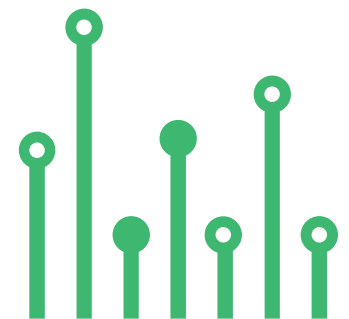


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# Unipolar-to-Bipolar Level Translator 0V to 5V Unipolar to $\pm 10V$ Bipolar Converter



SKU: EL130495

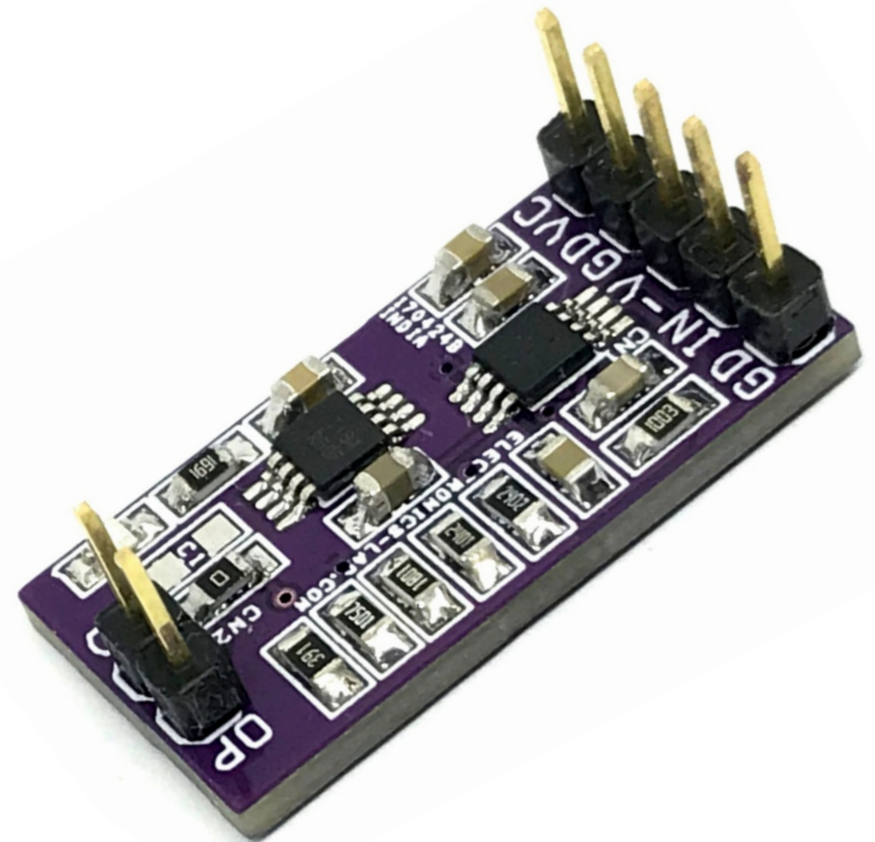
# Unipolar-to-Bipolar Level Translator 0V to 5V Unipolar to $\pm 10V$ Bipolar Converter



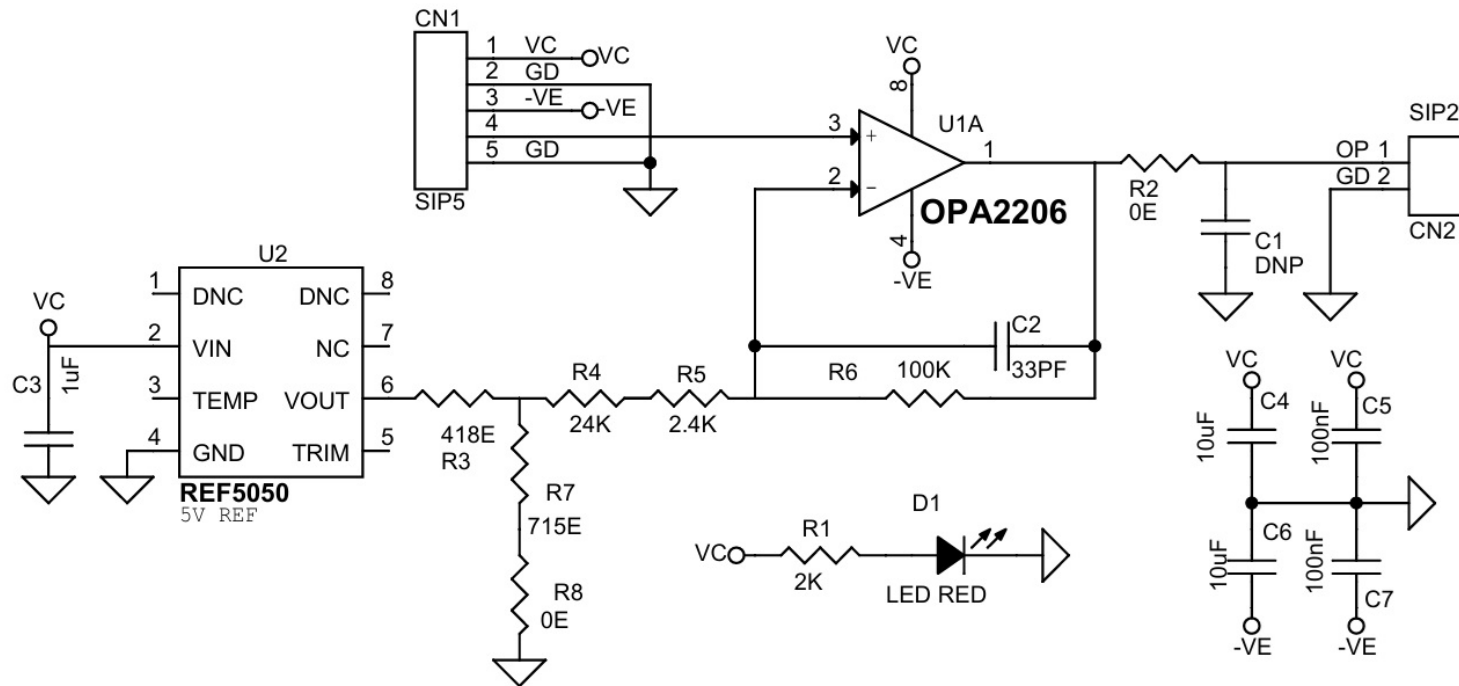
This design is intended to translate a small unipolar signal to a wide bipolar signal. A common application is to translate a 0 to 5V DAC output to a  $\pm 10V$  bipolar signal. All resistors are 1% but it is advisable to select 0.1% 20 ppm/ $^{\circ}C$  resistors for good gain, offset accuracy, and drift tolerance. A calibration at room temperature can be done to minimize the gain error, but gain drift can only be reduced by minimizing the resistor drift (choosing resistors with  $TC \leq 20$  ppm/ $^{\circ}C$ ). The project is built using OPA2206 Precision, bipolar, e-trim OPAMP. REF5050 provides 5V reference voltage to OPAMP. The board works with a dual  $\pm 15V$  DC Power Supply.

## FEATURES

- Power Supply  $\pm 15V$  DC (Dual 15V DC)
- Input 0 to 5V
- Output  $\pm 10V$  (Dual 10V)
- Bandwidth 50Khz
- PCB Dimensions 26.19X13.34MM

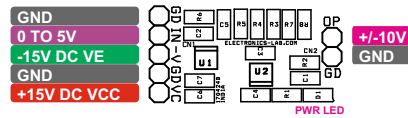


# Schematic



# Connections

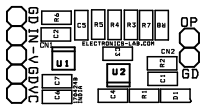
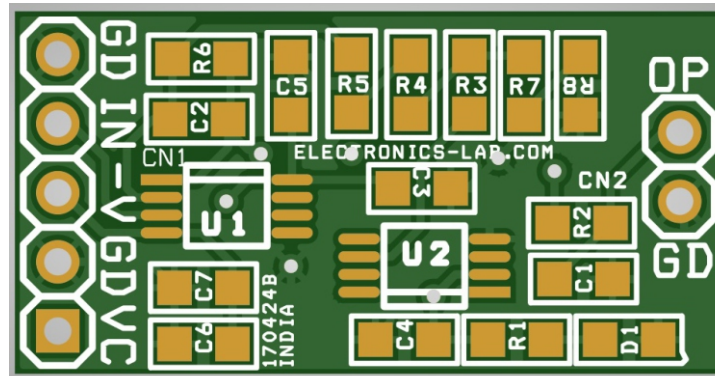
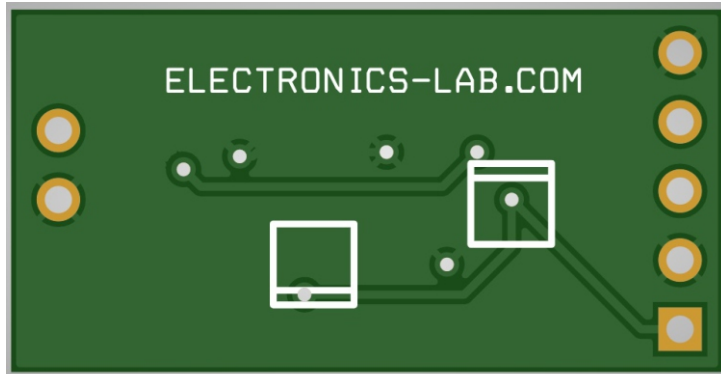
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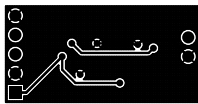
## Connections

- CN1: Pin1 +15V DC, Pin 2 = GND, Pin 3 = -15V DC, Pin 4 = 0 to 5V Signal, Pin 5 = GND
- CN2: Pin 1 = Output +/-10V (Dual 10V)
- D1: Power LED

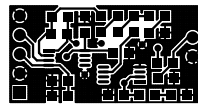
# PCB



SILK SCREEN TOP



BOTTOM LAYER



TOP LAYER

PCB DIMENSIONS 26.19X13.34MM

# Parts List

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BOM						
NO	QNTY	REF	DESC	MANUFACTURER	SUPPLIER	SUPPLIER PART NO
1	1	CN1	5 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5318-ND
2	1	CN2	2 PIN MALE HEADER PITCH 2.54MM	WURTH	DIGIKEY	732-5315-ND
3	1	C1	DNP			
4	1	C2	33PF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
5	1	C3	1uF/25V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
6	2	C4,C6	10uF/25V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
7	2	C5,C7	100nF/50V CERAMIC SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
8	1	D1	LED RED SMD SIZE 0805	OSRAM	DIGIKEY	475-1278-1-ND
9	1	R1	2K 5% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
10	2	R2,R8	0E SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
11	1	R3	418E 1% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
12	1	R4	24K 1% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
13	1	R5	2.4K 1% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
14	1	R6	100K 1% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
15	1	R7	715E 1% SMD SIZE 0805	YAGEO/MURATA	DIGIKEY	
16	1	U1	OPA2206 VSSOP8	TI	DIGIKEY	296-OPA2206ADGKRCT-ND
17	1	U2	REF5050 VSSOP8	TI	DIGIKEY	296-46325-1-ND

# Notes

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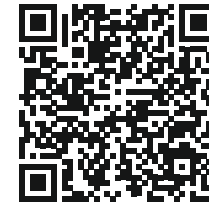


## APP

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### Android App

DOWNLOAD

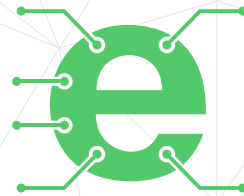


Android App launched in 2017 and has 100k+ downloads - rated with 4.5 stars.

**SCAN QR CODE**







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