

MAX17291 WLP Evaluation Kit

Evaluates: MAX17291 in WLP

General Description

The MAX17291 WLP evaluation kit (EV kit) evaluates the MAX17291 IC packaged in a WLP. The MAX17291 is a low quiescent current boost (step-up) DC-DC converter with a 1A peak inductor current limit, TrueShutdown™, and short-circuit protection. The MAX17291 EV kit operates over an input range of 1.8V to 5.5V and provides resistor-configurable output voltages from 5.5V to 20V. The EV kit comes with the MAX17291ANT+ (WLP) installed.

Benefits and Features

- Evaluates the MAX17291 IC in a 6-Bump WLP (3 x 2 Bump, 0.4mm Pitch)
- 1.8V to 5.5V Input Range
- 5.5V to 20V Configurable Output Voltage
- Up to 1A Input Peak Current
- Proven 2-Layer, 1.5oz Copper PCB Layout
- Demonstrates Compact Solution Size
- Fully Assembled and Tested

MAX17291 WLP EV Kit Files

FILE	DESCRIPTION
MAX17291 WLP EV BOM	EV Kit Bill of Materials
MAX17291 WLP EV PCB Layout	EV Kit Layout
MAX17291 WLP EV Schematic	EV Kit Schematic

Ordering Information appears at end of data sheet.

Quick Start

Required Equipment

- MAX17291 WLP EV Kit
- 1.8V to 5.5V, 5A DC Power Supply
- Electronic Load Capable of 310mA
- 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 the power supply until all connections are completed.

- 1) Verify that a shunt is installed on pins 1 and 2 of jumpers JU1 (EV kit enabled).
- 2) Connect the power supply between the IN and nearest GND terminal posts.
- 3) Connect the electronic load between the OUT and nearest GND terminal posts.
- 4) Connect the DVM between the OUT and nearest GND terminal posts.
- 5) Set the power supply to 5.5V and turn it on.
- 6) Set the electronic load to 310mA at constant current mode, then enable the electronic load.
- 7) Verify that the voltage at the OUT terminal post is approximately 12V.

TrueShutdown is a trademark of Maxim Integrated Products, Inc.

Detailed Description of Hardware

The MAX17291 WLP EV kit evaluates the MAX17291 IC in a WLP package. The MAX17291 is a high efficiency, low quiescent current, step-up DC-DC converter with TrueShutdown and short-circuit protection. True Shutdown disconnects the output from the input with no forward or reverse current. The MAX17291 WLP EV kit operates over an input range of 1.8V to 5.5V. The EV kit provides resistor-configurable output voltages from 5.5V to 20V.

The EV kit comes with the MAX17291ANT+ (WLP) installed and is configured for a 12V output. The 12V output can deliver 310mA of current at 5.5V input.

Component Suppliers

SUPPLIER	WEBSITE
Murata/TOKO	www.murata.com
Nexperia	www.nexperia.com
Nichicon	www.nichicon-us.com
Taiyo Yuden	www.ty-top.com

Note: Indicate that you are using the MAX17291 when contacting these component suppliers.

EN

The MAX17291 WLP EV kit provides a jumper JU1 to enable or disable the MAX17291. See [Table 1](#) for JU1 jumper settings.

Table 1. EN (JU1) Jumper Settings

SHUNT POSITION	DESCRIPTION
1-2*	Enabled. EN = IN*
2-3	Disabled. EN = GND

*Default position

Ordering Information

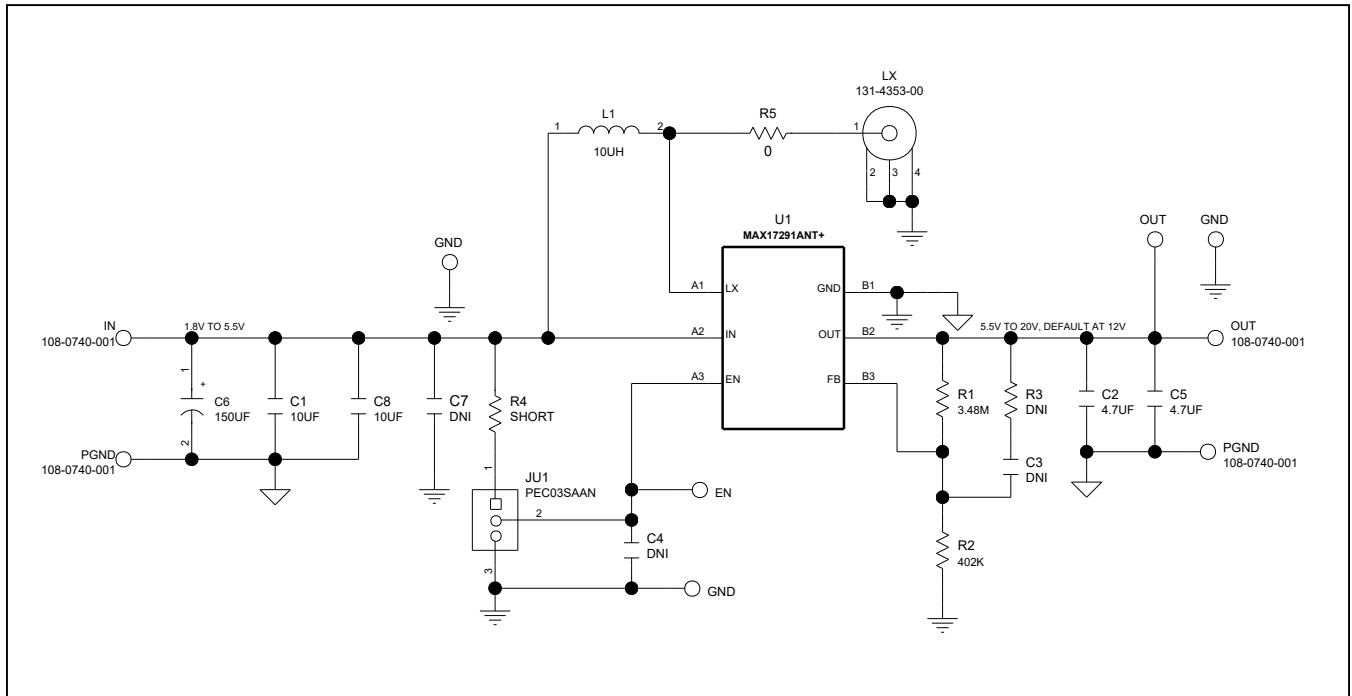
PART	TYPE
MAX17291EVK#WLP	EV Kit

#Denotes RoHS compliant.

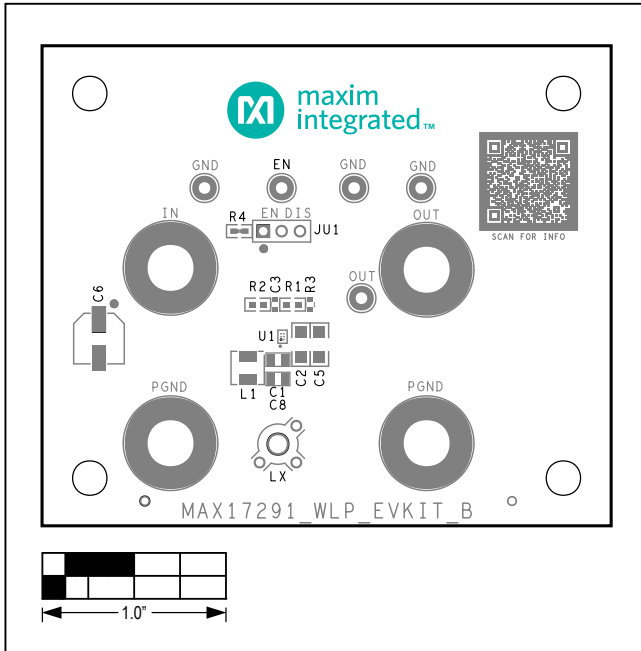
MAX17291 WLP EV Kit Bill of Materials

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
1	C1, C8	—	2	CL21B106KQNNN; LMK212AB7106KG; C0805X106K8RACAUTO; GRM21BR71A106KA73; C2012X7R1A106K125AC	SAMSUNG; TAIYO YUDEN; KEMET; MURATA;TDK	10µF	CAP; SMT (0805); 10µF; 10%; 10V; X7R; CERAMIC CHIP
2	C2, C5	—	2	GRM31CR71H475KA12; GRJ31CR71H475KE11; GXM31CR71H475KA10; UMK316AB7475KLL	MURATA;MURATA; MURATA; TAIYO YUDEN	4.7µF	CAPACITOR; SMT (1206); CERAMIC CHIP; 4.7µF; 50V; TOL = 10%; MODEL = ; TG = -55°C TO +125°C; TC = X7R
3	C6	—	1	UWJ0J151MCL	NICHICON	150µF	CAP; SMT; 150µF; 20%; 6.3V; ALUMINUM-ELECTROLYTIC
4	EN, TP3	—	2	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;
5	GND1, TP2, TP4	—	3	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;
6	IN, OUT, PGND, PGND2	—	4	108-0740-001	EMERSON NETWORK POWER	108-0740-001	CONNECTOR; MALE; PANELMOUNT; BANANA JACK; STRAIGHT; 1PIN
7	JU1	—	1	PEC03SAAN	SULLINS	PEC03SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 3PINS
8	L1	—	1	FDSD0420-H-100M	MURATA	10µH	INDUCTOR; SMT; SHIELDED; 10µH; 20%; 1.7A
9	LX	—	1	131-4353-00	TEKTRONICS	131-4353-00	CONNECTOR; WIREMOUNT; CIRCUIT BOARD TEST POINT MINIATURE PROBE; STRAIGHT; 4PINS
10	MH1-MH4	—	4	9032	KEYSTONE	9032	MACHINE FABRICATED; ROUND-THRU HOLE SPACER; NO THREAD; M3.5; 5/8IN; NYLON
11	R1	—	1	CRCW06033M48FK	VISHAY	3.48M	RES; SMT (0603); 3.48M; 1%; ±100PPM/°K; 0.1W
12	R2	—	1	CRCW06034023FK; ERJ-3EKF4023	VISHAY; PANASONIC	402K	RESISTOR; 0603; 402KΩ; 1%; 100PPM; 0.10W; THICK FILM
13	R5	—	1	ERJ-2GE0R00	PANASONIC	0	RESISTOR; 0402; 0Ω; 0%; JUMPER; 0.10W; THICK FILM
14	SU1	—	1	2SN-BK-G	SAMTEC	2SN-BK-G	TEST POINT; JUMPER; STR; TOTAL LENGTH = 0.175IN; BLACK; INSULATION = PBT; PHOSPHOR BRONZE CONTACT = GOLD PLATED
15	U1	—	1	MAX17291ANT+	MAXIM	MAX17291ANT+	EVKIT PART-IC; MAX17291ANT+; HIGH-VOLTAGE MICROPOWER BOOST CONVERTER; PACKAGE OUTLINE: 21-100128; PACKAGE CODE: N60E1+1; WLP6
16	PCB	—	1	MAX17291WLP	MAXIM	PCB	PCB:MAX17291WLP
17	C3, C4	DNP	0	N/A	N/A	OPEN	CAPACITOR; SMT (0603); OPEN; FORMFACTOR
18	C7	DNP	0	N/A	N/A	N/A	CAPACITOR; 0402 PACKAGE; GENERIC
19	R3	DNP	0	N/A	N/A	OPEN	RESISTOR; 0603; OPEN; FORMFACTOR
20	R4	DNP	0	N/A	N/A	SHORT	PACKAGE OUTLINE 0603 RESISTOR
TOTAL			27				

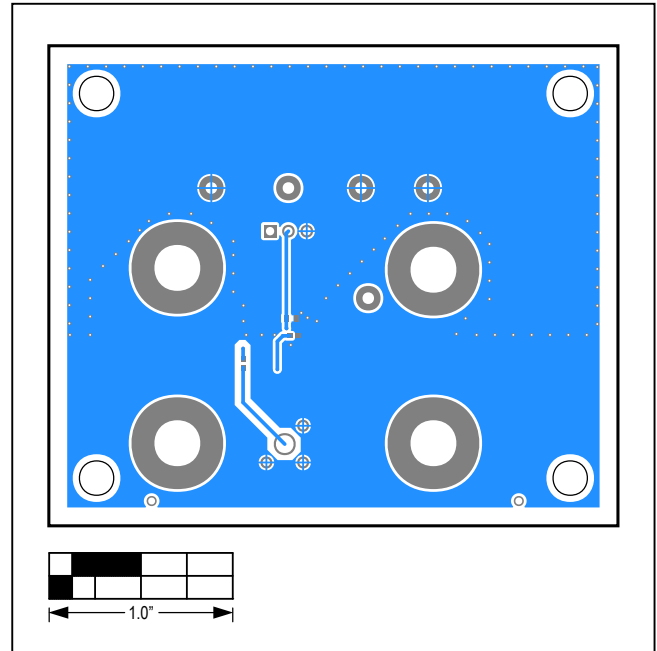
MAX17291 WLP EV Kit Schematic Diagram



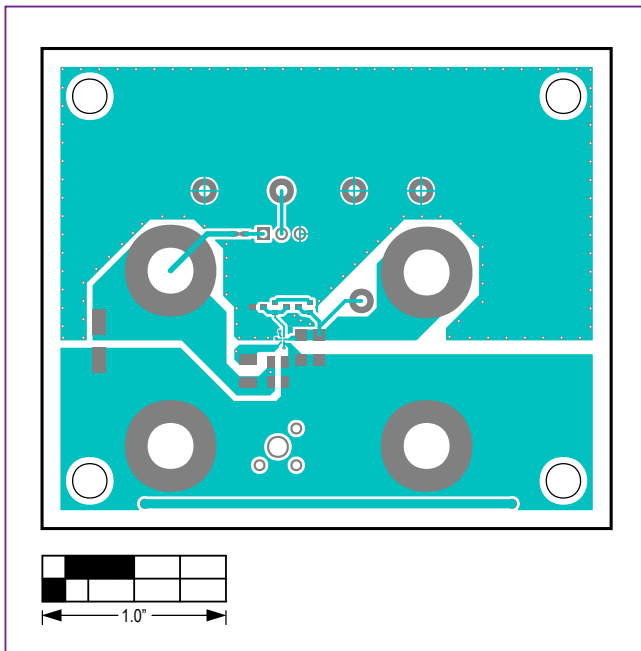
MAX17291 WLP EV Kit PCB Layout Diagrams



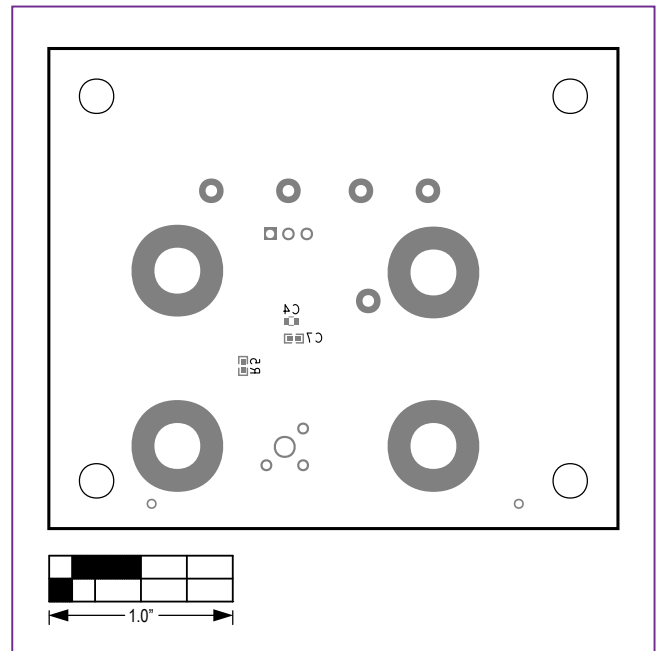
MAX17291 WLP EV Kit PCB Layout—Top Silkscreen



MAX17291 WLP EV Kit PCB Layout—Bottom View



MAX17291 WLP EV Kit PCB Layout—Top View



MAX17291 WLP EV Kit PCB Layout—Silkscreen Bottom

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	10/20	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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