

## MAX77371 Evaluation Kit

## General Description

The MAX77371 evaluation kit (EV kit) evaluates the MAX77371 IC in a wafer-level package (WLP). The MAX77371 is an ultrasonic, high-performance boost converter with an input range from 2.5V to 5.5V. The EV kit comes with the MAX77371PAWP+ installed.

## Features and Benefits

- Evaluates the MAX77371 IC
- (4 x 5 Bump, 0.35mm Pitch)
- 2.5V to 5.5V Input Range
- 4.5V to 10V Configurable Output Voltage

## MAX77371 EV Kit Files

FILE	DESCRIPTION
MAX77371_EVKIT_B_BOM.xlsx	EV Kit Bill of Materials
MAX77371_EVKIT_B_SCH.pdf	EV Kit Schematic
MAX77371_EVKIT_B_PCB.pdf	EV Kit Layout

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

## Quick Start

### Required Equipment

- MAX77371 EV kit
- MAX77371 EV kit GUI
- MAXUSB\_INTERFACE# for I2C serial interface
- USB Type-A to Micro-USB Cable
- DC Power Supply
- Digital Voltmeter (DVM)

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

### Procedure

The EV kit is fully assembled and tested. Use the following steps to install the EV kit software, make the required hardware connections, and start the operation of the EV kit.

1. Install the GUI software. Visit the [MAX77371 Product webpage](#) 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. Verify that the shunts are installed as shown in [Table 1](#).
3. Connect the MAXUSB\_INTERFACE# board to the MAX77371 EV kit through connector J2.
4. Connect a Micro-USB cable between the MAXUSB\_INTERFACE# board and a Windows®-based PC.
5. Connect the power supply between the IN and GND terminals on the EV kit.
6. Connect the DVM between the OUTS and GNDS1 terminals.
7. Set the power supply to 3.3V (set for a 100mA current limit) and turn it on.
8. Verify that the voltage at the OUT-terminal post is approximately 5.1V.
9. Open the MAX77371 GUI and select **Device** → **Connect** in the upper-left corner. Wait for the **CONNECTED DEVICE LIST** window to open, then click the **Connect** button. Now, the EV kit is connected to the GUI.

MAX77371 EV Kit Photo

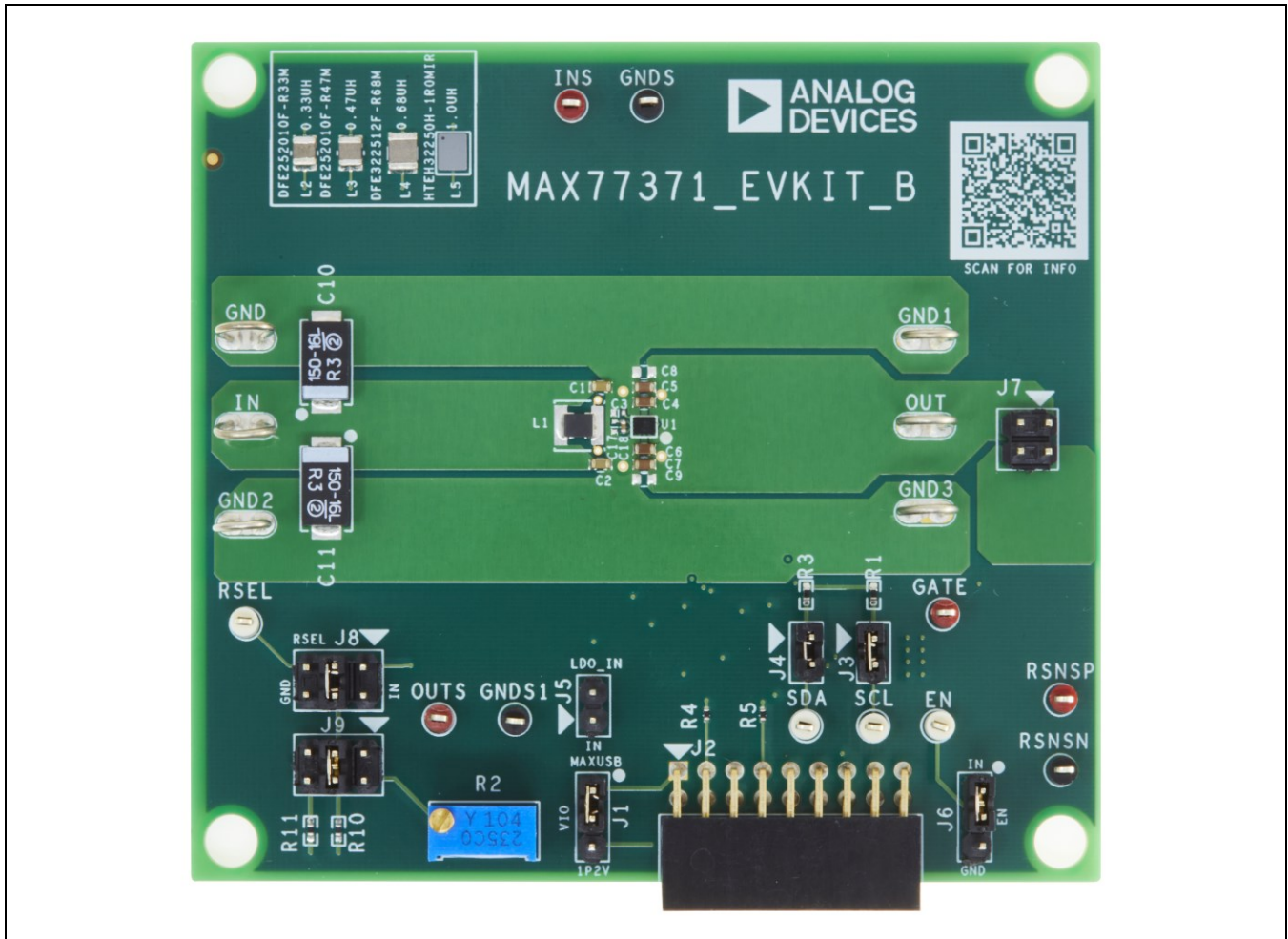


Figure 1. MAX77371 EV Kit Top View

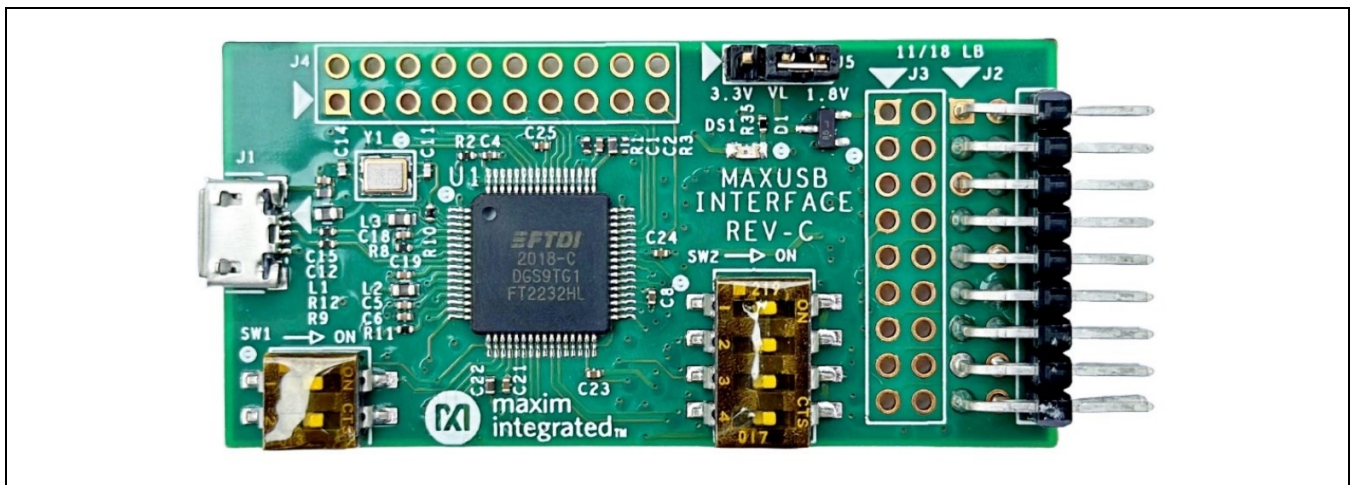


Figure 2. MAXUSB\_INTERFACE# Board

Table 1. Jumper Connection Guide

JUMPER	DEFAULT CONNECTION	FEATURE
J1	1-2	<b>1-2</b> : Connects $V_{IO}$ to MAXUSB Power. 2-3: 1.2V $V_{IO}$ is powered by LDO.
J2		Connects EVKIT to MAXUSB (connect J5 to 1.8V on MAXUSB).
J3	1-2	Connects SCL to 2.2k $\Omega$ Pullup resistor.
J4	1-2	Connects SDA to 2.2k $\Omega$ Pullup resistor.
J5		Connects the input of 1.2V LDO to IN.
J6	1-2	<b>1-2</b> : Connects EN to $V_{IN}$ . 2-3: Connects EN to GND.
J7		1-2: Connects OUT to reload. 3-4: Connects OUT to reload.
J8	3-4	1-2: Connects RSEL/MODE to IN. <b>3-4</b> : Connects RSEL/MODE to the resistor on J9. 5-6: Connects RSEL/MODE to GND.
J9	3-4	1-2: Connects to variable resistor. <b>3-4</b> : Connects to 7V OUT resistor. 5-6: Connects to 4.5V OUT resistor.

Default options are in bold.

### Detailed Description of Software

The graphical user interface (GUI) software allows for a quick, easy, and thorough evaluation of the MAX77371. The GUI and the MAXUSB\_INTERFACE# (see [Figure 2](#)) drive I2C communication with the EV kit. Every control in the GUI corresponds directly to a register within the MAX77371. Refer to the *Register Map* section in the MAX77371 IC data sheet for a complete description of the registers. To Read/Write to a register, click the corresponding button on the GUI. For example, to change the output voltage, drag the slider to the desired output voltage and click **WRITE**.

See [Figure 3](#) for a screenshot of the GUI upon first opening.

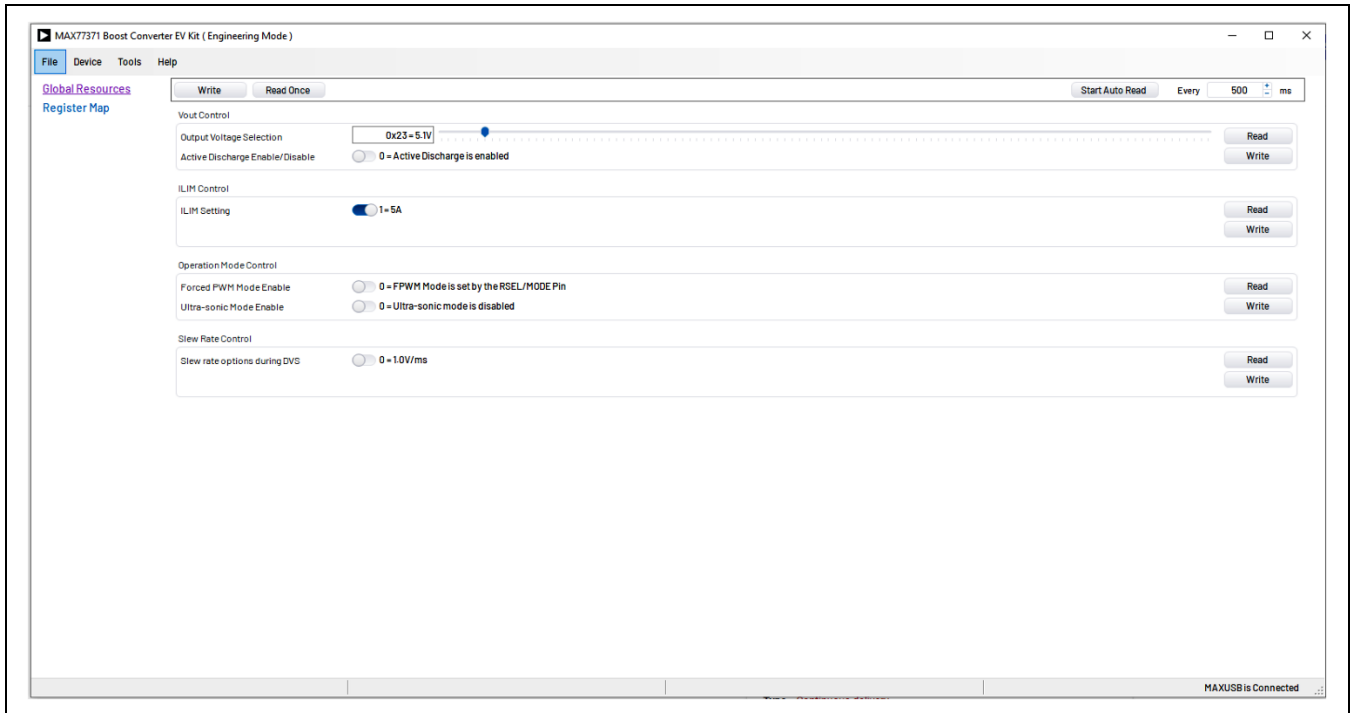


Figure 3. MAX77371 GUI

### Ordering Information

PART	TYPE
MAX77371EVKIT#	EV Kit

#Denotes RoHS-compliant.

## MAX77371 EV Kit Bill of Materials

ITEM	REF_DES	COLUMN	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
1	ASSY1		1	MAXUSB_INTERFACE#	MAXIM	MAXUSB_INTERFACE#	EVKIT PART-MODULE; KIT; MAXUSB INTERFACE; DUAL-PORT USB-TO-SERIAL INTERFACE BOARD
2	C1, C2		2	C1608X5R1A226M080AC; GRM188R61A226ME15; CL10A226MPCNUBE; CL10A226MPMNUB; GRM187R61A226ME15	TDK; MURATA; SAMSUNG; SAMSUNG; MURATA	22UF	CAP; SMT (0603); 22UF; 20%; 10V; X5R; CERAMIC
3	C4-C7		4	C1608X5R1E106M080AC; CL10A106MA8NRNC; GRM188R61E106MA73; ZRB18AR61E106ME01; GRT188R61E106ME13	TDK; SAMSUNG ELECTRONICS; MURATA; MURATA; MURATA	10UF	CAP; SMT (0603); 10UF; 20%; 25V; X5R; CERAMIC
4	C10, C11		2	TR3D157K016C0150	VISHAY	150UF	CAP; SMT (7343); 150UF; 10%; 16V; TANTALUM
5	C12, C18		2	ANY	ANY	1UF	CAPACITOR; SMT (0402); CERAMIC CHIP; 1UF; 6.3V; TOL=20%; MODEL=C SERIES; TG=-55 DEGC TO +85 DEGC; TC=X5R ; FORMFACTOR
6	C13		1	GRM155R61C104KA88	MURATA	0.1UF	CAP; SMT (0402); 0.1UF; 10%; 16V; X5R; CERAMIC
7	C14		1	C0402C103K5RAC; GRM155R71H103KA88; C1005X7R1H103K050BE; CL05B103KB5NNN; UMK105B7103KV	KEMET; MURATA; TDK; SAMSUNG ELECTRONIC; TAIYO YUDEN	0.01UF	CAP; SMT (0402); 0.01UF; 10%; 50V; X7R; CERAMIC
8	C15, C16		2	C0603C475K8PAC; LMK107BJ475KA; CGB3B1X5R1A475K; C1608X5R1A475K080AC; CL10A475KP8NNN; C1608X5R1A475K080AE	KEMET; TAIYO YUDEN; TDK; TDK; SAMSUNG ELECTRONICS; TDK	4.7UF	CAP; SMT (0603); 4.7UF; 10%; 10V; X5R; CERAMIC
9	C19		1	GRM155R71E104KE14; C1005X7R1E104K050BB; TMK105B7104KVH; CGJ2B3X7R1E104K050BB	MURATA; TDK; TAIYO YUDEN; TDK	0.1UF	CAP; SMT (0402); 0.1UF; 10%; 25V; X7R; CERAMIC

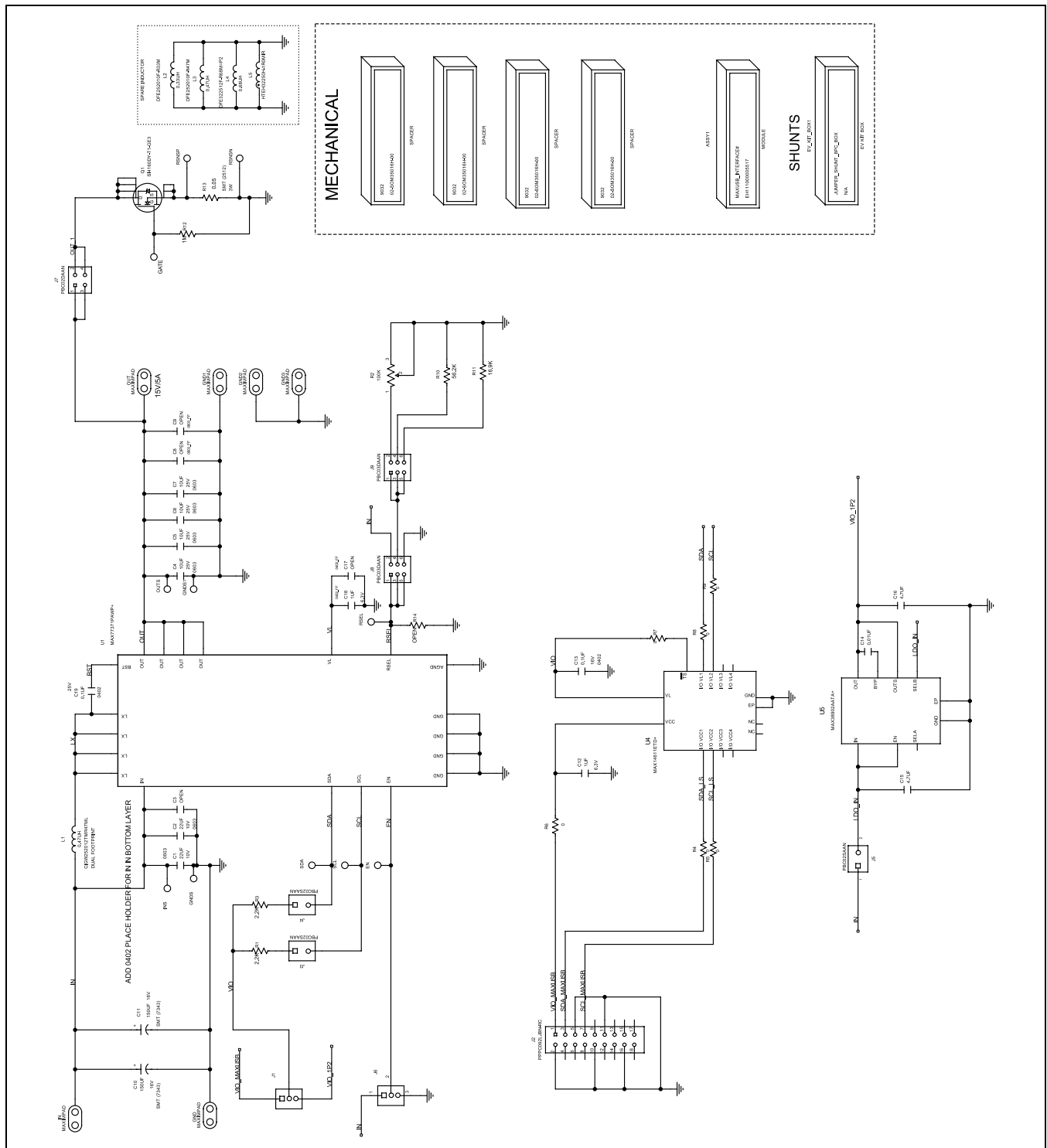
ITEM	REF_DES	COLUMN	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
10	EN, RSEL, SCL, SDA		4	5002	KEystone	N/A	TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; WHITE; PHOSPHOR BRONZE WIRE SILVER;
11	GATE, INS, OUTS, RSNSP		4	5000	KEystone	N/A	TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; RED; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;
12	GND, GND1- GND3, IN, OUT		6	9020 BUSS	WEICO WIRE	MAXIMPAD	EVK KIT PARTS; MAXIM PAD; WIRE; NATURAL; SOLID; WEICO WIRE; SOFT DRAWN BUS TYPE-S; 20AWG
13	GNDS, GNDS1, RSNSN		3	5001	KEystone	N/A	TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; BLACK; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;
14	J1, J6		2	PEC03SAAN	SULLINS	PEC03SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 3PINS
15	J2		1	PPPC092LJBN-RC	SULLINS ELECTRONICS CORP	PPPC092LJBN-RC	CONNECTOR; FEMALE; THROUGH HOLE; PPP SERIES; RIGHT ANGLE; 18PINS
16	J3-J5		3	PBC02SAAN	SULLINS ELECTRONICS CORP.	PBC02SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 2PINS
17	J7		1	PBC02DAAN	SULLINS ELECTRONIC CORP.	PBC02DAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 4PINS

ITEM	REF_DES	COLUMN	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
18	J8, J9		2	PBC03DAAN	SULLINS ELECTRONICS CORP.	PBC03DAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 6PINS; -65 DEGC TO +125 DEGC
19	L1		1	CIGW252012TMR47ML	SAMSUNG	0.47UH	EVKIT PART - INDUCTOR; SMT; N/A; 0.47UH; 20%; 6.5A
20	L2		1	DFE252010F-R33M	MURATA	0.33UH	INDUCTOR; SMT (1008); METAL; 0.33UH; 20%; 4.8A
21	L3		1	DFE252010F-R47M	MURATA	0.47UH	INDUCTOR; SMT (1008); SHIELDED; 0.47UH; 20%; 4.4A;
22	L4		1	DFE322512F-R68M=P2	MURATA	0.68UH	INDUCTOR; SMT (1210); METAL; 0.68UH; 20%; 6.1A
23	L5		1	HTEH32250H-1R0MIR	CYNTEC	HTEH32250H-1R0MIR	INDUCTOR; SMT(1210); METAL DUST CORE; POWER CHOKE COIL; 1UH; TOL=+/-20%; 4.4A ;
24	Q1		1	SI4160DY-T1-GE3	VISHAY	SI4160DY-T1-GE3	TRAN; N-CHANNEL 30-V (D-S) MOSFET; NCH; SO-8; PD-(5.7W); I-(25.4A); V-(30V)
25	R1, R3		2	CRCW04022K20JN	VISHAY DALE	2.2K	RES; SMT (0402); 2.2K; 5%; +/-200PPM/DEGK; 0.0630W
26	R2		1	3296Y-1-104LF	BOURNS	100K	RESISTOR; THROUGH HOLE-RADIAL LEAD; 3296 SERIES; 100K OHM; 10%; 100PPM; 0.5W
27	R4-R9		6	ANY	ANY	0	RESISTOR; 0402; 0 OHM; 1%; 100PPM; 0.0625W; THICK FILM; FORM FACTOR
28	R10		1	CRCW040256K2FK	VISHAY	56.2K	RES; SMT (0402); 56.2K; 1%; +/-100PPM/DEGK; 0.0630W
29	R11		1	CRCW040216K9FK; ERJ-2RKF1692	VISHAY DALE; PANASONIC	16.9K	RES; SMT (0402); 16.9K; 1%; +/-100PPM/DEGK; 0.1000W
30	R12		1	ERJ-2RKF1004	PANASONIC	1M	RES; SMT (0402); 1M; 1%; +/-100PPM/DEGC; 0.1000W

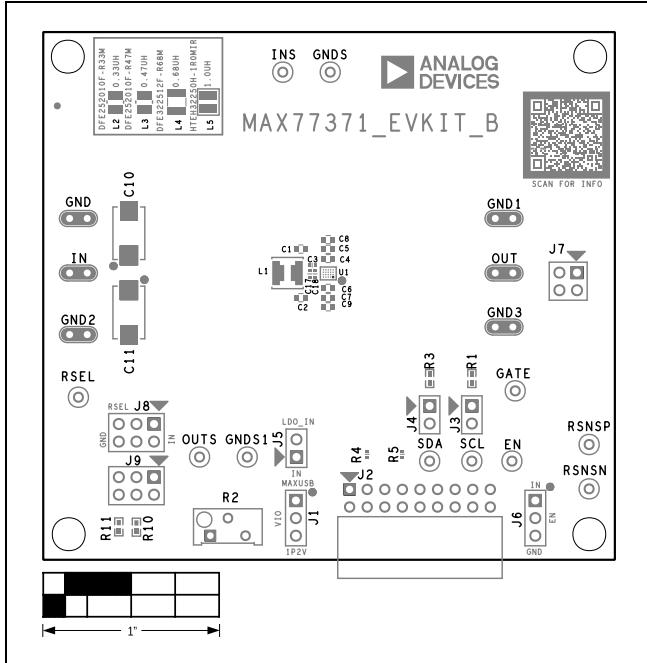
ITEM	REF_DES	COLUMN	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
31	R13		1	CRA2512-FZ-R050ELF	BOURNS	0.05	RES; SMT (2512); 0.05; 1%; +/-50PPM/DEGC; 3W
32	SPACER1- SPACER4		4	9032	KEYSTONE	9032	MACHINE FABRICATED; ROUND-THRU HOLE SPACER; NO THREAD; M3.5; 5/8IN; NYLON
33	U1		1	MAX77371PAWP+	ANALOG DEVICES	MAX77371PAW P+	IC; 5A BOOST CONVERTER WITH I2C INTERFACE; DYNAMIC VOLTAGE SCALING AND SHORT CIRCUIT PROTECTION; PACKAGE OUTLINE DRAWING: TBD; PACKAGE CODE: TBD; WLP20
34	U4		1	MAX14611ETD+	MAXIM	MAX14611ETD +	IC; TRANS; QUAD BIDIRECTIONAL LOW- VOLTAGE LOGIC LEVEL TRANSLATOR; TDFN14-EP
35	U5		1	MAX38902AATA+	MAXIM	MAX38902AAT A+	IC; REG; LOW NOISE 500 MILLIAMPERE LDO LINEAR REGULATOR; TDFN8-EP
36	PCB		1	MAX77371	MAXIM	PCB	PCB: MAX77371
37	C8, C9	DNP	0	N/A	N/A	OPEN	CAPACITOR; SMT (0603); OPEN; FORM FACTOR
38	R14	DNP	0	N/A	N/A	OPEN	RESISTOR; 0402; OPEN; FORM FACTOR
39	C3, C17	DNP	0	N/A	N/A	OPEN	CAPACITOR; SMT (0402); OPEN; FORM FACTOR
<b>TOTAL</b>			<b>69</b>				



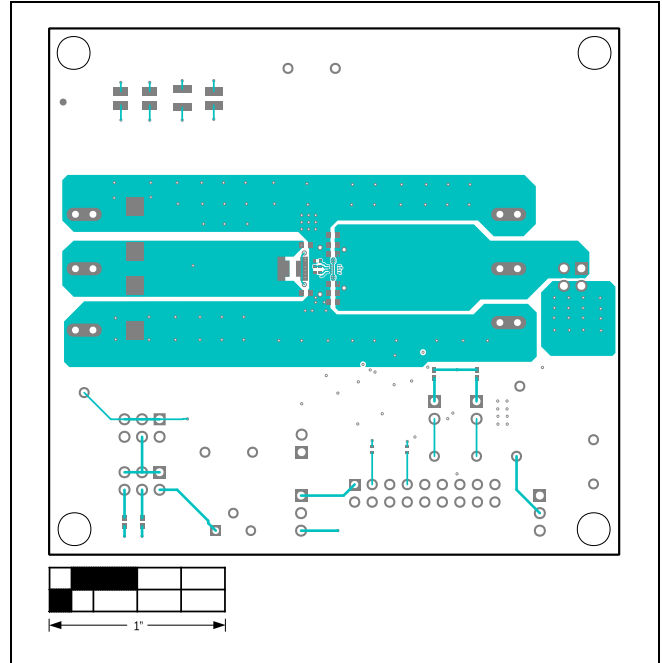
MAX77371 EV Kit Schematic



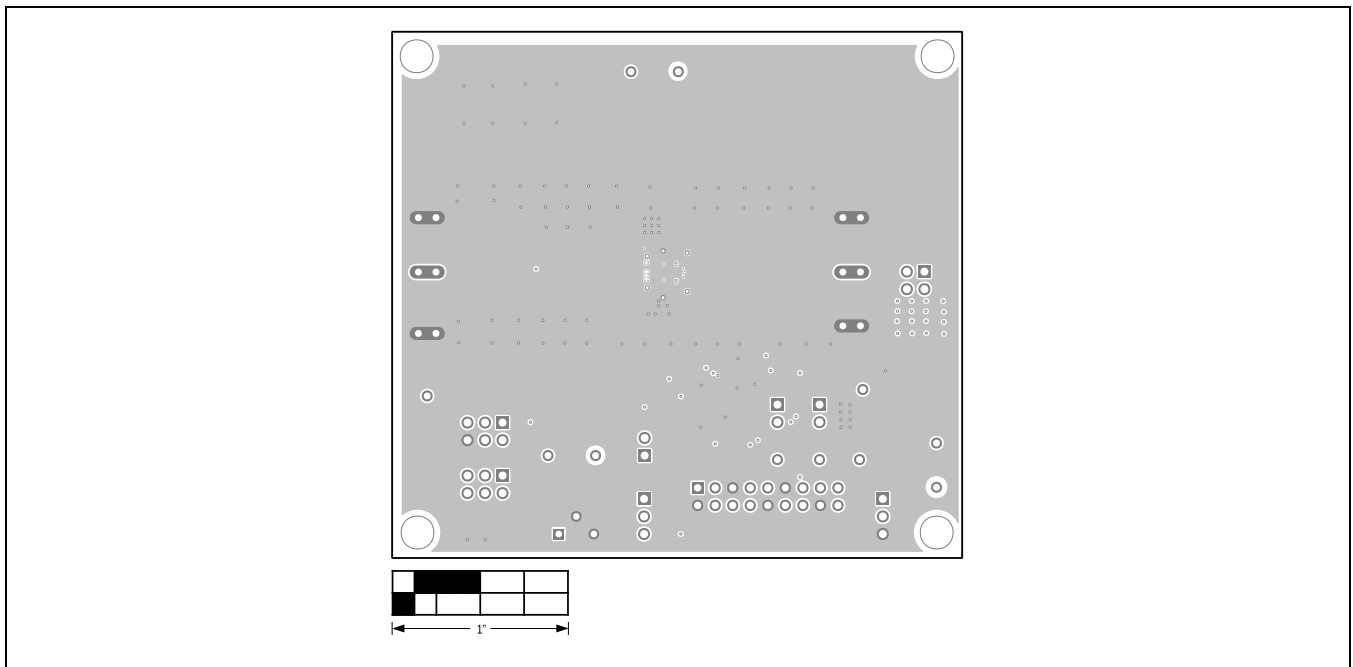
MAX77371 EV Kit PCB Layout



MAX77371 EV Kit Component Placement Guide—Top Silkscreen

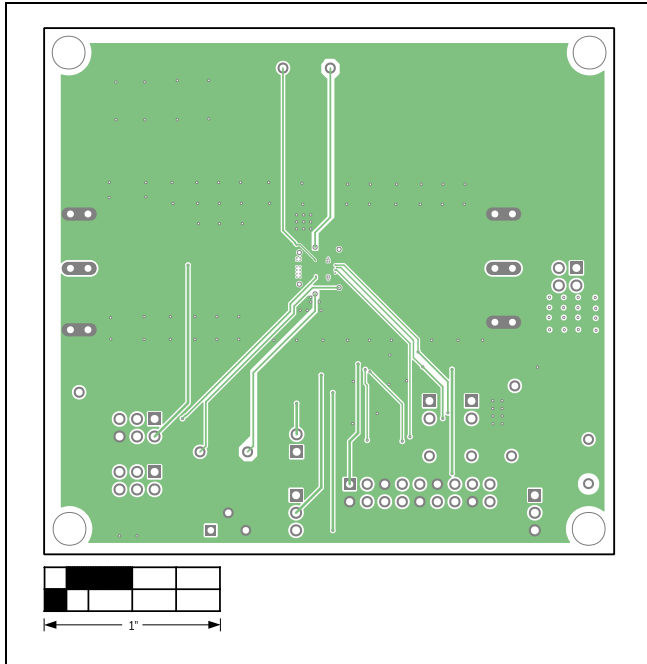


MAX77371 EV Kit PCB Layout—Top View

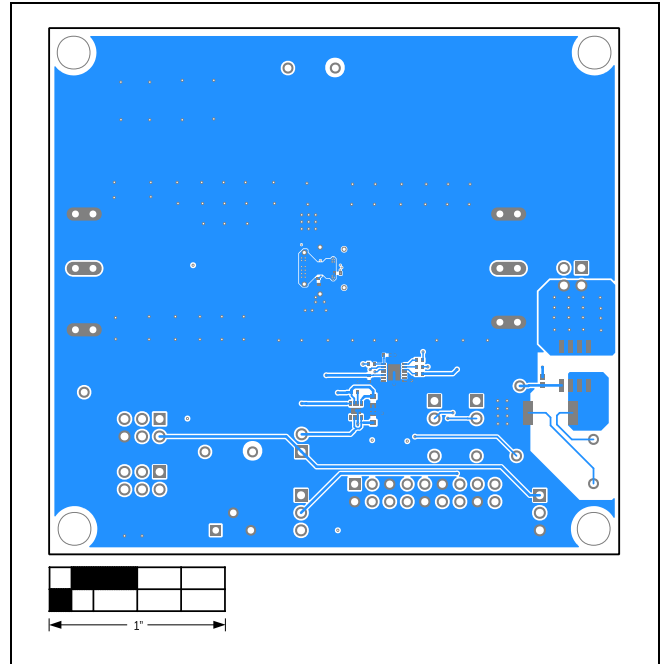


MAX77371 EV Kit PCB Layout—Layer 2

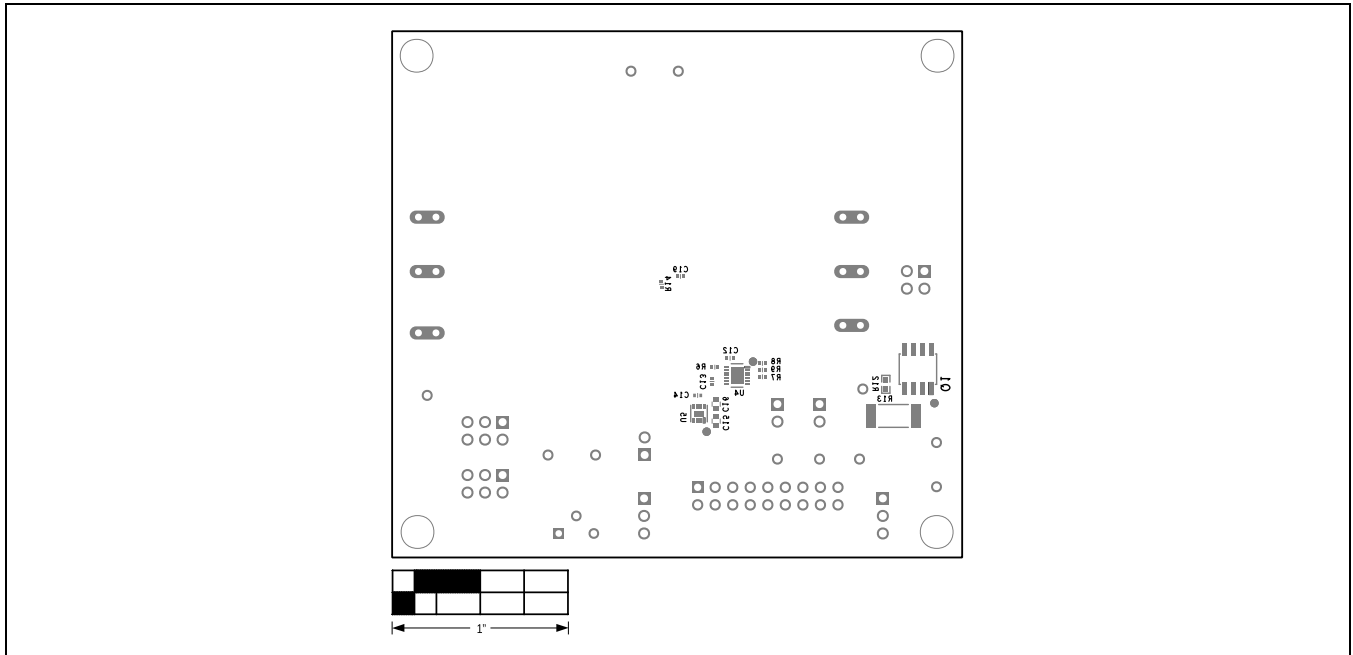
**MAX77371 EV Kit PCB Layout (continued)**



MAX77371 EV Kit PCB Layout—Layer 3



MAX77371 EV Kit PCB Layout—Bottom View



MAX77371 EV Kit Component Placement Guide—Bottom Silkscreen

**Revision History**

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	01/25	Initial release	—

## Notes

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