



VOH1016AB Evaluation Board User's Guide

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INTRODUCTION

The "VOH1016AB - 1 MBd Schmitt Trigger" evaluation board provides a readily available platform for performance and design evaluation of Vishay's 1 MBd digital high speed coupler VOH1016A. It also contains provisions for a buffer input LED driver.

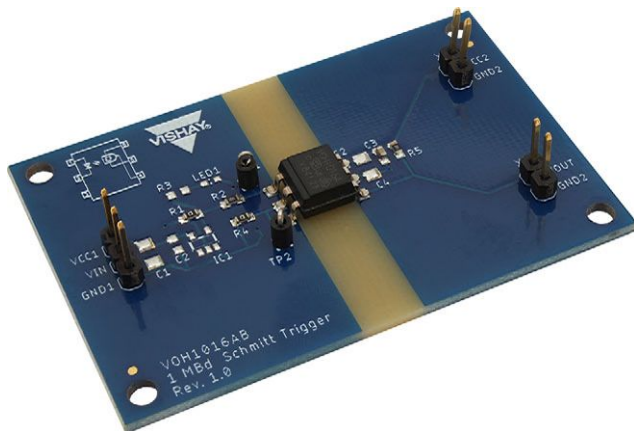


Fig. 1 - VOH1016AB Evaluation Board Picture

DESCRIPTION

The IRLLED on the input side can be driven directly with a 5 V signal at the connector X₁ (V_{IN}, GND₁), resulting in a forward current I_F of 3.0 mA.

On the output side, the VOH1016A provides an open collector transistor output with Schmitt-Trigger functionality, which is terminated with a pull-up resistance R₅. The output signal is provided at the connector X₃ (V_{OUT}, GND₂). The 5 V power supply must be connected at the connector X₂ (V_{CC2}, GND₂).

TEST CONFIGURATION

The default configuration enables inverted pulse transmission and requires the connection of a pulse generator GEN and an oscilloscope OSC as shown in Fig. 2.

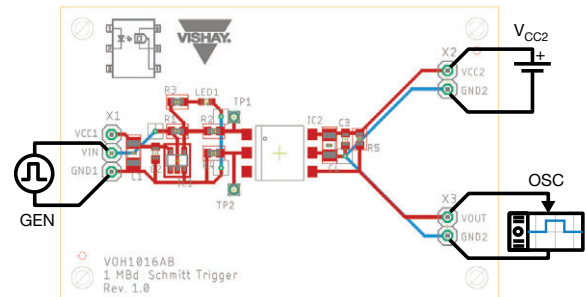


Fig. 2 - Default Connection

ALTERNATIVE CONFIGURATION

If a current source is used or for testing purposes, the input can be driven directly with the forward current by using a 0 Ω jumper for R₂.

To enable ground-referred measurement, e. g. for adjusting the forward current, the voltage drop at R₄ with TP₂ can be used and calculated with Equation 1 below.

$$I_F = \frac{U_{R4}}{R_4} \quad (1)$$

Typical values are between 50 Ω and 1 kΩ.

C₃ provides sufficient power supply stabilization. Additionally, C₄ may be used if improved stabilization is required.

If a high impedance input is needed, an auxiliary logic gate driver IC₁ [1] can be used after removing the jumper R₁. Finally, a voltage source X₁ (V_{CC1}, GND₁) must be connected, as shown in Fig. 3.

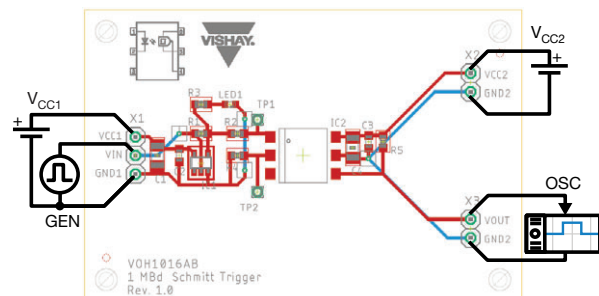


Fig. 3 - Logic Gate Driver Connection

APPLICATION NOTE

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SCHEMATIC

The schematic and default assembly can be seen in Fig. 4.

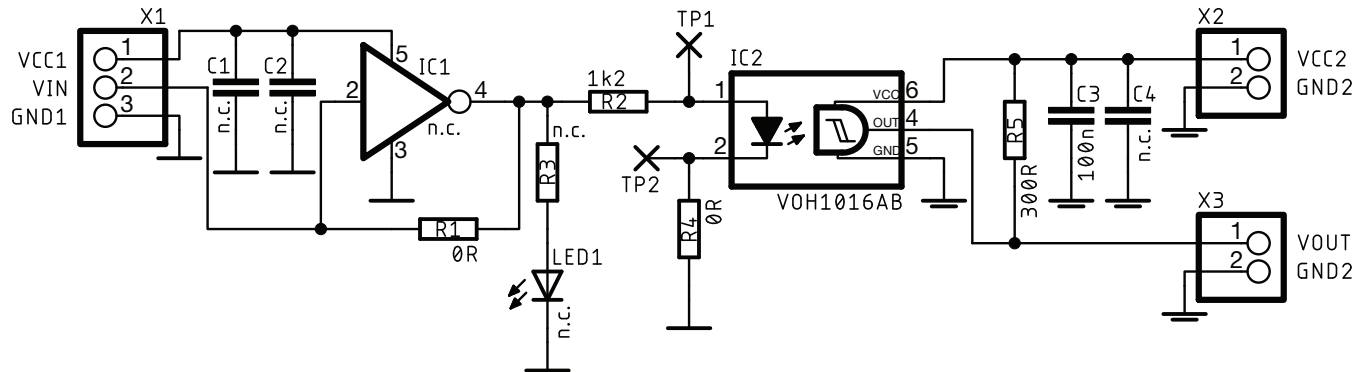


Fig. 4 - Schematic

TABLE 1 - BILL OF MATERIALS			
IDENTIFIER	PART NUMBER	COMMENT	MANUFACTURER
IC1	74LVC1G04GW	Single-logic inverter, not assembled	NXP
IC2	VOH1016AB	1 MBd high speed optocoupler	VISHAY
R1	CRCW06030000Z0EAC	0 Ω jumper	VISHAY
R2	CRCW06031K20FKTA	1.2 kΩ resistance	VISHAY
R3	CRCW0603180RFKTA	180 Ω resistance, not assembled	VISHAY
R4	CRCW06030000Z0EAC	0 Ω jumper	VISHAY
R5	CRCW0603300RFKTA	300 Ω resistance	VISHAY
LED1	VLMTG1300-GS08	True green 0603 ChipLED, not assembled	VISHAY
C1	VJ1206Y106KX	10 μF capacitance, not assembled	VISHAY
C2	VJ0603Y104KXJ	100 nF capacitance, not assembled	VISHAY
C3	VJ0603Y104KXJ	100 nF capacitance	VISHAY
C4	VJ1206Y106KX	10 μF capacitance, not assembled	VISHAY
X1	90120-0763	Pin header, 3 circuits	MOLEX
X2	90120-0762	Pin header, 2 circuits	MOLEX
X3	90120-0762	Pin header, 2 circuits	MOLEX
TP1	151-203-RC	Test point	KOBICONN
TP2	151-203-RC	Test point	KOBICONN
PCB	VOH1016AB_EVALBOARD	VOH1016AB Evaluation Board Rev. 1.2	VISHAY



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BOARD LAYOUT

Fig. 5 shows the top layout, Fig. 6 the bottom. The board can also be affixed using the mounting holes in each corner.

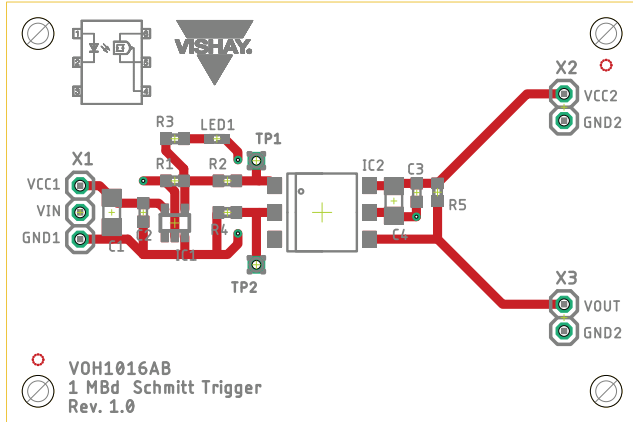


Fig. 5 - Top Layout

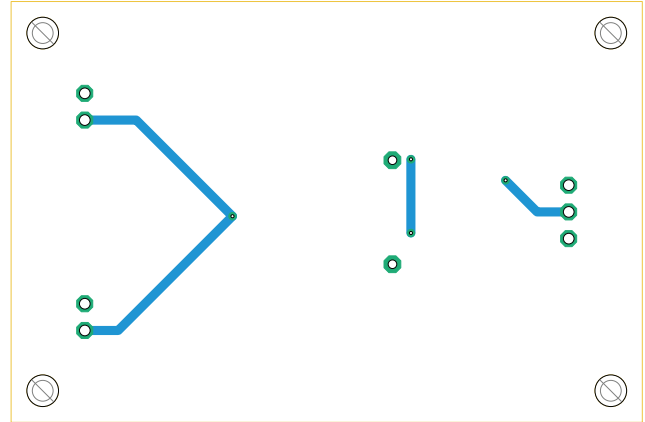


Fig. 6 - Bottom Layout

PREFERENCES

[1]Vishay, "Logic Gate Input Driver for High Speed Coupler," application note, www.vishay.com/doc?84244