

MAXIM

MAX1817 Evaluation Kit

Evaluates: MAX1817

General Description

The MAX1817 evaluation kit (EV kit) is a fully assembled and tested surface-mount circuit board that demonstrates the MAX1817 dual-output, step-up DC-DC converter. The main output is configured for +3.3V and provides up to 125mA of current. The LCD bias output is configured for +18.0V and provides up to 10mA. The EV kit can support the dual output with a +1.5V to +3.3V input voltage range.

Component List

DESIGNATION	QTY	DESCRIPTION
C1	1	10 μ F, 6.3V, X5R ceramic capacitor (1206) Taiyo Yuden JMK316BJ106ML or TDK C3216X5R0J106KT
C2	1	1 μ F, 35V, X7R ceramic capacitor (1206) Taiyo Yuden GMK316BJ105ML or equivalent
C3	1	22 μ F, 6.3V, X5R ceramic capacitor (1210) Taiyo Yuden JMK325BJ226MM
C4	1	5.0pF, 50V ceramic capacitor (0603) Murata GRM39COG050B050 or Taiyo Yuden UMK107CH050CZ
C5, C6	0	Not installed (0603)
R1	1	1M Ω $\pm$ 1% resistor (0805)
R2	1	75k Ω $\pm$ 1% resistor (0805)
R3, R4	0	Not installed (0805)
D1	1	200mA, 75V junction diode (SOT-23) Central Semiconductor CMPD4448
D2	1	0.5A, 30V Schottky diode (SOD-123) Nihon EP05Q03L
L1, L2	2	10 μ H, 1A inductors Sumida CR43-100MC
U1	1	MAX1817EUB (10-pin μ MAX)
JU1, JU2	2	3-pin headers
None	2	Shunts (JU1, JU2)
None	1	MAX1817 PC board
None	1	MAX1817 data sheet
None	1	MAX1817 EV kit data sheet

Features

- ◆ Dual Output Voltages
 - +3.3V Main Output
 - +18V LCD Bias Output
- ◆ Adjustable Output Voltages
- ◆ 125mA Available from the Main Output
- ◆ 10mA Available from the LCD Bias Output
- ◆ Input Voltage as Low as +1.5V
- ◆ Low 15 μ A Quiescent Supply Current
- ◆ Surface-Mount Construction
- ◆ Fully Assembled and Tested

Ordering Information

PART	TEMP. RANGE	IC PACKAGE
MAX1817EVKIT	0°C to +70°C	10 μ MAX

Component Suppliers

SUPPLIER	PHONE	FAX
Central Semiconductor	631-435-1110	631-435-3388
Murata	814-237-1431	814-238-0490
Nihon	661-867-2555	661-867-2698
Sumida	847-956-0666	847-956-0702
Taiyo Yuden	408-573-4150	408-573-4159
TDK	847-803-6100	847-803-6296

Note: Please indicate that you are using the MAX1817 when contacting these component suppliers.

Quick Start

The MAX1817 EV kit is a fully assembled and tested surface-mount board. Follow the steps below for board operation. **Do not turn on the power supply until all connections are completed.**

- 1) Verify that shunts are across pins 1 and 2 of jumpers JU1 and JU2 to enable the main output and the LCD output, respectively.
- 2) Connect a voltmeter across the VOM pad and the nearest GND pad to monitor the main output voltage.
- 3) Connect a voltmeter across the VOLCD pad and the nearest GND pad to monitor the LCD output voltage.
- 4) Connect a +1.5V to +3.3V supply to the VBATT pad. Connect the ground to the GND pad.
- 5) Turn on the power supply and verify that the main output VOM is at +3.3V and the VOLCD output is at +18.0V.



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Detailed Description

The MAX1817 EV kit is a fully assembled and tested surface-mount circuit containing a dual-output, step-up DC-DC converter. The main output (VOM) is configured to supply 125mA (typ) at +3.3V, and the LCD bias output (VOLCD) is configured to supply 10mA (typ) at +18.0V. The circuit requires a power supply with a +1.5V to +3.3V input voltage range. VOM and VOLCD output voltages are adjustable with external resistors.

Input Source

The MAX1817 EV kit requires a +1.5V to +3.3V voltage input to maintain the main output voltage at +3.3V and the LCD bias output voltage at +18.0V. However, if the input voltage is raised to the +5.5V maximum input, the VOM output voltage will increase to equal the input voltage minus the diode (D2) voltage drop. At the +5.5V maximum input voltage, the VOLCD output voltage will remain steady at +18.0V.

Adjustable Outputs

The VOM output voltage is set to +3.3V by a PCB short from FB to ground. The output voltage can be adjusted to a different voltage (+2.5V to +5.5V) by cutting open

the PCB short (located at R4) and installing resistors R3 and R4. Refer to the *Setting the Main Output Voltage* section of the MAX1817 data sheet for instructions on selecting R3 and R4.

The +18.0V LCD bias output voltage is set with voltage-divider resistors R1 and R2. These resistors divide the output voltage to the +1.25V LCD feedback regulation threshold at FBLCD. The output can be adjusted to a maximum of +28.0V by replacing resistors R1 and R2. Refer to the *Setting the LCD Output Voltage* section of the MAX1817 data sheet for instructions on selecting R1 and R2.

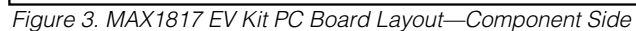
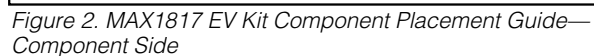
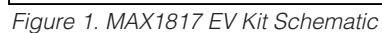
Enable/Disable

The EV kit contains two 3-pin jumpers (JU1 and JU2) that allow the user to enable and disable the main output (VOM) or the LCD output (VOLCD). Refer to Table 1 for jumper configuration. Note that the main output voltage must be at least +2.5V to enable the LCD output.

Table 1. Jumper JU1 Functions

JUMPER	STATUS	PIN CONNECTION	EV KIT OPERATION
JU1	1 and 2	ON connected to VOM	VOM output enabled
	2 and 3	ON connected to GND	VOM output disabled
JU2	1 and 2	ONLCD connected to VOM	VOLCD output enabled
	2 and 3	ONLCD connected to GND	VOLCD output disabled

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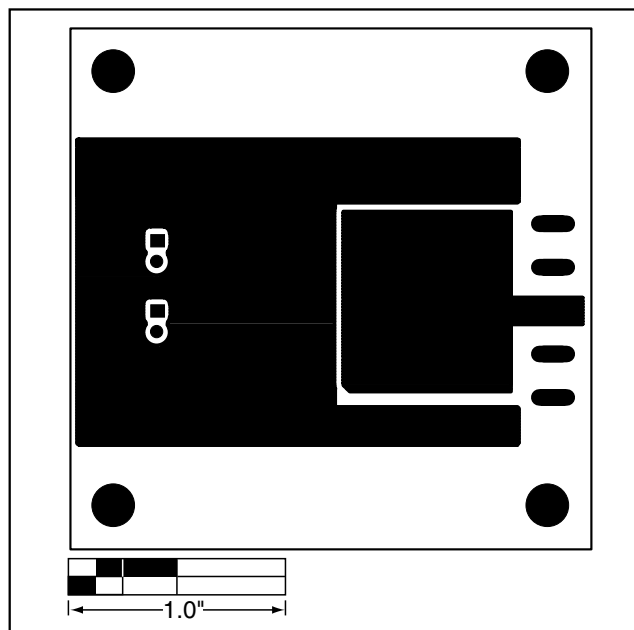


Figure 4. MAX1817 EV Kit PC Board Layout—Solder Side

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