

MAXIM

MAX8505 Evaluation Kit

Evaluates: MAX8505

General Description

The MAX8505 evaluation kit (EV kit) provides a 1.2V output voltage from a 2.6V to 5.5V input source, and delivers 3A output current. The MAX8505 EV kit includes the MAX8505 step-down switching regulator with an internal high-efficiency switch. The EV kit operates in PWM mode at a fixed 1MHz frequency, allowing use of the small-size external components.

The MAX8505 EV kit is a fully assembled and tested surface-mount printed circuit board. It can also be used to evaluate other output voltages, from 0.8V up to 85% of VIN, by changing the feedback resistors R2 and R3.

Features

- ◆ 2.6V to 5.5V Input Voltage Range
- ◆ Output Voltage
 - ◆ Preset to 1.2V (by External Voltage-Divider)
 - ◆ 0.8V to 85% of VIN Output Voltage Range
- ◆ 3A Output Current
- ◆ 1MHz Switching Frequency
- ◆ POK (Power-OK) Output
- ◆ Surface-Mount Construction
- ◆ Fully Assembled and Tested

Ordering Information

PART	TEMP RANGE	IC PACKAGE
MAX8505EEE	0°C to +70°C	16 QSOP

Component List

DESIGNATION	QTY	DESCRIPTION
C1, C2	2	22 μ F \pm 20%, 6.3V X5R ceramic capacitors (1206) TDK C3216X5R0J226M
C3	0	Not installed, capacitor (0603)
C4	1	47 μ F \pm 20%, 6.3V X5R ceramic capacitor (1210) TDK C3225X5R0J476M
C5, C7	2	0.1 μ F \pm 10%, 50V X7R ceramic capacitors (0603) TDK C1608X7R1H104KT
C6	1	0.033 μ F \pm 10%, 16V X7R ceramic capacitor (0603) Murata GRM39X7R333K025 or Taiyo Yuden EMK107BJ333KA
C8	1	220pF \pm 10%, 50V X7R ceramic capacitor (0603) TDK C1608X7R1H221K
C9	1	3300pF \pm 10%, 50V X7R ceramic capacitor (0603) Murata GRM188R71H332K or TDK C1608X7R1H332K
C10, C11	2	0.1 μ F \pm 10%, 10V X5R ceramic capacitors (0402) Murata GRP155R61A104K or TDK C1005X5R1A104K

DESIGNATION	QTY	DESCRIPTION
C12, C13	2	470 μ F \pm 20%, 6.3V POSCAP (D4) Sanyo 6TPB470M
D1	1	100mA, 30V Schottky diode (SOD-523) Central Semiconductor CMOSH-3 (Top Mark 53)
JU1	1	2-pin header
L1	1	1.0 μ H inductor TOKO FDV0630-1R0M
R1	1	49.9k Ω \pm 1% resistor (0603)
R2	1	11.3k Ω \pm 1% resistor (0603)
R3	1	22.6k Ω \pm 1% resistor (0603)
R4	1	Not installed, shorted with PC trace (0603)
R5	1	200k Ω \pm 5% resistor (0603)
R6	1	20k Ω \pm 5% resistor (0603)
R7	1	10 Ω \pm 5% resistor (0603)
U1	1	MAX8505EEE (16-pin QSOP)
None	1	Shunt
None	1	MAX8505 PC board

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Quick Start

The MAX8505 EV kit is a fully assembled and tested surface-mount board. Follow the steps below for proper board operation. **Do not turn on the power supply until all connections are completed:**

- 1) Verify that there is a shunt on jumper JU1.
- 2) Connect a voltmeter and load (if any) from VOUT to GND.
- 3) Connect a 2.6V to 5.5V power supply to the VIN pad. Connect the power-supply ground to GND closest to VIN (with the supply off).
- 4) Turn on the power supply and verify that the output voltage is 1.2V.

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

Detailed Description

The MAX8505 EV kit operates from an input voltage range of 2.6V to 5.5V, and delivers up to 3A of output current at a fixed 1MHz frequency. To change the switching frequency to 500kHz, cut open the short on the R4 pads and install a 100k Ω resistor.

The POK pad provides a logic low when the output voltage moves outside $\pm 12\%$ of the nominal voltage. Connect the pullup resistor (100k Ω or less) from POK to VIN, or any supply voltage $\leq 5.5V$.

Table 1. Jumper JU1 Functions

SHUNT LOCATION	CTL PIN	MAX8505 OUTPUT
Not installed	Connected to 200k Ω pulldown resistor	MAX8505 disabled
Installed (default)	Connected to VIN	MAX8505 enabled, VOUT = 1.2V

Jumper Selection

Jumper JU1 controls the MAX8505 shutdown function. Table 1 lists the jumper options.

Evaluating Other Output Voltages

The output voltage of the MAX8505 EV kit can be adjusted from 0.8V to 85% of the input voltage VIN by selecting appropriated external components; refer to the *Design Procedure* section in the MAX8505 data sheet.

Component Suppliers

SUPPLIER	PHONE	FAX	WEBSITE
Central Semiconductor	631-435-1110	631-435-1824	www.centalsemi.com
Murata	770-436-1300	770-436-3030	www.murata.com
Taiyo Yuden	800-348-2496	847-925-0899	www.t-yuden.com
TDK	847-803-6100	847-390-4405	www.component.tdk.com
TOKO	847-297-0070	847-699-1194	www.toko.com

Note: Please indicate that you are using the MAX8505 when contacting these component suppliers.

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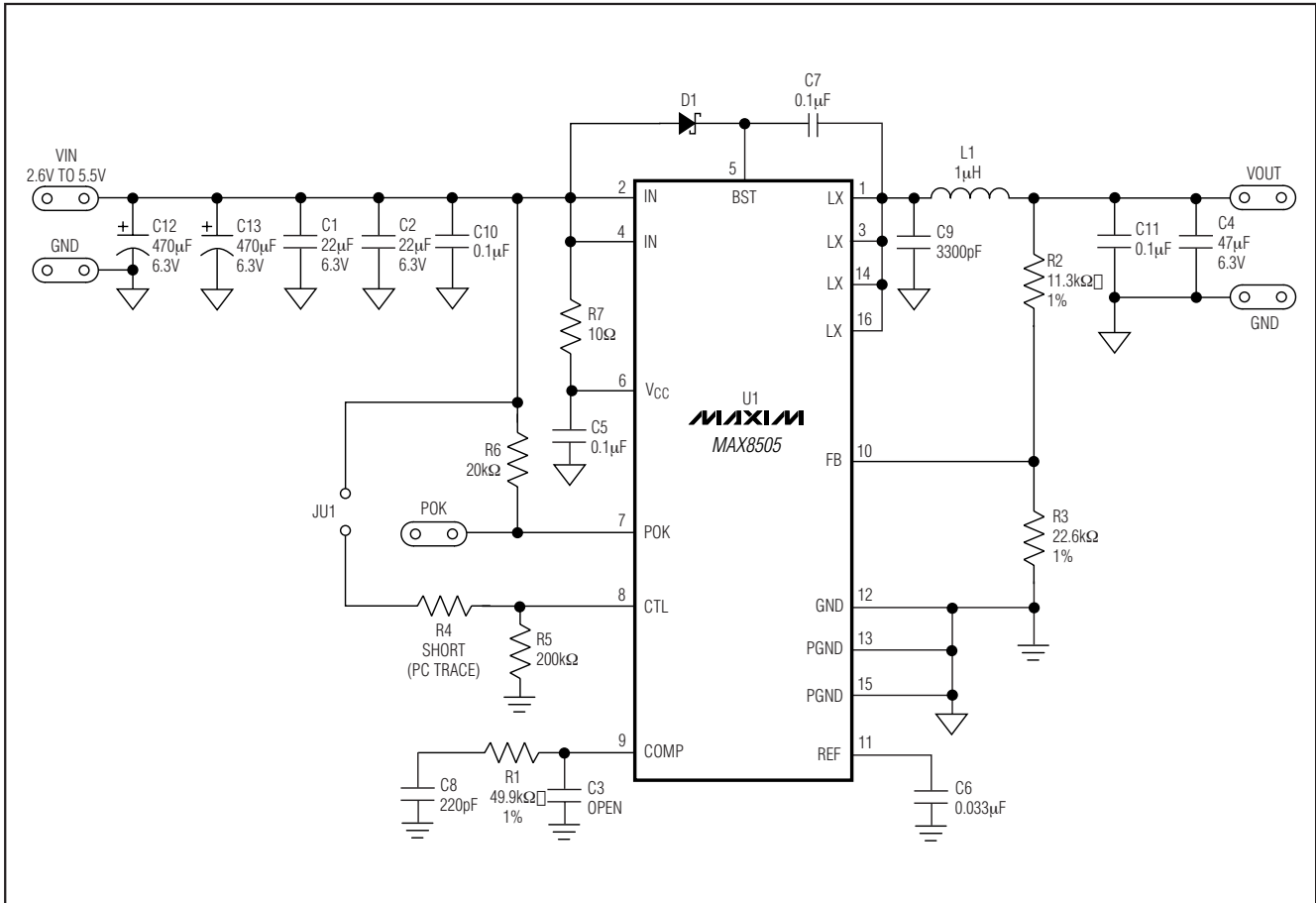


Figure 1. MAX8505 EV Kit Schematic

MAX8505 Evaluation Kit

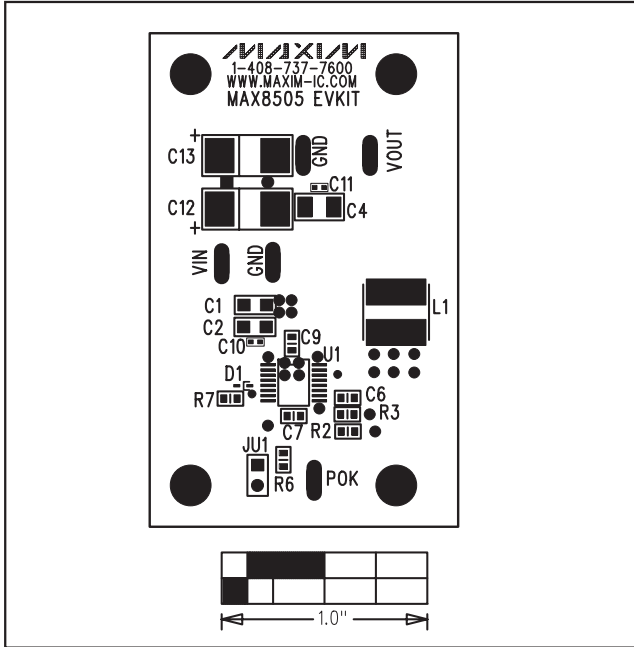


Figure 2. MAX8505 EV Kit Component Placement Guide—Component Side

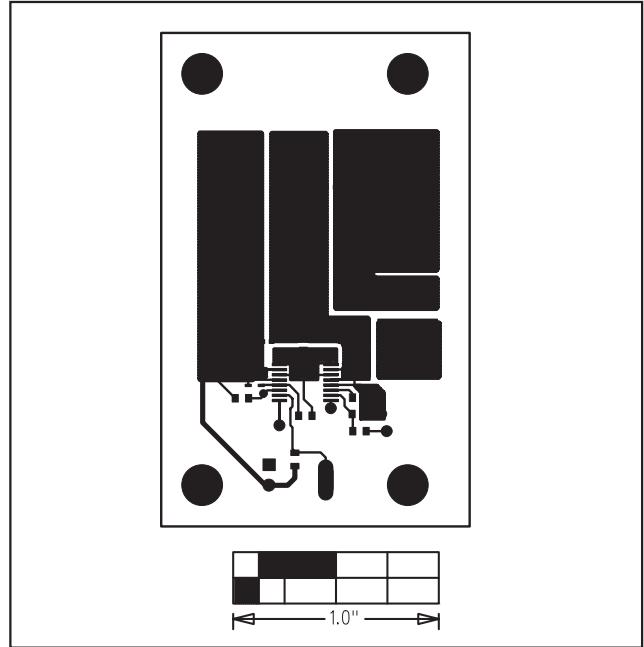


Figure 3. MAX8505 EV Kit PC Board Layout—Component Side

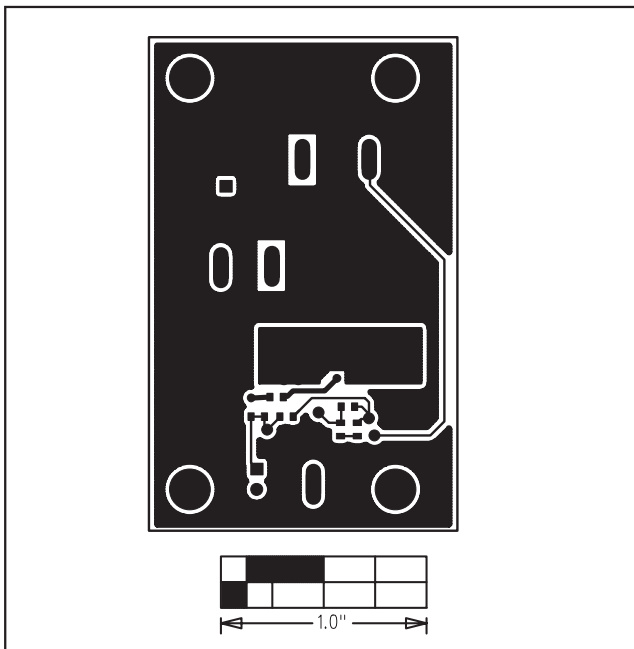


Figure 4. MAX8505 EV Kit PC Board Layout—Solder Side

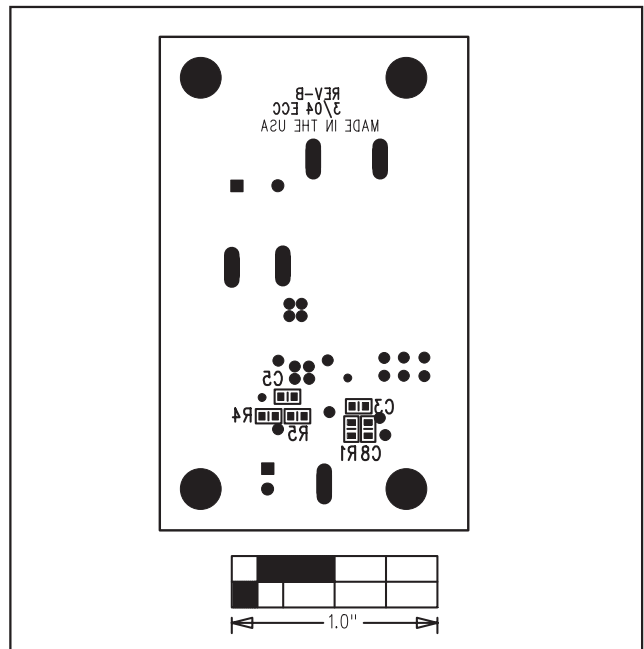


Figure 5. MAX8505 EV Kit Component Placement Guide—Solder Side

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