

### LM26LV Evaluation Board User's Guide



LM26LV Evaluation Board User's Guide

## **LM26LV Evaluation Board User's Guide**

### **Table of Contents**

Table of Contents	2
References	3
1.0 Introduction	4
1.1 Block Diagram	4
2.0 Quick Start	5
2.1 Quick Start Diagram	5
3.0 Functional Description	6
3.1 LM26LV Evaluation Board Connection Table	6
4.0 Electrical and Mechanical Specifications	7
4.1 Electrical Specifications	7
4.2 Electrical Schematic	7
4.3 Evaluation Board Layout	8
4.4 Bill of Materials	9
4.5 Mechanical Specifications	9

## LM26LV Evaluation Board User's Guide

### References

1. "LM26LV 1.6V, LLP-6, Factory Preset Temperature Switch and Temperature Sensor" datasheet.

The latest copy of the **LM26LV** datasheet can be obtained by going to the National Semiconductor website [www.national.com](http://www.national.com), by searching on "**LM26LV**", and then downloading the **LM26LV**.pdf file.

## 1.0 Introduction

The LM26LV Evaluation Board offers the user a convenient way to experiment with the operation of the LM26LV Temperature Switch and Temperature Sensor.

There are jumpers that allow the insertion of an output series resistor, the measurement of  $I_{DD}$ , and the selection of the TRIP TEST mode.

By default, jumpers J3 (IDD) and J4 (VOUT) are installed. Resistor R3 can be installed and J4 removed to insert it in series with the output. See the datasheet for recommended values for R3. By default J2

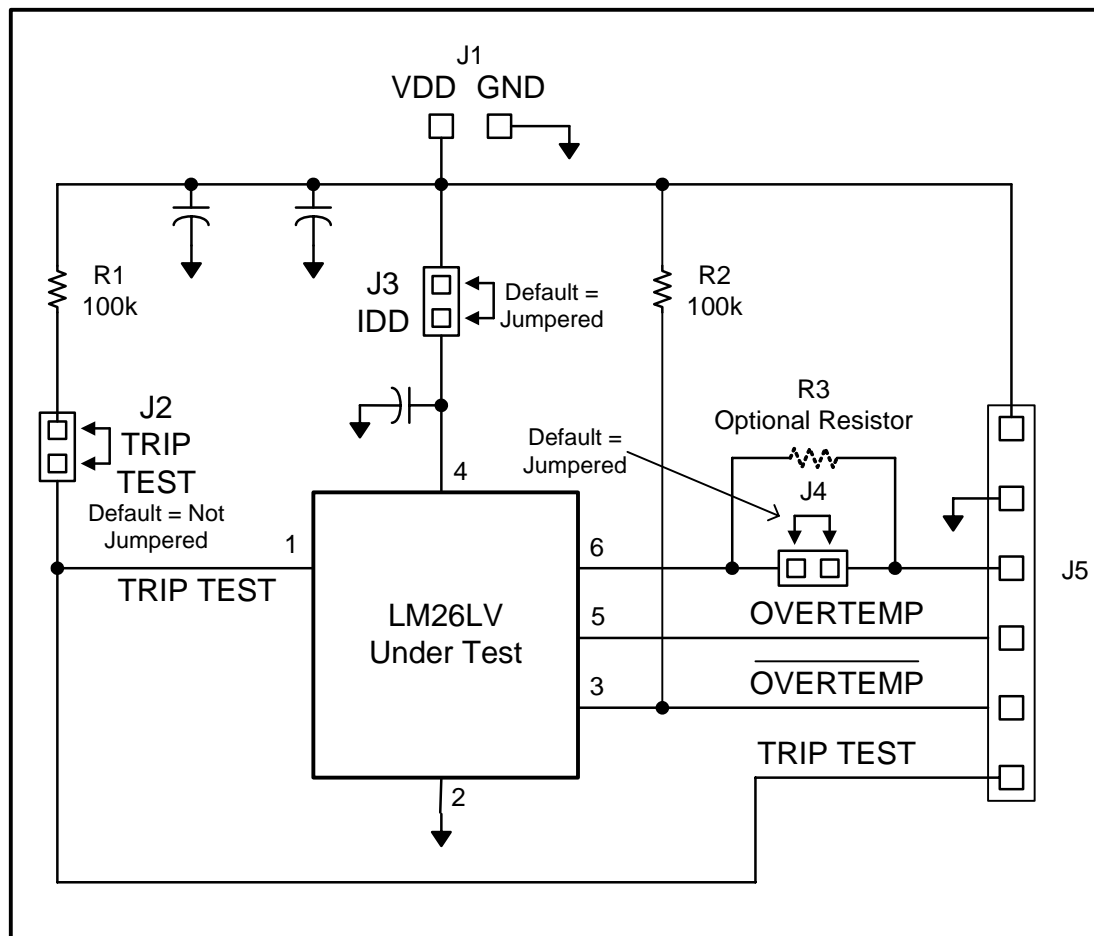
is left open but a jumper is provided so that the user can use the TRIP TEST mode.

Note that R1 is only in the circuit for protection. This resistor is not required in actual operation. The TRIP TEST Pin can be connected directly to VDD to select the TRIP TEST Mode.

R2, the pull-up resistor for the open-drain output  $\overline{OVERTEMP}$ , is 100k on the board. See the datasheet for more details about this value. If this pin is not used by the customer it may be left open.

The block diagram below shows the jumpers in the default condition.

## 1.1 Block Diagram



## 2.0 Quick Start

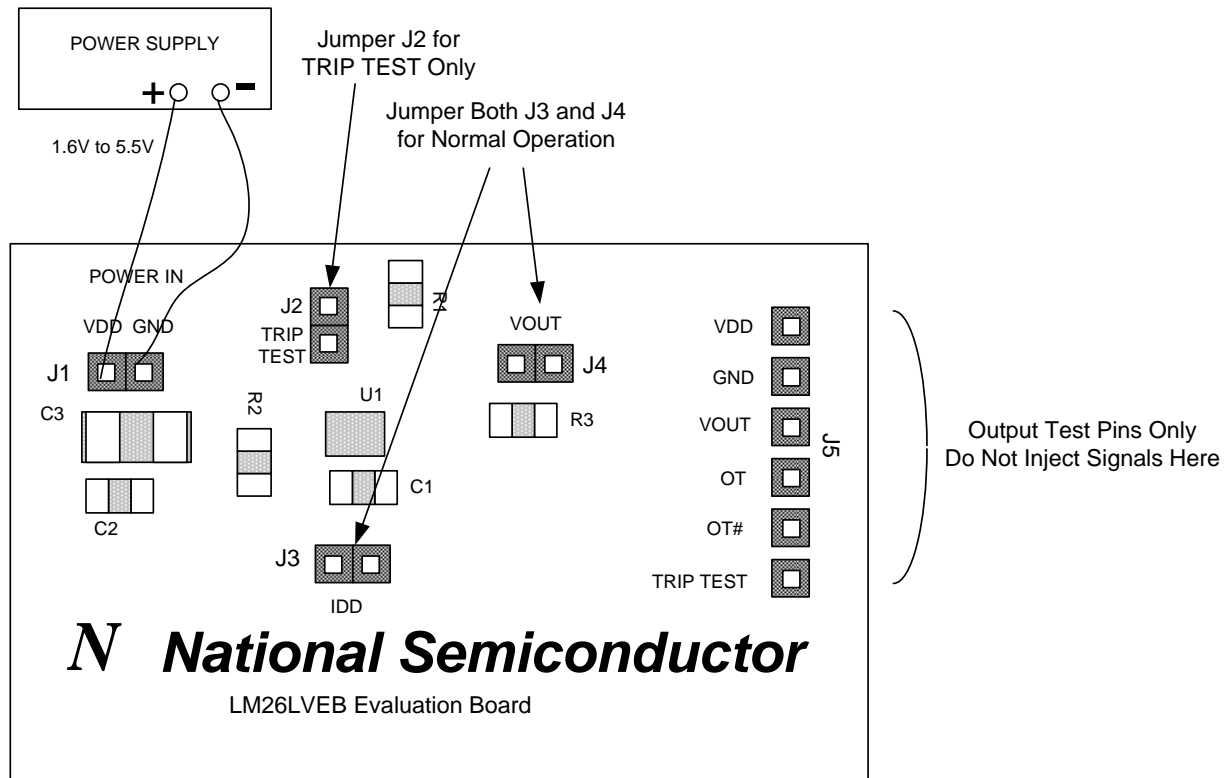
The diagram below shows how the LM26LV is connected in a typical bench test configuration.

Before applying power directly to the LM26LV Evaluation Board, make sure that the voltage is between +1.6 VDC and +5.5 VDC. Also make sure that J3 and J4 are

jumpered for normal operation. Jumping J2 will put the LM26LV in TRIP TEST mode, not for normal operation.

Apply power to the LM26LV evaluation board. Measure the output voltage connected between to output pin (J4) and ground for the VTEMP Output voltage.

### 2.1 Quick Start Diagram



!

### 3.0 Functional Description

See the details of the normal operation and the TRIP TEST mode operation in the datasheet.

See the datasheet for details regarding the VTEMP inversely proportional output voltage vs temperature characteristic.

#### 3.1 LM26LVEB Evaluation Board Connection Table

Connector Label	Connector Name	Pin Number	Description
J1	POWER IN	1	VDD Supply +1.6 to 5.5 VDC to this pin.
		2	GND This is Power Supply return for $V_{DD}$ Input
J2	TRIP TEST	1 -2	If pins 1 and 2 are jumpered then TRIP TEST Mode is selected.
J3	IDD		Jumper is installed unless a milliammeter is used to measure the actual IDD.
J4	$V_{OUT}$ Output		Jumper is installed across pins 1 and 2 by default. Otherwise resistor R3 is in series with the output.
J5	Test Pins		Use these pins to test and monitor the signals on the board. Do not inject signals here.

## 4.0 Electrical and Mechanical Specifications

### 4.1 Electrical Specifications

Power Requirements	
The Board uses the +1.6 VDC to +5.5 VDC and GND lines from an external low-noise power supply.	+1.6 VDC to +5.5 VDC

### 4.2 Electrical Schematic

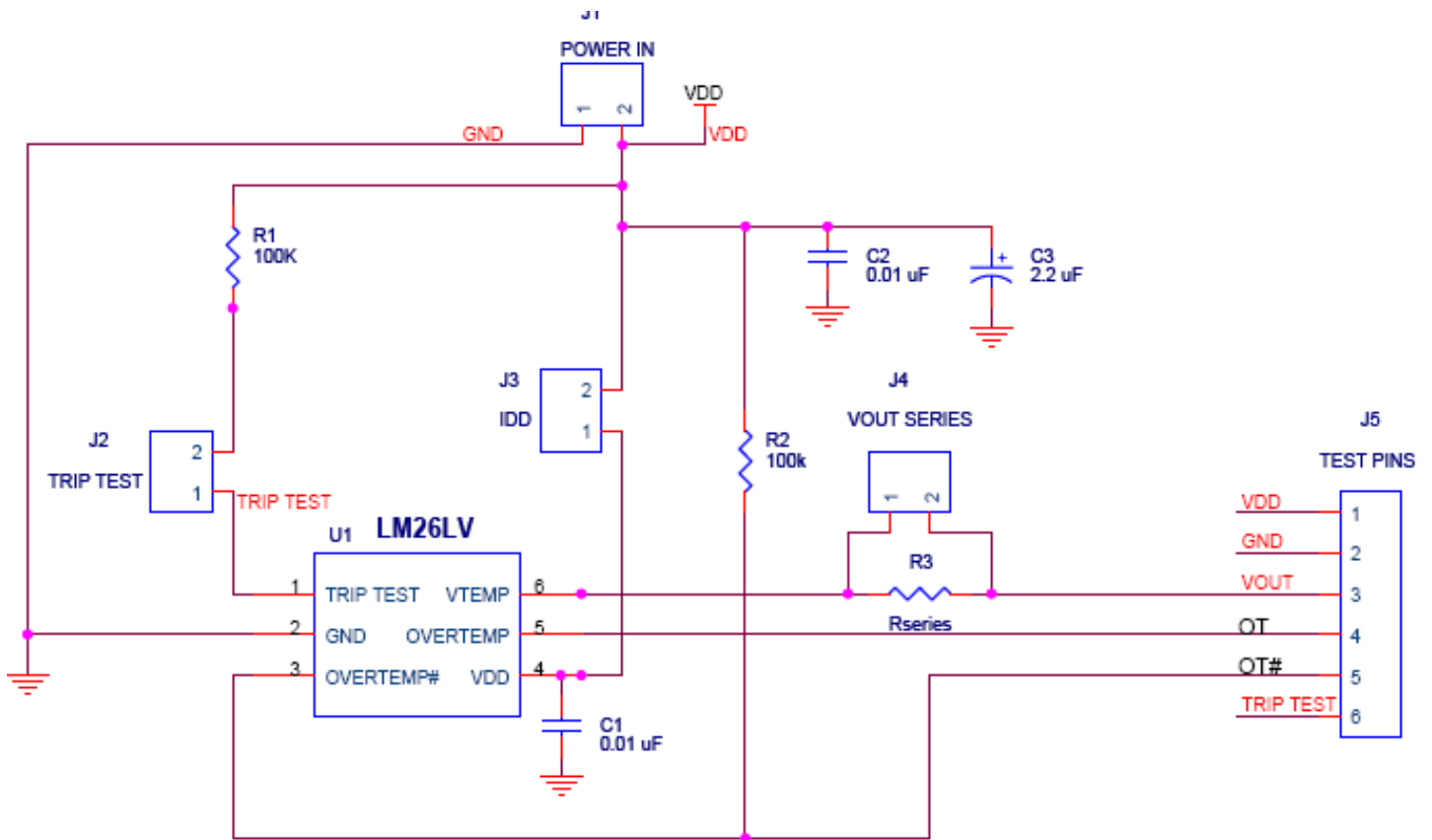


Figure 4.2 Schematic Diagram of the LM26LV Evaluation Board

### 4.3 Evaluation Board Layout

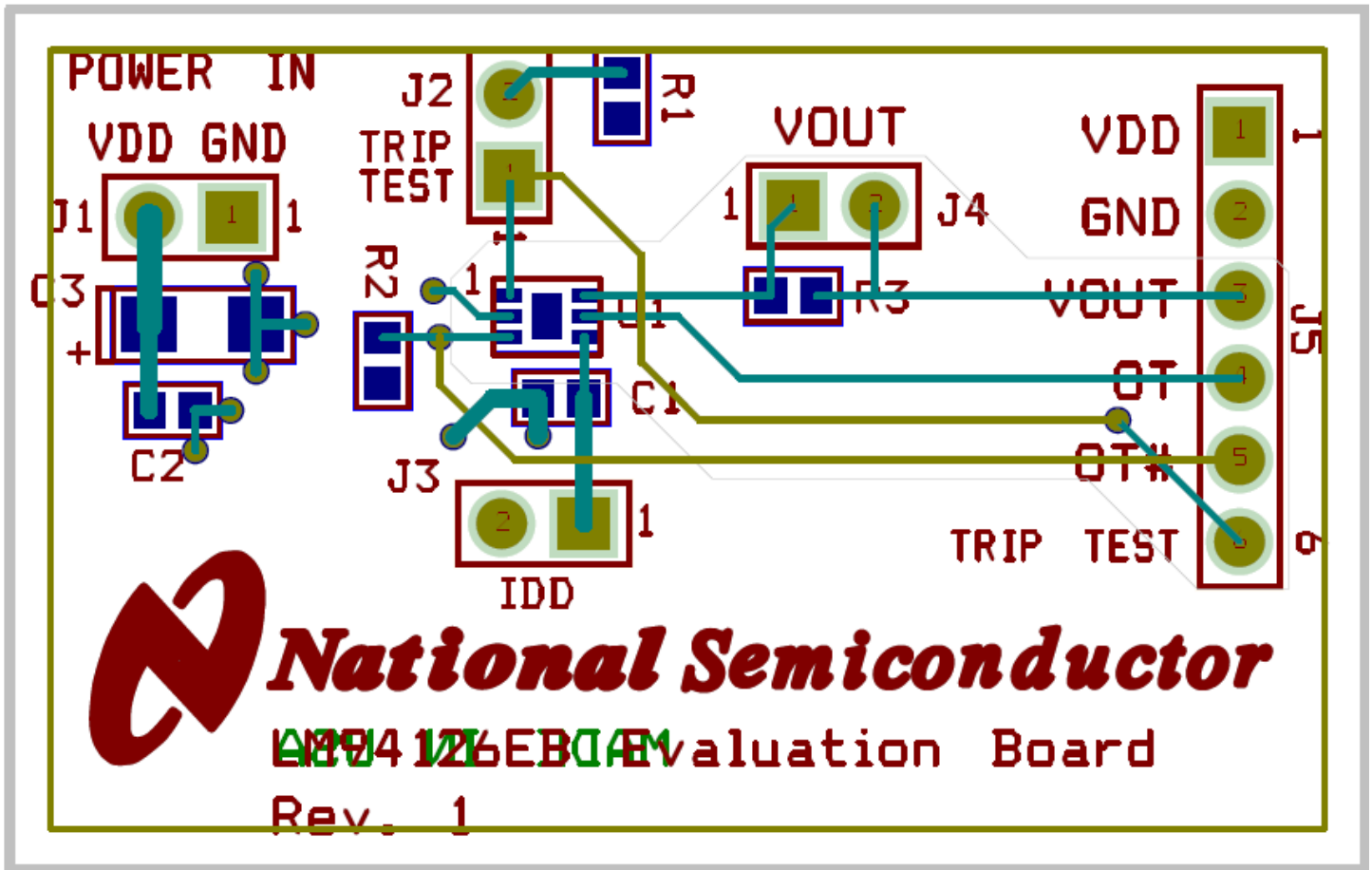


Figure 4.3 Layout diagram of the LM26LV Evaluation Board



#### 4.4 Bill of Materials for LM26LV Evaluation Board

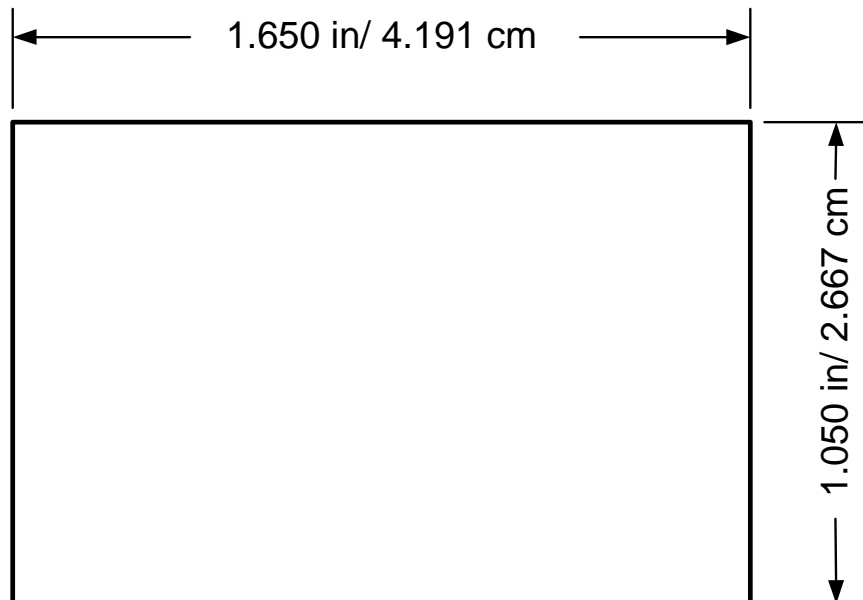
Item	Quantity	Reference	Part
1	2	C1, C2	Capacitor, Ceramic, 0.01 uF
2	1	C3	Capacitor Ceramic, 2.2 uF
3	4	J1, J2, J3, J4	Header, 1X2, 0.1 in centers
4	1	J5	Header, 1X6, 0.1 in centers
6	2	R1, R2	Resistor, 100k
7	1	R3	Resistor, (not stuffed)
8	1	U1	LM26LVCISD Device Under Test (DUT)
9	1	--	Circuit Board, Fabricated, LM26LVEB Evaluation Board, Rev. 1

#### 4.5 Mechanical Specifications

##### 4.5.1 Operating Mechanical and Environmental Specifications

	Minimum	Typical	Maximum
Temperature	0°C	25°C	70°C

##### 4.5.2 Evaluation Board Basic Dimensions



##### 4.5.3 Electrostatic Discharge (ESD) Precautions

The user shall use ESD precautions as specified in National Semiconductor ESD document (SC)CSI-3-038 available through [www.national.com](http://www.national.com).

**BY USING THIS PRODUCT, YOU ARE AGREEING TO BE BOUND BY THE TERMS AND CONDITIONS OF NATIONAL SEMICONDUCTOR'S END USER LICENSE AGREEMENT. DO NOT USE THIS PRODUCT UNTIL YOU HAVE READ AND AGREED TO THE TERMS AND CONDITIONS OF THAT AGREEMENT. IF YOU DO NOT AGREE WITH THEM, CONTACT THE VENDOR WITHIN TEN (10) DAYS OF RECEIPT FOR INSTRUCTIONS ON RETURN OF THE UNUSED PRODUCT FOR A REFUND OF THE PURCHASE PRICE PAID, IF ANY.**

The LM94022 Evaluation Boards are intended for product evaluation purposes only and are not intended for resale to end consumers, are not authorized for such use and are not designed for compliance with European EMC Directive 89/336/EEC, or for compliance with any other electromagnetic compatibility requirements.

National Semiconductor Corporation does not assume any responsibility for use of any circuitry or software supplied or described. No circuit patent licenses are implied.

## **LIFE SUPPORT POLICY**

**NATIONAL'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF NATIONAL SEMICONDUCTOR CORPORATION. As used herein:**

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

### **BANNED SUBSTANCE COMPLIANCE**

National Semiconductor certifies that the products and packing materials meet the provisions of the Customer Products Stewardship Specification (CSP-9-111C2) and the Banned Substances and Materials of Interest Specification (CSP-9-111S2) and contain no "Banned Substances" as defined in CSP-9-111S2.



**National Semiconductor Corporation**  
**Americas Customer Support Center**  
Tel: 1-800-272-9959  
Email: new.feedback@nsc.com

**National Semiconductor Europe Customer Support Center**  
Fax: +49 (0) 1 80-530 85 86  
Email: europe.support@nsc.com  
Deutsch Tel: +49 (0) 699508 6208  
English Tel: +49 (0) 870 24 0 2171  
Français Tel: +49 (0) 141 91 8790

**National Semiconductor Asia Pacific Customer Support Center**  
Email: ap.support@nsc.com

**National Semiconductor Japan Customer Support Center**  
Tel: 81-3-5639-7560  
Fax: 81-3-5639-7507  
Email: jpn.feedback@nsc.com

National does not assume any responsibility for any circuitry described, no circuit patent licenses are implied and National reserves the right at any time without notice to change said circuitry and specifications.