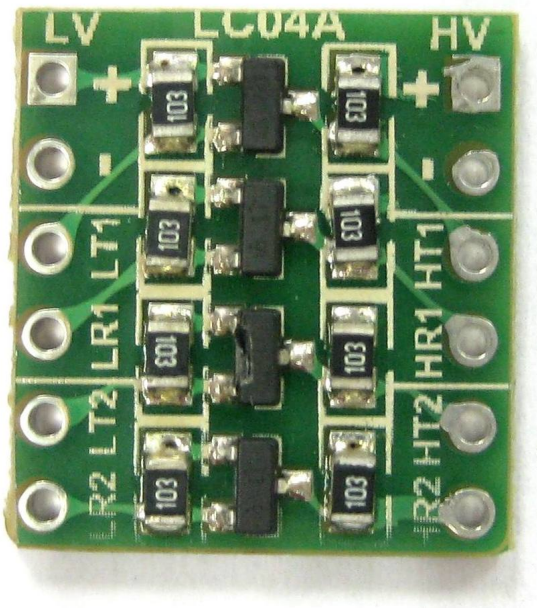
LC04A
Logic Converter 4 Channels



User's Manual

V1.0

June 2012

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1. INTRODUCTION AND OVERVIEW

LC04A is a logic converter which help user to steps down 5V signals to 3.3V and steps up 3.3V to 5V with high speed. This converter also works with 2.8V and 1.8V devices. Each level converter has the capability of converting 4 pins on the high side to 4 pins on the low side. 4 channels for each site.

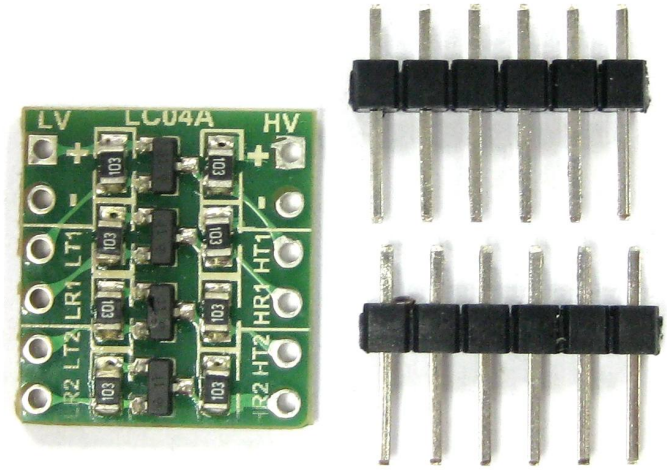
Another good feature is this converter is Breadboard friendly! Can be used with normal serial, I2C, SPI, and any other digital signal. **Does not work with an analog signal**. The level converter is very easy to use. The board needs to be powered from the two voltages sources (high voltage and low voltage) that your system is using. High voltage (5V for example) to the 'HV' pin, low voltage (2.8V for example) to 'LV', and ground from the system to the 'GND' pin.

Features:

- 2 ways (bi-directional), logic zero will wins (dominant)
- LV must be lower voltage than HV
- LV can be as low as 1.8V, HV can go up to 5V.
- 4 channels, you can have TX, RX, CTS and RTS.
- UART, SPI, I2C, or simple sensor input that have different voltage level.
- Not analog converter nor amplifier.
- **Dimension: 15mm x 16mm**

2. PACKING LIST

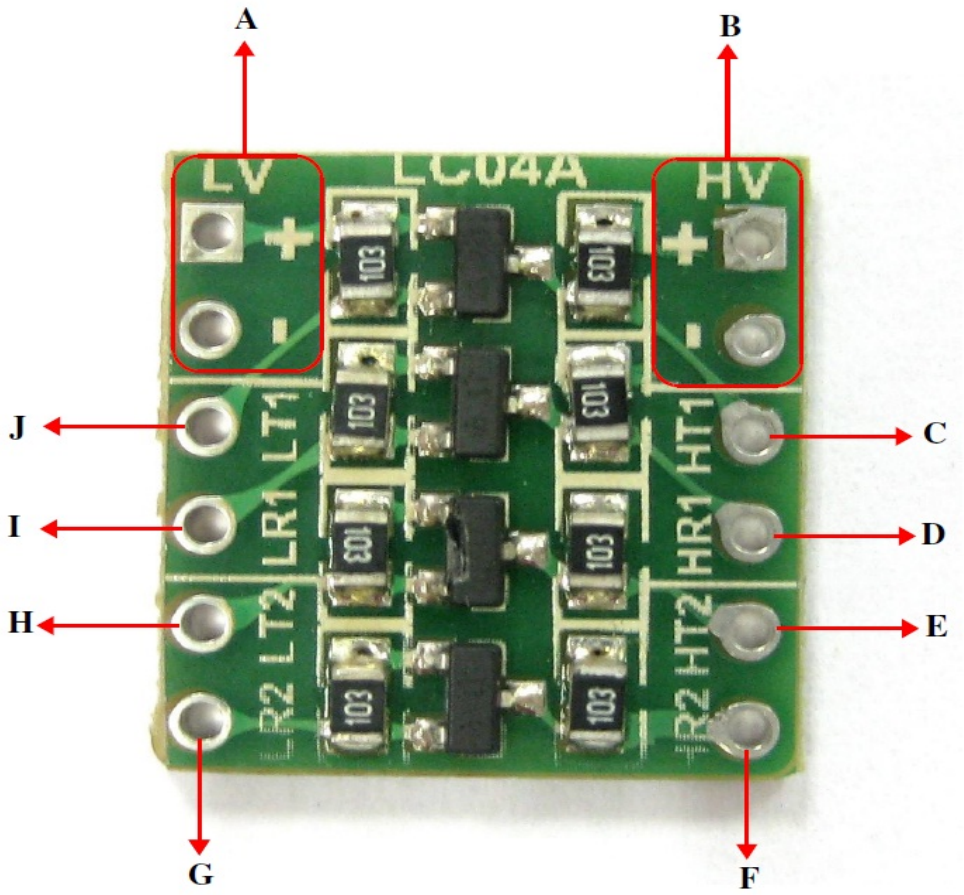
Please check the parts and components according to the packing lists. If there are any parts missing, please contact us at sales@cytron.com.my immediately.



1. 1 x LC04A board

2. 2 x straight header pin (6 ways)

3. PRODUCT LAYOUT



Label	Description	Label	Description
A	Low voltage terminal pin	F	High Voltage Receiver Channel 2
B	High voltage terminal pin	G	Low Voltage Receiver Channel 2
C	High Voltage Transmitter Channel 1	H	Low Voltage Transmitter Channel 2
D	High Voltage Receiver Channel 1	I	Low Voltage Receiver Channel 1
E	High Voltage Transmitter Channel 2	J	Low Voltage Transmitter Channel 1

4. PRODUCT SPECIFICATION AND LIMITATIONS

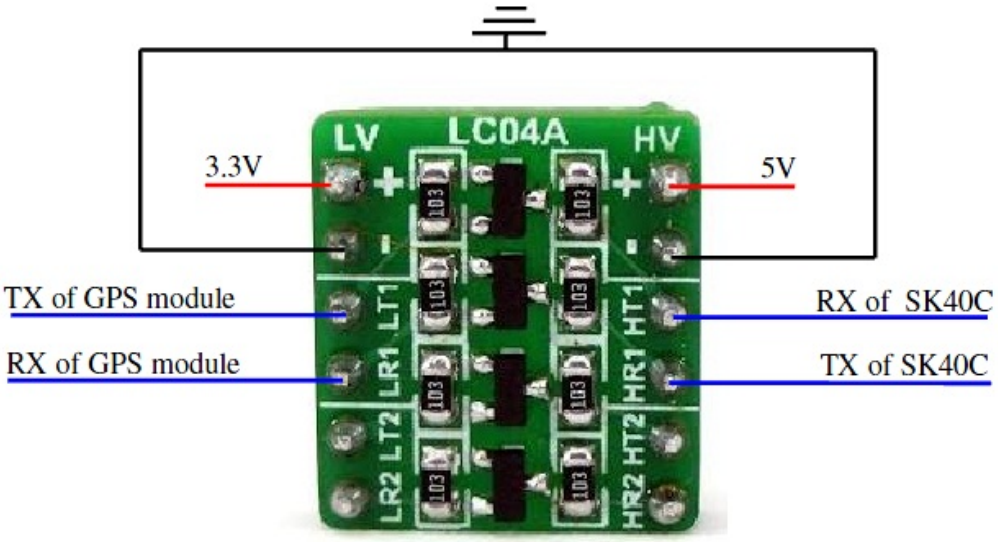
Absolute Maximum Rating

Parameter	Min	Max	Unit
Operating voltage	1.8	5	V

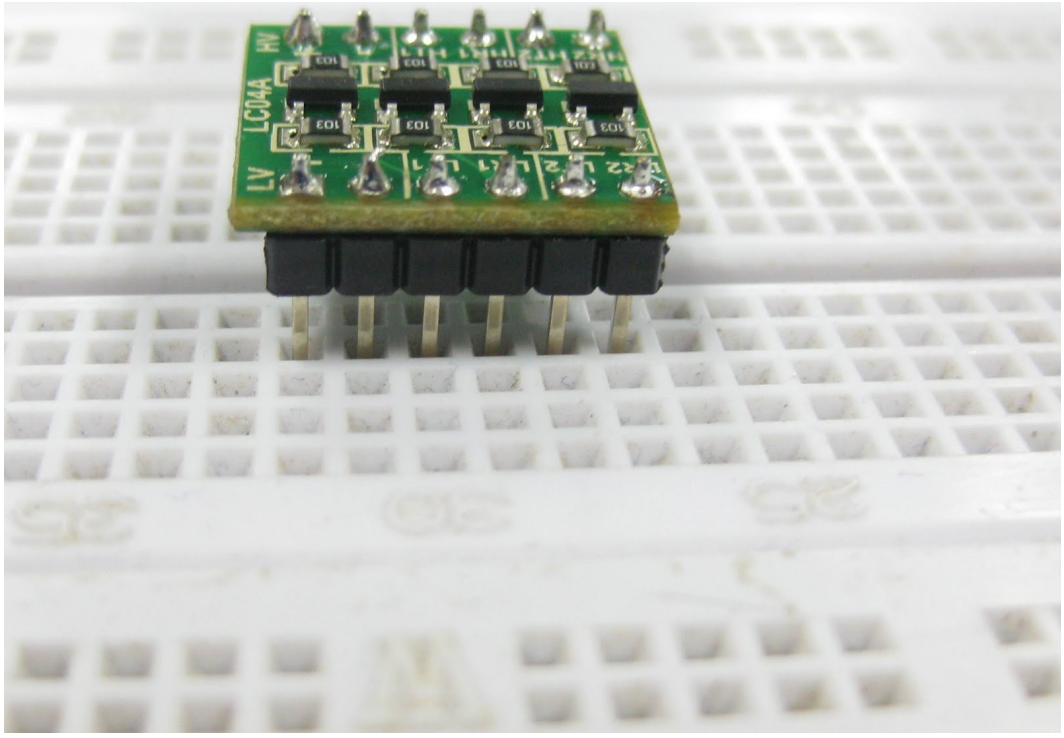
5. GETTING STARTED

Pins are labeled as transmitter and receiver. These are relative to the board. For example, LC04A used to step down 5V from microcontroller to 3.3V of GPS module. The board needs to be powered from the two voltages sources (high voltages and low voltage). High voltage (5V) is connect to HV pin and low voltage (3.3V) is connect to LV. The '-' pin of LC04A is connect to GND of microcontroller and GPS module. Since GPS module is using UART communication, Tx and Rx pin of microcontroller system and GPS module is used. Below is an example connection between LC04A, GPS module and microcontroller system.

3.3V GPS module	**LC04A**	**5V Microcontroller System**
3.3V Tx pin	LT1 ---------- HT1	5V Rx pin
3.3V Rx pin	LR1 ---------- HR1	5V Tx pin



LC04A is breadboard friendly. User may solder header pin at left and right side of LC04A and plug in it on breadboard. Figure below is an example LC04A with header pin.



6. WARRANTY

- Product warranty is valid for 12 months.
- Warranty only applies to manufacturing defect.
- Damaged caused by misuse is not covered under warranty
- Warranty does not cover freight cost for both ways.

Prepared by
Cytron Technologies Sdn. Bhd.
No. 16, Jalan Industri Ringan Permatang Tinggi 2,
Kawasan Industri Ringan Permatang Tinggi,
14100 Simpang Ampat,
Penang, Malaysia.

Tel: *+604 - 504 1878*
Fax: *+604 - 504 0138*

URL: www.cytron.com.my
Email: support@cytron.com.my
sales@cytron.com.my

