

Wideband, High-Output-Current, Single Ended-to-Differential Line Drivers with Enable

This is a Line Driver project. This single-ended-to-differential line driver is designed for high-speed communications. Using current feedback for greater bandwidth, this project delivers full-power bandwidth up to 405MHz and features slew rates as high as 6500V/ μ s. The MAX4447 has a fixed gain of +2V/V and a small-signal bandwidth of 430MHz. A low-power enable mode reduces current consumption below 5.5mA and places the outputs in a high-impedance state, Jumper J1 is provided to selectively enable and disable. The circuit can deliver differential output swings of ± 6.2 V from ± 5 V supplies with a 50 Ω load. Excellent differential gain/phase and noise specifications make these project ideal for a wide variety of video and RF signal-processing and transmission applications. It is advisable to use gold-plated PCB and high-quality connectors for high-frequency operation.

Twisted-Pair Line Driver

The project is compatible and can be paired with our **Ultra-High-Speed, Low-Distortion – Differential-to-Single-Ended Line Receivers with Enable** that has been published in past. The project is well-suited to drive twisted-pair cables. It is advisable to use a high-quality twisted pair cable like CAT5. The 24AWG telephone wire widely used, produces losses at higher frequencies.

Connections and Other details

- **CN1:** Power Supply Input >> Pin1 = +5V DC, Pin2 = +5V DC, Pin3 = GND, Pin4 = GND, Pin5 = -5V DC, Pin6 = -5V DC
- **CN3:** Signal Ended Signal Input >> Pin1 = Signal Input, Pin2 = GND
- **CN2:** Differential Output >> Pin1 = +Output, Pin2 = GND, Pin3 = -Output
- **D1:** Power LED
- **J1:** Jumper >> GND Disable, VCC = Enable

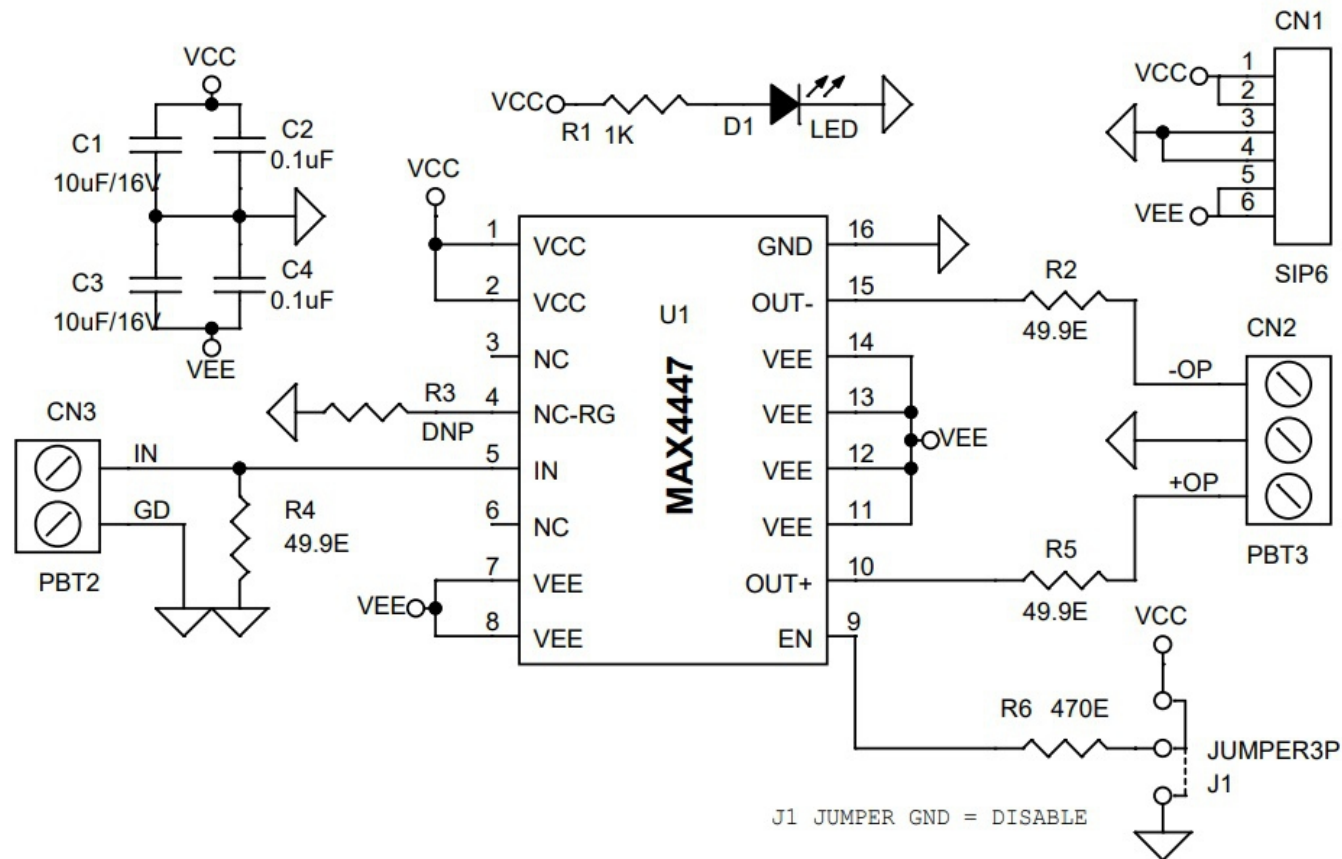
Key Features

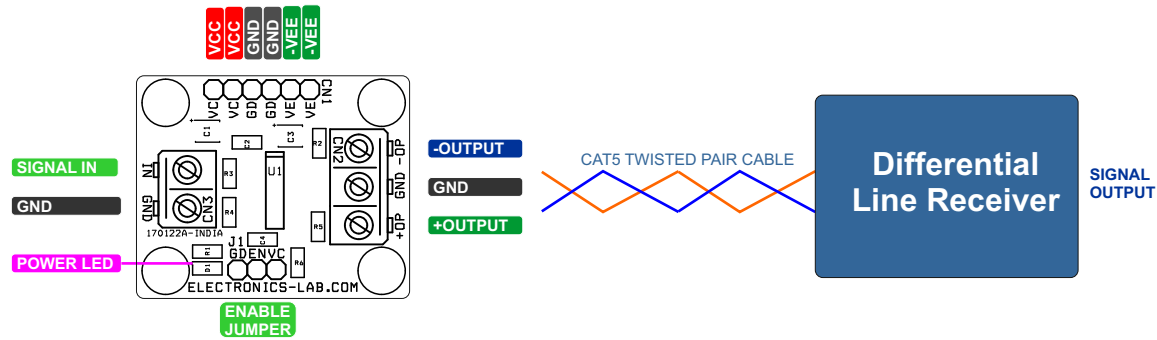
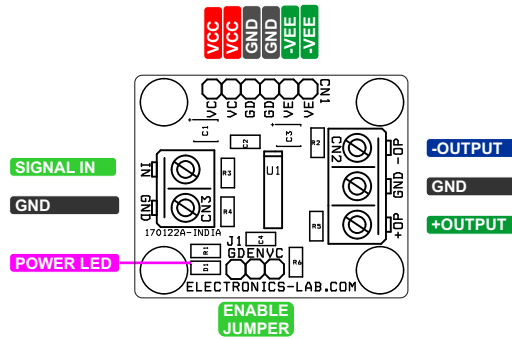
- Operating Power Supply +/-5V DC (Dual 5V DC)
- 6500V/ μ s Slew Rate
- Small-Signal Bandwidth
- Full-Power Bandwidth 430MHz
- 200MHz 0.1dB Gain Flatness
- 130mA Output Drive Current
- +2V/V Internally Fixed Gain
- -78dB SFDR at 100kHz
- Low Differential Gain/Phase: 0.01%/0.02°
- Ultra-Low Noise: 23nV per root-Hz at f_{IN} = 1MHz
- 8ns Settling Time to 0.1%
- PCB Dimensions 35.72 X 29.37mm

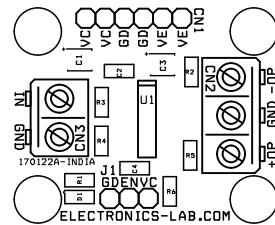


Application

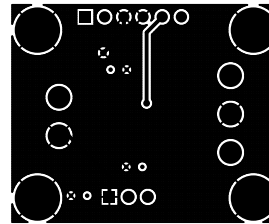
- Coaxial to Twisted-Pair Converter
- Differential ADC Driver
- Differential Line Driver
- Differential Pulse Amplifier
- High-Speed Differential Transmitter
- Single-Ended-to-Differential Conversion
- Video and RF Signal Processing and Transmission
- xDSL Applications



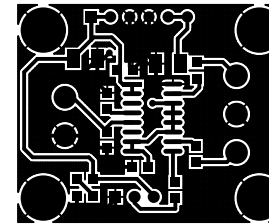




SILK SCREEN TOP



BOTTOM LAYER



TOP LAYER

PCB DIMENSIONS 35.72MM X 29.37MM

BOM						
NO.	QNTY.	REF.	DESC.	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	1	CN1	6 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5319-ND
2	1	CN2	3 PIN SCREW TERMINAL PITCH 5.08MM	PHOENIX	DIGIKEY	277-1248-ND
3	1	CN3	2 PIN SCREW TERMINAL PITCH 5.08MM	PHOENIX	DIGIKEY	277-1247-ND
4	2	C1,C3	10uF/16V SMD SIZE 1210 CERAMIC OR TANTALUM	YAGEO/MURATA	DIGIKEY	
5	2	C2,C4	0.1uF/50V SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
6	1	D1	LED RED SMD SIZE 0805	LITE ON INC	DIGIKEY	160-1427-1-ND
7	1	J1	3 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5316-ND
8	1	R1	1K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
9	3	R2,R4,R5	49.9E 1% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
10	1	R3	DNP			
11	1	R6	470E 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
12	1	U1	MAX4447 SOIC14	ANALOG DEVICE	DIGIKEY	MAX4447ESE+TCT-ND
13	1	J1-S	SHUNT	SULLINS CONCT	DIGIKEY	S9001-ND