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MAX77643 Evaluation Kit

Evaluates: MAX77643

General Description

The MAX77643 evaluation kit (EV kit) allows for easy experimentation with various MAX77643 features, including the SIMO buck-boost regulator, linear regulators, on/off controller, and I²C interface.

The Windows®-based software provides a user-friendly graphical interface as well as a detailed register-based interface to exercise the features of the MAX77643.

Ordering Information appears at end of data sheet.

Benefits and Features

- Easy to use
- GUI-Driven I²C Interface
- GPIO LEDs
- Assembled and Fully Tested
- On-Board Electronic Loads
 - Steady-State, Transient, and Random Modes
- Evaluation of Push-Button and Slide-Switch On-Key Options

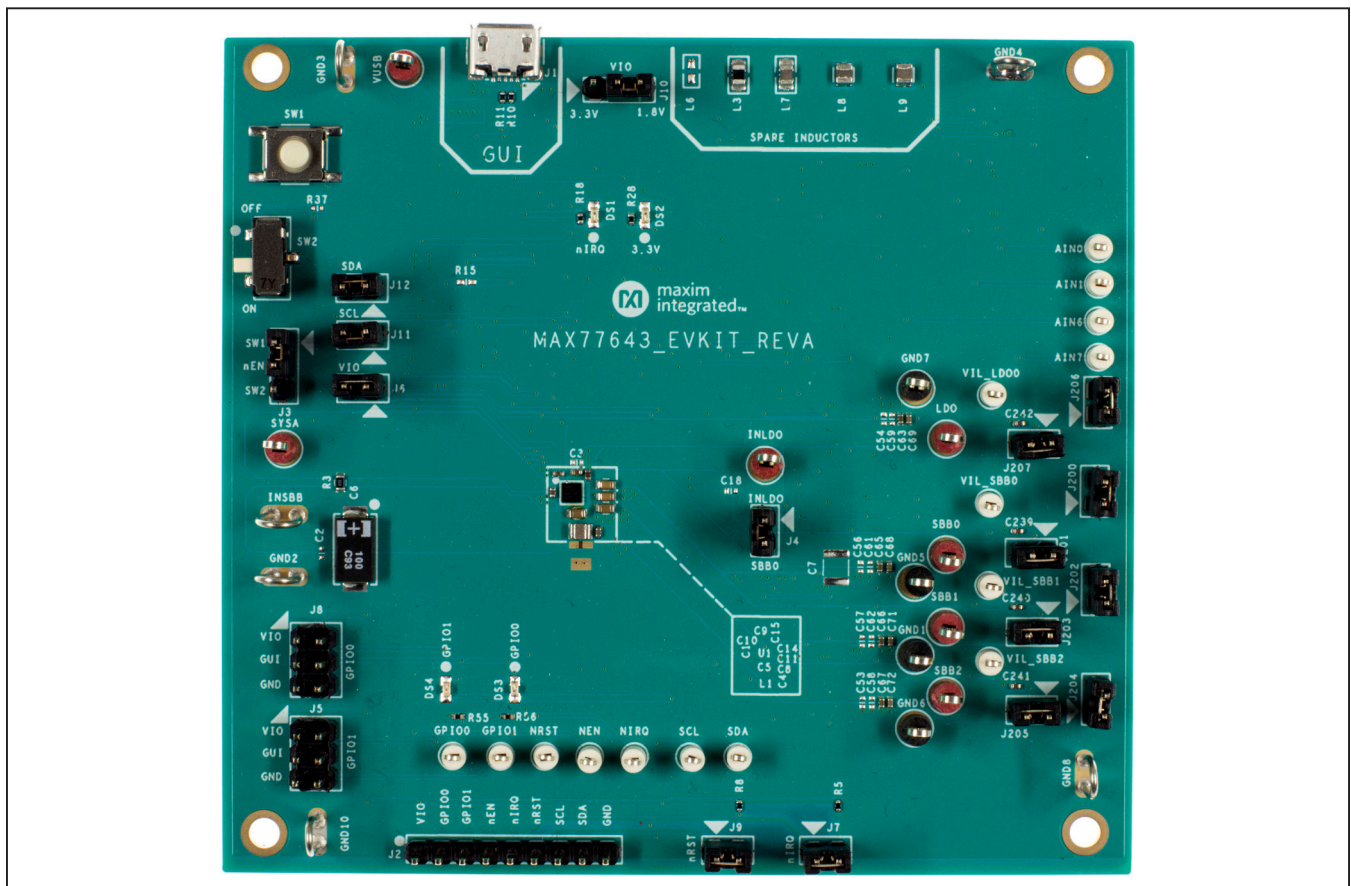


Figure 1. MAX77643 EV Kit Board

Windows is a registered trademark and registered service mark of Microsoft Corporation.

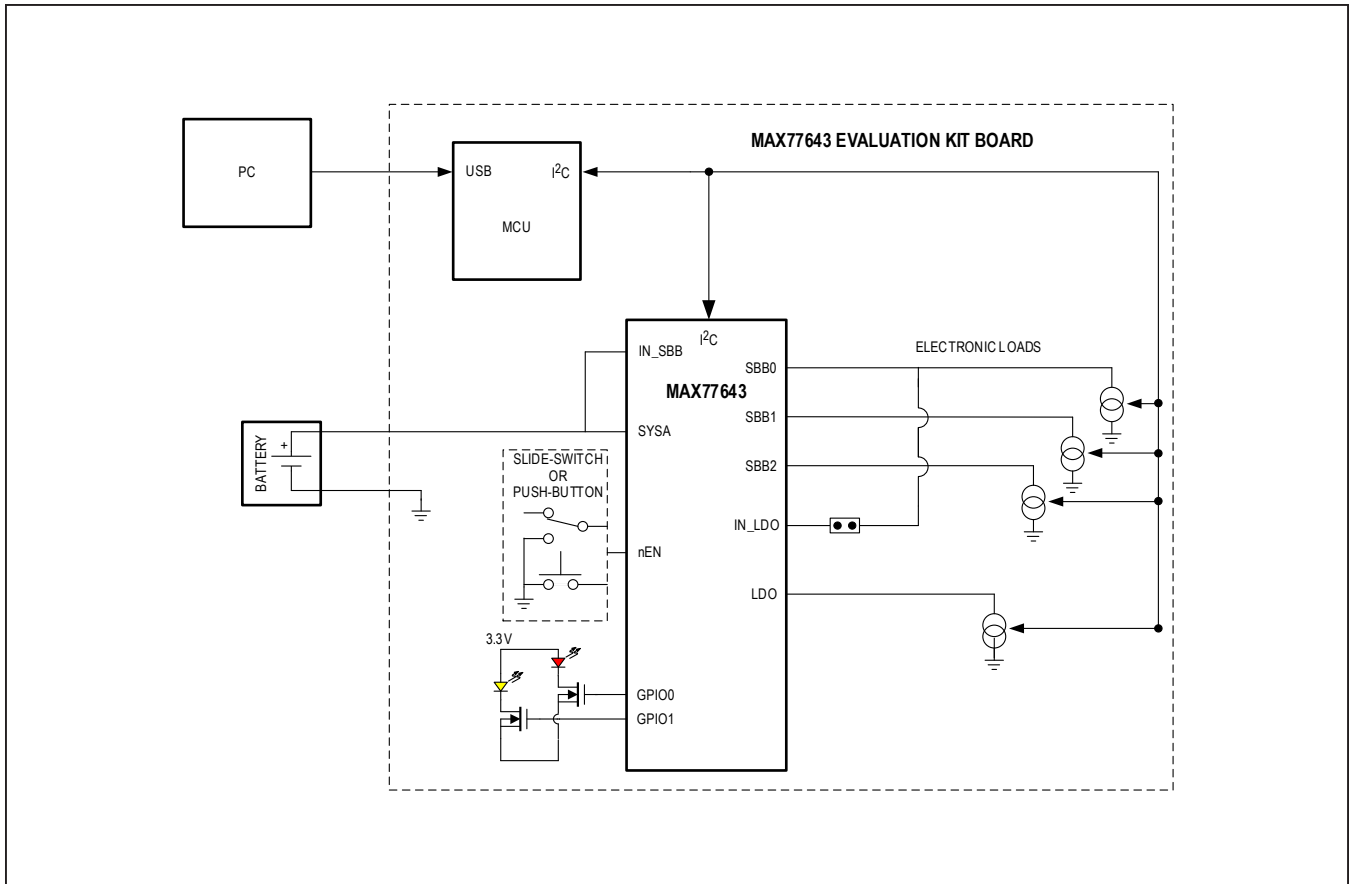


Figure 2. EV Kit Simple Block Diagram

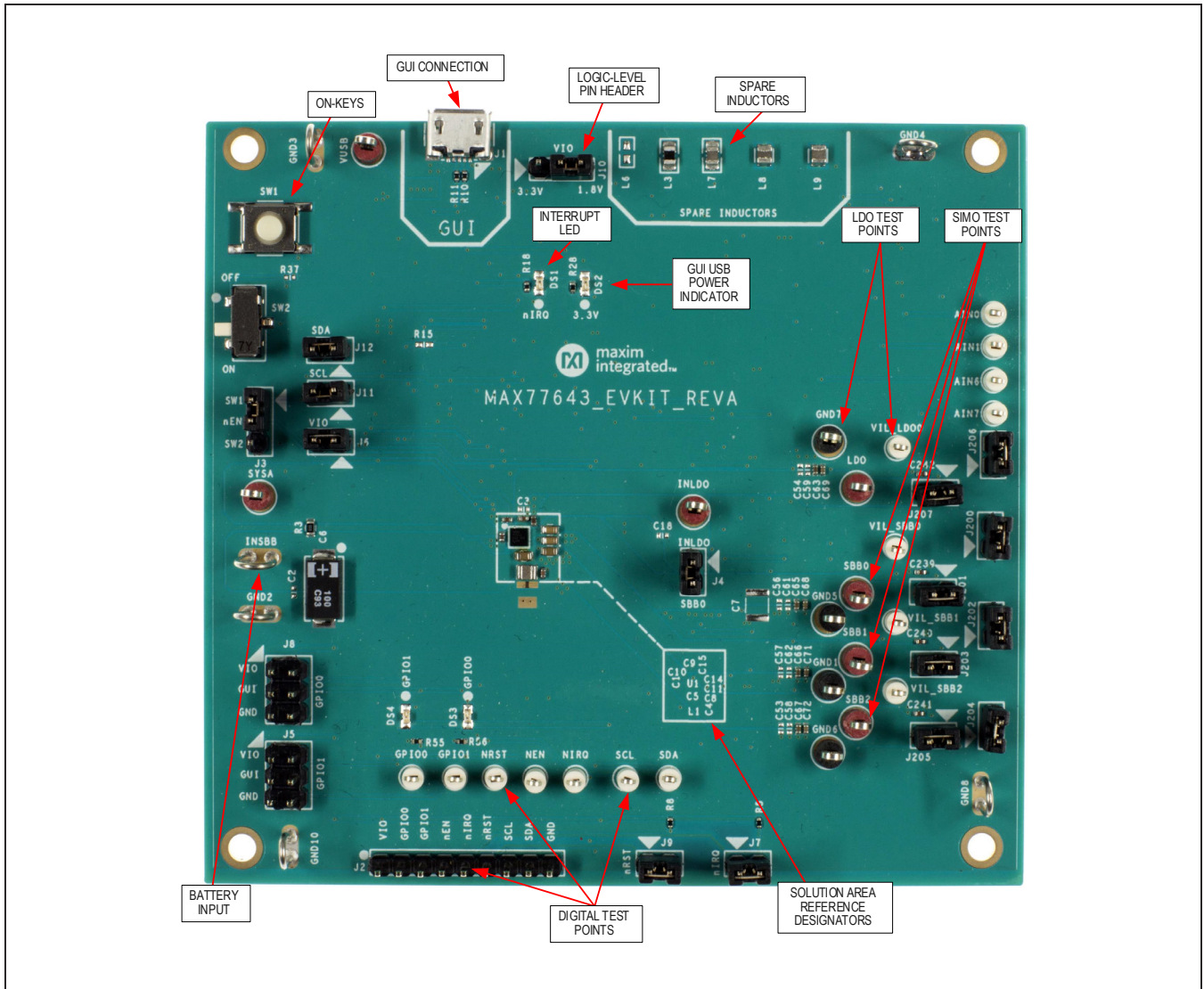


Figure 3. MAX77643 EV Kit Top View

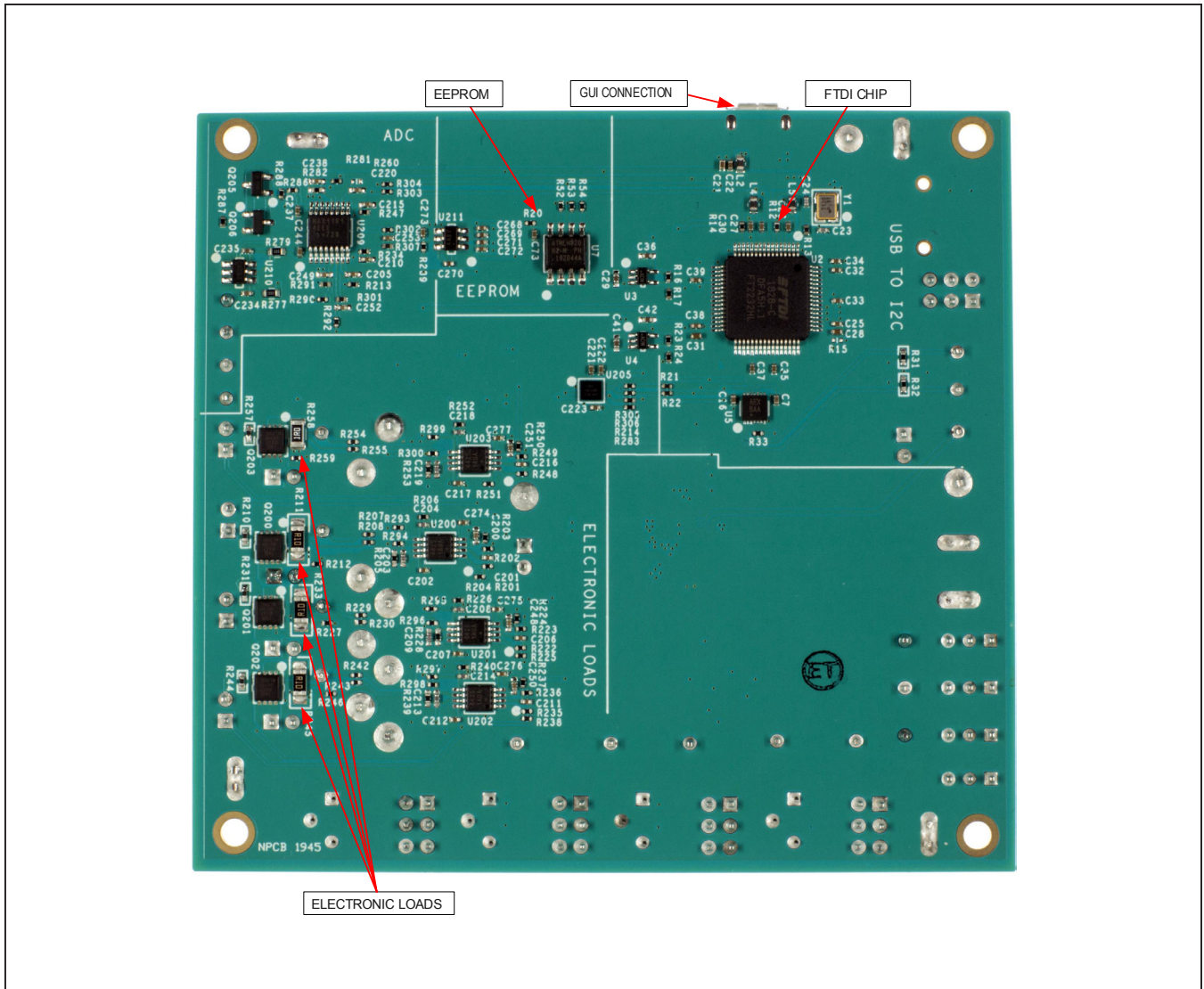


Figure 4. MAX77643 EV Kit Bottom View

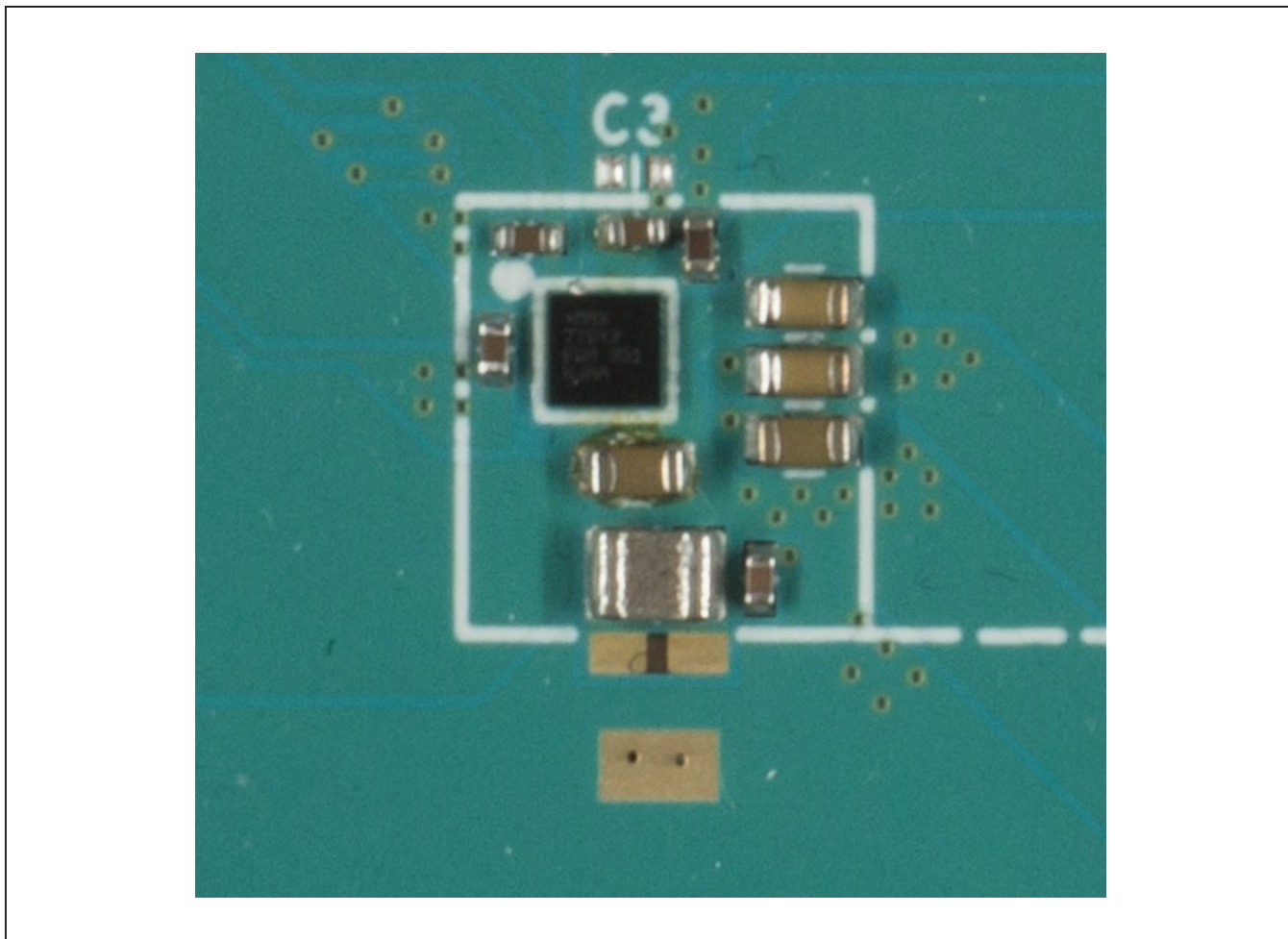


Figure 5. MAX77643 EV Kit Solution Area

MAX77643 EV Kit Files

FILE	DESCRIPTION
MAX77643_SOLDERDOWN_EVKIT_REVA_BOM_2019-10-31.xlsx	BOM
MAX77643_SOLDERDOWN_EVKIT_REVA_SCH_2019-10-31.pdf	Schematic
MAX77643_SOLDERDOWN_EVKIT_REVA_PCB_2019-10-31.pdf	Layout

Quick Start

Follow this procedure to become familiar with the EV kit.

Note: In the following sections, software-related items are identified by bolding. Text in **bold and underlined** refers to items directly from the EV kit software. Text in *italics and underlined* refers to items from the Windows operating system.

Required Equipment

- MAX77643 EV Kit
- MAX77643 EV Kit GUI
- Windows-Based PC
- Power Supply
- Ammeter
- DVM
- Micro-USB Cable

Procedure

- 1) Install the GUI software. Visit the product webpage at <http://www.maximintegrated.com/MAX-77643evkit> and navigate to Design Resources to download the latest version of the EV kit software. Save the EV kit software to a temporary folder and extract the files from the ZIP file.
- 2) Install EV kit shunts according to [Table 1](#).
- 3) Connect a Micro-B USB cable between the EV kit USB port labelled “GUI” and the Windows-based PC.
- 4) Apply a 3.7V supply (set for 100mA current limit) through an ammeter (set for 10mA range) across the V_{BATT} and GND2 terminals of the EV kit. Turn the supply on.
- 5) Open the GUI and select **Device**→**Connect** in the upper-left corner. Wait for a **CONNECTED DEVICE LIST** window to pop up, and then press the **Connect** button.
- 6) Press the on-key (SW1).
- 7) Measure SBB0, SBB1, and SBB2 with a voltmeter to ensure that the device is on.

This concludes the Quick Start procedure. Users are encouraged to explore the device and its register settings with the GUI. For guidance on configuring the GPIOs, see the [GPIO Quick Start](#) section. During general device evaluation, set the ammeter range to greater than or equal to 1A to minimize the impact of its series resistance.

For more information on the GUI, see the Software section.

Table 1. Default Shunt Positions and Jumper Descriptions

REFERENCE DESIGNATOR	DEFAULT POSITION	FUNCTION
J3	1-2	1-2: Connects nEN to SW1 (Push-button). 2-3: Connects nEN to SW2 (Slide-switch).
J4	1-2	1-2: Connects INLDO to SBB0.
J5	3-4	1-2: Connects GPIO0 to V _{IO} . 3-4: Connects GPIO0 to GUI GPIO0 (See the GPIO Quick Start section for more details) 5-6: Connects GPIO0 to ground.
J8	3-4	1-2: Connects GPIO1 to V _{IO} . 3-4: Connects GPIO1 to GUI GPIO0 (See the GPIO Quick Start section for more details) 5-6: Connects GPIO1 to ground.
J6	1-2	1-2: Connects V _{IO} pin to V _{IO} .
J7	1-2	1-2: Connects NIRQ's open drain output to V _{IO} through a 100kΩ pullup resistor.
J9	1-2	1-2: Connects NRST's open drain output to V _{IO} through a 10kΩ pullup resistor.
J10	2-3	1-2: Connects V _{IO} to an on-board 3.3V LDO (used for 3.3V logic). 2-3: Connects V _{IO} to an on-board 1.8V LDO (used for 1.8V logic).
J11	1-2	1-2: Connects SCL to the on-board FT2232 UART through the MAX3395 level shifter.
J12	1-2	1-2: Connects SDA to the on-board FT2232 UART through the MAX3395 level shifter
J201	1-2	1-2: Connects SBB0 to the on-board electronic load.

Table 1. Default Shunt Positions and Jumper Descriptions

REFERENCE DESIGNATOR	DEFAULT POSITION	FUNCTION
J203	1-2	1-2: Connects SBB1 to the on-board electronic load.
J205	1-2	1-2: Connects SBB2 to the on-board electronic load.
J207	1-2	1-2: Connects LDO to the on-board electronic load.
J200	1-2	1-2: Connects the gate of the Q200 load FET to the U200 amplifier.
J202	1-2	1-2: Connects the gate of the Q201 load FET to the U201 amplifier.
J204	1-2	1-2: Connects the gate of the Q202 load FET to the U202 amplifier.
J206	1-2	1-2: Connects the gate of the Q203 load FET to the U203 amplifier.

GPIO Quick Start

There are two GPIOs (GPIO0 and GPIO1) that can serve either as standard GPIOs or in their alternate functionalities. On-board LEDs light up depending on the GPIO state. To get started with the GPIOs, follow the procedure below:

- 1) In the **GPIO** tab of the GUI, set GPIO0's Alternate Mode to 0 (SBB is Set by TV_SBB0), and GPIO1's Alternate Mode to 0 (Standard GPIO).
- 2) Set the Direction to 0 (Output).
- 3) Set the Driver Type to 1 (Push-Pull). If using 0 (Open-Drain), make sure there is a pullup resistor on the GPIO pin.
- 4) Click the **Write** button.
- 5) Set the Data Output to 1 (Logic High) and click the **Write** button. The on-board LED should light up.
- 6) Now change the Direction to 1 (Input) and click the **Write** button.
- 7) Install the appropriate shunt on J5 or J8 to connect the desired GPIO to the GUI GPIO.
- 8) From the GUI, toggle the EV Kit **GPIO**, clicking **Write** after each time. Click **Read** to observe the **GPIO Input Value** update.

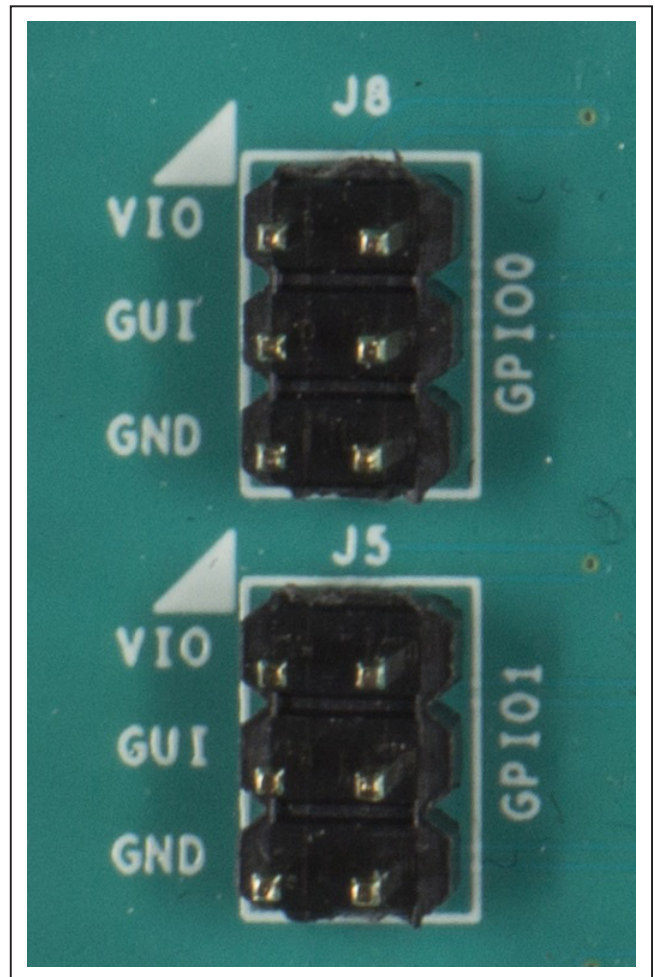


Figure 6. GPIO Headers

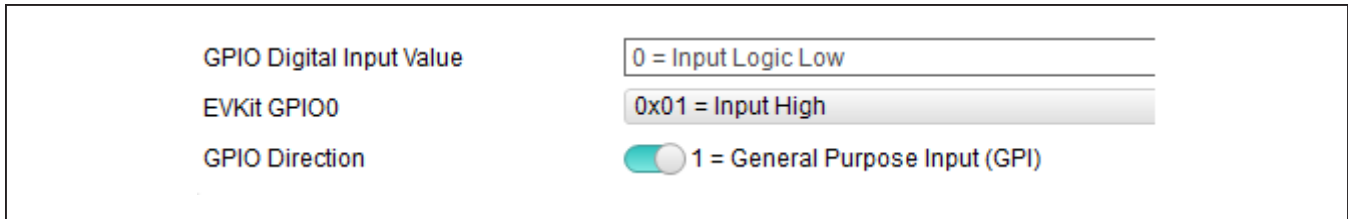


Figure 7. GPIO Input Value Box in GUI

Detailed Description of Hardware (or Software)

On-Key Options

For applications that require the IC to enable with a user-interactable switch, the EV kit comes with two common types: the push-button (momentary) and the slide-switch (persistent). The active-low enable pin (nEN) has an internal pullup resistor. Select which type of switch to use with jumper J3. Refer to the MAX77643 data sheet for more information on configuring the IC for momentary or persistent switches.

Changing the Output Voltages

The GUI allows the user to change the output voltages of the SIMO and the LDO. Navigate to the “SIMO Buck-Boost” section or the “LDO” section in the GUI. Drag the “Target Output Voltage” slider until the desired output voltage is reached and click **Write**.

Electronic Load

The EV kit comes with an electronic load allowing the user to evaluate the SIMO and LDO load current capabilities. On-board circuits set the load current through the I2C interface. J201, J203, J205, J207 are used to connect the load to the output of the SBB0, SBB1, SBB2, and LDO respectively. To exercise the load transient response, remove J200 (for SBB0), J202 (for SBB1), J204 (for SBB2), and J206 (for LDO), and connect a signal generator to the gate of the load MOSFET (pin 2 of the respective header). Drive the gate with a signal between 1V (off) and 3V (fully on) to apply transients to the output of the SIMO or LDO. Note that there are 0.1Ω sense resistors with test points (called VIL_SBB0, VIL_SBB1, and VIL_SBB2) and a 1Ω sense resistor with a test point (called VIL_LDO) for a 10:1 and 1:1 conversion of load current to voltage.

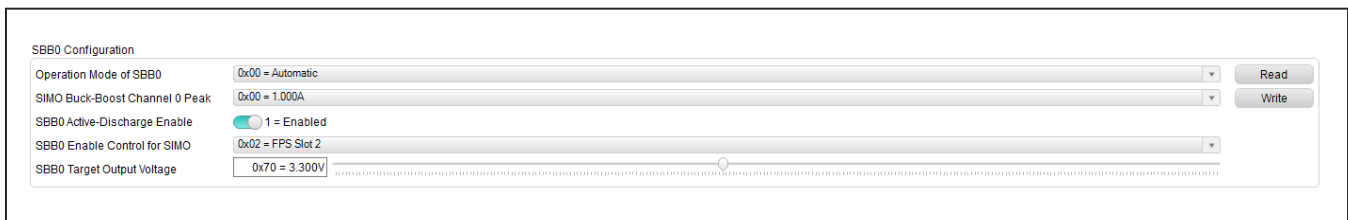


Figure 8. SIMO Output Voltage Section



Figure 9. LDO Output Voltage Section

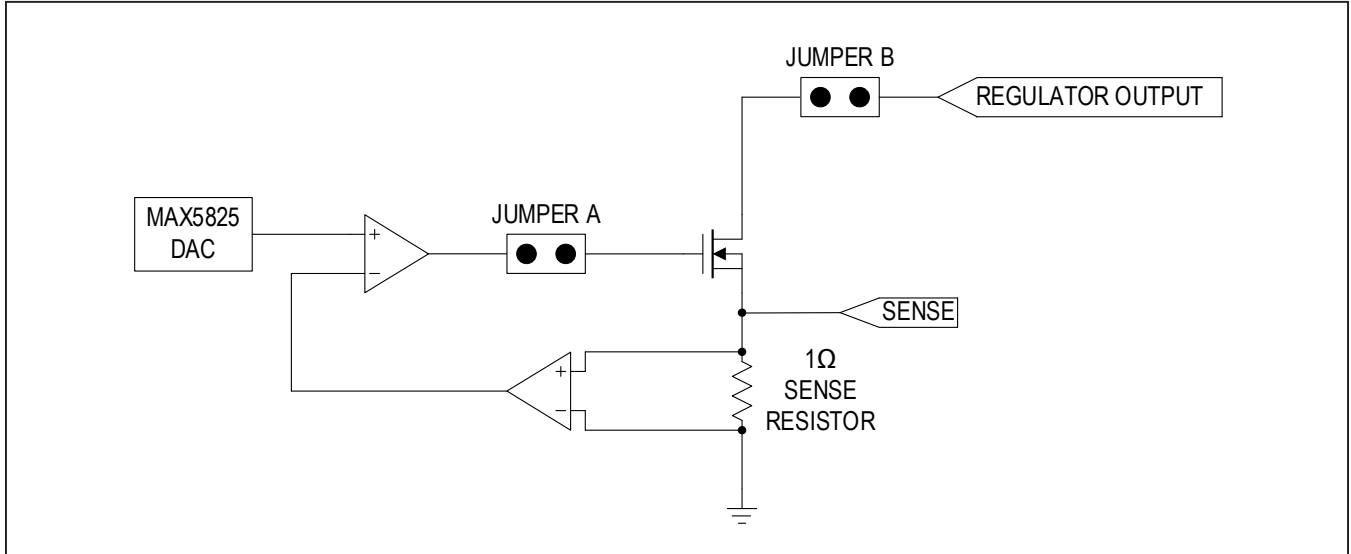


Figure 10. Electronic Load Block Diagram

The GUI interface for the MAX77643 EV Kit is shown. It features a sidebar with navigation links: Global Resources, Interrupts / Status, Watchdog Timer, GPIO, SIMO Buck-Boost, LDO, FPS Configuration, Load Control, ADC, and Register Map. The main area is divided into three sections:

- Device Identification:** Includes a 'Write' and 'Read Once' button. The 'Chip Identification Code' is displayed as 0x01 = CID, with a 'Read' button.
- Event Recorder Flag:** Includes a 'Start Auto Read' button and a frequency selector set to 'Every 500 ms'. It lists several flags: Watchdog Timer Reset Flag, Watchdog Timer OFF Flag, Software Cold Reset Flag, Software Off Flag, Manual Reset Timer, In Domain Undervoltage Lockout, In Domain Overvoltage Lockout, and Thermal Overload. Each flag has a 'Read' button and a status field showing '0 = Not Occurred'.
- Global Configuration:** Includes a 'Read' and 'Write' button. It lists various settings:
 - nEN Internal Pullup Resistor: 1 = Weak Internal nEN Pullup (10MΩ)
 - Sets the Manual Reset Time: 1 = 4s
 - Main Bias Power Mode: 1 = Auto Power Mode
 - nEN Input (On-Key) Default:
 - Debounce Timer Enable for the nEN: 0 = 500µs Debounce
 - Software Reset Functions:
 - SBB Shutdown from SBB Fault: 0 = Not Shut Off When a SBB Fault Occurs
 - Auto Wake Up Timer:

Figure 11. MAX77643 EV Kit GUI

Installation

Visit the product webpage at www.maximintegrated.com/MAX77643evkit and navigate to Design Resources to download the latest version of the EV kit software. Save the EV kit software to a temporary folder and decompress the ZIP file.

Windows Drivers

Upon connection of a Micro-USB cable between the PC and the EV kit for the first time, wait a few minutes for Windows to automatically install drivers.

Graphical User Interface Details (GUI)

The GUI drives I²C communication with the EV kit. Every control in the GUI (excluding the **Load Control** tab) corre-

sponds directly to a register within the MAX77643. Hover the cursor over the control names for a description of that register. Refer to the MAX77642/MAX77643 data sheet for the complete register map.

Load Control Tab

The **Load Control** tab contains controls for load currents on the regulator outputs. The GUI is capable of setting steady-state, transient, and random load currents. To set a load current, use the slider bar or text field to input a value (mA) and check the **Enable** box. Shuffle through the modes to exercise different load conditions.

The offset and gain values are set by Maxim and do not need to be altered.

Ordering Information

PART	IC	TYPE
MAX77643EVKIT#	MAX77643AANA+	EV Kit

#Denotes RoHS compliance.

MAX77643 EV Kit Bill of Materials

ITEM	REF_DES	DN/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
1	AIN0, AIN1, AIN6, AIN7, GPIO0, GPIO1, NEN, NIRQ, NRST, SCL, SDA, VIL_LDO0, VIL_SBB0-VIL_SBB2	—	15	5002	KEYSTONE	N/A	TEST POINT; PIN DIA = 0.1IN; TOTAL LENGTH = 0.3IN; BOARD HOLE = 0.04IN; WHITE; PHOSPHOR BRONZE WIRE SILVER;
2	C1, C9, C10, C16, C29, C36, C40-C42, C239-C242, C269-C271	—	16	C0402C105K8PAC; CC0402KRX5R6BB105	KEMET;YAGEO	1µF	CAPACITOR; SMT (0402); CERAMIC; 1µF; 10V; TOL = 10%; TG = -55° C TO +85° C; TC = X5R
3	C4	—	1	C0402C103K5FRAC; GRM155R71H103KA88; C1005X7R1H103K050BE; CL05B103KB5NNN; UMK105B7103KV	KEMET;MURATA; TDK; SAMSUNG ELECTRONIC; TAYO YUDEN	0.01µF	CAPACITOR; SMT (0402); CERAMIC; 0.01µF; 50V; TOL = 10%; TG = -55° C TO +125° C; TC = X7R
4	C5, C8, C11, C14	—	4	C1608X5R1A226M080AC; GRM188R61A226ME15	TDK; MURATA	22µF	CAPACITOR; SMT (0603); CERAMIC; 22µF; 10V; TOL = 20%; TG = -55° C TO +85° C; TC = X5R
5	C6	—	1	16TQC100MYF	PANASONIC	100µF	CAPACITOR; SMT (7343); TANTALUM; 100µF; 16V; TOL = 20%; MODEL = TQC SERIES
6	C15	—	1	GRM155R61C225KE44	MURATA	2.2µF	CAPACITOR; SMT (0402); CERAMIC; 2.2µF; 16V; TOL = 10%; TG = -55° C TO +85° C; TC = X5R
7	C21, C28, C31	—	3	C1005X5R1A475K050	TDK	4.7µF	CAPACITOR; SMT (0402); CERAMIC; 4.7µF; 10V; TOL = 10%; TG = -55° C TO +85° C; TC = X5R
8	C22, C25-C27, C30, C32-C35, C37-C39, C43, C44, C63, C65-C67, C73, C202, C207, C212, C217, C221-C223, C234, C235, C237, C244, C268, C272-C277	—	37	GRM155R71E104KE14; C1005X7R1E104K050BB; TMK105B7104KVH; CGJ2B3X7R1E104K050BB	MURATA;TDK; TAYO YUDEN;TDK	0.1µF	CAP; SMT (0402); 0.1µF; 10%; 25V; X7R; CERAMIC
9	C23, C24	—	2	GRM0335C1H270JA01	MURATA	27PF	CAP; SMT (0201); 27PF; 5%; 50V; C0G; CERAMIC
10	C68, C69, C71, C72	—	4	CL05B103KP5NNN	SAMSUNG ELECTRONICS	0.01µF	CAPACITOR; SMT (0402); CERAMIC; 0.01µF; 10V; TOL = 10%; TG = -55° C TO +125° C; TC = X7R
11	C200, C205, C210, C215, C220, C238, C248-C253	—	12	C0402C472K5FRAC; GRM155R71H472KA01; C1005X7R1H472K050BA	KEMET; MURATA;TDK	4700PF	CAPACITOR; SMT (0402); CERAMIC; 4700PF; 50V; TOL = 10%; TG = -55° C TO +125° C; TC = X7R-
12	C201, C206, C211, C216	—	4	C0402H102J5GAC	KEMET	1000PF	CAPACITOR; SMT (0402); CERAMIC; 1000PF; 50V; TOL = 5%; MODEL = HT SERIES; TG = -55° C TO +200° C; TC = C0G
13	C203, C204, C208, C209, C213, C214, C218, C219	—	8	C0402C180J5GAC; GRM1555C1H180JA01; C1005C0G1H180J050BA	KEMET; MURATA;TDK	18PF	CAPACITOR; SMT (0402); CERAMIC; 18PF; 50V; TOL = 5%; TG = -55° C TO +125° C; TC = C0G
14	DS1-DS3	—	3	LTST-C190CKT	LITE-ON ELECTRONICS INC.	LTST-C190CKT	DIODE; LED; STANDARD; RED; SMT (0603); PIV = 5.0V; IF = 0.04A; -55° C TO +85° C
15	DS4	—	1	LTST-C190YKT	LITE-ON ELECTRONICS INC.	LTST-C190YKT	DIODE; LED; STANDARD; YELLOW; SMT (0603); PIV = 5.0V; IF = 0.02A; -55° C TO +85° C
16	GND1, GND5-GND7	—	4	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;
17	GND2-GND4, GND8, GND10, INSB	—	6	9020 BUSS	WEICO WIRE	MAXIMPAD	EVK KIT PARTS; MAXIM PAD; WIRE; NATURAL; SOLID; WEICO WIRE; SOFT DRAWN BUS TYPE-S; 20AWG
18	INLDO, LDO, SBB0-SBB2, SYSA, VUSB	—	7	5010	KEYSTONE	N/A	TEST POINT; PIN DIA = 0.125IN; TOTAL LENGTH = 0.445IN; BOARD HOLE = 0.063IN; RED; PHOSPHOR BRONZE WIRE SIL;
19	J1	—	1	10118193-0001LF	FCI CONNECT	10118193-0001LF	CONNECTOR; FEMALE; SMT; MICRO USB B TYPE RECEPTACLE; RIGHT ANGLE; 5PINS
20	J2	—	1	PBC09SAAN	SULLINS ELECTRONICS CORP	PBC09SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 9PINS; -65° C TO +125° C

MAX77643 EV Kit Bill of Materials (continued)

ITEM	REF_DES	DN/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
21	J3	—	1	TSW-103-07-T-S	SAMTEC	TSW-103-07-T-S	CONNECTOR; THROUGH HOLE; TSW SERIES; SINGLE ROW; STRAIGHT; 3PINS
22	J4, J6, J7, J9, J11, J12, J200-J207	—	14	TSW-102-07-T-S	SAMTEC	TSW-102-07-T-S	CONNECTOR; THROUGH HOLE; TSW SERIES; SINGLE ROW; STRAIGHT; 2PINS; -55°C TO +105°C
23	J5, J8	—	2	TSW-103-07-L-D	SAMTEC	TSW-103-07-L-D	CONNECTOR; MALE; THROUGH HOLE; THROUGH HOLE 0.025 POST HEADER; STRAIGHT; 6PINS
24	J10	—	1	PEC03SAAN	SULLINS ELECTRONICS CORP	PEC03SAAN	EVKIT PART-CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 3PINS; -65°C TO +125°C;
25	L1, L9	—	2	DFE201612E-1R5M	MURATA	1.5µH	INDUCTOR; SMT (0806); METAL; 1.5µH; 20%; 2.30A
26	L2, L4, L5	—	3	BLM18AG601SN1	MURATA	600	INDUCTOR; SMT (0603); FERRITE-BEAD; 600; TOL = ±; 0.5A
27	L3	—	1	DFE201210S-2R2M = P2	MURATA	2.2µH	EVKIT PART-INDUCTOR; SMT (0805); MAGNETICALLY SHIELDED; 2.2µH; TOL = ±20%; 1.8A
28	L7	—	1	DFE201210U-1R5M = P2	TOKO	1.5µH	INDUCTOR; SMT (0805); METAL ALLOY CHIP; 1.5µH; TOL = ±20%; 1.9A
29	L8	—	1	DFE201612E-1R0M	MURATA	1µH	INDUCTOR; SMT (0806); WIREWOUND CHIP; 1µH; TOL = ±20%; 2.9A
30	Q3	—	1	EM6K6	ROHM SEMICONDUCTOR	EM6K6	TRAN; NCH; DUAL; MOSFET; SOT563-6; PD-(0.15W); I(±0.3A); V-(20V)
31	Q200-Q203	—	4	IRFHM8337TRPBF	INTERNATIONAL RECTIFIER	IRFHM8337TRPBF	TRAN; HEXFET POWER MOSFET; NCH; PQFN8; PD-(2.8W); I(18A); V-(30V)
32	Q205	—	1	FDN360P	FAIRCHILD SEMICONDUCTOR	FDN360P	TRANSISTOR, MOSFET P-CHANNEL, SUPERSOT-3, PD = 0.5W, ID = -2.0A, VDSS = -30V, VGS = ±20V
33	Q206	—	1	2N7002; 2N7002; 2N7002; 2N7002	DIODES INCORPORATED; ST MICROELECTRONICS; ON SEMICONDUCTOR; MICRO COMMERCIAL COMPONENTS	2N7002	TRAN; ; NCH; SOT-23; PD-(0.33W); IC-(0.5A); VCEO-(60V); -55°C TO +150°C
34	R3, R277, R279	—	3	CRCW06030000Z0	VISHAY DALE	0	RESISTOR; 0603; 0Ω; 0%; JUMPER; 0.1W; THICK FILM
35	R8, R281, R282, R287, R288	—	5	CRCW040210K0FK; RC0402FR-0710KL	VISHAY DALE; YAGEO PHICOMP	10K	RESISTOR; 0402; 10K; 1%; 100PPM; 0.0625W; THICK FILM
36	R10, R11	—	2	ERJ-2RKF27R0X; RC0402FR-0727RL; CRCW040227R0FK	PANASONIC; YAGEO PHICOMP; VISHAY DALE	27	RESISTOR, 0402, 27Ω, 1%, 100PPM, 0.0625W, THICK FILM
37	R12	—	1	ERJ-2RKF1202	PANASONIC	12K	RESISTOR; 0402; 12KΩ; 1%; 100PPM; 0.1W; THICK FILM
38	R13, R55, R56, R210, R231, R244, R257, R291, R301, R307	—	10	CRCW04021M00FK	VISHAY DALE	1M	RESISTOR; 0402; 1M; 1%; 100PPM; 0.0625W; THICK FILM
39	R14, R207, R208, R229, R230, R242, R243, R254, R255	—	9	ERJ-2RKF1001	PANASONIC	1K	RESISTOR; 0402; 1KΩ; 1%; 100PPM; 0.10W; THICK FILM
40	R16	—	1	CRCW04024752FK; 9C04021A4752FLHF3; CRCW040247K5FK	VISHAY DALE; YAGEO; VISHAY DALE	47.5K	RESISTOR; 0402; 47.5K; 1%; 100PPM; 0.0625W; THICK FILM
41	R5, R214, R283, R17, R24	—	5	CRCW0402100KFK; RC0402FR-07100KL	VISHAY; YAGEO	100K	RESISTOR; 0402; 100K; 1%; 100PPM; 0.0625W; THICK FILM
42	R18, R47	—	2	CRCW0402150RFK; 9C04021A1500FL	VISHAY DALE; YAGEO	150	RESISTOR; 0402; 150Ω; 1%; 100PPM; 0.0625W; THICK FILM
43	R19, R20, R52-R54, R204, R225, R238, R251, R259, R286, R290, R292, R302-R306	—	18	ERJ-2GE0R00	PANASONIC	0	RESISTOR; 0402; 0Ω; 0%; JUMPER; 0.10W; THICK FILM
44	R21, R22	—	2	ERJ-2GEJ472	PANASONIC	4.7K	RESISTOR; 0402; 4.7KΩ; 5%; 200PPM; 0.10W; THICK FILM
45	R23	—	1	CRCW0402169KFK	VISHAY DALE	169K	RESISTOR; 0402; 169KΩ; 1%; 100PPM; 0.063W; THICK FILM
46	R25, R26	—	2	CRCW04022K20FK; RC0402FR-072K2L	VISHAY DALE; YAGEO PHICOMP	2.2K	RESISTOR, 0402, 2.2KΩ, 1%, 100PPM, 0.0625W, THICK FILM

MAX77643 EV Kit Bill of Materials (continued)

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
47	R27	—	1	RC0402FR-0722RL	YAGEO PHYCOMP	22	RESISTOR; 0402; 22Ω; 1%; 100PPM; 0.063W; THICK FILM
48	R28	—	1	CRCW0402470RFK	VISHAY DALE	470	RESISTOR; 0402; 470Ω; 1%; 100PPM; 0.0625W; THICK FILM
49	R46, R48	—	2	CRCW04021R00FK	VISHAY DALE	1	RESISTOR; 0402; 1Ω; 1%; 100PPM; 0.0625W; THICK FILM
50	R49	—	1	CRCW0402120RFK; RC0402FR-07120RL	VISHAY DALE; YAGEO	120	RESISTOR; 0402; 120Ω; 1%; ±100PPM; 0.063W; THICK FILM
51	R201, R222, R235, R248, R289	—	5	9C04021A1000FL; RC0402FR-07100RL	PANASONIC; YAGEO PHYCOMP	100	RESISTOR; 0402; 100Ω; 1%; 100PPM; 0.063W; THICK FILM
52	R202, R223, R236, R249	—	4	CRCW0402680RFK; RC0402FR-07680RL	VISHAY DALE; YAGEO PHICOMP	680	RESISTOR; 0402; 680Ω; 1%; 100PPM; 0.0625W; THICK FILM
53	R203, R205, R206, R224, R226, R228, R237, R239, R240, R250, R252, R253	—	12	ERJ-2RK2002	PANASONIC	20K	RESISTOR; 0402; 20KΩ; 1%; 100PPM; 0.1W; THICK FILM
54	R211, R233, R245	—	3	CRL1206-JW-R100ELF	BOURNS	0.1	RESISTOR; 1206; 0.1Ω; 1%; 200PPM; 0.25W; THICK FILM
55	R212, R213, R227, R234, R246, R247	—	6	CRCW0402787KFK	VISHAY DALE	787K	RESISTOR; 0402; 787KΩ; 1%; 100PPM; 0.063W; METAL FILM
56	R258	—	1	CSR1206FT1R00	STACKPOLE ELECTRONICS INC.	1	RESISTOR; 1206; 1Ω; 1%; 100PPM; 0.5W; THICK FILM
57	R293, R295, R297, R299	—	4	ERJ-2RK4703	PANASONIC	470K	RESISTOR; 0402; 470KΩ; 1%; 100PPM; 0.0625W; THICK FILM
58	R294, R296, R298, R300	—	4	CRCW0402649KFK	VISHAY DALE	649K	RESISTOR; 0402; 649KΩ; 1%; 100PPM; 0.063W; THICK FILM
59	SW1	—	1	EVQ-Q2K03W	PANASONIC	EVQ-Q2K03W	SWITCH; SPST; SMT; 15V; 0.02A; LIGHT TOUCH SWITCH; RCOIL = Ω; RINSULATION = Ω; PANASONIC
60	SW2	—	1	CL-SB-12B-11	NIDEC COPAL ELECTRONICS CORP	CL-SB-12B-11	SWITCH; SPDT; SMT; 12V; 0.2A; CL-SB SERIES; SLIDE SWITCH; RCOIL = 0.05Ω; RINSULATION = 100MΩ
61	U1	—	1	MAX77643AANA+	MAXIM	MAX77643AANA+	EVKIT PART - IC; PMIC; ULTRA-LOW POWER PMIC FEATURING 93% PEAK EFFICIENCY SINGLE-INDUCTOR; 3-OUTPUT BUCK-BOOST; 1-LDO FOR LONG BATTERY LIFE APPLICATIONS; PACKAGE OUTLINE DRAWING: 21-100480; PACKAGE CODE: N252B2+1; WLP25
62	U2	—	1	FT2232HL	FUTURE TECHNOLOGY DEVICES INTL LTD.	FT2232HL	IC; MMRY; DUAL HIGH SPEED USB TO MULTIPURPOSE UART/FIFO; LQFP64
63	U3, U4	—	2	MAX8512EXK+	MAXIM	MAX8512EXK	IC; VREG; Ultra-Low-Noise, High PSRR, Adjustable Vout, SC70-5
64	U5, U6	—	2	MAX3395EETC+	MAXIM	MAX3395EETC	IC; TRANS; 15KV ESD-PROTECTED HIGH-DRIVE CURRENT QUAD-LEVEL TRANSLATOR WITH SPEED-UP CIRCUITRY; TQFN12 4X4
65	U7	—	1	AT24CS02-SSHM	MICROCHIP	AT24CS02-SSHM	IC; EPROM; I2C-COMPATIBLE TWO-WIRE SERIAL EEPROM; 150ML; NSOIC8
66	U200-U203	—	4	MAX44251AUA+	MAXIM	MAX44251AUA+	IC; OPAMP; ULTRA-PRECISION; LOW-NOISE OP AMP; UMAX8
67	U205	—	1	MAX5825AWP+	MAXIM	MAX5825AWP+T	IC; DAC; ULTRA-SMALL; OCTAL CHANNEL; 12-BIT BUFFERED OUTPUT DAC WITH INTERNAL REFERENCE AND I2C INTERFACE; WLP20
68	U209	—	1	MAX11614EEE+	MAXIM	MAX11614EEE+	IC; ADC; LOW-POWER; 8-CHANNEL; I2C; 12-BIT ADC IN ULTRA-SMALL PACKAGE; QSOP16
69	U210	—	1	MAX6071AAUT41+	MAXIM	MAX6071AAUT41+	IC; VREF; LOW NOISE; HIGH-PRECISION SERIES VOLTAGE REFERENCE; SOT23-6
70	U211	—	1	MAX1697UEUT+	MAXIM	MAX1697UEUT+	IC; INV; INVERTING CHARGE PUMP WITH SHUTDOWN; SOT23-6
71	Y1	—	1	7M-12.000MAJ	TXC CORPORATION	12MHZ	CRYSTAL; SMT; 18PF; 12MHZ; ±30PPM; ±30PPM
72	PCB	—	1	MAX77643	MAXIM	PCB	PCB:MAX77643
73	C7	DNP	0	CL32A107MPVNNN; C1210C107MBPAC; LMK325BJ107MM	SAMSUNG ELECTRONICS; KEMET; TAYO YUDEN	100UF	CAPACITOR; SMT (1210); CERAMIC; 100UF; 10V; TOL = 20%; TG = -55°C TO +85°C; TC = X5R
74	L6	DNP	0	MLP1608VR47D	TDK	0.47UH	INDUCTOR; SMT (0603); SHIELDED; 0.47μH; TOL = ±0.3nH; 0.8A
75	C2, C3, C18, C53, C54, C56-C59, C61, C62	DNP	0	N/A	N/A	OPEN	CAPACITOR; SMT (0402); OPEN; FORMFACTOR
76	R15, R37, R260	DNP	0	N/A	N/A	OPEN	RESISTOR; 0402; OPEN; FORMFACTOR
TOTAL			288				

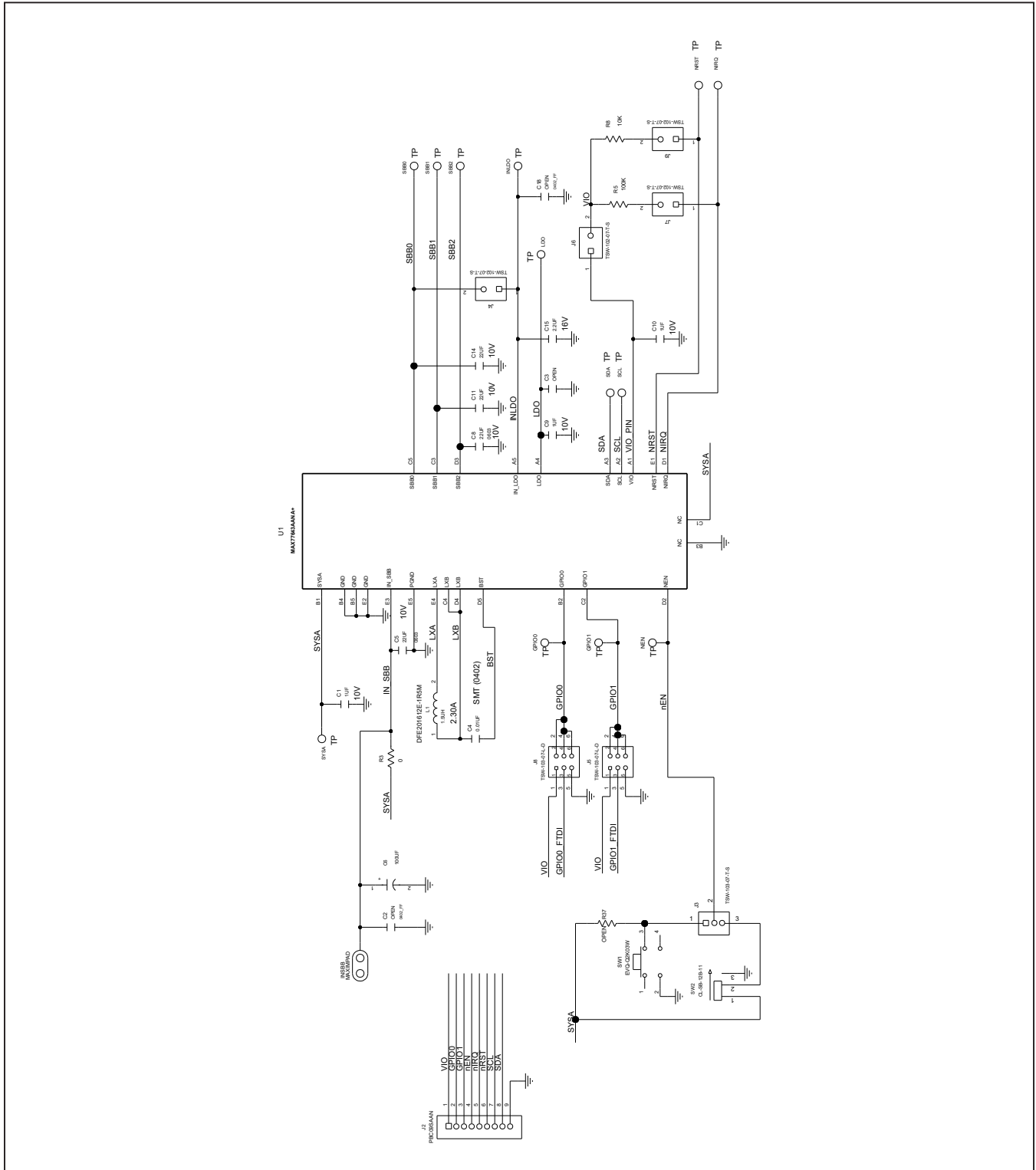
MAX77643 EV Kit Schematics

Part Number	Configuration	7-bit	8-bit Write	8-bit Read
MAX77643 (PMIC)	ADDR OTP bit set for 0	0x40 0b100 0000	0x80 0b1000 0000	0x81 0b1000 0001
MAX77643 (PMIC)	ADDR OTP bit set for 1	0x48 0b100 1000	0x90 0b1001 0000	0x91 0b1001 0001
MAX77643 (PMIC)	Maxim internal test mode	0x49 0b100 1001	0x92 0b1001 0010	0x93 0b1001 0011
MAX11614 (ADC)	N/A	0x33 0b011 0011	0x66 0b0110 0110	0x67 0b0110 0111
MAX5825 (DAC)	ADDR1=ADDR0=VDDIO	0x1F 0b001 1111	0x3E 0b0011 1110 0x10 * 0b0010 1000	0x3F 0b0011 1111
AT24CS02 (EEPROM)	A0=A1=A2=GND	0x50 ** 0b101 0000	0b1010 0000	0b1010 0001

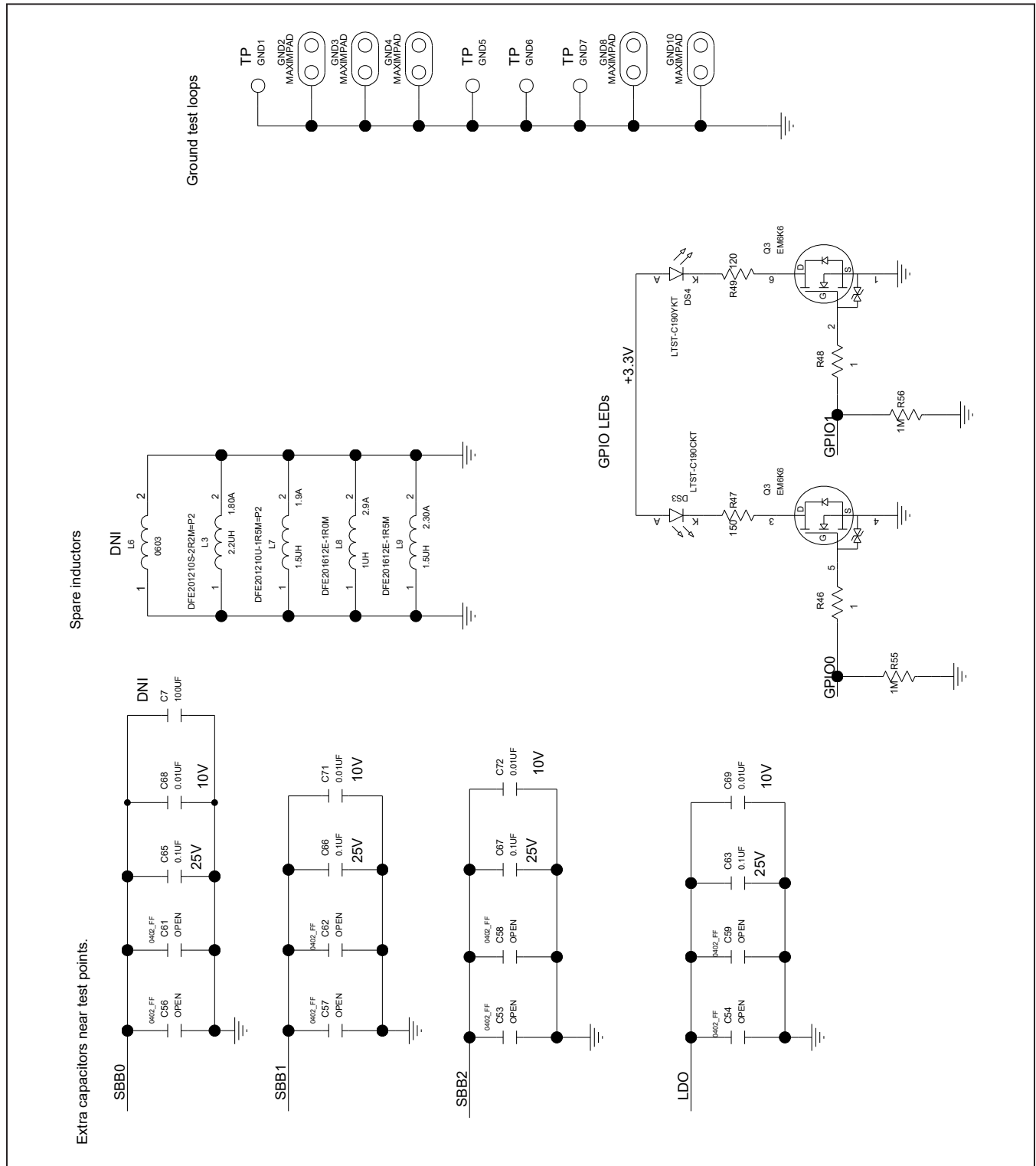
*MAX5825 ALSO RESPONDS TO AN I2C BROADCAST ADDRESS 0b0010 1000

**AT24CS02 ALSO RESPONDS TO 0b1011 0001 FOR READING THE SERIAL NUMBER

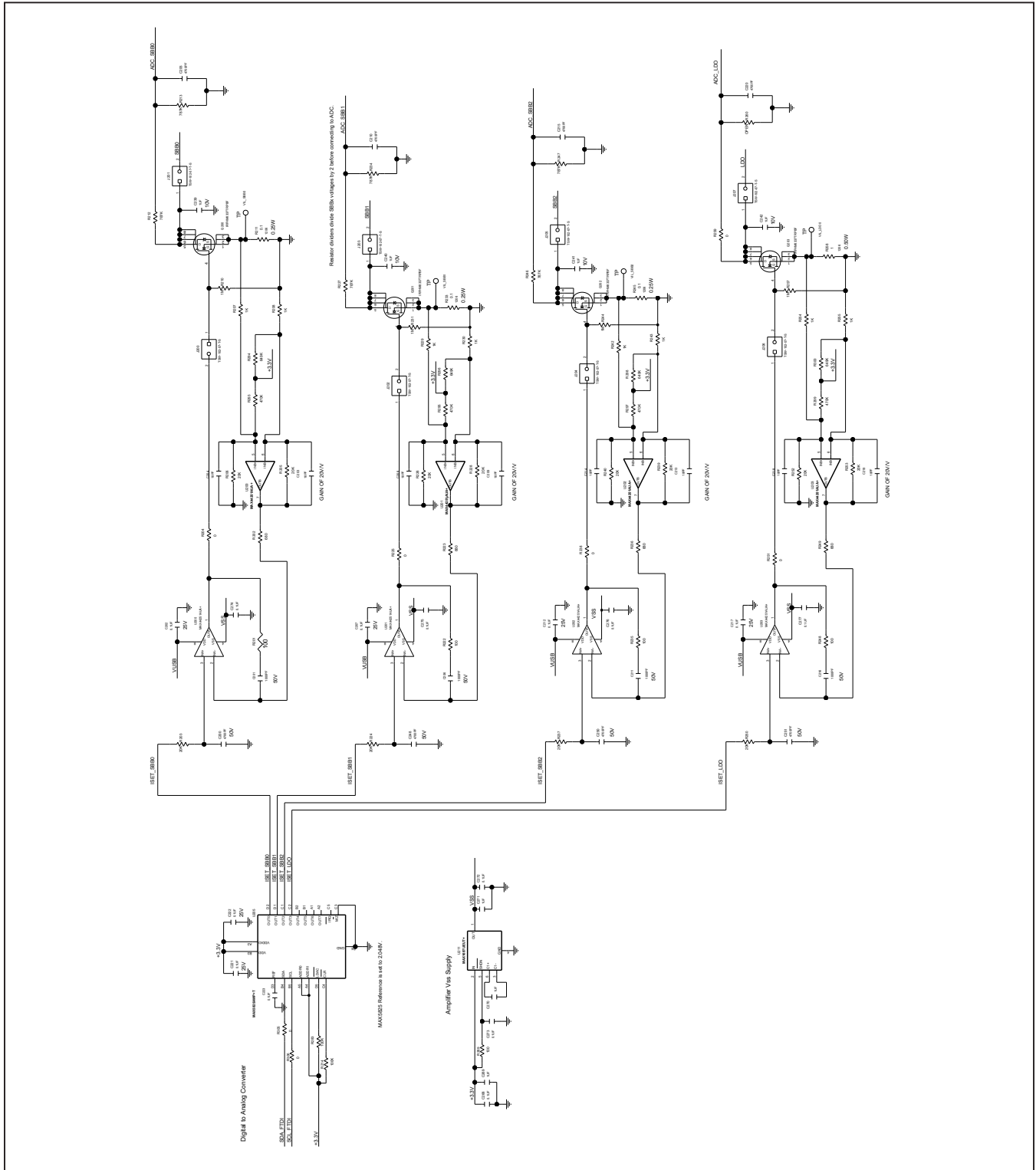
MAX77643 EV Kit Schematics (continued)



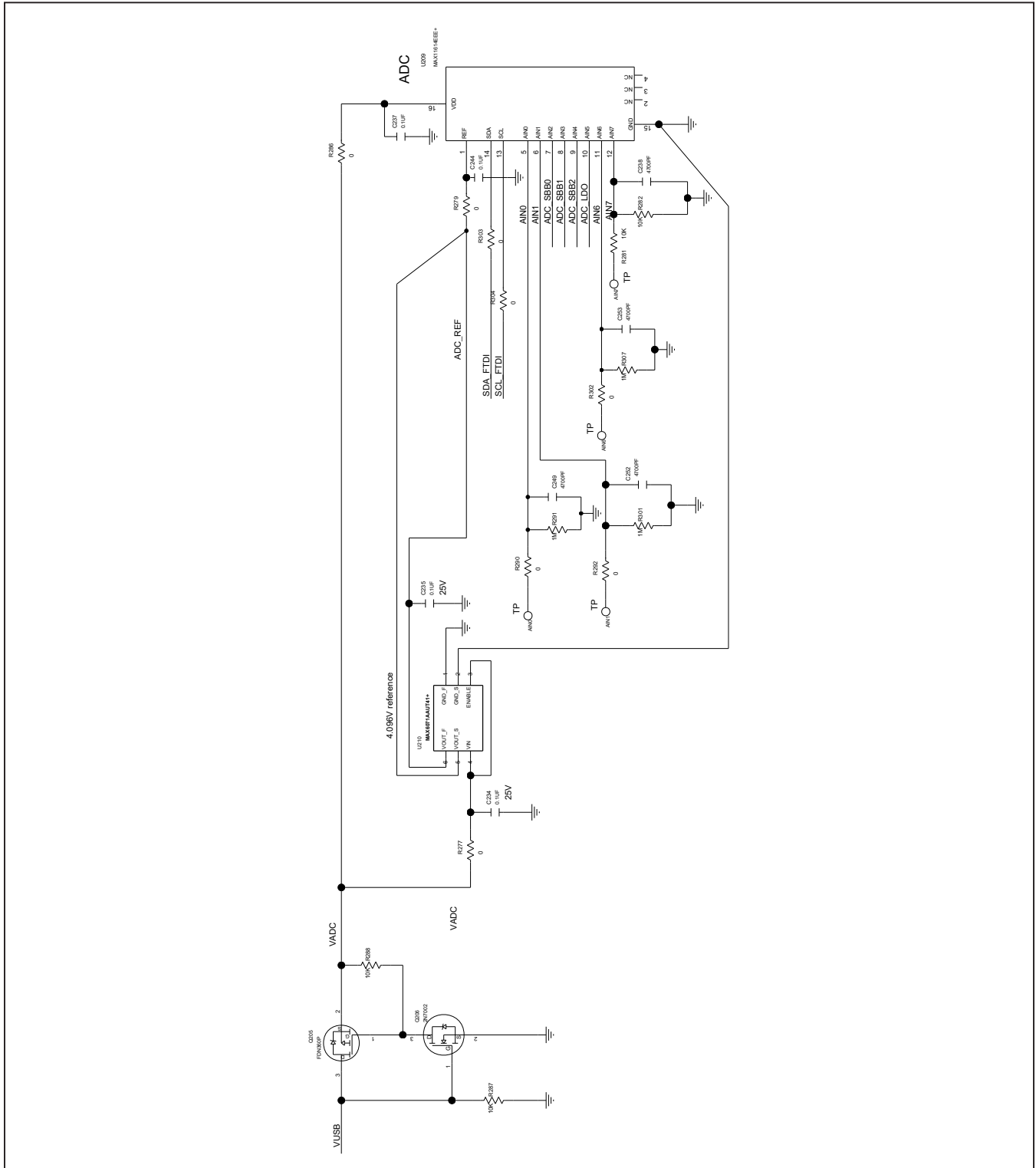
MAX77643 EV Kit Schematics (continued)



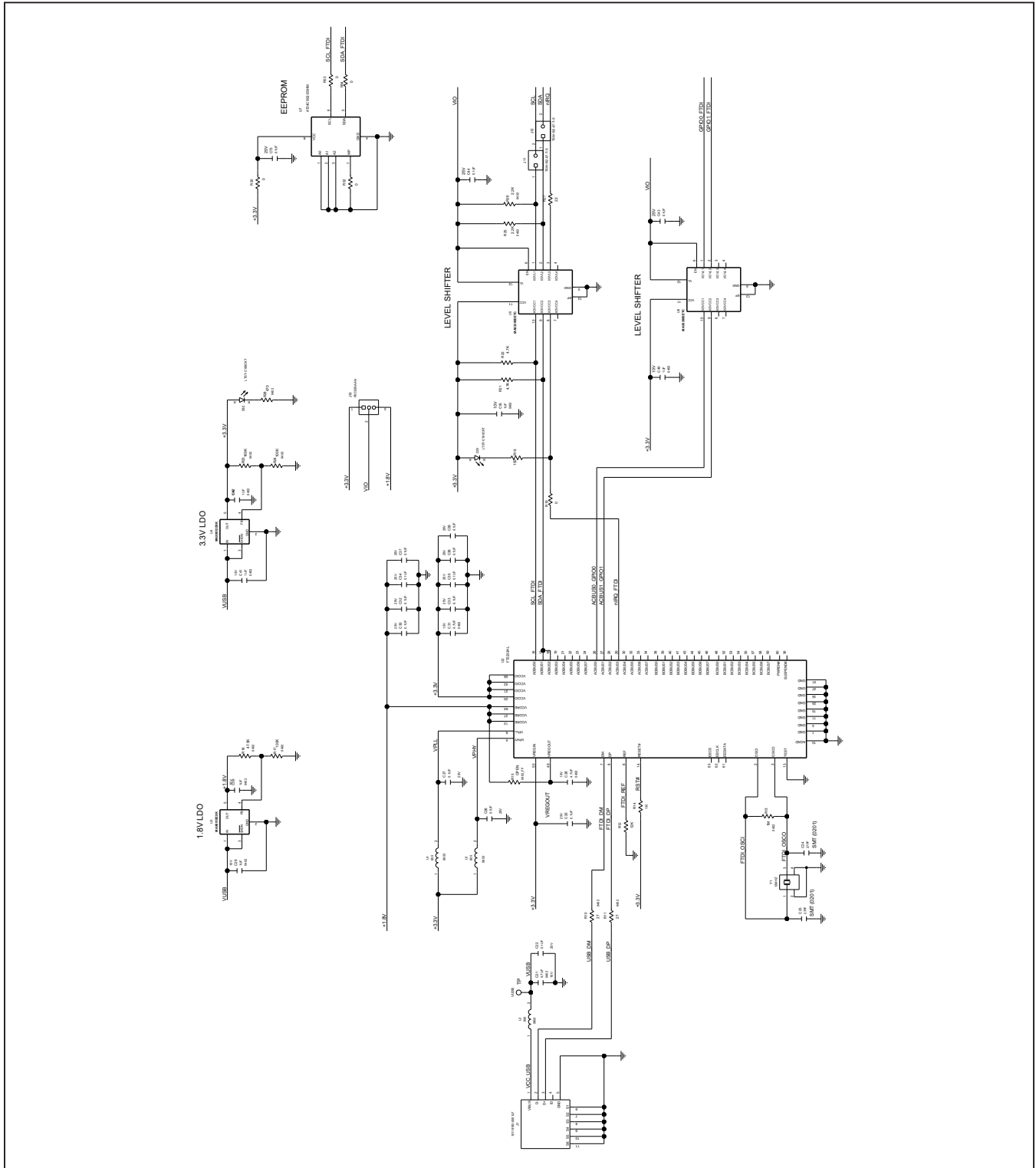
MAX77643 EV Kit Schematics (continued)



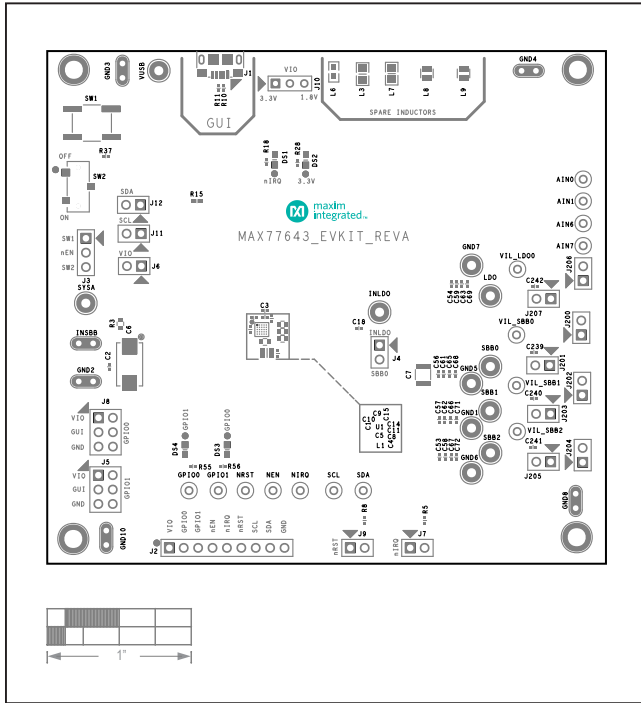
MAX77643 EV Kit Schematics (continued)



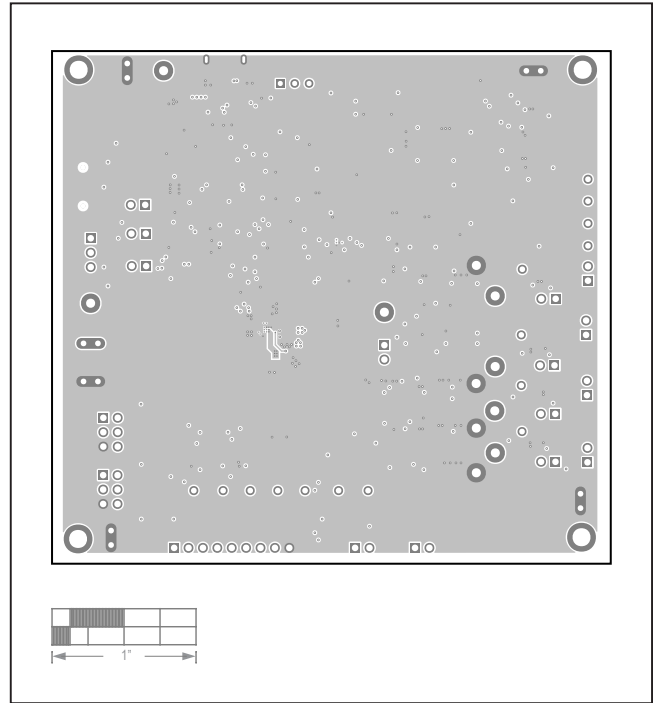
MAX77643 EV Kit Schematics (continued)



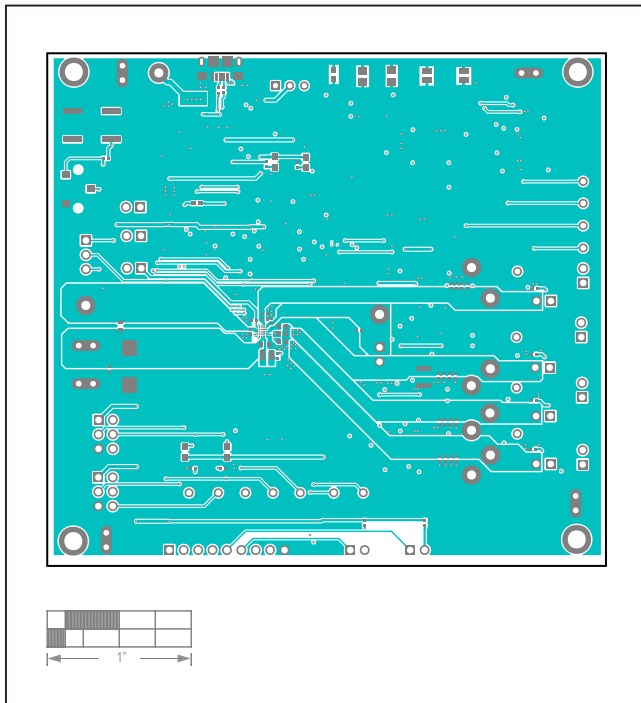
MAX77643 EV Kit PCB Layouts



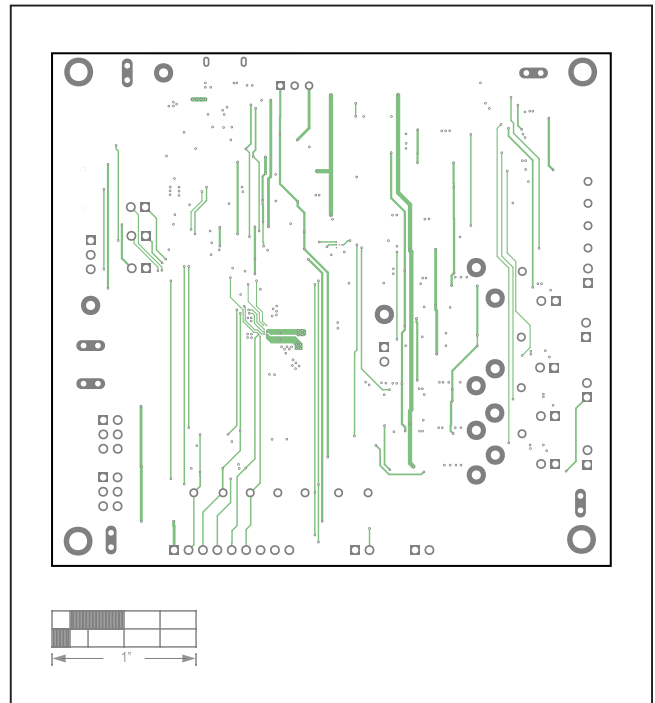
Silk Top



Internal2

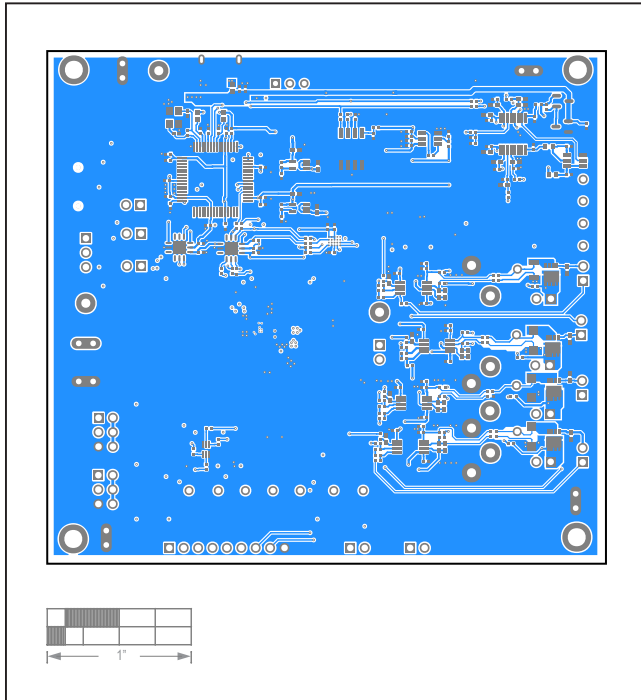


Top

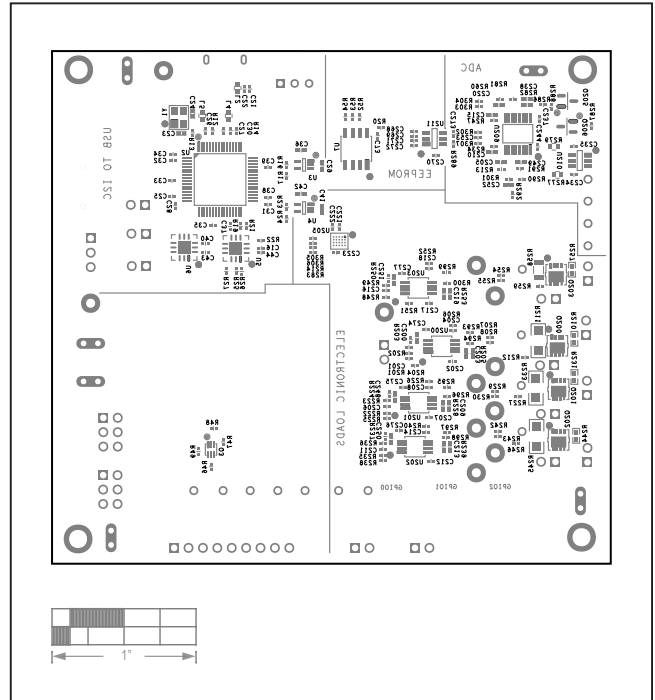


Internal3

MAX77643 EV Kit PCB Layouts (continued)



Bottom



Silk Bottom

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	5/20	Initial release	—
1	9/20	Updated <i>Ordering Information</i> table, <i>EV Kit Bill of Materials</i> , and <i>Schematics</i>	10–18

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