

## MAX38903 WLP Evaluation Kit

Evaluates: MAX38903C/MAX38903D

### General Description

The MAX38903 wafer-level package (WLP) evaluation kit (EV kit) evaluates the MAX38903C/MAX38903D IC family of low noise linear regulators. The EV kit operates over an input range of 1.7V to 5.5V, provides an output voltage range from 0.6V to 5.0V, and delivers up to 1A of current. The EV kit comes with the MAX38903CANL+ installed.

### Features

- Evaluates the MAX38903C/MAX38903D IC in a 9-ball (1.4mm x 1.4mm) WLP
- 1.7V to 5.5V Input Range
- 0.6V to 5.0V Resistor Configurable Output Voltage (MAX38903C, Onboard with Output Set to 3.3V)
- 1.2V to 5.0V Factory-Preset Output Voltage (MAX38903D, with IC Replacement)
- Up to 1A Output Current
- Proven 2-Layer 1-oz Copper PCB Layout
- Demonstrates Compact Solution Size
- Fully Assembled and Tested

### MAX38903 WLP EV Kit Files

FILE	DESCRIPTION
MAX38903 WLP EV Kit BOM	EV Kit Bill of Material
MAX38903 WLP EV Kit PCB Layout	EV Kit Layout
MAX38903 WLP EV Kit Schematic	EV Kit Schematic

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

### Quick Start

#### Required Equipment

- MAX38903 WLP EV Kit
- 5.5V, 1A DC power supply
- Electronic load capable of 1A
- 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 jumper JU1 is in its default position as shown in [Table 1](#).
- 2) Connect the 5.5V power supply between the IN1 and nearest GND1 terminal posts.
- 3) Connect the 1A electronic load between the OUT1 and nearest GND1 terminal posts.
- 4) Connect the DVM between the OUT1 and nearest GND1 terminal posts.
- 5) Turn on the power supply.
- 6) Enable the electronic load.
- 7) Verify that the voltage at the OUT1 terminal post is approximately 3.3V.

### Detailed Description of Hardware

The MAX38903 WLP EV kit evaluates the MAX38903C/MAX38903D IC family. The MAX38903C/MAX38903D are low noise linear regulators that deliver 1A of output current with only 7µV<sub>RMS</sub> of output noise from 10Hz to 100kHz. These regulators require only 100mV of input-to-output headroom at full load.

The MAX38903 WLP EV kit operates over an input range of 1.7V to 5.5V. The EV Kit comes with the MAX38903CANL+ installed and the output is resistor configured to 3.3V and can deliver 1A of current. The output voltage on the MAX38903C can be reconfigured to other voltages from 0.6V to 5.0V by replacing feedback resistors R1 and R2. Refer to the *MAX38903 IC data sheet* for feedback resistor calculation.

### Component Suppliers

SUPPLIER	WEBSITE
Murata/TOKO	www.murata.com
TDK	www.tdk.com
Samsung Electro-Mechanics America, Inc.	www.samsungsem.com

**Note:** Indicate that you are using the MAX38903C/D when contacting these component suppliers.

### EN for the MAX38903C/MAX38903D

The EV kit provides a jumper JU1 to enable or disable the MAX38903C (or the MAX38903D after IC replacement). Refer to [Table 1](#) for jumper setting of jumper JU1.

### Evaluating the MAX38903D

The EV Kit can evaluate the MAX38903D after IC (U1) replacement. The MAX38903D can be factory trimmed to any voltage between 0.7V and 5.0V in 50mV steps. Contact the factory to order the MAX38903D with the desired factory-preset output voltages.

**Table 1. EN on MAX38903C/D (JU1)**

JU1 SHUNT POSITION	DESCRIPTION
1-2*	Enabled. EN = IN1
2-3	Disabled. EN = GND1

\*Default position.

### Ordering Information

PART	TYPE
MAX38903EVKIT#WLP	EV Kit

#Denotes RoHS compliant.

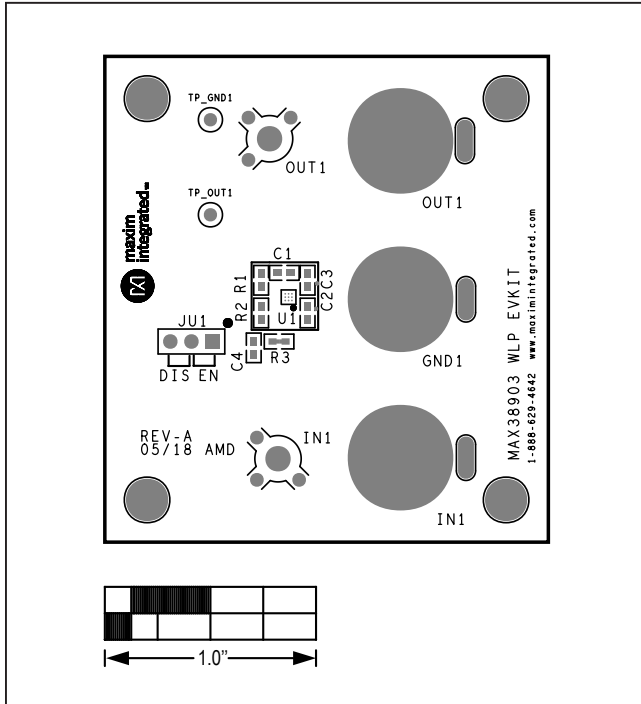
MAX38903 WLP EV Bill of Materials

ITEM	REF_DES	DNI/ DNP	QTY	MFG PART #	MFG	VALUE	DESCRIPTION
1	C1	-	1	C0603C473K5RAC; GRM188R71H473KA61; GCM188R71H473KA55; CGA3E2X7R1H473K080AA	KEMET; MURATA; MURATA;TDK	0.047UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 0.047UF; 50V; TOL=10%; MODEL=X7R; TG=-55 DEGC TO +125 DEGC; TC=X7R
2	C2, C3	-	2	CL10B106MQ8NRN	SAMSUNG ELECTRONICS	10UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 10UF; 6.3V; TOL=20%; MODEL=CL SERIES; TG=-55 DEGC TO +125 DEGC; TC=X7R
3	GND1, IN1, OUT1	-	3	108-0740-001	EMERSON NETWORK POWER	108-0740-001	CONNECTOR; MALE; PANELMOUNT; BANANA JACK; STRAIGHT; 1PIN
4	JU1	-	1	PEC03SAAN	SULLINS	PEC03SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 3PINS
5	R1	-	1	CRCW0603909KFK	VISHAY DALE	909K	RESISTOR; 0603; 909K OHM; 1%; 100PPM; 0.1W; THICK FILM
6	R2	-	1	CRCW06032003FK	VISHAY DALE	200K	RESISTOR; 0603; 200K; 1%; 100PPM; 0.10W; THICK FILM
7	SU1	-	1	STC02SYAN	SULLINS ELECTRONICS CORP.	STC02SYAN	TEST POINT; JUMPER; STR; TOTAL LENGTH=0.256IN; BLACK; INSULATION=PBT CONTACT=PHOSPHOR BRONZE; COPPER PLATED TIN OVERALL
8	TP4, TP5	-	2	131-4353-00	TEKTRONICS	131-4353-00	CONNECTOR; WIREMOUNT; CIRCUITBOARD TEST POINT MINIATURE PROBE; STRAIGHT; 4PINS
9	TP_GND1	-	1	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;
10	TP_OUT1	-	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;
11	U1	-	1	MAX38903CANL+	MAXIM	MAX38903CANL+	EVKIT PART-IC; PKG. CODE: N91D1-1; PKG. OUTLINE NO.: 21-100257
12	PCB	-	1	MAX38903WLP	MAXIM	PCB	PCB:MAX38903WLP
13	BUMP1- BUMP4	DNI	4	SJ-5003(BLACK)	3M ELECTRONIC SOLUTIONS DIVISION	SJ-5003(BLACK)	BUMPER; BLACK-HEMISPHERICAL SHAPE EVKIT EH0231; 0.44D/0.2BH; RESILIENT ELASTOMER POLYURETHANE
14	C4	DNP	0	N/A	N/A	OPEN	PACKAGE OUTLINE 0603 NON-POLAR CAPACITOR
15	R3	DNP	0	N/A	N/A	SHORT	PACKAGE OUTLINE 0603 RESISTOR
TOTAL			20				

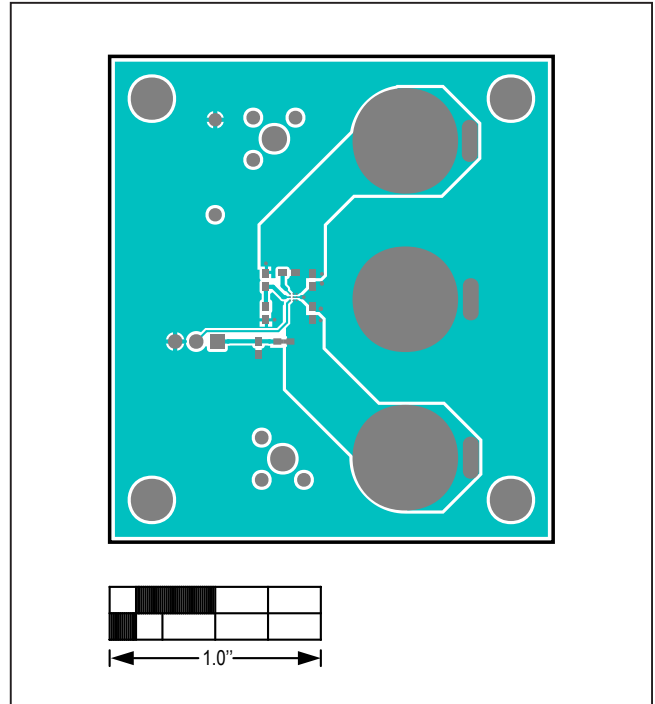
NOTE: DNI--> DO NOT INSTALL(PACKOUT) ; DNP--> DO NOT PROCURE



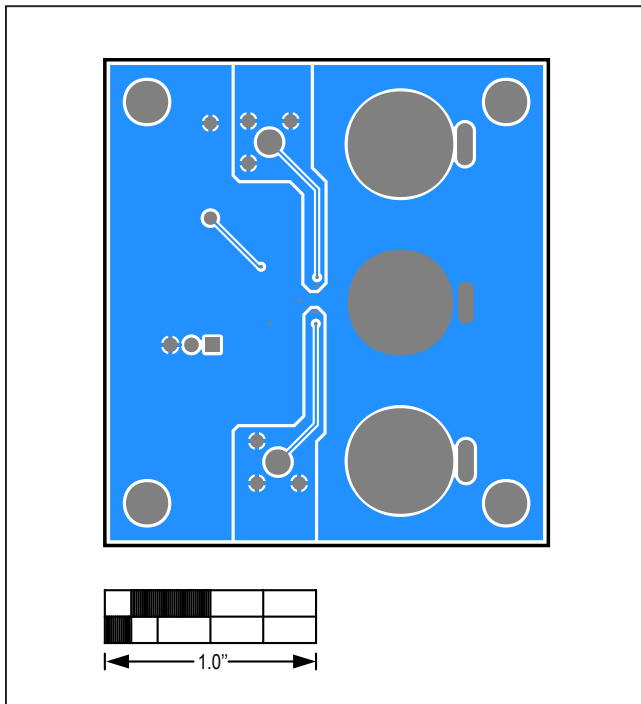
MAX38903 WLP EV PCB Layout Diagrams



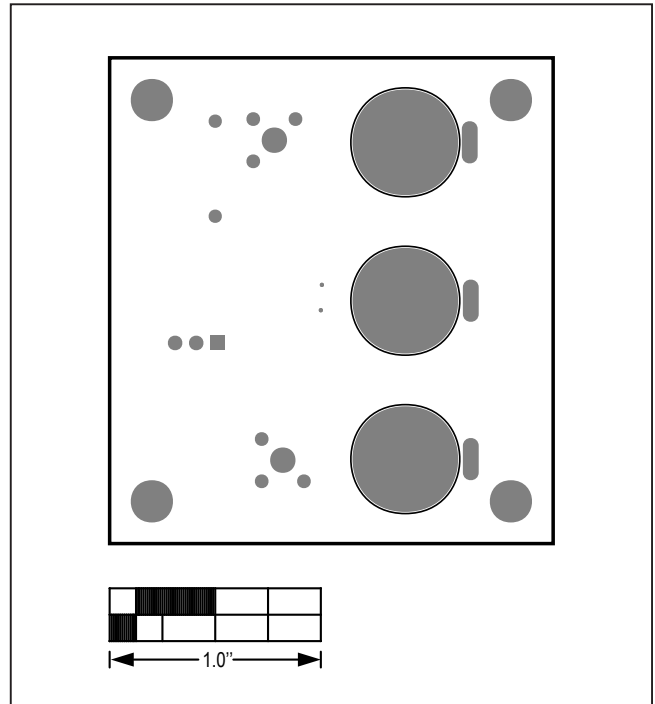
MAX38903 WLP EV—Top Silkscreen



MAX38903 WLP EV—Top View



MAX38903 WLP EV—Bottom View



MAX38903 WLP EV—Bottom Silkscreen

## Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	12/18	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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