Click here for production status of specific part numbers.

MAX17250 WLP Evaluation Kit

Evaluates: MAX17250 in WLP

General Description

The MAX17250 WLP evaluation kit (EV kit) evaluates the MAX17250 IC in the wafer-level package (WLP). The MAX17250 are high-efficiency, low quiescent current, synchronous step-up DC-DC converters with True Shutdown™, programmable input current limit, and short-circuit protection. The MAX17250 EV kit operates over an input range of 2.7V to 18V, depending on load. The EV kit provides resistor-configurable output voltages from 3V to 18V. The input peak current limit can be set to 3.5A/2.7A/1.85A of current. The EV kit comes with the MAX17250ANC+ (WLP) installed.

Features

- Evaluate the MAX17250 IC in a 12-Ball (1.49mm x 1.72mm) WLP
- 2.7V to 18V Input Range
- 3V to 18V Configurable Output Voltage
- Up to 3.5A/2.7A/1.85A Input Peak Current
- Proven 4-Layer 1.5-oz Copper PCB Layout
- Demonstrates Compact Solution Size
- Fully Assembled and Tested

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

Quick Start

Required Equipment

- MAX17250 WLP EV kit
- 18V, 5A DC power supply
- Electronic load capable of 2A
- Digital voltmeter (DVM)

Procedure

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

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

1) Verify that jumpers JU1 and JU2 are in their default positions, as shown in Table 1 and Table 2.
2) Connect the power supply between the IN1 and nearest PGND1 terminal posts.
3) Connect the electronic load between the OUT1 and nearest PGND1 terminal posts.
4) Connect the DVM between the OUT1 and nearest PGND1 terminal posts.
5) Set the power supply to 6V and turn it on.
6) Set the electronic load to 500mA at constant current mode, then enable the electronic load.
7) Verify that the voltage at the OUT1 terminal post is approximately 12V.

MAX17250 WLP EV Kit Files

FILE	DECRIPTION
MAX17250 WLP EV BOM	EV Kit Bill of Material
MAX17250 WLP EV PCB Layout	EV Kit Layout
MAX17250 WLP EV Schematic	EV Kit Schematic
MAX17250 WLP Minimal Component Schematic	Minimal Component Circuit

319-100242; Rev 0; 8/18

maxim integrated™

Detailed Description of Hardware

The MAX17250 WLP EV kit evaluates the MAX17250 IC in a WLP package. The MAX17250 are high-efficiency, low quiescent current, synchronous step-up DC-DC converters with True Shutdown™, programmable input current limit, and short-circuit protection. The MAX17250 WLP EV kit operates over an input range of 2.7V to 18V, depending on load. The EV kit provides resistor-configurable output voltages from 3V to 18V. The inductor peak current limit can be set to 3.5A/2.7A/1.85A.

The EV kit comes with the MAX17250ANC+ (WLP) installed and is configured for a 12V output. The 12V output can deliver 720mA of current at 6V input.

EN

The MAX17250 WLP EV kit provides a jumper JU1 to configure the EN pin of the MAX17250. Different settings of this jumper can simulate different controlling scenarios at the EN pin. Refer to Table 1 for JU1 jumper settings.

ISET

The MAX17250 WLP EV kit provides a jumper JU2 to configure the ISET pin of the MAX17250. Different settings of this jumper set the input inductor peak current to a different value. Refer to Table 2 for JU2 jumper settings.

Spare Inductors

The MAX17250 WLP EV Kit provides spare inductors on the PCB's solder side. These spare inductors can be used to reconfigure the EV Kit output current ratings.

Table 1. EN (JU101)

JU1 SHUNT POSITION	DESCRIPTION
1-2*	Enabled. EN = IN1 x R2/(R1+R2)
1-3	External Logic connected to EN1 test point (1.5V or higher = Enable, 0V = Disabled)
1-4	Disabled. EN = PGND1
Not Installed	Disabled. EN = PGND1 through pulldown resistor R2.

**Default position.*

Table 2. ISET (JU102)

JU2 SHUNT POSITION	DESCRIPTION
1-2*	ISET = VL1 (Inductor Peak Current Limit set to 3.5A)
2-3	ISET = AGND1 (Inductor Peak Current Limit set to 2.7A)
Not Installed	ISET = OPEN (Inductor Peak Current Limit set to 1.85A)

**Default position.*

Component Suppliers

SUPPLIER	WEBSITE
Coilcraft	www.coilcraft.com
Murata/TOKO	www.murata.com
TDK	www.tdk.com
Wurth Elektronik	www.we-online.com

Note: *Indicate that you are using the MAX17250 when contacting these component suppliers.*

Ordering Information

PART	TYPE
MAX17250EVKIT#WLP	EV Kit

#Denotes RoHS

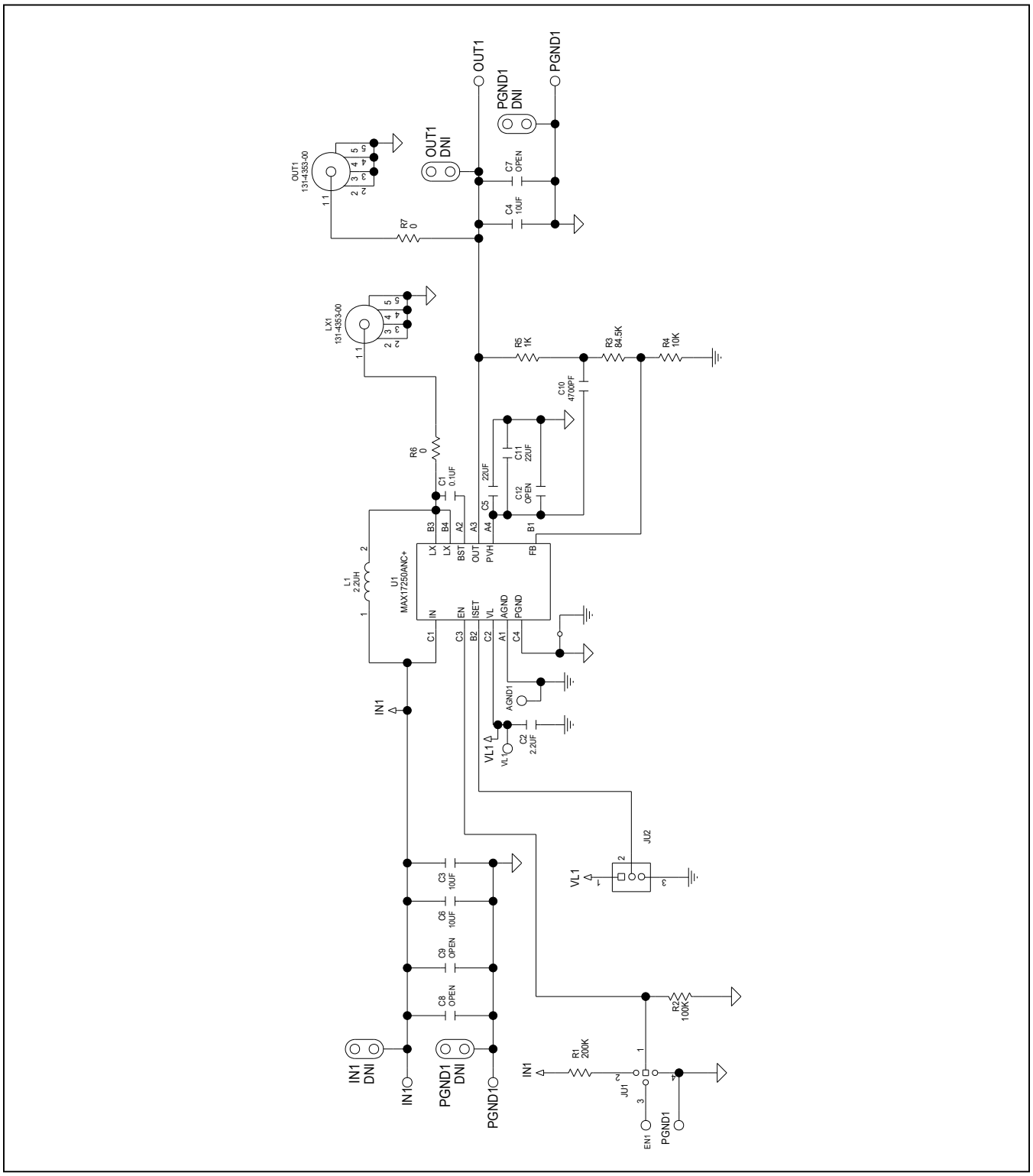
MAX17250 WLP EV Kit Bill of Materials

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION	COMMENTS
1	AGND1, X105	-	2	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;	
2	C1	-	1	CGA2B3X7R1H104K; C1005X7R1H104K050BB; GRM155R71H104KE14	TDK;TDK;MURATA	0.1UF	CAPACITOR; SMT (0402); CERAMIC CHIP; 0.1UF; 50V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R	
3	C2	-	1	GRM21BR71E225KA73	MURATA	2.2UF	CAPACITOR; SMT (0805); CERAMIC CHIP; 2.2UF; 25V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R; TC=+/;	
4	C3, C4, C6	-	3	C1210C106K3RAC; GRM32DR71E106K	KEMET;MURATA	10UF	CAPACITOR; SMT (1210); CERAMIC CHIP; 10UF; 25V; TOL=10%; MODEL=; TG=-55 DEGC TO +125 DEGC; TC=X7R	
5	C5, C11	-	2	GRM32ER71E226KE15; CL32B226KAJNFN; CL32B226KAJNNW;TMK325B7226KM	MURATA;SAMSUNG ELECTRO-MECHANICS;TAIYO YUDEN	22UF	CAPACITOR; SMT (1210); CERAMIC CHIP; 22UF; 25V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R	
6	C10	-	1	GRM155R71E472KA01	MURATA	4700PF	CAPACITOR; SMT (0402); CERAMIC CHIP; 4700PF; 25V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R	
7	EN1	-	1	5002	KEYSTONE	N/A	TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; WHITE; PHOSPHOR BRONZE WIRE SILVER;	
8	JU1	-	1	" 22-28-4043"	MOLEX	" 22-28-4043"	CONNECTOR; MALE; THROUGH HOLE; FLAT VERTICAL BREAKAWAY; STRAIGHT; 4PINS	
9	JU2	-	1	PEC03SAAN	SULLINS	PEC03SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 3PINS	
10	L1	-	1	IHLP2020CZER2R2M11	VISHAY DALE	2.2UH	INDUCTOR; SMT; SHIELDED; 2.2UH; 20%; 6.75A	
11	L1A	-	1	IHLP2020CZER1R5M11	VISHAY DALE	1.5UH	INDUCTOR; SMT; SHIELDED; 1.5UH; 20%; 7.5A	
12	L1B	-	1	IHLP2020CZER3R3M11	VISHAY DALE	3.3UH	INDUCTOR; SMT; 3.3UH; TOL=+/-20%; 7A; -55 DEGC TO +125 DEGC	
13	L1C	-	1	74438356033□	WURTH ELECTRONICS INC	3.3UH	INDUCTOR; SMT; SHIELDED; 3.3UH; TOL=+/-20%; 3.6A	
14	LX1, OUT1	-	2	131-4353-00	TEKTRONICS	131-4353-00	CONNECTOR; WIREMOUNT; CIRCUIT BOARD TEST POINT MINIATURE PROBE; STRAIGHT; 4PINS;	
15	R1	-	1	CRCW0402200KFK; RF73H1ELTP2003	VISHAY DALE;KOA SPEER ELECTRONICS	200K	RESISTOR; 0402; 200K; 1%; 100PPM; 0.0625W; THICK FILM	
16	R2	-	1	CRCW0402100KFK; RC0402FR-07100KL	VISHAY DALE; YAGEO PHICOMP	100K	RESISTOR; 0402; 100K; 1%; 100PPM; 0.0625W; THICK FILM	
17	R3	-	1	CRCW040284K5FK	VISHAY DALE	84.5K	RESISTOR; 0402; 84.5K OHM; 1%; 100PPM; 0.063W; METAL FILM	
18	R4	-	1	CRCW040210K0FK; RC0402FR-0710K	VISHAY DALE; YAGEO PHICOMP	10K	RESISTOR; 0402; 10K; 1%; 100PPM; 0.0625W; THICK FILM	
19	R5	-	1	MCR01MZPF1001	ROHM SEMICONDUCTOR	1K	RESISTOR; 0402; 1K OHM; 1%; 100PPM; 0.063W; THICK FILM	
20	R6, R7	-	2	ERJ-2GE0R00X	PANASONIC	0	RESISTOR; 0402; 0 OHM; 0%; JUMPER; 0.10W; THICK FILM	

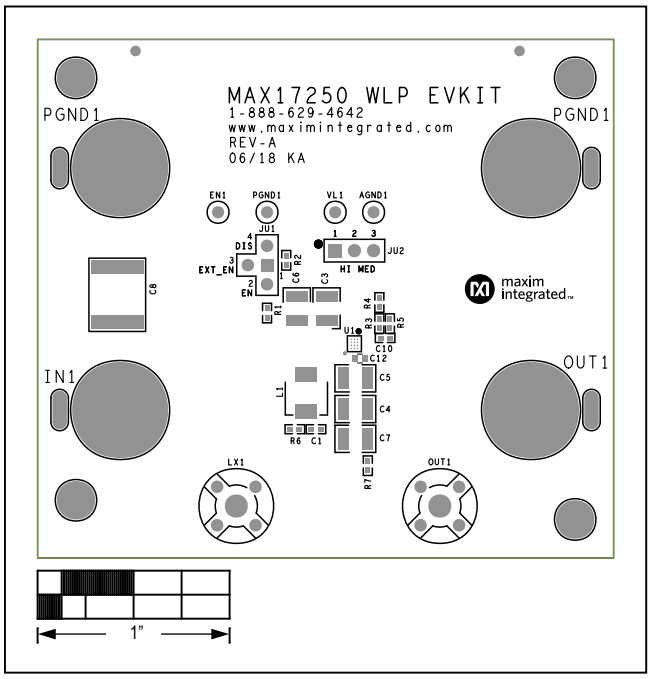
MAX17250 WLP EV Kit Bill of Materials (continued)

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION	COMMENTS
21	SU1	-	1	S1100-B;SX1100-B	KYCON;KYCON	SX1100-B	TEST POINT; JUMPER; STR; TOTAL LENGTH=0.24IN; BLACK; INSULATION=PBT;PHOSPHOR BRONZE CONTACT=GOLD PLATED	
22	U1	-	1	MAX17250ANC+	MAXIM	MAX17250ANC+	EVKIT PART - IC; CONV; 2.7V TO 18V; BOOST CONVERTER WITH 0.1MICROAMPERE TRUE SHUTDOWN; SHORT CIRCUIT PROTECTION AND SELECTABLE INPUT CURRENT LIMIT; PKG. OULTINE: 21-100158; PKG. CODE: N121B1+1; WLP12	
23	VL1	-	1	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;	
24	X10, X101-X103	-	4	108-0740-001	EMERSON NETWORK POWER	108-0740-001	CONNECTOR; MALE; PANELMOUNT; BANANA JACK; STRAIGHT; 1PIN	
25	PCB	-	1	MAX17250WLP	MAXIM	PCB	PCB:MAX17250WLP	-
26	IN1, J2, J3, PGND1	DNP	0	MAXIMPAD	N/A	MAXIMPAD	EVK KIT PARTS; MAXIM PAD; NO WIRE TO BE SOLDERED ON THE MAXIMPAD	
27	C7	DNP	0	N/A	N/A	OPEN	CAPACITOR; SMT (1210); OPEN; IPC MAXIMUM LAND PATTERN	
28	C8, C9	DNP	0	N/A	N/A	OPEN	CAPACITOR; SMT (3025); OPEN; IPC MAXIMUM LAND PATTERN	
29	C12	DNP	0	N/A	N/A	OPEN	CAPACITOR; SMT (0603); OPEN; FORMFACTOR	
TOTAL			34					

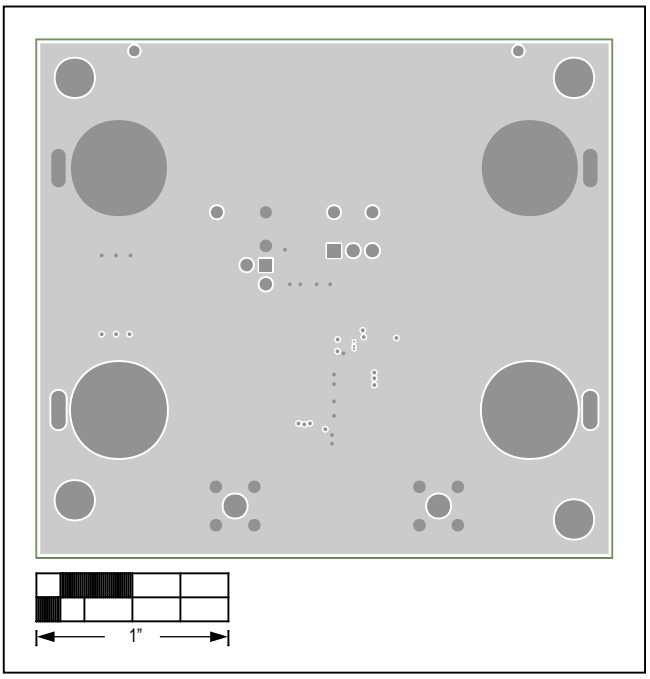
MAX17250 WLP EV Kit Schematics



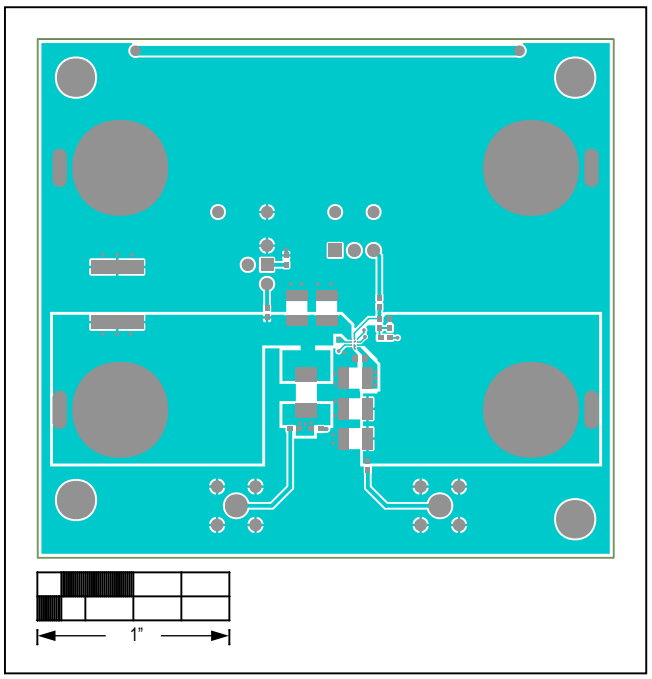
MAX17250 WLP EV Kit PCB Layout Diagrams



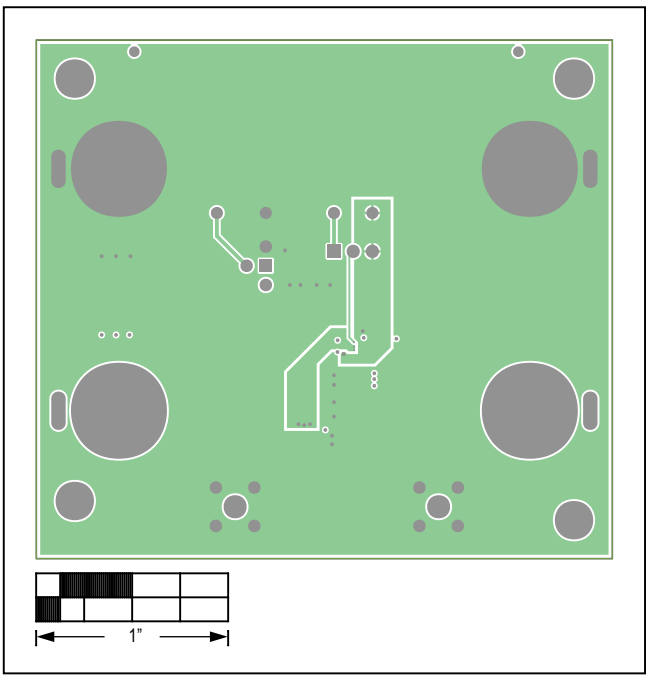
MAX17250 WLP EV Kit—Top Silkscreen



MAX17250 WLP EV Kit— Level 2 GND

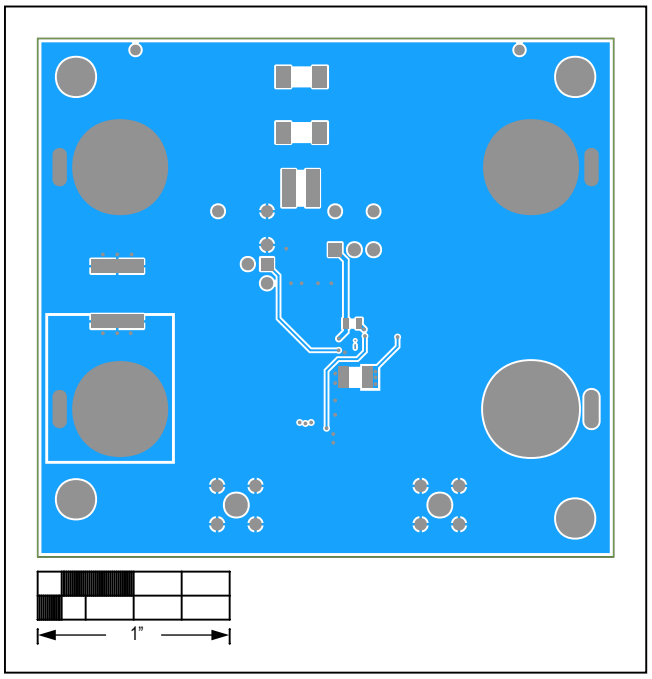


MAX17250 WLP EV Kit—Top

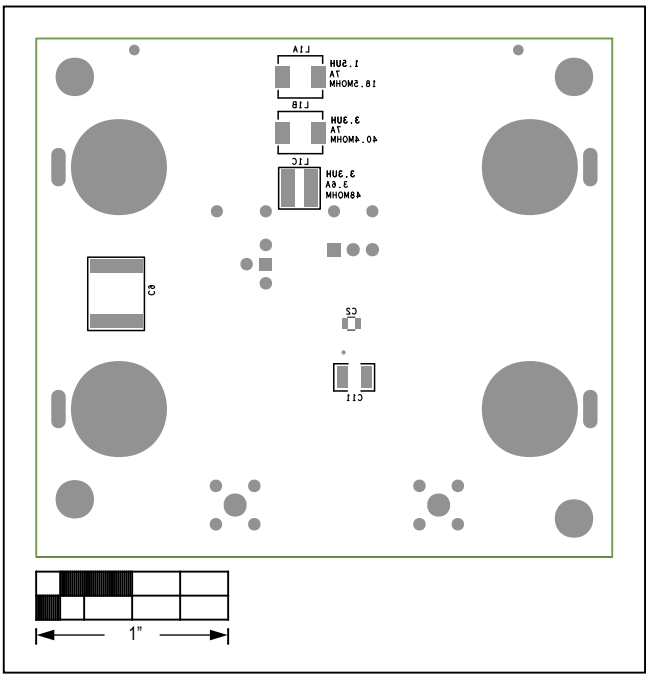


MAX17250 WLP EV Kit—Level 3 POWER

MAX17250 WLP EV Kit PCB Layout Diagrams (continued)



MAX17250 WLP EV Kit—Bottom



MAX17250 WLP EV Kit—Bottom Silkscreen

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	8/18	Initial release	—

For pricing, delivery, and ordering information, please visit Maxim Integrated's online storefront at https://www.maximintegrated.com/en/storefront/storefront.html.

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