

# MAXIM

## MAX1921 Evaluation Kit

### General Description

The MAX1921 evaluation kit (EV kit) provides a fixed 1.8V output voltage from a 2V to 5.5V input source and delivers up to 400mA output current. The MAX1921 is a step-down switching regulator with an internal power switch and synchronous rectifier in a tiny SOT23 package.

The MAX1921 EV kit is a fully assembled and tested surface-mount circuit board. The MAX1921 EV kit can also be used to evaluate other fixed-output voltage versions of the MAX1921 or the MAX1920, which is a step-down switching regulator with an adjustable output voltage. Additional pads on the board are provided for external feedback resistors to set different output voltages, 1.25V to VIN.

### Component List

DESIGNATION	QTY	DESCRIPTION
C1	1	2.2 $\mu$ F $\pm$ 20%, 10V X5R ceramic capacitor (0805) Taiyo Yuden LMK212BJ225MG or TDK C2012X5R1A225M
C2	1	4.7 $\mu$ F $\pm$ 20%, 6.3V X5R ceramic capacitor (0805) Taiyo Yuden JMK212BJ475MG or TDK C2012X5R0J475K
C3	1	5.6nF $\pm$ 20%, 50V X7R ceramic capacitor (0603) Murata GRM39X7R562M050AD or equivalent
JU1	1	3-pin header
L1	1	4.7 $\mu$ H $\pm$ 20% 1A inductor Toko A914BYW-4R7M or Sumida CDRH3D16-4R7
R1	1	4.75k $\Omega$ $\pm$ 1% resistor (0603)
R2	0	Not installed, resistor (0603)
U1	1	MAX1921EUT18-T (6-pin SOT23), top mark ABCM
None	1	Shunt
None	1	MAX1921 PC board
None	1	MAX1921 EV kit data sheet
None	1	MAX1920/MAX1921 data sheet

### Features

- ◆ 2V to 5.5V Input Voltage Range
- ◆ Output Voltage
  - 1.8V Fixed Output Voltage (MAX1921EUT18-T)
  - Adjustable Output Voltage (MAX1920EUT-T)
  - Other Fixed-Output Voltages (MAX1921EUT\_ \_-T)
- ◆ Output Current
  - Guaranteed 400mA at  $\geq$ 2.5V Input Voltage
- ◆ IC Shutdown Current
  - 0.1 $\mu$ A (typ)
- ◆ Surface-Mount Components
- ◆ Fully Assembled and Tested

### Ordering Information

PART	TEMP RANGE	IC PACKAGE
MAX1921EVKIT	0°C to +70°C	6 SOT23-6

**Note:** To evaluate other versions of the MAX1921 or the MAX1920, request a free sample with the MAX1921EVKIT. See Table 2.

### Quick Start

The MAX1921 EV kit is a fully assembled and tested surface-mount board. Follow the steps below to verify board operation. **Do not turn on the power supply until all connections are completed:**

- 1) Verify that there is a shunt across pins 1 and 2 of JU1 (SHDN).
- 2) Connect a voltmeter and load (if any) to the VOUT pad. Connect the ground to the GND closest to VOUT.
- 3) Connect a 2V to 5.5V power supply to the VIN pad. Connect power supply ground to the GND pad closest to VIN.
- 4) Turn on the power supply and verify that the output voltage is 1.8V.

To evaluate other voltages, see the *Evaluating Other Output Voltages* section.

# MAX1921 Evaluation Kit

## Component Suppliers

SUPPLIER	PHONE	FAX	WEBSITE
Sumida	847-545-6700	847-545-6720	www.sumida.com
Taiyo Yuden	800-348-2496	847-925-0899	www.t-yuden.com
TDK	847-803-6100	847-390-4405	www.tdk.com
Toko	847-297-0070	847-699-1194	www.tokoam.com

**Note:** Please indicate that you are using the MAX1920/MAX1921 when contacting these component suppliers.

## Detailed Description

### Shutdown Mode

The MAX1921 EV kit features a shutdown mode that reduces the MAX1921 quiescent current to 0.1 $\mu$ A, preserving battery life. The setting of jumper JU1 selects the circuit operating modes. Table 1 shows the functions of JU1.

**Table 1. JU1 Functions**

SHUNT LOCATION	$\overline{\text{SHDN}}$ PIN	MAX1921 OUTPUT
1 and 2	Connected to VIN	MAX1921 enabled, VOUT = 1.8V
2 and 3	Connected to GND	MAX1921 disabled, VOUT = 0V
Open	Connected to $\overline{\text{SHDN}}$ pad	External signal enables or disables the MAX1921 output

### Evaluating Other Output Voltages

The MAX1921 EV kit can be used to evaluate the MAX1921EUT15-T/25-T/30-T/33-T and the MAX1920EUT-T. Replace MAX1921EUT18-T with a MAX1921EUT15-T/25-T/30-T/33-T or MAX1920EUT-T. Table 2 lists the corresponding output voltages. To evaluate different output voltages, select L1, C2, C3, R1, and R2 for optimum performance according to the *Design Procedure* section of the MAX1920/MAX1921 data sheet.

**Table 2. MAX1921 EV Kit Corresponding Output Voltage**

PART NUMBER	MAX1921 EV KIT OUTPUT VOLTAGE (V)
MAX1920EUT-T	Adjustable
MAX1921EUT15-T	1.5
MAX1921EUT18-T	1.8
MAX1921EUT25-T	2.5
MAX1921EUT30-T	3.0
MAX1921EUT33-T	3.3

# MAX1921 Evaluation Kit

Evaluates: MAX1920/MAX1921

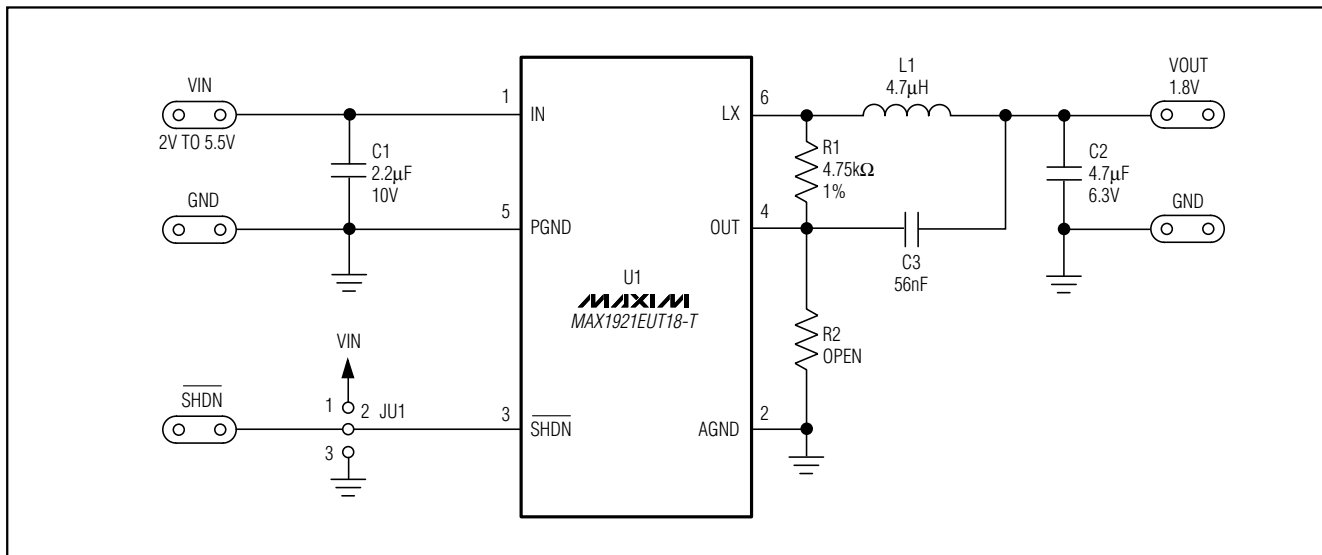


Figure 1. MAX1921 EV Kit Schematic

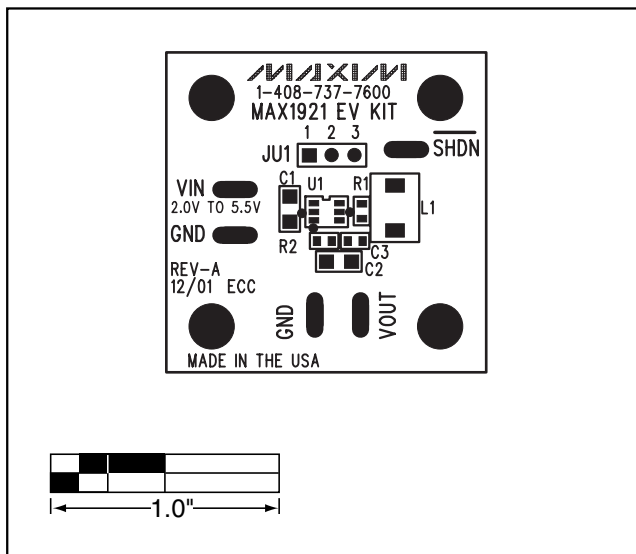


Figure 2. MAX1921 EV Kit Component Placement Guide—Component Side

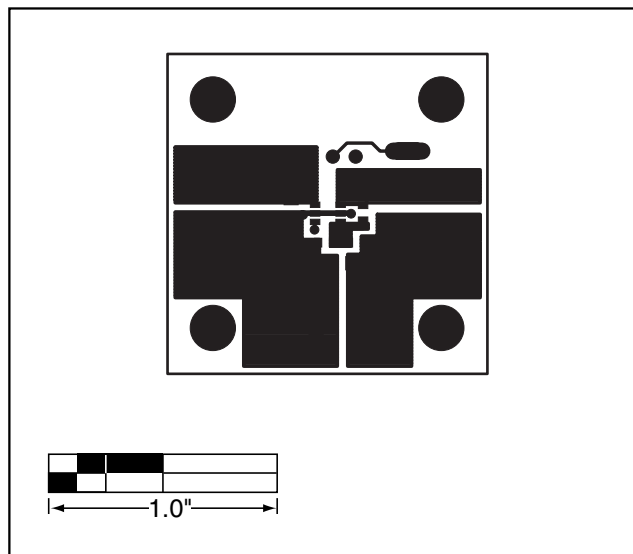


Figure 3. MAX1921 EV Kit PC Board Layout—Component Side

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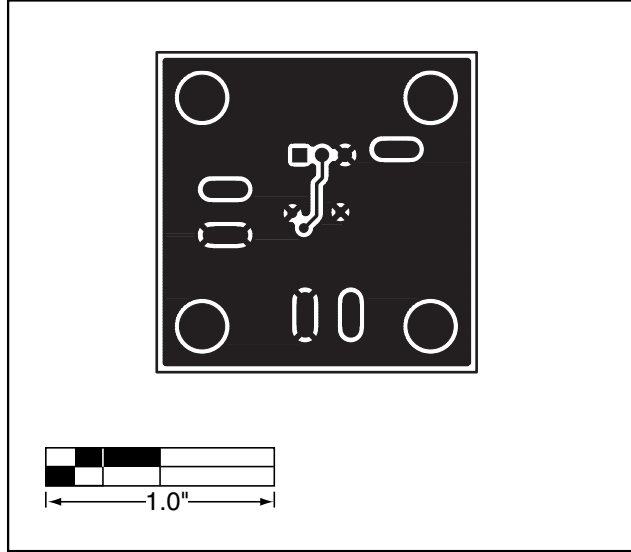


Figure 4. MAX1921 EV Kit PC Board Layout—Solder Side

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