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# MAX15032 Evaluation Kit

## General Description

The MAX15032 evaluation kit (EV kit) is a fully assembled and tested surface-mount circuit board that contains the MAX15032 pulse-width-modulated (PWM) step-up DC-DC converter. The EV kit is configured to operate with a 500kHz switching frequency. It operates from a 2.9V to 5.5V DC supply voltage, is configured for a 30V output, and has an output power capability up to 600mW with a 2.9V input.

## Features

- ◆ 2.9V to 5.5V Input Range
- ◆ 30V Output Voltage
- ◆ 500kHz Switching Frequency
- ◆ 0.5µA IC Shutdown Current
- ◆ Fully Assembled and Tested

## Ordering Information

PART	TYPE
MAX15032EVKIT+	EV Kit

+Denotes lead(Pb)-free and RoHS compliant.

## Component List

DESIGNATION	QTY	DESCRIPTION
C1	1	1µF ±10%, 16V X7R ceramic capacitor (0603) Murata GRM188R71C105K
C2	1	10µF ±10%, 16V X7R ceramic capacitor (1210) Murata GRM32DR71C106K
C3, C4	2	2.2µF ±10% , 100V X7R ceramic capacitors (1210) Murata GRM32ER72A225K
C5	1	0.01µF ±10%, 50V X7R ceramic capacitor (0603) Murata GRM188R71H103K
D1	1	1A, 40V Schottky barrier diode Diodes Inc. B140-13-F (SMA) Fairchild SS14 (SMA) STMicro STPS140A (SMA)

DESIGNATION	QTY	DESCRIPTION
JU1	1	3-pin header (0.1in center)
L1	1	4.7µH inductor TDK SLF7045T-4R7M2R0-PF Sumida CDRH5D28RHPNP-4R7NC (6mm x 6mm)
R1	1	143kΩ ±1% resistor (0603)
R2	1	6.19kΩ ±1% resistor (0603)
R3	1	10Ω ±1% resistor (0603)
TP1, TP2	2	Miniature test points, red
U1	1	PWM step-up DC-DC converter (8 TDFN-EP*) Maxim MAX15032ATA+
—	1	Shunt
—	1	PCB: MAX15032 EVALUATION KIT+

\*EP = Exposed pad.

## Component Suppliers

SUPPLIER	PHONE	WEBSITE
Diodes Incorporated	805-446-4800	www.diodes.com
Fairchild Semiconductor	888-522-5372	www.fairchildsemi.com
Murata Electronics North America, Inc.	770-436-1300	www.murata-northamerica.com
STMicroelectronics	408-452-8585	www.us.st.com
Sumida Corp.	847-545-6700	www.sumida.com
TDK Corp.	847-803-6100	www.component.tdk.com

**Note:** Indicate that you are using the MAX15032 when contacting these component suppliers.



# MAX15032 Evaluation Kit

## Quick Start

### Recommended Equipment

- MAX15032 EV kit
- 2.9V to 5.5V, 100mA DC power supply (VIN)
- Voltmeter

### 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 a shunt is placed across pins 1-2 of jumper JU1 to enable the device.
- 2) Connect the positive terminal of the DC power supply to the VIN pad. Connect the negative terminal of the DC power supply to the adjacent PGND pad.
- 3) Connect the voltmeter across the VOUT and GND pads.
- 4) Turn on the 2.9V to 5.5V DC power supply and verify that the output is 30V.

## Detailed Description

The MAX15032 EV kit contains a high-efficiency pulse-width-modulated (PWM) step-up DC-DC converter. The MAX15032 features an adjustable output voltage and an internal MOSFET switch to achieve a fast transient response. The EV kit operates from a 2.9V to 5.5V DC power supply and provides a regulated 30V output, and has a 600mW output capability from a 2.9V input. The EV kit is configured for a 2.9V to 5.5V input, 30V output, and operates with a 500kHz switching frequency. Operation at a different input voltage or output voltage may require changes to the EV kit configuration. Refer to the MAX15032 IC data sheet for detailed information on device operation.

## Input Voltage Range

The EV kit can be operated with a 2.9V to 5.5V input voltage range or a 5.5V to 11V input voltage range. By default, the EV kit is configured to operate with a 2.9V to 5.5V input voltage range. To operate the EV kit in the 5.5V to 11V input range, the following configuration changes should be made:

- Remove capacitor C5 (0.01μF).
- Connect the CP pin (U1, pin 7) to VIN.
- Leave the CN pin (U1, pin 6) unconnected.

## Output Voltages

The EV kit is configured to provide a 30V output voltage. However, the output voltage can be adjusted from (VIN + 1V) to 36V by selecting appropriate R1 and R2 values. Select R2 in the 6kΩ to 10kΩ range. R1 is then given by:

$$R1 = R2 \left[ \left( \frac{V_{OUT}}{V_{FB}} \right) - 1 \right]$$

where V<sub>FB</sub> = 1.245V. For significantly different operation points, the EV kit may require a different inductor. Refer to the MAX15032 IC data sheet for proper component selection.

## Shutdown Mode ( $\overline{SHDN}$ )

The EV kit features a shutdown mode that reduces the device's quiescent current to 0.5μA. Jumper JU1 selects the shutdown mode. See Table 1 for jumper JU1 functions.

**Table 1. Jumper JU1 Functions**

SHUNT POSITION	$\overline{SHDN}$ PIN	MAX15032 OUTPUT
1-2	Connected to VIN	Device enabled (V <sub>OUT</sub> = 30V)
2-3	Connected to GND	Shutdown mode (V <sub>OUT</sub> = V <sub>IN</sub> - V <sub>D1</sub> )



# MAX15032 Evaluation Kit

Evaluates: MAX15032

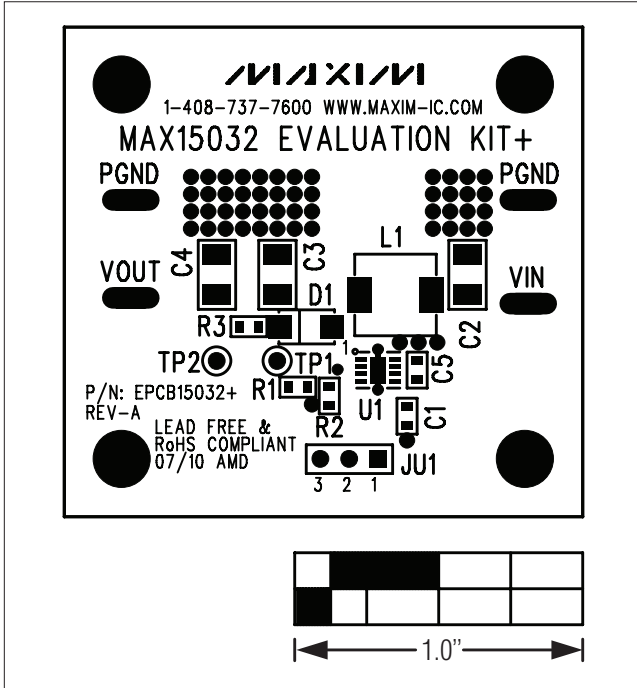


Figure 2. MAX15032 EV Kit Component Placement Guide—Component Side

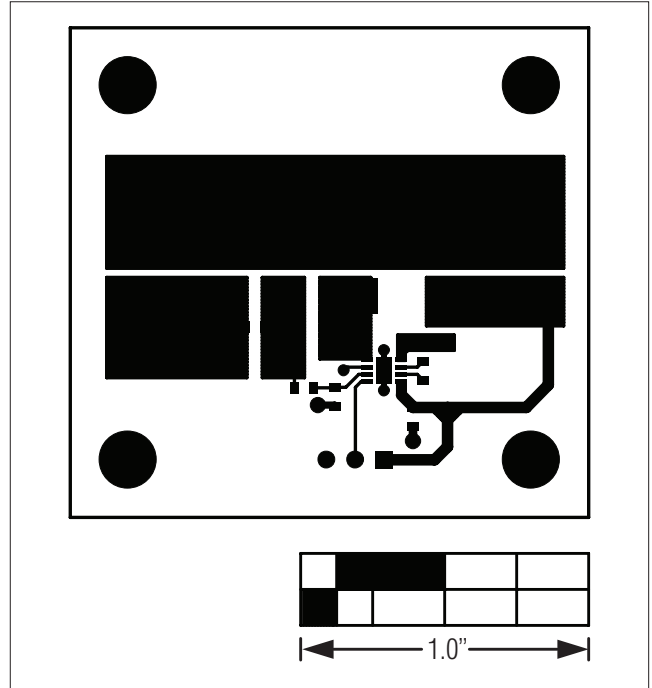


Figure 3. MAX15032 EV Kit PCB Layout—Component Side

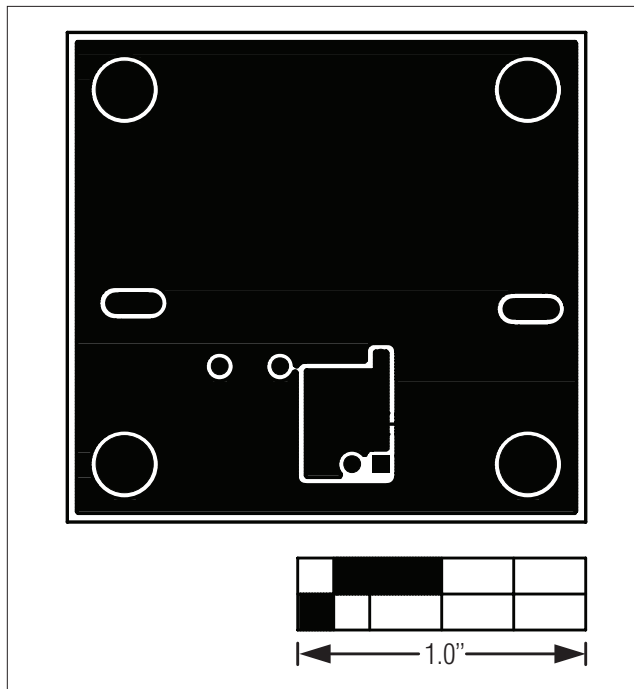


Figure 4. MAX15032 EV Kit PCB Layout—Solder Side

# MAX15032 Evaluation Kit

## Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	8/10	Initial release	—

**Evaluates: MAX15032**

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