Click here for production status of specific part numbers.

MAX38640 µDFN Evaluation Kit

Evaluates: MAX38640/1/2/3 A/B in µDFN

General Description

The MAX38640 evaluation kit (EV kit) evaluates the MAX38640/1/2/3 A/B IC family of ultra-low quiescent current step-down DC-DC converters in the µDFN package. The EV kit operates over an input range of 1.8V to 5.5V, and provides resistor-configurable output voltages from 0.7V to 3.3V. The EV kit delivers up to 175mA/350mA/700mA of current depending on the input voltage to the output voltage ratio.

The EV kit comes with the MAX38640AELT+ installed.

Features

- Evaluates the MAX38640/1/2/3 A/B IC Family in a 6-pin µDFN
- 1.8V to 5.5V Input Range
- 0.7V to 3.3V Configurable Output Voltage
- Up to 175mA/350mA/700mA 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

- MAX38640 µDFN EV kit
- 5.5V, 3A DC power supply
- Electronic load capable of 250mA
- 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 250mA 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 1.8V.

MAX38640 EV Kit Files

FILE	DECRIPTION
MAX38640 µDFN EV BOM	EV Kit Bill of Material
MAX38640 µDFN EV PCB Layout	EV Kit Layout
MAX38640 µDFN EV Schematic	EV Kit Schematic
MAX38640 µDFN EV Minimal Component Schematic	Minimal Component Circuit

319-100268; Rev 0; 10/18

maxim integrated™

Detailed Description of Hardware

The MAX38640 EV kit evaluates the MAX38640/1/2/3 A/B IC family of ultra-low quiescent current step-down DC-DC converters in the µDFN package. The EV kit operates over an input range of 1.8V to 5.5V, and provides resistor-configurable output voltages from 0.7V to 3.3V. The EV kit delivers up to 175mA/350mA/700mA of current depending on the input voltage to the output voltage ratio.

The EV kit comes with the MAX38640AELT+ installed.

EN

The MAX38640 µDFN EV kit provides a jumper JU1 to enable or disable the MAX38640. Refer to Table 1 for jumper JU1 settings.

RSEL

The MAX38640 µDFN EV kit provides a jumper JU2 to configure the RSEL pin of the MAX38640. Refer to Table 2 for jumper JU2 settings.

Spare Inductors

The MAX38640 µDFN EV kit provides spare inductors on the PCB's bottom side. The spare inductors can be used to reconfigure the EV kit output current ratings.

Evaluating the other MAX38640/1/2/3 A/B

The MAX38640 µDFN EV kit can be modified to evaluate the other µDFN ICs in the MAX38640/1/2/3 A/B family. To evaluate the other µDFN ICs in the MAX3864x A/B family, replace U1 with the desired IC and refer to the MAX38640/1/2/3 A/B IC data sheet for additional detail.

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.*

Table 2. RSEL (JU2)

SHUNT POSITION	DESCRIPTION
1-2	OUT = 0.7V
1-3	OUT = 1.0V
1-4*	OUT = 1.8V
1-5	OUT = 3.3V

**Default position.*

Component Suppliers

SUPPLIER	WEBSITE
Cal Chip Electronics	www.calchipelectronics.com/
Samsung Electronics	www.samsung.com
Wurth Electronics	www.we-online.com

Note: *Indicate that you are using the MAX38640/1/2/3 A/B when contacting these component suppliers.*

Ordering Information

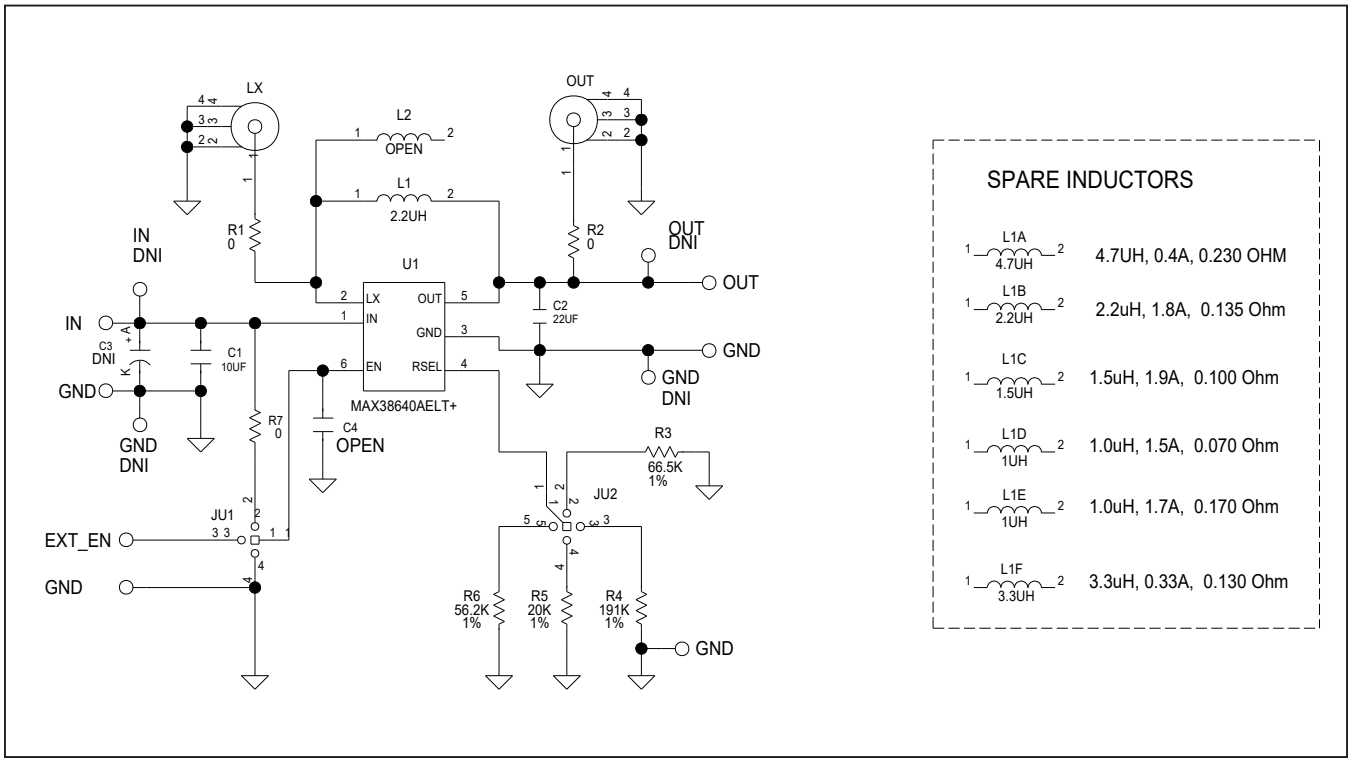
PART	TYPE
MAX38640EVKIT#µDFN	EV Kit

#Denotes RoHS

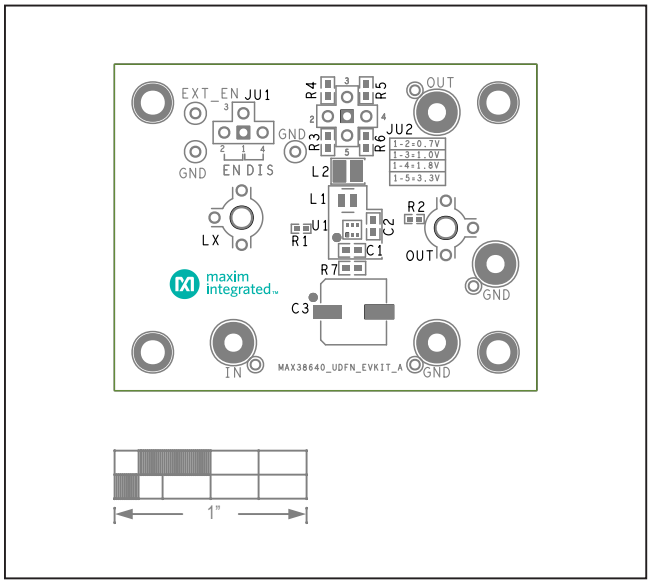
MAX38640 µDFN EV Kit Bill of Materials

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION	COMMENTS
1	C1	-	1	C1608X5R1A106K	TDK	10UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 10UF; 10V; TOL=10%; MODEL=; TG=-55 DEGC TO +85 DEGC; TC=X5R	
2	C2	-	1	CL10A226KQ8NRN	SAMSUNG	22UF	CAP; SMT (0603); 22UF; 10%; 6.3V; X5R; CERAMIC CHIP	
3	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;	
4	JU1	-	1	PEC04SAAN	SULLINS ELECTRONICS CORP.	PEC04SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 4PINS	
5	JU2	-	1	PBC05SAAN	SULLINS ELECTRONICS CORP.	PBC05SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 5PINS; -65 DEGC TO +125 DEGC	
6	L1	-	1	1285AS-H-2R2M	TOKO	2.2UH	INDUCTOR; SMT (2016); METAL ALLOY CHIP; 2.2UH; TOL=+/-20%; 1.4A	
7	L1A	-	1	74479887247A	WURTH ELECTRONICS INC.	4.7UH	INDUCTOR; SMT (1008); SHIELDED; 4.7UH; 20%; 1.00A	
8	L1B	-	1	74479276222□	WURTH ELECTRONICS INC.	2.2UH	INDUCTOR; SMT (0806); MOLDED CHIP; 2.2UH; 30%; 1.40A	
9	L1C	-	1	74479976215□	WURTH ELECTRONICS INC.	1.5UH	INDUCTOR; SMT (0806); SHIELDED; 1.5UH; 20%; 1.60A	
10	L1D	-	1	74479876210□	WURTH ELECTRONICS INC.	1UH	INDUCTOR; SMT (0806); SHIELDED; 1UH; 20%; 1.50A	
11	L1E	-	1	74479262210□	WURTH ELECTRONICS INC	1UH	INDUCTOR; SMT (0603); MOLDED CHIP; 1UH; TOL=+/-20%; 1.2A	
12	L1F	-	1	74479776233A	WURTH ELECTRONICS INC	3.3UH	EVKIT PART- COUPLED INDUCTOR; SMT; SHIELDED; 3.3UH; +/-20%; 1.25A; COMBINATION OF 2520; 2016; AND 0603	
13	L2	-	1	OPEN	N/A	OPEN	EVKIT PART- INDUCTOR; SMT; COMBINATION OF 2520; 2016; 0603; OPEN	
14	LX, OUT	-	2	131-4353-00	TEKTRONICS	131-4353-00	CONNECTOR; WIREMOUNT; CIRCUIT BOARD TEST POINT MINIATURE PROBE; STRAIGHT; 4PINS	
15	R1, R2	-	2	RC0402JR-070RL; CR0402-16W-000RJT	YAGEO PHYCOMP; VENKEL LTD.	0	RESISTOR; 0402; 0 OHM; 5%; JUMPER; 0.063W; THICK FILM	
16	R3	-	1	CRCW060366K5FK; ERJ-3EKF6652V	VISHAY DALE;PANASONIC	66.5K	RESISTOR; 0603; 66.5K OHM; 1%; 100PPM; 0.10W; THICK FILM	
17	R4	-	1	CRCW0603191KFK	VISHAY DALE	191K	RESISTOR; 0603; 191K OHM; 1%; 100PPM; 0.10W; METAL FILM	
18	R5	-	1	CRCW060320K0FK	VISHAY DALE	20K	RESISTOR; 0603; 20K OHM; 1%; 100PPM; 0.1W; THICK FILM	
19	R6	-	1	ERJ-3EKF5622	PANASONIC	56.2K	RESISTOR; 0603; 56.2K OHM; 1%; 100PPM; 0.1W; THICK FILM	
20	R7	-	1	RC1608J000CS; CR0603-J/-000ELF;RC0603JR-070RL	SAMSUNG ELECTRONICS; BOURNS;YAGEO PH	0	RESISTOR; 0603; 0 OHM; 5%; JUMPER; 0.10W; THICK FILM	
21	SU1, SU2	-	2	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	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;	
23	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;	
24	U1	-	1	MAX38640AELT+	MAXIM	MAX38640AELT+	EVKIT PART - IC; TINY 300NANO-AMP NANOPOWER BUCK CONVERTER; PACKAGE OUTLINE: 21-0164; PACKAGE CODE: L622+1C; PACKAGE LAND PATTERN: 90-0004; DFN6	
25	PCB	-	1	MAX38640UDFN	MAXIM	PCB	PCB:MAX38640UDFN	-
26	C3	DNP	0	25SVPF100M	PANASONIC	100UF	CAP; SMT (CASE_E7); 100UF; 20%; 25V; ALUMINUM-ORGANIC	
27	C4	DNP	0	N/A	N/A	OPEN	PACKAGE OUTLINE 0603 NON-POLAR CAPACITOR	
TOTAL			32					

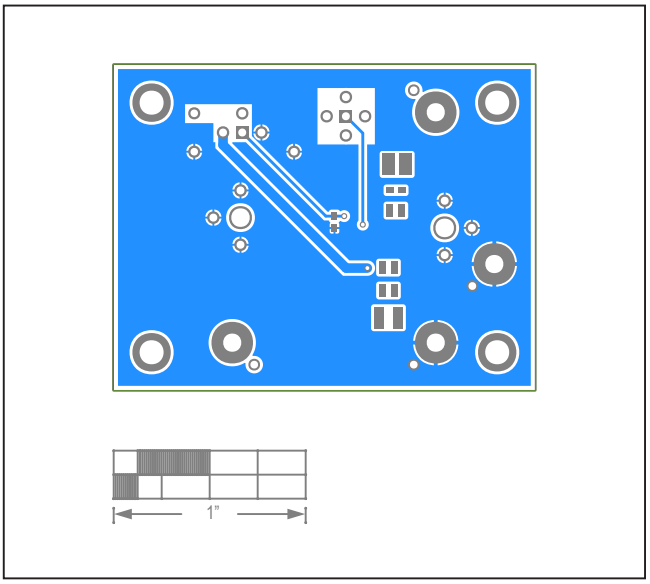
MAX38640 µDFN EV Kit Schematic



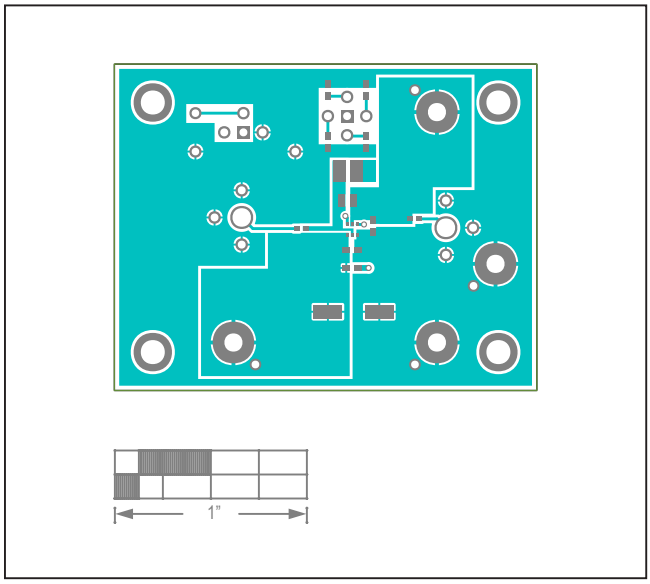
MAX38640 µDFN EV Kit PCB Layout Diagrams



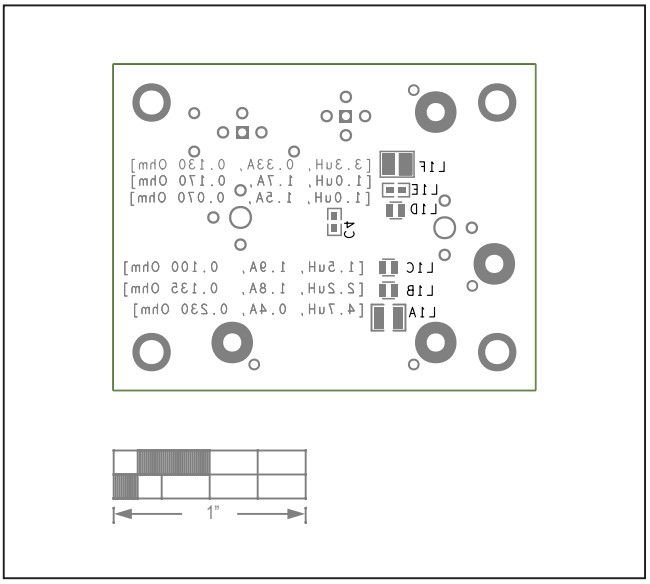
MAX38640 µDFN EV Kit—Top Silkscreen



MAX38640 µDFN EV Kit—Bottom



MAX38640 µDFN EV Kit—Top



MAX38640 µDFN EV Kit—Bottom Silkscreen

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	10/18	Initial release	—

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