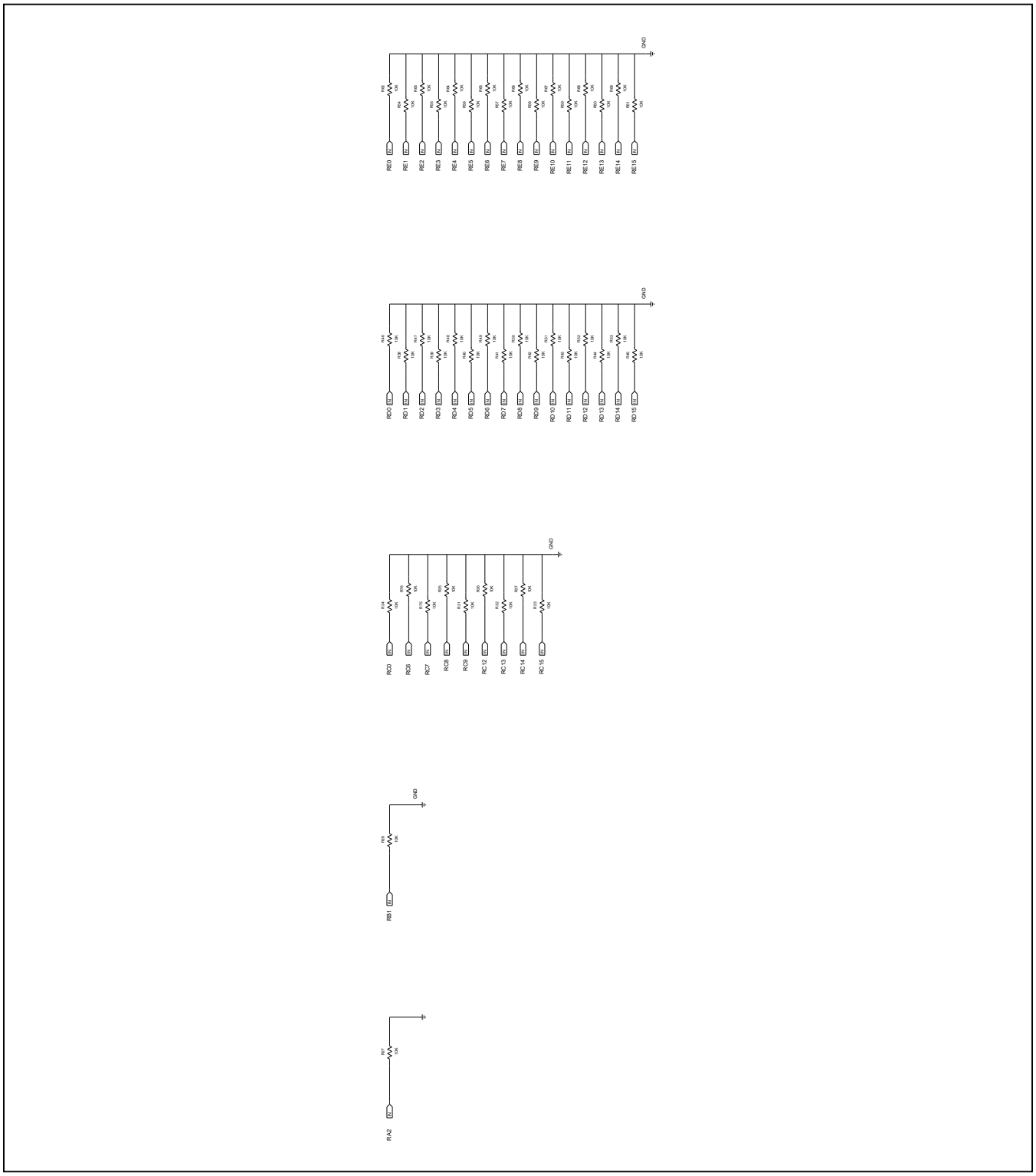
MAX22210 EV Kit Schematic



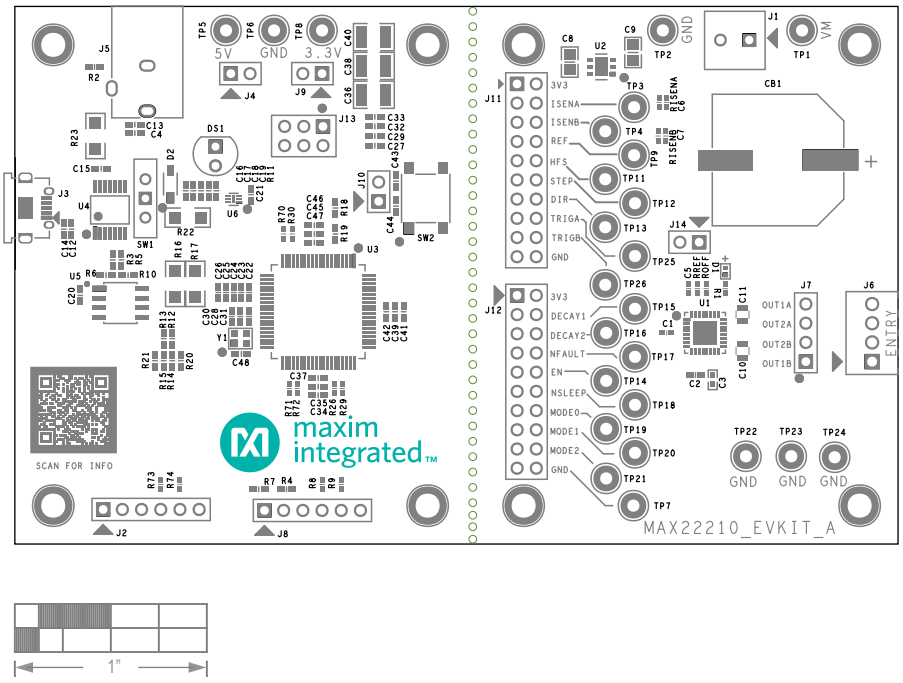
MAX22210 EV Kit Schematic (continued)



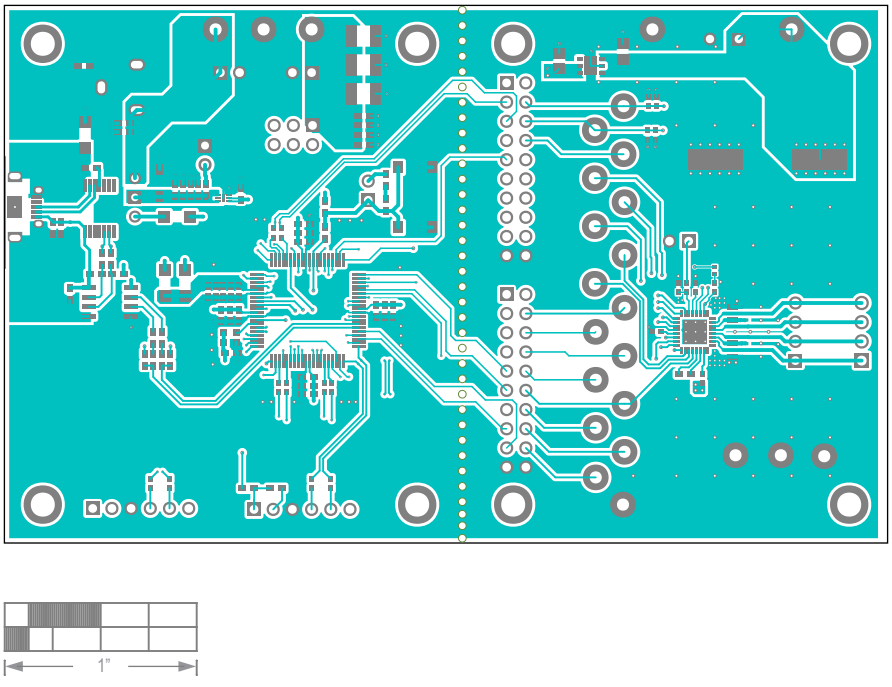
MAX22210 EV Kit Schematic (continued)



MAX22210 EV Kit PCB Layout

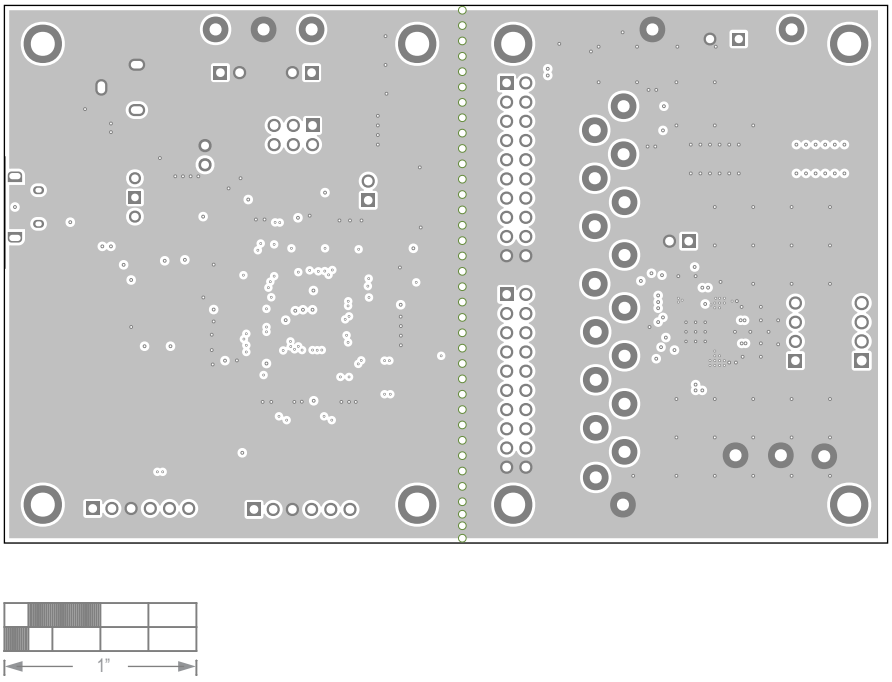


MAX22210 EV Kit PCB Layout—Top Silkscreen

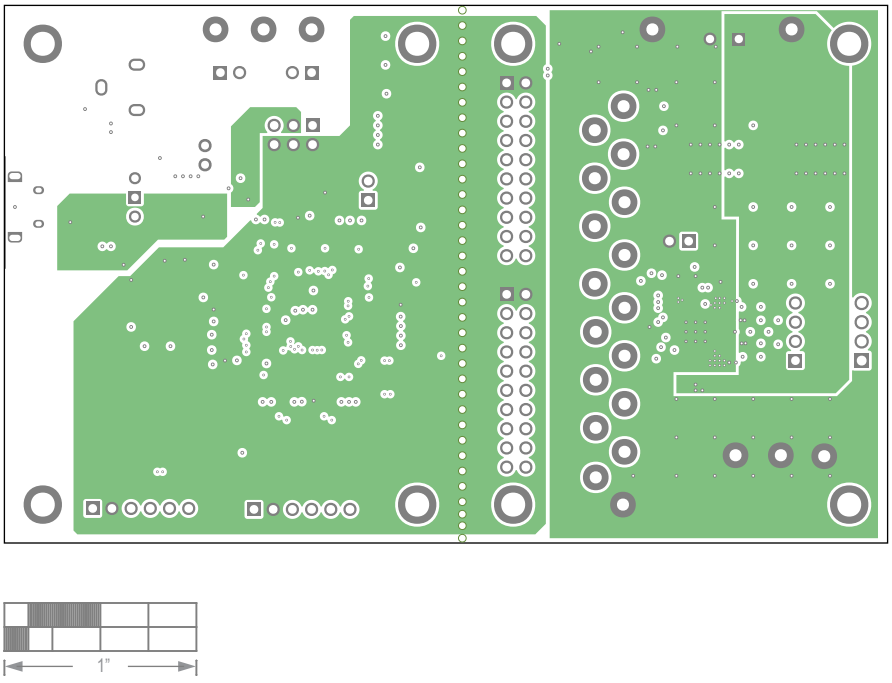


MAX22210 EV Kit PCB Layout—Top Layer

MAX22210 EV Kit PCB Layout (continued)

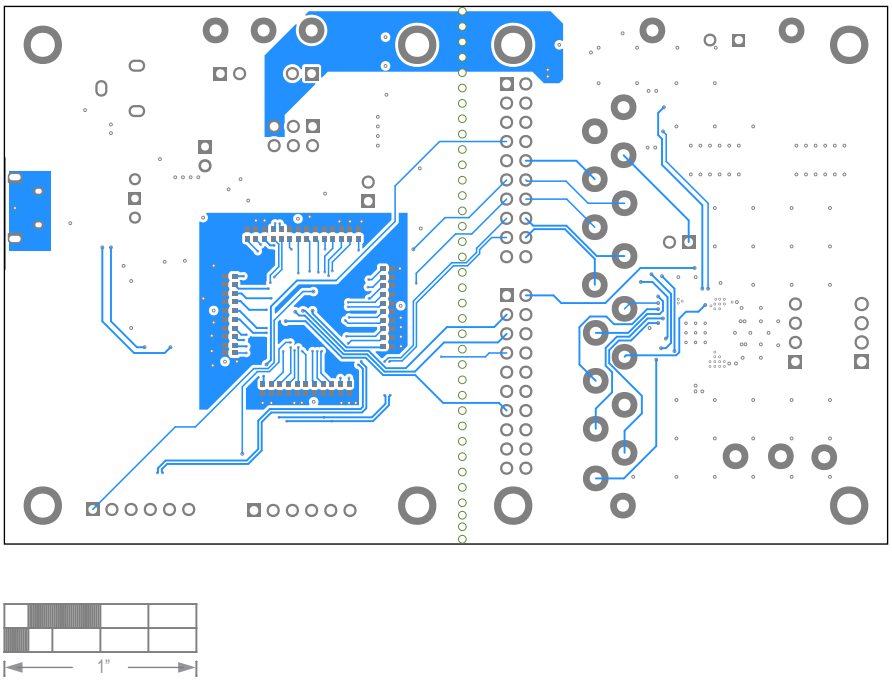


MAX22210 EV Kit PCB Layout—GND Plane

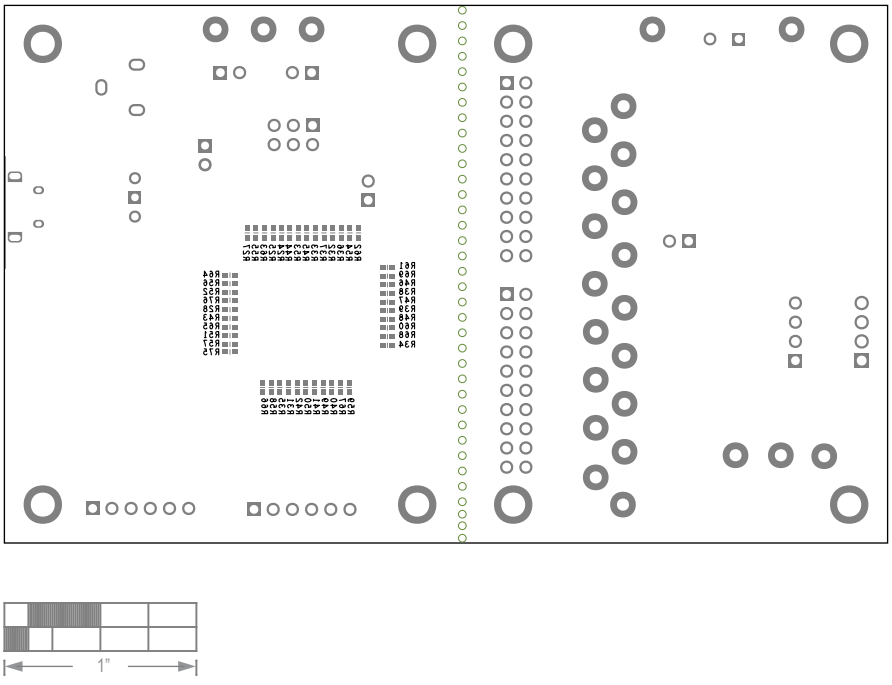


MAX22210 EV Kit PCB Layout—Power Plane

MAX22210 EV Kit PCB Layout (continued)



MAX22210 EV Kit PCB Layout—Bottom Layer



MAX22210 EV Kit PCB Layout—Bottom Silkscreen

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	8/23	Initial release	—