

## MAX38650A Evaluation Kit

Evaluates: MAX38650A

### General Description

The MAX38650A WLP evaluation kit (EV kit) evaluates the MAX38650A IC in a WLP package. The MAX38650A is an ultra-low quiescent current step-down DC-DC converter. The EV kit operates from an input range of 1.8V to 5.5V and provides resistor-configurable output voltages from 1.2V to 3.3V. The EV kit delivers up to 100mA of current. The EV kit comes with the MAX38650AANT+ installed.

### Features

- Evaluates the MAX38650A IC in a (1.58mm x 0.89mm, 0.4mm Pitch) 6-Pin WLP Package
- 1.8V to 5.5V Input Range
- 1.2V to 3.3V Configurable Output Voltage
- Up to 100mA Output Current
- Proven 2-Layer 1oz Copper PCB Layout
- Demonstrates Compact Solution Size
- Fully Assembled and Tested

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

### MAX38650A EV Kit Files

FILE	DESCRIPTION
MAX38650A WLP EV BOM	EV Kit Bill of Material
MAX38650A WLP EV PCB Layout	EV Kit Layout
MAX38650A WLP EV Schematic	EV Kit Schematic

## Quick Start

### Required Equipment

- MAX38650A WLP EV kit
- 5.5V, 3A DC power supply
- Electronic load capable of 100mA
- Digital voltmeter (DVM)

### Procedure

The EV kit is fully assembled and tested. Use the following steps 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 5.5V power supply between the IN and nearest GND terminal posts.
3. Connect the 100mA electronic load between the OUT and nearest GND terminal posts.
4. Connect the DVM between the OUT and nearest GND terminal posts.
5. Turn on the power supply.
6. Enable the electronic load.
7. Verify that the voltage at the OUT terminal post is approximately 1.2V.

## Detailed Description of Hardware

The MAX38650A WLP EV kit evaluates the MAX38650A IC in a WLP package. The MAX38650 IC is an ultra-low quiescent current step-down DC-DC converter. The EV kit operates over an input range of 1.8V to 5.5V and provides resistor-configurable output voltages from 1.2V to 3.3V. The EV kit delivers up to 100mA of current depending on the input voltage to the output voltage ratio. The EV kit comes with the MAX38650AANT+ installed.

### EN

The MAX38650A WLP EV kit provides a jumper JU1 to enable or disable the MAX38650A. See [Table 1](#) for jumper JU1 settings.

**Table 1. EN (JU1)**

SHUNT POSITION	DESCRIPTION
1-2*	EV kit enabled
1-3	EV kit controlled by external (TTL) source connected to EXT_EN
1-4	EV kit disabled

\*Default position.

**RSEL**

The MAX38650A WLP EV kit provides a jumper JU2 to configure the RSEL pin of the MAX38650A. See [Table 2](#) for jumper JU2 settings.

**Table 2. RSEL (JU2)**

SHUNT POSITION	DESCRIPTION
1-2*	OUT = 1.2V
1-3	OUT = 1.5V
1-4	OUT = 1.8V
1-5	OUT = 3.3V
OPEN	OUT = 2.5V

\*Default position.

**Component Suppliers**

SUPPLIER	WEBSITE
Panasonic	<a href="https://na.industrial.panasonic.com/">https://na.industrial.panasonic.com/</a>
Taiyo Yuden	<a href="http://www.ty-top.com">www.ty-top.com</a>
TDK	<a href="http://www.tdk-electronics.tdk.com/">www.tdk-electronics.tdk.com/</a>
Würth Electronics	<a href="http://www.we-online.com">www.we-online.com</a>

**Note:** Indicate that you are using the MAX38650A when contacting these component suppliers.

**Ordering Information**

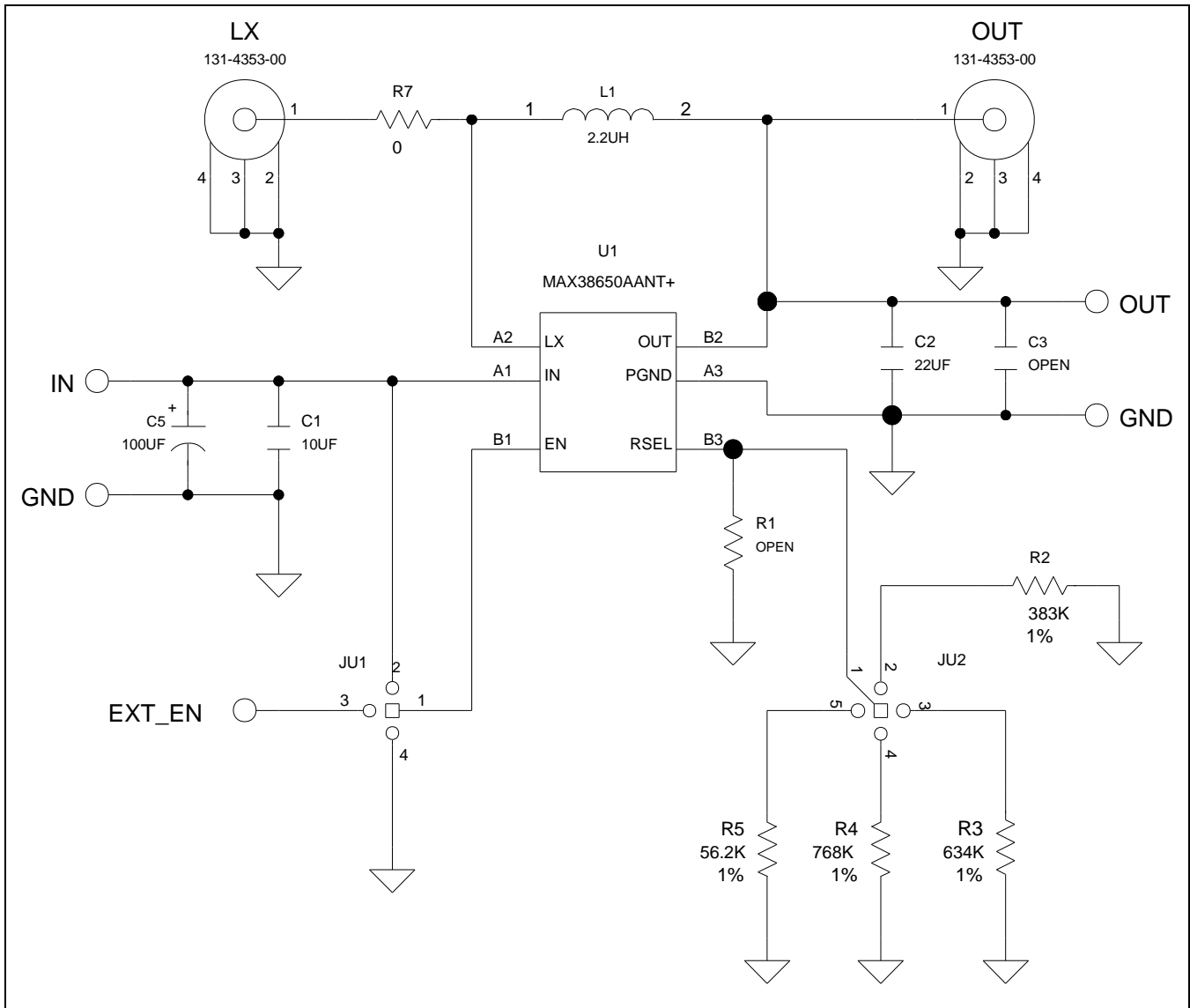
PART	TYPE
MAX38650AEVK#WLP	EV Kit

#Denotes RoHS compliance.

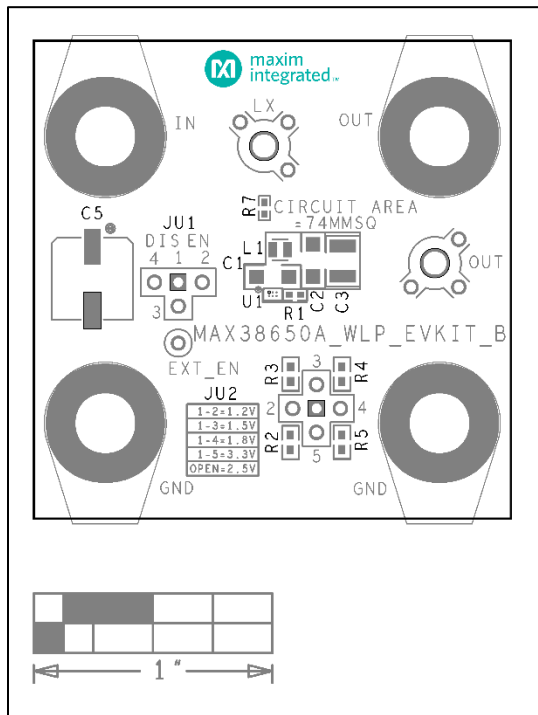
## MAX38650A EV Kit Bill of Materials

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
1	C1	-	1	GRM31CR71C106KAC7; GRM31CR71C106KA12; C3216X7R1C106K160AC	MURATA; TDK	10 $\mu$ F	CAPACITOR (1206); CERAMIC CHIP; 10 $\mu$ F; 16V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R
2	C2	-	1	EMK316BB7226ML	TAIYO YUDEN	22 $\mu$ F	CAPACITOR (1206); CERAMIC CHIP; 22 $\mu$ F; 16V; TOL=20%; TG=-55 DEGC TO +125 DEGC; TC=X7R
3	C5	-	1	25SVPF100M	PANASONIC	100 $\mu$ F	CAPACITOR (CASE_E7); 100 $\mu$ F; 20%; 25V; ALUMINUM-ORGANIC
4	J1-J4	-	4	108-0740-001	EMERSON NETWORK POWER	108-0740-001	CONNECTOR; FEMALE; PCB MOUNT; BANANA JACK; STRAIGHT; 1PIN
5	JU1	-	1	PEC04SAAN	SULLINS ELECTRONICS CORP	PEC04SAAN	HEADER; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 4PINS 0.100" (2.54mm)
6	JU2	-	1	PBC05SAAN	SULLINS ELECTRONICS CORP	PBC05SAAN	HEADER; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 5PINS 0.100" (2.54mm)
7	L1	-	1	74479276222C	WURTH ELECTRONICS INC.	2.2 $\mu$ H	INDUCTOR (0806) MOLDED CHIP; 2.2 $\mu$ H; 20%; 1.60A
8	R2	-	1	CRCW0603383KFK	VISHAY DALE	383k $\Omega$	RESISTOR (0603) 383k $\Omega$ ; 1%; 100PPM; 0.1W; THICK FILM
9	R3	-	1	ERJ-3EKF6343	PANASONIC	634k $\Omega$	RESISTOR (0603) 634k $\Omega$ ; 1%; +/-100PPM/DEGC; 0.1W
10	R4	-	1	CRCW0603768KFK	VISHAY DALE	768k $\Omega$	RESISTOR (0603) 768k $\Omega$ ; 1%; 100PPM; 0.1W; THICK FILM
11	R5	-	1	CRCW060356K2FK; ERJ-3EKF5622	VISHAY; PANASONIC	56.2k $\Omega$	RESISTOR (0603) 56.2k $\Omega$ ; 1%; 100PPM; 0.10W; METAL FILM
12	R7	-	1	ERJ-2GE0R00	PANASONIC	0	RESISTOR (0402) 0 $\Omega$ ; 0%; JUMPER; 0.10W; THICK FILM
13	SU1, SU2	-	2	SX1100-B; STC02SYAN	KYCON; SULLINS ELECTRONICS CORP	SX1100-B	TEST POINT; JUMPER; STR; TOTAL LENGTH=0.24IN; BLACK; INSULATION=PBT; PHOSPHOR BRONZE CONTACT=GOLD PLATED
14	TP5	-	1	5002	KEYSTONE	N/A	TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; WHITE; PHOSPHOR BRONZE WIRE SILVER;
15	TP8, TP9	-	2	131-4353-00	TEKTRONICS	131-4353-00	CONNECTOR; WIREMOUNT; CIRCUIT BOARD TEST POINT MINIATURE PROBE; STRAIGHT; 4PINS
16	U1	-	1	MAX38650AANT+	MAXIM	MAX38650AANT+	EVKIT PART - IC; VCON; TINY 1.8V-5.5V INPUT; 390nA Iq; 100mA NANOPOWER BUCK CONVERTER WITH 100% DUTY CYCLE OPERATION; PACKAGE CODE: N60R1+1; PACKAGE OUTLINE NUMBER: 21-100464; WLP6
17	PCB	-	1	MAX38650AWLP	MAXIM	PCB	PCB:MAX38650AWLP
18	C3	DNP	0	N/A	N/A	OPEN	CAPACITOR (1210) OPEN
19	R1	DNP	0	N/A	N/A	OPEN	RESISTOR (0402) OPEN
TOTAL			22				

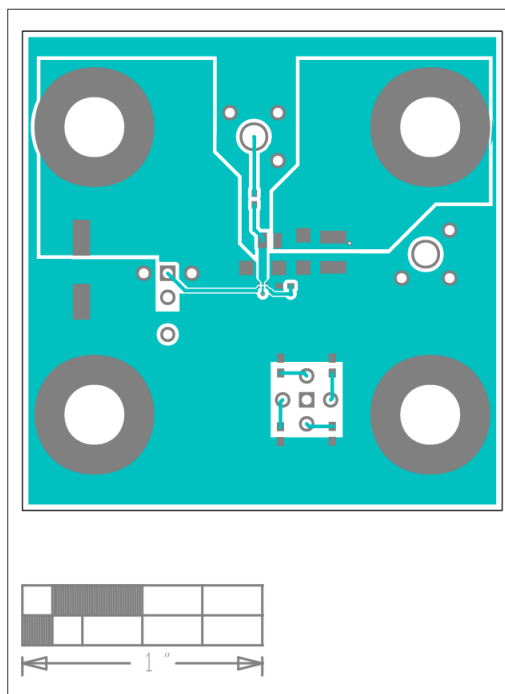
MAX38650A EV Kit Schematic



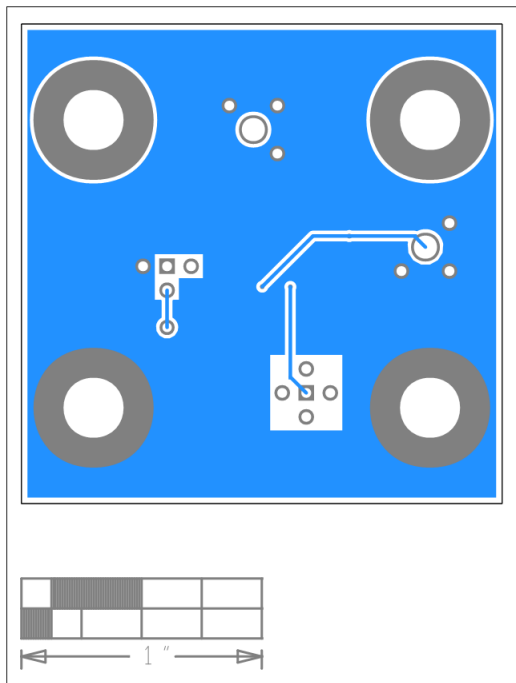
MAX38650A EV Kit PCB Layouts



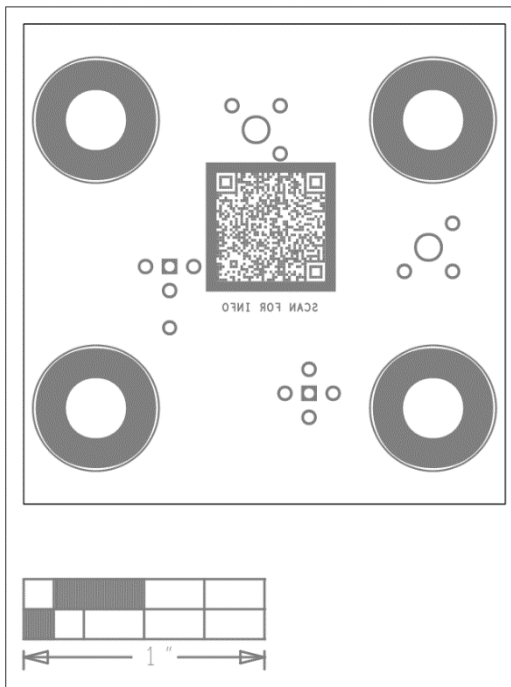
MAX38650A EV Kit PCB Layout—Silk Top



MAX38650A EV Kit PCB Layout—Top



MAX38650A EV Kit PCB Layout—Bottom



MAX38650A EV Kit PCB Layout—Silk Bottom

**Revision History**

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	11/20	Release for Market Intro	—

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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