Click here for production status of specific part numbers.

MAX38640A WLP Evaluation Kit

Evaluates: MAX38640 A in WLP

General Description

The MAX38640A evaluation kit (EV kit) evaluates the MAX38640A, an ultra-low quiescent current step-down DC-DC converter in a WLP. The EV kit operates over an input range of 1.8V to 5.5V, and provides resistor-configurable output voltages from 1.0V to 3.3V. The EV kit delivers up to 175mA of current depending on the input voltage to the output voltage ratio.

The EV kit comes with the MAX38640AENT+ installed.

Features

- Evaluates the MAX38640A in a 6-pin WLP
- 1.8V to 5.5V Input Range
- 1.0V to 3.3V Configurable Output Voltage
- Up to 175mA Output Current
- Proven 2-Layer 1oz Copper PCB Layout
- Demonstrates Compact Solution Size
- Fully Assemble and Tested

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

Quick Start

Required Equipment

- MAX38640A WLP EV kit
- 5.5V, 3A DC power supply
- Electronic load capable of 175mA
- 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 5.5V power supply between the IN and nearest GND terminal posts.
3) Connect the 175mA 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 1.8V, within the device and the Output Voltage Selecting Resistor (RSEL)'s accuracy specifications.

MAX38640A EV Kit Files

FILE	DECRIPTION
MAX38640A WLP EV BOM	EV Kit Bill of Material
MAX38640A WLP EV PCB Layout	EV Kit Layout
MAX38640A WLP EV Schematic	EV Kit Schematic

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Detailed Description of Hardware

The MAX38640A EV kit evaluates the MAX38640A, an ultra-low quiescent current step-down DC-DC converter in the WLP. The EV kit operates over an input range of 1.8V to 5.5V, and provides resistor-configurable output voltages from 1.0V to 3.3V. The EV kit delivers up to 175mA of current depending on the input voltage to the output voltage ratio.

The EV kit comes with the MAX38640AENT+ installed.

EN

The MAX38640A WLP EV kit provides a jumper JU1 to enable or disable the MAX38640A. Refer to 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.*

Output Voltage Selection

The MAX38640A WLP EV kit provides a jumper JU2 to select the MAX38640A output voltage. Refer to Table 2 for jumper JU2 settings.

Spare Inductor

The MAX38640A WLP EV kit provides a spare inductor on the PCB's bottom side. This spare inductor can be used to reconfigure the EV kit with a lower inductor DC resistance.

Table 2. OUT (JU2)

SHUNT POSITION	DESCRIPTION
1-2	OUT = 1.0V
1-3	OUT = 1.5V
1-4*	OUT = 1.8V
1-5	OUT = 3.3V
Not Installed	Output Voltage can be configured to between 0.7V and 3.3V by resistor R1. Refer to the IC data sheet.

**Default position.*

Component Suppliers

SUPPLIER	WEBSITE
Murata	www.murata.com
Samsung Electronics	www.samsung.com
Wurth Electronics	www.we-online.com

***Note:** Indicate that you are using the MAX38640A when contacting these component suppliers.*

Ordering Information

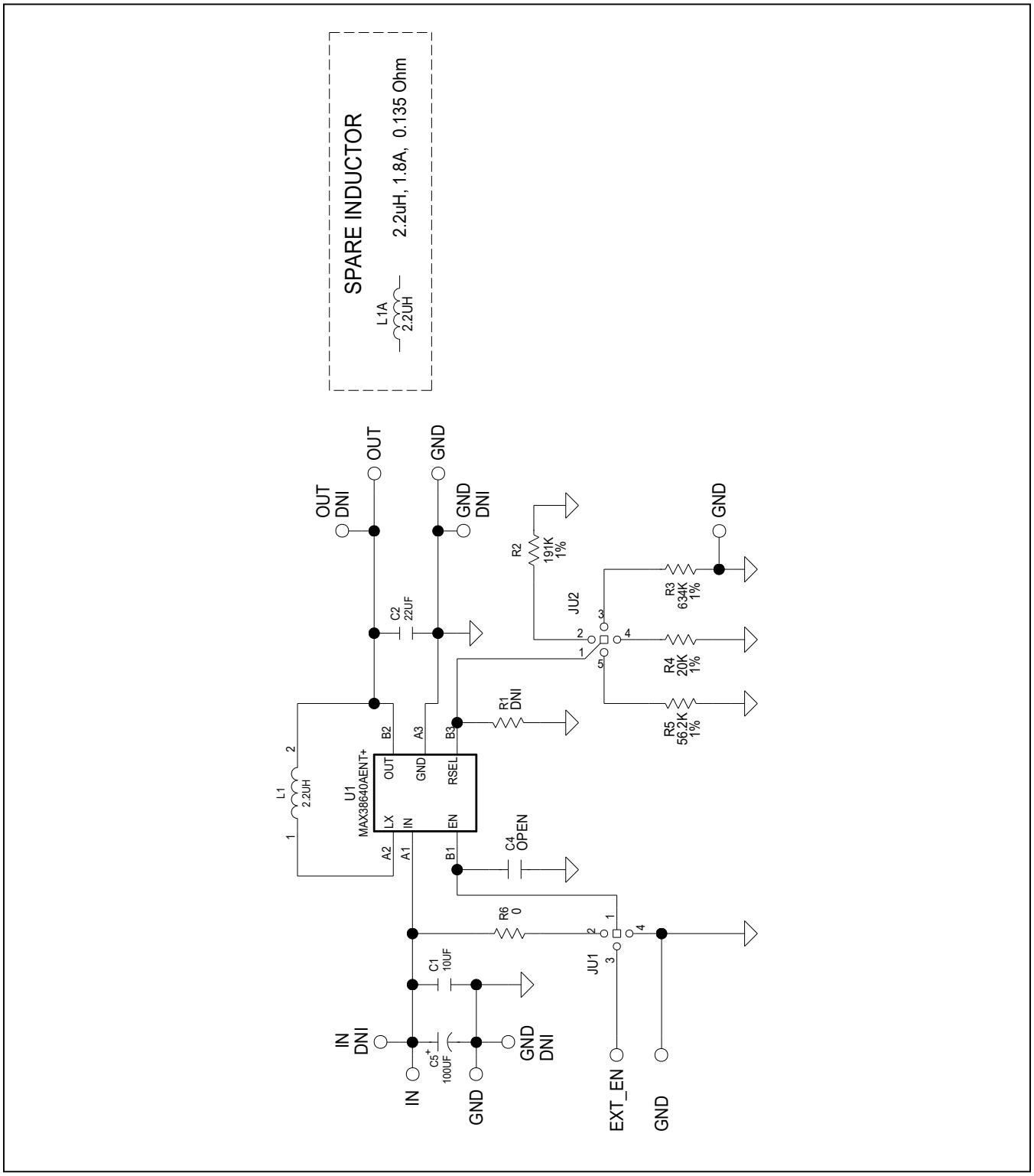
PART	TYPE
MAX38640AEVK#WLP	EV Kit

#Denotes RoHS-compliant device

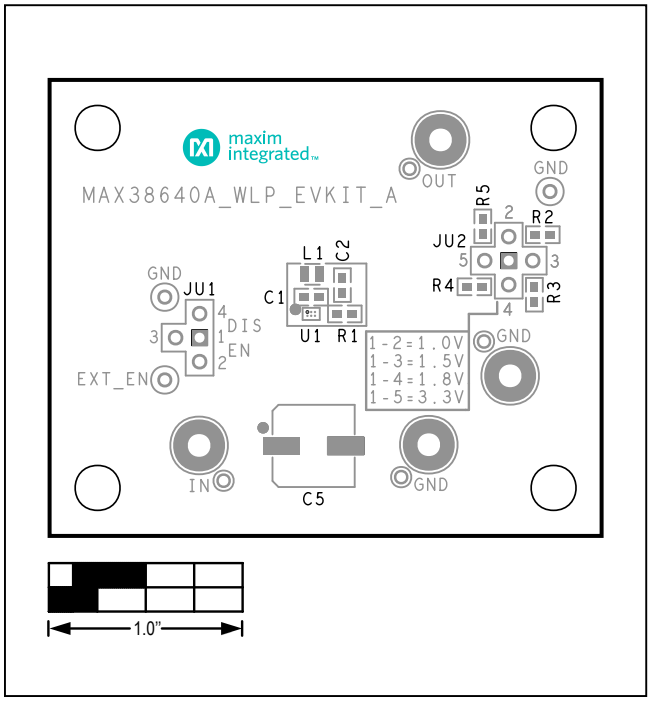
MAX38640A WLP EV Kit Bill of Materials

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
1	C1	-	1	C1608X5R1A106K080AC	TDK	10UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 10µF; 10V; TOL = 10%; MODEL = ; TG = -55°C TO +85°C; TC = X5R
2	C2	-	1	CL10A226KQ8NRN	SAMSUNG	22UF	CAP; SMT (0603); 22UF; 10%; 6.3V; X5R; CERAMIC CHIP
3	C5	-	1	25SVPF100M	PANASONIC	100UF	CAP; SMT (CASE_E7); 100µF; 20%; 25V; ALUMINUM-ORGANIC
4	J1-J4	-	4	1514-2	KEYSTONE	1514-2	TERMINAL; TURRET; PIN DIA = 0.090IN; TOTAL LENGTH = 0.105IN; BOARD HOLE = 0.098IN; BRASS; TIN PLATING;
5	JU1	-	1	PEC04SAAN	SULLINS ELECTRONICS CORP.	PEC04SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 4PINS
6	JU2	-	1	PBC05SAAN	SULLINS ELECTRONICS CORP.	PBC05SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 5PINS; -65°C TO +125°C
7	L1	-	1	1285AS-H-2R2M	TOKO	2.2UH	INDUCTOR; SMT (2016); METAL ALLOY CHIP; 2.2UH; TOL = ±20%; 1.4A
8	L1A	-	1	74479276222	WURTH ELECTRONICS INC.	2.2UH	INDUCTOR; SMT (0806); MOLDED CHIP; 2.2µH; 30%; 1.40A
9	R2	-	1	CRCW0603191KFK	VISHAY DALE	191K	RESISTOR; 0603; 191KΩ; 1%; 100PPM; 0.10W; METAL FILM
10	R3	-	1	ERJ-3EKF6343	PANASONIC	634K	RES; SMT (0603); 634K; 1%; ±100PPM/DEGC; 0.1W
11	R4	-	1	CRCW060320K0FK	VISHAY DALE	20K	RESISTOR; 0603; 20KΩ; 1%; 100PPM; 0.1W; THICK FILM
12	R5	-	1	ERJ-3EKF5622	PANASONIC	56.2K	RESISTOR; 0603; 56.2KΩ; 1%; 100PPM; 0.1W; THICK FILM
13	R6	-	1	RC1608J000CS; CR0603-J/-000ELF; RC0603JR-070RL	SAMSUNG ELECTRONICS; BOURNS;YAGEO PH	0	RESISTOR; 0603; 0Ω; 5%; JUMPER; 0.10W; THICK FILM
14	SU1, SU2	-	2	S1100-B;SX1100-B; STC02SYAN	KYCON;KYCON; SULLINS ELECTRONICS CORP.	SX1100-B	TEST POINT; JUMPER; STR; TOTAL LENGTH = 0.24IN; BLACK; INSULATION = PBT; PHOSPHOR BRONZE CONTACT = GOLD PLATED
15	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;
16	TP6, TP7	-	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;
17	U1	-	1	MAX38640AENT+	MAXIM	MAX38640AENT+	EVKIT PART - IC; TINY 300NANO-AMP NANOPOWER BUCK CONVERTER; PACKAGE OUTLINE: 21-100128; PACKAGE CODE: N60E1+1; WLP6
18	PCB	-	1	MAX38640AWLP	MAXIM	PCB	PCB:MAX38640AWLP
19	MH1-MH4	DNP	0	9032	KEYSTONE	9032	MACHINE FABRICATED; ROUND-THRU HOLE SPACER; NO THREAD; M3.5; 5/8IN; NYLON
20	R1	DNP	0	CRCW06030000Z0	VISHAY DALE	0	RESISTOR; 0603; 0Ω; 0%; JUMPER; 0.1W; THICK FILM
21	C4	DNP	0	N/A	N/A	OPEN	PACKAGE OUTLINE 0603 NON-POLAR CAPACITOR
TOTAL			23				

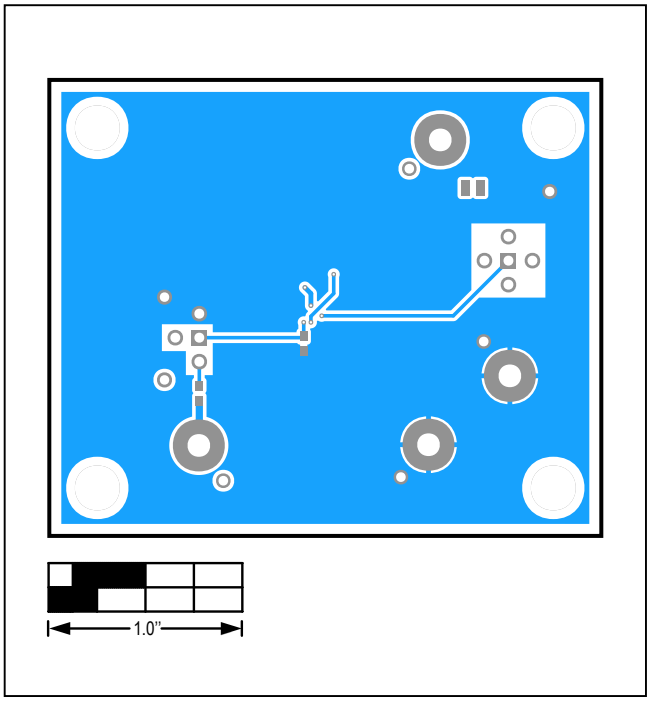
MAX38640A WLP EV Kit Schematic



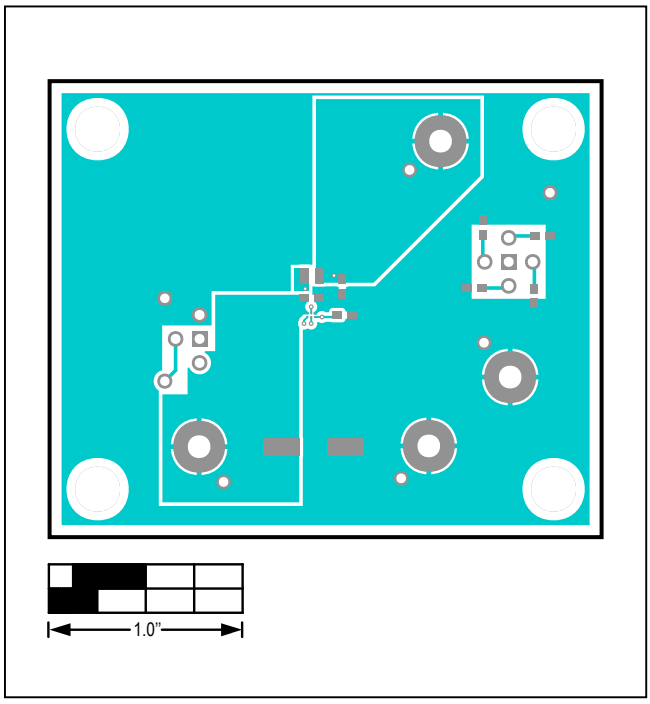
MAX38640A WLP EV Kit PCB Layout Diagrams



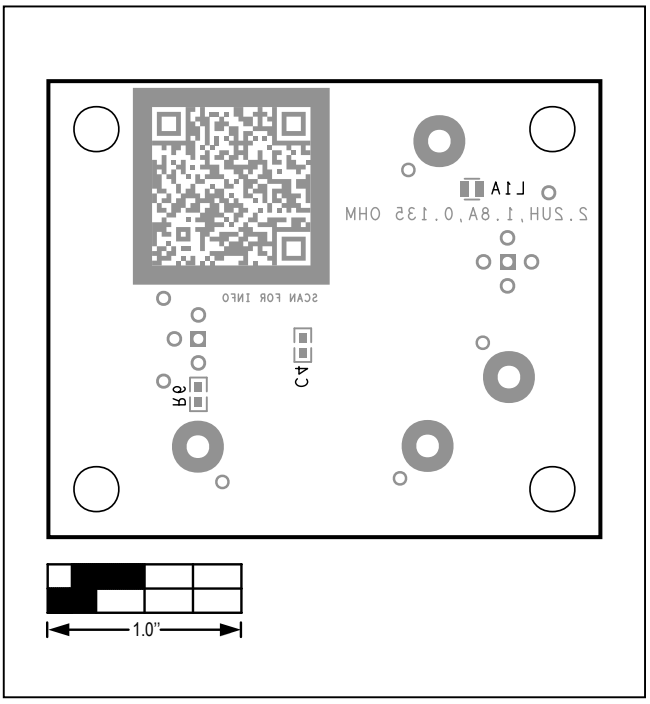
MAX38640A WLP EV Kit—Top Silkscreen



MAX38640A WLP EV Kit—Bottom



MAX38640A WLP EV Kit—Top



MAX38640A WLP EV Kit—Bottom Silkscreen

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	4/19	Initial release	—
1	7/19	Updated title of data sheet	1–6

Mouser Electronics

Authorized Distributor

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