MAX38904D WLP Evaluation Kit

Evaluates: MAX38904D

General Description

The MAX38904D WLP evaluation kit (EV kit) evaluates the MAX38904D in a WLP package. The MAX38904D is a low noise linear regulator. The EV kit operates over an input range of 1.7V to 5.5V and provides a factory preset output voltage of 1.5V. The EV kit can deliver up to 2A of current.

Features

- Evaluates the MAX38904D IC in a 5 x 3 bump, 2.2mm x 1.37mm WLP, 0.4mm pitch
- 1.7V to 5.5V Input Range
- Factory Preset Output Voltage (Default Output Set to 1.5V)
- Up to 2A Output Current
- Proven 2-Layer 1-oz Copper PCB Layout
- Demonstrates Compact Solution Size
- Fully Assembled and Tested

MAX38904D WLP EV Kit Files

FILE	DECRIPTION
MAX38904D WLP EV Kit BOM	EV Kit Bill of Material
MAX38904D WLP EV Kit PCB Layout	EV Kit Layout
MAX38904D WLP EV Kit Schematic	EV Kit Schematic

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

Quick Start

Required Equipment

- MAX38904D WLP EV kit
- 5.5V, 5A DC power supply
- Electronic load capable of 2A
- 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 jumper JU1 is shunted on pins 1 and 2 (EV kit enabled).
2) Connect the 5.5V power supply between the IN and nearest GND terminal posts.
3) Connect the 2A 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) Verify that the voltage at the OUT terminal post is approximately 1.5V.
7) Decrease the power supply to 1.8V (To minimize power dissipation at full load).
8) Enable the electronic load.
9) Verify that the voltage at the OUT terminal post is 1.5V within the device accuracy specifications.

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Detailed Description of Hardware

The MAX38904D WLP EV kit evaluates the MAX38904D in a WLP package. The MAX38904D is a low noise linear regulator that delivers 2A of output current with only 5.1μV_{RMS} of output noise from 10Hz to 100kHz. This regulator requires only 100mV of input-to-output headroom at full load.

The MAX38904D WLP EV kit operates over an input range of 1.7V to 5.5V. The EV kit comes with the MAX38904DANL15+ installed and the output voltage is factory preset to 1.5V. The EV kit output can be reconfigured to other voltages from 0.7V to 5.0V in 50mV steps by replacing U1 with another MAX38904D, preset to the desired voltage level. Refer to the *MAX38904 IC data sheet* for the MAX38904D output voltage selection.

Component Suppliers

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

Note: *Indicate that you are using the MAX38904D when contacting these component suppliers.*

EN (Enable)

The EV kit provides a jumper JU1 to enable or disable the MAX38904D. Refer to Table 1 for jumper setting of jumper JU1.

Table 1. EN (JU1)

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

**Default position.*

Ordering Information

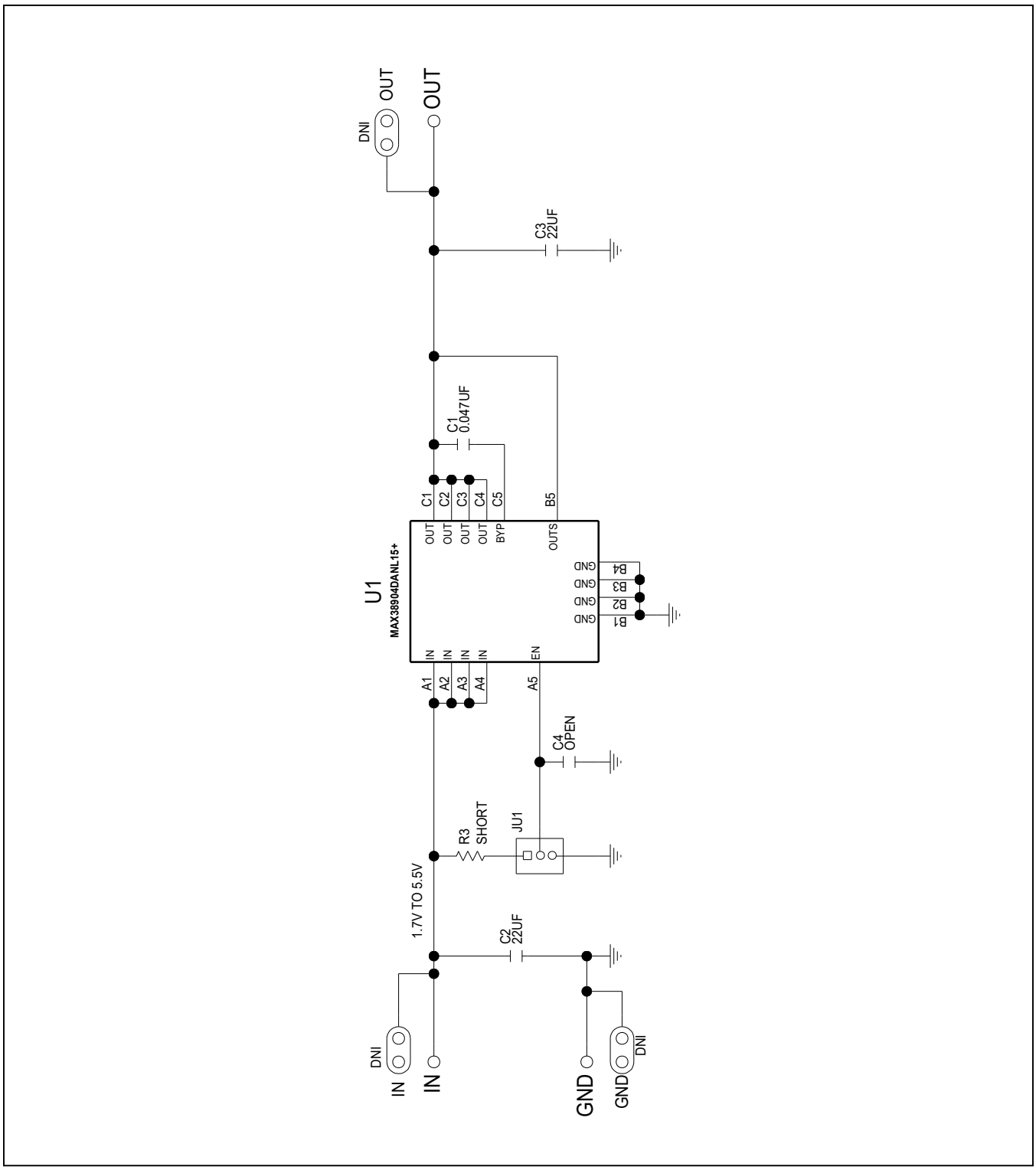
PART	TYPE
MAX38904DEVK#WLP	EV Kit

#Denotes RoHS

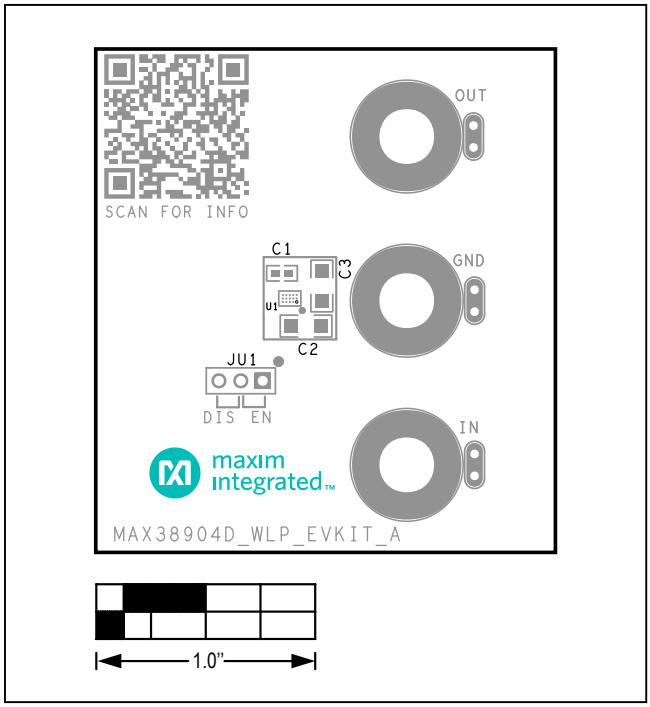
MAX38904D WLP EV Kit Bill of Materials

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
1	C1	—	1	C0603C473K5RAC; GRM188R71H473KA61; GCM188R71H473KA55; CGA3E2X7R1H473K080AA	KEMET; MURATA; MURATA; TDK	0.047µF	CAPACITOR; SMT (0603); CERAMIC CHIP; 0.047µF; 50V; TOL = 10%; MODEL = X7R; TG = -55°C TO +125°C; TC = X7R
2	C2, C3	—	2	GRM31CR70J226K; GCM31CR70J226KE23	MURATA; MURATA	22µF	CAPACITOR; SMT (1206); CERAMIC CHIP; 22µF; 6.3V; TOL = 10%; MODEL = GRM SERIES; TG = -55°C TO +125°C; TC = X7R
3	GND, IN, OUT	—	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	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
6	U1	—	1	MAX38904DANL15+	MAXIM	MAX38904DANL15+	EVKIT PART - IC; MAX38904DANL15+; 2A LOW NOISE LDO LINEAR REGULATOR; PACKAGE OUTLINE DRAWING: 21-100315; PACKAGE CODE: N151B2+1
7	PCB	—	1	MAX38904DWLP	MAXIM	PCB	PCB:MAX38904DWLP
8	C4	DNP	0	N/A	N/A	OPEN	PACKAGE OUTLINE 0603 NON-POLAR CAPACITOR
9	R3	DNP	0	N/A	N/A	SHORT	PACKAGE OUTLINE 0603 RESISTOR
TOTAL			10				

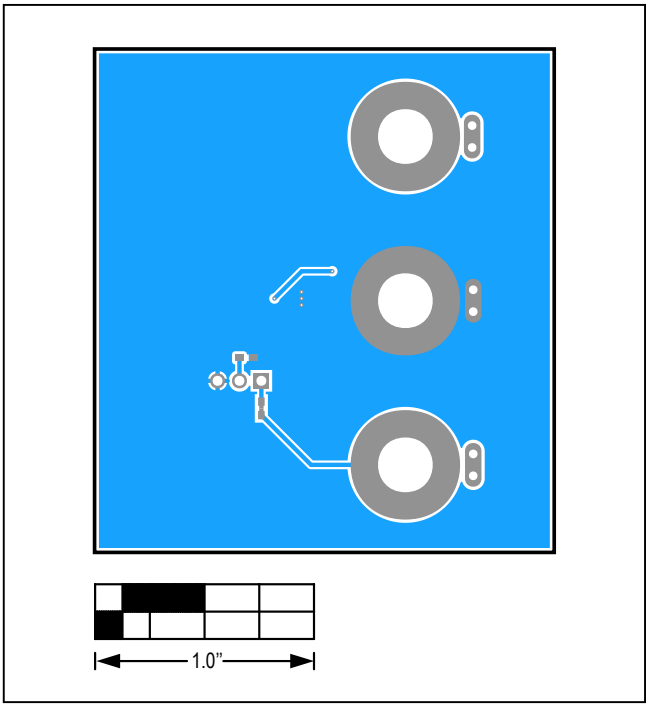
MAX38904D WLP EV Kit Schematic



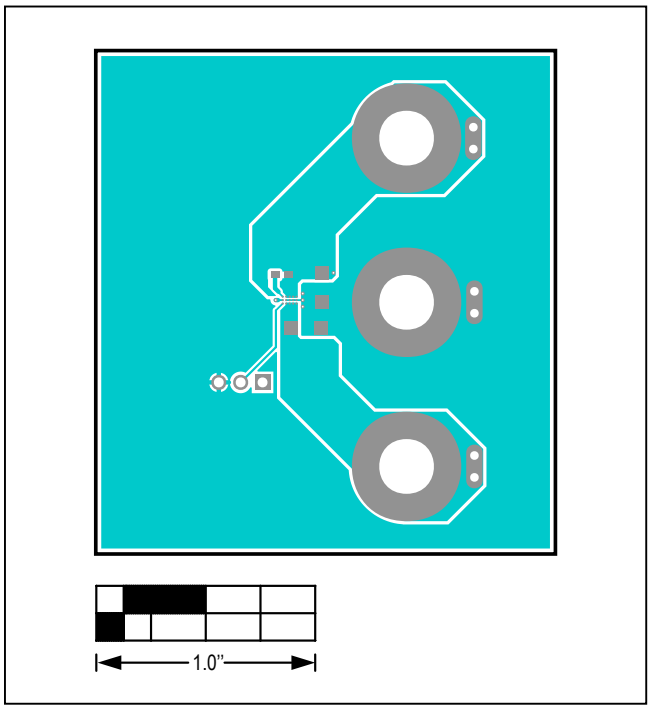
MAX38904D WLP EV Kit PCB Layout Diagrams



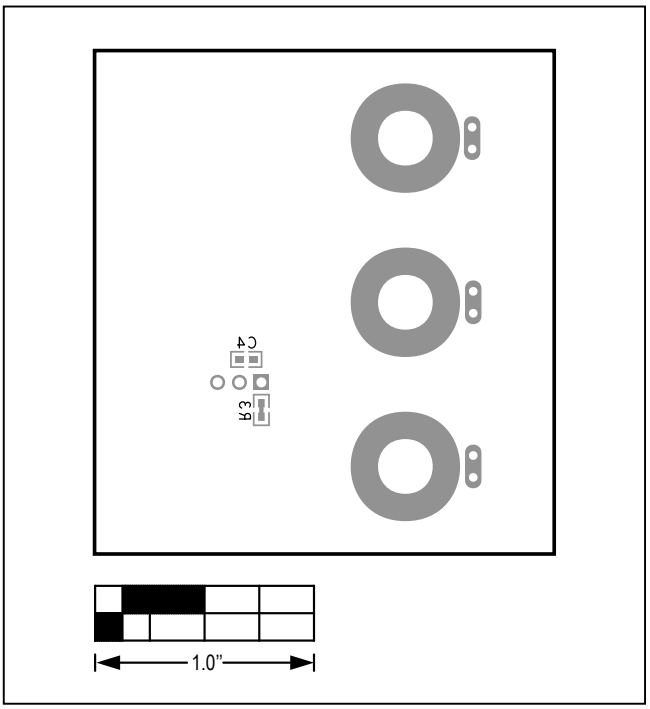
MAX38904D WLP EV Kit PCB Layout—Top Silkscreen



MAX38904D WLP EV Kit PCB Layout—Bottom Layer



MAX38904D WLP EV Kit PCB Layout—Top Layer



MAX38904D WLP EV Kit PCB Layout—Bottom Silkscreen

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	8/19	Initial release	—

For pricing, delivery, and ordering information, please visit Maxim Integrated's online storefront at https://www.maximintegrated.com/en/storefront/storefront.html.

MAXESSENTIAL01+

Description

The Essential Analog toolkit contains a unique collection of Maxim's high-performance, analog building block products. This curated group of parts represent a selection of Maxim’s vast product lines, specific to 20 product categories, from key performance areas including power efficiency, precise measurement, reliable connectivity, and robust protection.

The ICs in the toolkit offer the breadth of each product category: low power, low noise, multi-channel, high resolution, high accuracy, and high speed. All these features empower your designs and bring value to your systems.

At 6.4cm x 8.9cm x 1.3cm, the box itself is small, lightweight, and easy to carry. Products are guarded from ESD using a gel and ESD-protected box.

A guide that labels each of the part types inside the box supports the toolkit. Go to the Maxim website to find more information for the individual part numbers.

When planning your next design, pick up an Essential Analog toolkit to review Maxim’s high-performance analog products.

Key Features

- Small, 6.4cm x 8.9cm x 1.3cm Package
- ESD Protection-Lined Package
- Accelerate Your Design with Quick Access

What's Included in the Box?

Efficient Power				
Buck	**Boost**	**Buck-Boost**	**LDO**	**Continua**
MAX38640 MAX15026	MAX17225 MAX668	MAX77827 MAX77816	MAX38902B MAX1510	MAX38888
Precision Measurement				
ADC	**DAC**	**Audio Amp**	**Op Amp**	**CSA**
MAX11410 MAX11168	MAX5541 MAX5715	MAX98357A MAX98390	MAX40075 MAX40100	MAX44284 MAX40201
Reliable Connectivity				
RS-485	**RS-232**	**CAN**	**BTR Switch**	**Wireless**
MAX14780E MAX3485AE	MAX13235E MAX33250E	MAX13054A MAX33054E	MAX14778 MAX14763	MAX41460 MAX7034
Robust Protection				
Supervisor	**Temp Sensor**	**Isolator**	**Ideal Diode/V_{REF}**	**RTC**
MAX16150 MAX16140	MAX6680 MAX31875	MAX12930 MAX22445	MAX40203 MAX6078A	MAX31341B DS3231MZ