General Description

The MAX14653–MAX14655 evaluation kits (EV kits) are fully assembled and tested circuit boards that demonstrate the functionality of the MAX14653–MAX14655 high-current overvoltage protectors with adjustable OVLO in a 12-bump wafer-level package (WLP). Each EV kit features a jumper for selecting the preset OVLO threshold or the external resistor-divider for the adjustable OVLO threshold. Input power to the EV kits is provided by external supplies.

Benefits and Features

- Proven PCB Layout
- Fully Assembled and Tested

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

Component List

DESIGNATION	QTY	DESCRIPTION
C1	1	0.1µF ±10%, 50V X7R ceramic capacitor (0805) Murata GRM21BR71H104K
C2	1	1.0µF ±10%, 35V X7R ceramic capacitor (0805) Taiyo Yuden GMK212B7105KG
C3	1	0.1µF, 16V X7R ceramic capacitor (0805) Murata GRM219R71C104K
H5	0	Not installed, test point
J1	1	3-pin header, 0.1in centers
J2	1	2-pin header, 0.1in centers
LED1	1	Green LED (0805) Lumex SML-LXT0805GW-TR
R1	1	1MΩ ±1% resistor (0805)
R2, R5	0	Not installed, resistors (0805)

DESIGNATION	QTY	DESCRIPTION
R3	1	1kΩ ±5% resistor (0805)
R4	1	100kΩ ±5% resistor (0805)
R6	1	10kΩ ±5% resistor (0805)
TP1, TP3, TP8	3	Red test points
TP2, TP4, TP7	3	Black test points
TP5, TP6	2	White test points
TP9, TP11	2	Red insulated binding posts
TP10, TP12	2	Black insulated binding posts
U1	1	See the *EV Kit-Specific Component List*
U2	1	Dual, high-speed inverter Fairchild NC7WZ04P6X
—	2	Shunts
—	1	PCB: MAX14653/4/5 EVKIT

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EV Kit-Specific Component List

PART	DESIGNATION	DESCRIPTION
MAX14653EVKIT#	U1	High-current overvoltage protector (12 WLP) Maxim MAX14653EWC+ (Top Mark: ACS)
MAX14654EVKIT#		High-current overvoltage protector (12 WLP) Maxim MAX14654EWC+ (Top Mark: ACT)
MAX14655EVKIT#		High-current overvoltage protector (12 WLP) Maxim MAX14655EWC+ (Top Mark: ACU)

Component Suppliers

SUPPLIER	PHONE	WEBSITE
Fairchild Semiconductor	888-522-5372	www.fairchild.com
Lumex Inc.	800-278-5666	www.lumex.com
Murata Americas	800-241-6574	www.murataamericas.com
Taiyo Yuden	800-348-2496	www.t-yuden.com

Note: *Indicate that you are using the MAX14653–MAX14655 when contacting these component suppliers.*

Quick Start

Required Equipment

- MAX14653–MAX14655 EV kit
- 5V power supply
- Variable power supply

Procedure

The EV kits are fully assembled and tested. Follow the steps below to verify board operation and begin evaluation:

1) Verify that a shunt is installed across pins 2-3 on jumper J1 for evaluation of preset overvoltage threshold or that a shunt is installed across pins 1-2 of J1 for evaluation of external resistor-divider-set threshold. Refer to the MAX14653/MAX14654/MAX14655 IC data sheet for instructions on how to select external resistors R1 and R2.
2) Verify that a shunt is installed across pins 1-2 on jumper J2 to enable LED1. LED1 glows green when $\overline{ACOK}$ goes low indicating no fault condition on IN.
3) Connect the 5V power supply at the EV kit's V_{CC} test point to power the $\overline{ACOK}$ LED indicator circuit.
4) Connect the variable power supply set to 2.5V minimum to V_{IN}.
5) Evaluate the device by increasing the power supply above the OVP threshold, as defined by the setup.

Detailed Description of Hardware

The MAX14653–MAX14655 EV kits are fully assembled and tested circuit boards that demonstrate the functionality of the MAX14653–MAX14655 high-current overvoltage protectors with adjustable OVLO in a 12-bump WLP. Each EV kit features a jumper for selecting the preset OVLO threshold or the external resistor-divider for the adjustable OVLO threshold. Input power to the EV kit is provided by external supplies. The EV kit's PCB is designed with 1oz copper.

Power Supply

Each EV kit is powered by a user-supplied 4.5V to 5.5V DC power supply connected between V_{CC} and GND, as well as a variable 2.5V minimum DC power supply connected between V_{IN} and GND.

$\overline{\text{ACOK}}$ Indicator LED

Each EV kit features a peripheral circuit that gives visual indication of no fault at V_{IN}. Simply install the shunt on jumper J2 to connect the peripheral circuit to the $\overline{\text{ACOK}}$ output of the device. See Table 1 for jumper settings.

OVP Threshold

Each EV kit features a jumper to change the overvoltage threshold of the device between preset threshold mode and adjustable threshold mode, in which the threshold is set by an external resistor-divider connected at OVLO. To use the device in preset threshold mode, simply connect a shunt across pins 2-3 on jumper J1. For adjustable threshold mode, connect a shunt across pins 1-2 on J1. Refer to the MAX14653/MAX14654/MAX14655 IC data sheet for information on how to set the adjustable threshold using resistors R1 and R2. See Table 1 for jumper settings.

Table 1. Jumper Settings (J1, J2)

JUMPER	SHUNT POSITION	DESCRIPTION
J1	1-2	Adjustable external OVLO threshold
	2-3*	Preset internal OVLO threshold
J2	1-2*	Connects the LED peripheral circuit to the $\overline{\text{ACOK}}$ output of the device
	Not installed	Disconnects the LED peripheral circuit to the $\overline{\text{ACOK}}$ output of the device

**Default position.*

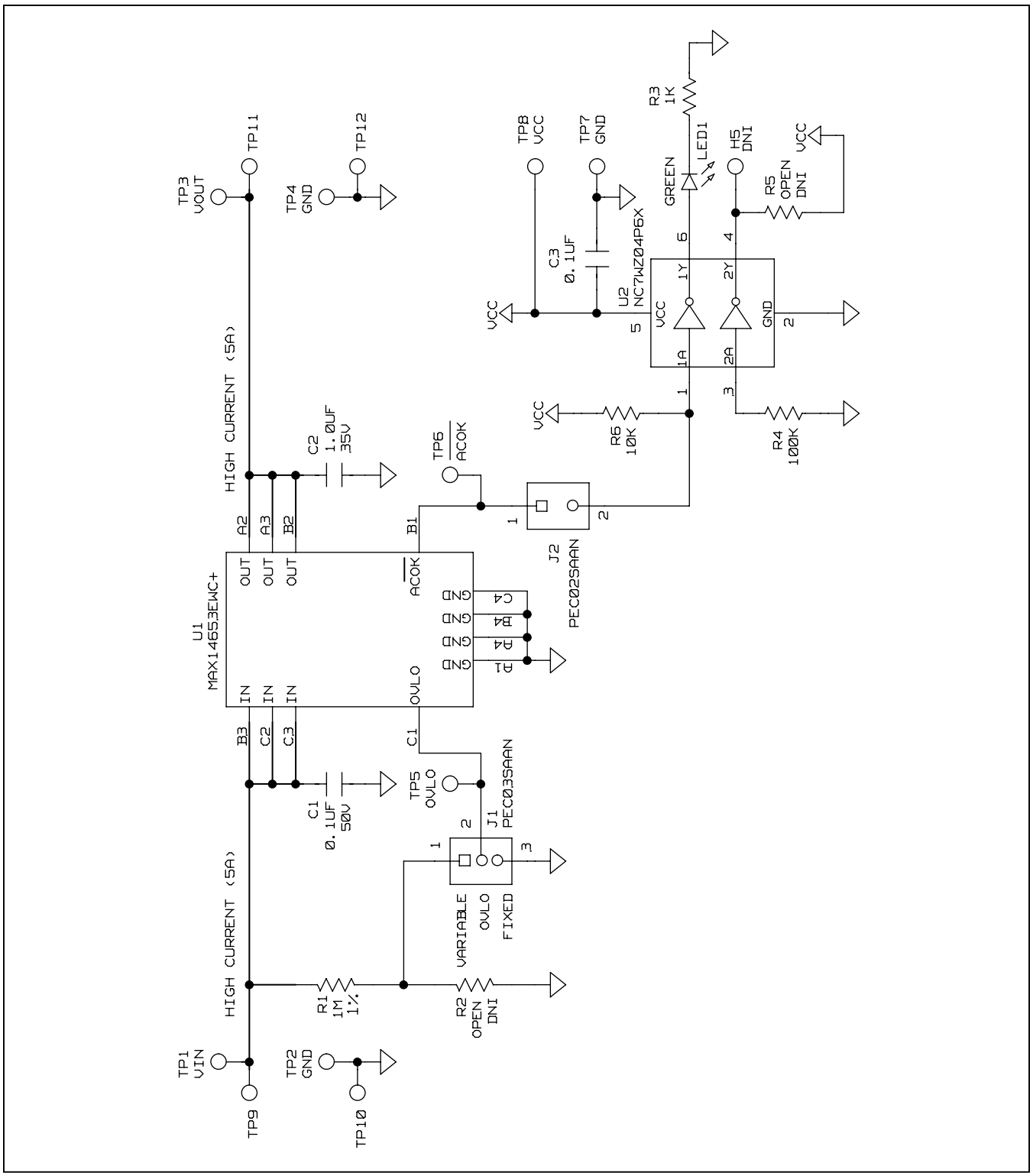

Figure 1 MAX14653–MAX14655 EV Kit Schematic

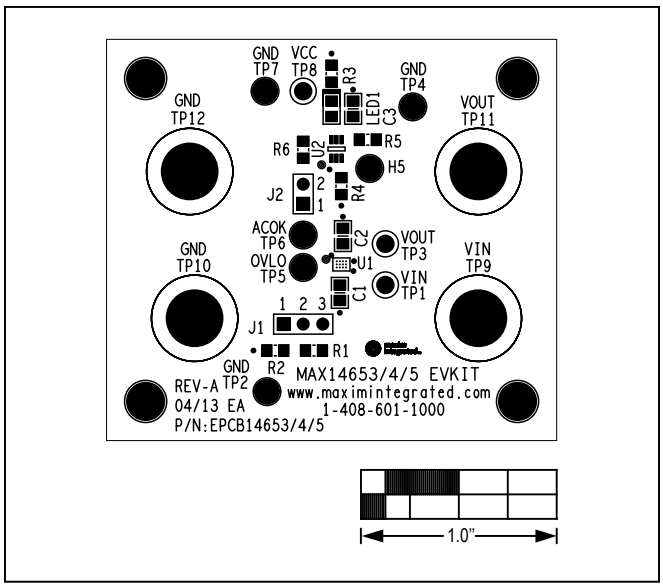

Figure 2. MAX14653–MAX14655 EV Kit Component Placement Guide—Component Side

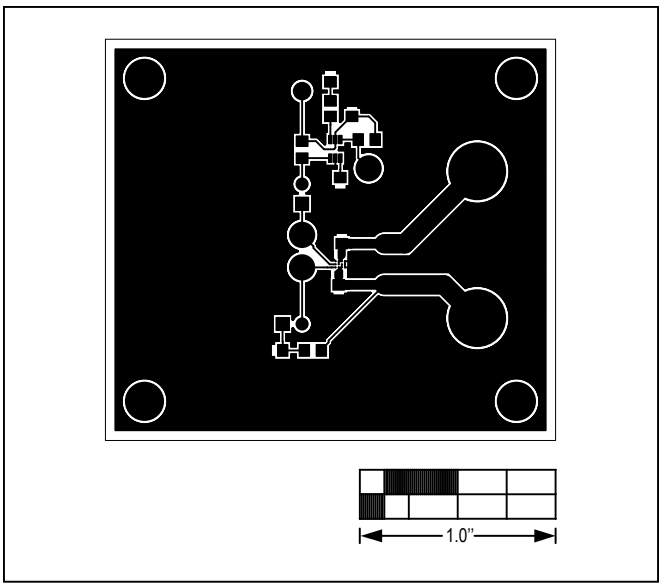

Figure 3. MAX14653–MAX14655 EV Kit PCB Layout—Component Side

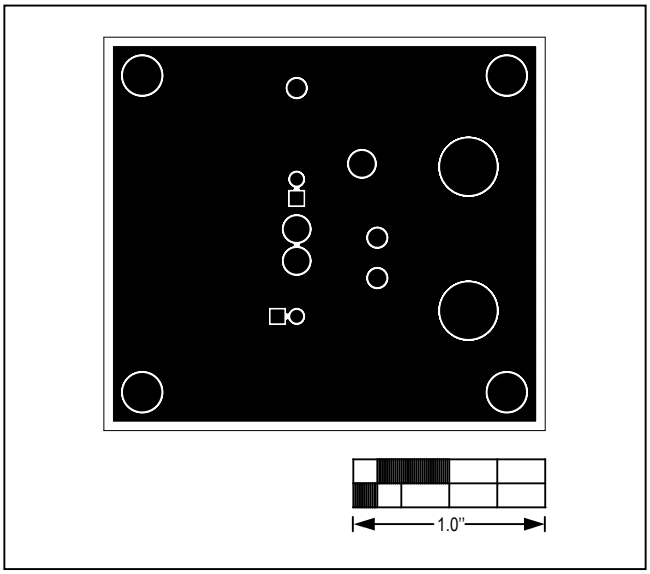

Figure 4. MAX14653–MAX14655 EV Kit PCB Layout—Solder Side

Ordering Information

PART	TYPE
MAX14653EVKIT#	EV Kit
MAX14654EVKIT#	EV Kit
MAX14655EVKIT#	EV Kit

#Denotes RoHS compliant.

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	5/13	Initial release	—

