

# LS0204D breakoutboard

Technical Manual Rev 1r0

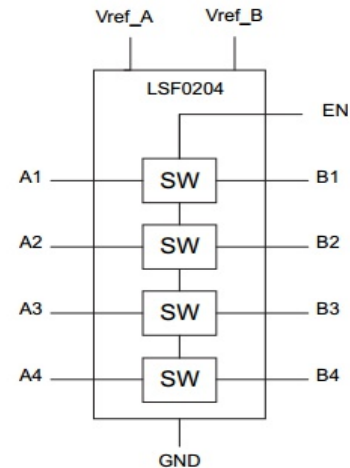
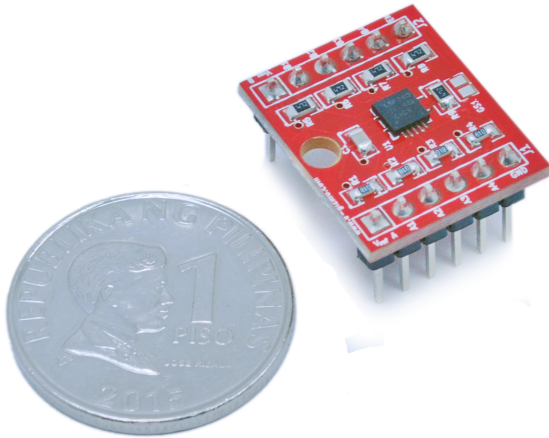


Figure 1. Simplified Schematic

The **e-Gizmo LSF0204D Breakoutboard (Bidirectional Multi-Voltage Level Translator)** is a breakoutboard it can translate up to 4 signals:

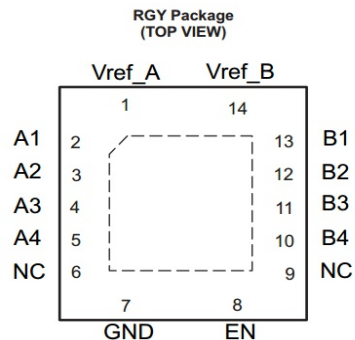
- Allows Bidirectional voltage Level Translation Between

- 0.8 V <--> 1.8/2.5/3.3/5V
- 1.2 V <--> 1.8/2.5/3.3/5V
- 1.8 V <--> 2.5/3.3/5V
- 2.5 V <--> 3.3/5V
- 3.3 V <--> 5V

Its use to supports TTL, I2C pull-up resistor and to supply multiple voltages. Applications are GPIO, MDIO, PMBus, SMBus, SDIO, UART, I2C, and Other Interfaces in Telecom Infrastructure, Industrial, Automotive and Personal Computing.

## FEATURES:

- Maintain Bidirectional Voltage Translation with no Direction Terminal.
- Supports High Speed Translation
- Low Standby current
- High-impandce I/O Terminals (EN=Low)
- 5V Tolerance I/O Port to Support TTL



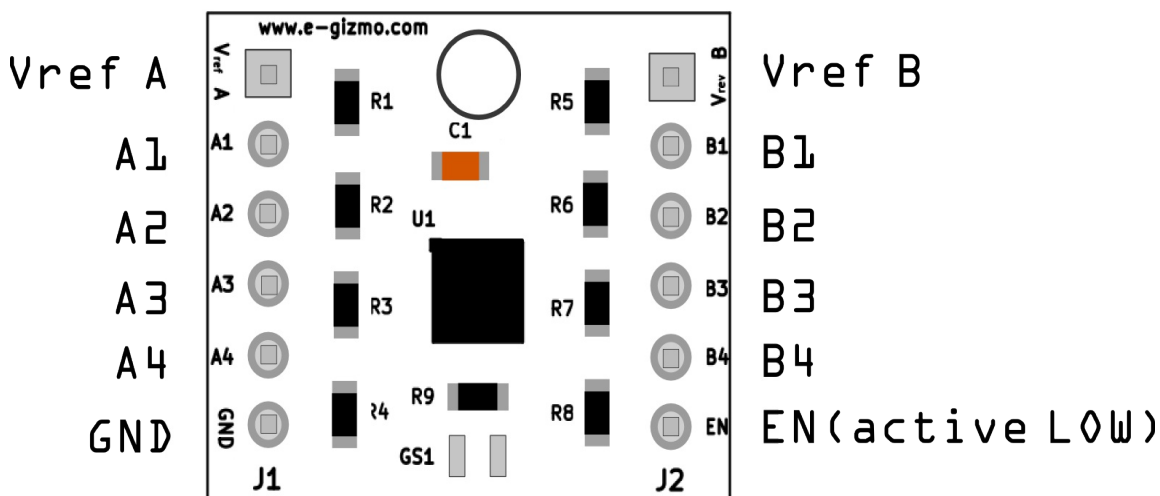
## GENERAL SPECIFICATION:

**Part Number:** LSF0204D

**Channel:** 4

**Interface:** SPI, MDIO, SMBus, PMBus, I2C  
UART, SVID

**PCB Dimension:** 21 mm x 21 mm



**Figure 2.** Major parts presentation of e-Gizmo LSF0204D breakoutboard

PART NUMBER	EN	An	Bn	Descriptions
LSF0204D	L	I/O	I/O	3-state output mode enable (active Low; referenced to Vref_A)

**Table 1.** J1 connections and descriptions

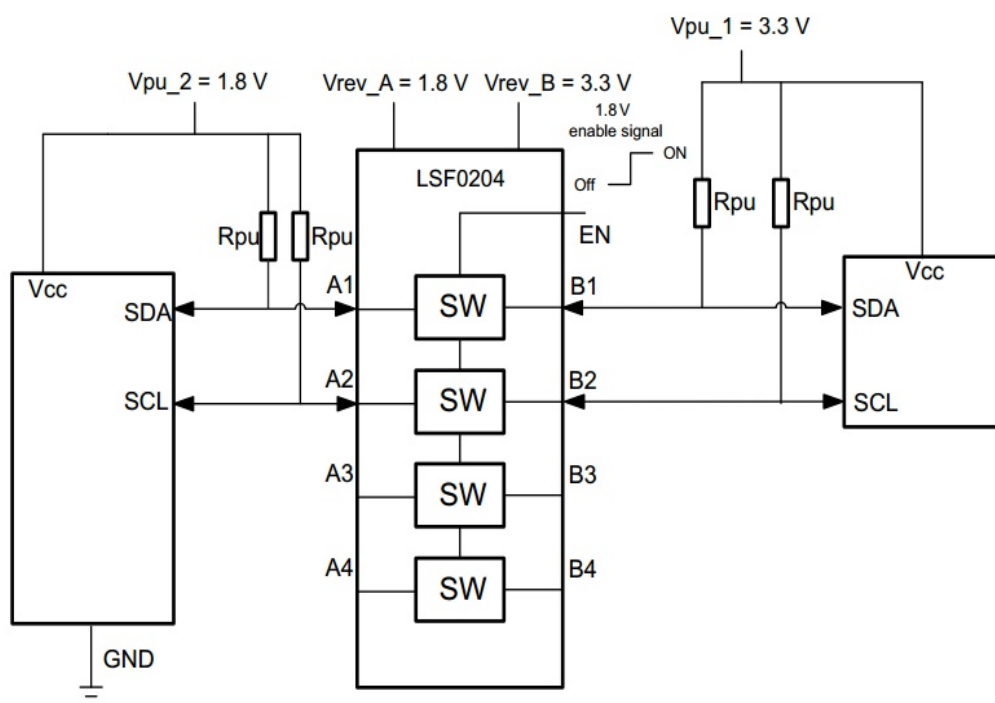
PIN Name	Descriptions
Vref A	Reference supply voltage
A1	Input/Output 1
A2	Input/Output 2
A3	Input/Output 3
A4	Input/Output 4
GND	Ground

**Table 2.** J2 connections and descriptions

PIN Name	Descriptions
Vref B	Reference supply voltage
B1	Input/Output 1
B2	Input/Output 2
B3	Input/Output 3
B4	Input/Output 4
EN	Switch enable input:LSF0204D: EN is low-active

Table 3. Voltage Translator for Consumer/Telecome Interface

PART NUMBER	CH#	INTERFACE
LSF0204	4	SPI, MDIO, SMBus, PMBus, I2C, UART, SVID



**Figure 3.** I2C PMBus, SMBus, GPIO, Application  
 (Bidirectional Translation to Multiple Voltage Levels)

**Application Operating Condition .** I2C PMBus, SMBus, GPIO, Application (Bidirectional Translation to Multiple Voltage Levels). In reference voltage (V<sub>ref\_A</sub>) the operating condition 0.8V(min) and 4.5V(max) while reference voltage (V<sub>ref\_B</sub>), V<sub>ref\_A</sub> + 0.8 V(min) and 5.5V(max). In input voltage on EN terminal V<sub>i</sub>(EN), 0V(min) and V<sub>ref\_A</sub>(max) V. Pull-up supply voltage, 0V (min) and V<sub>ref\_B</sub>(max) V.

**Note:** V<sub>ref\_B</sub> is recommended to be 1.0V higher than V<sub>ref\_A</sub> for best signal integrity. (See page 12 on Lsf0204D datasheet.)

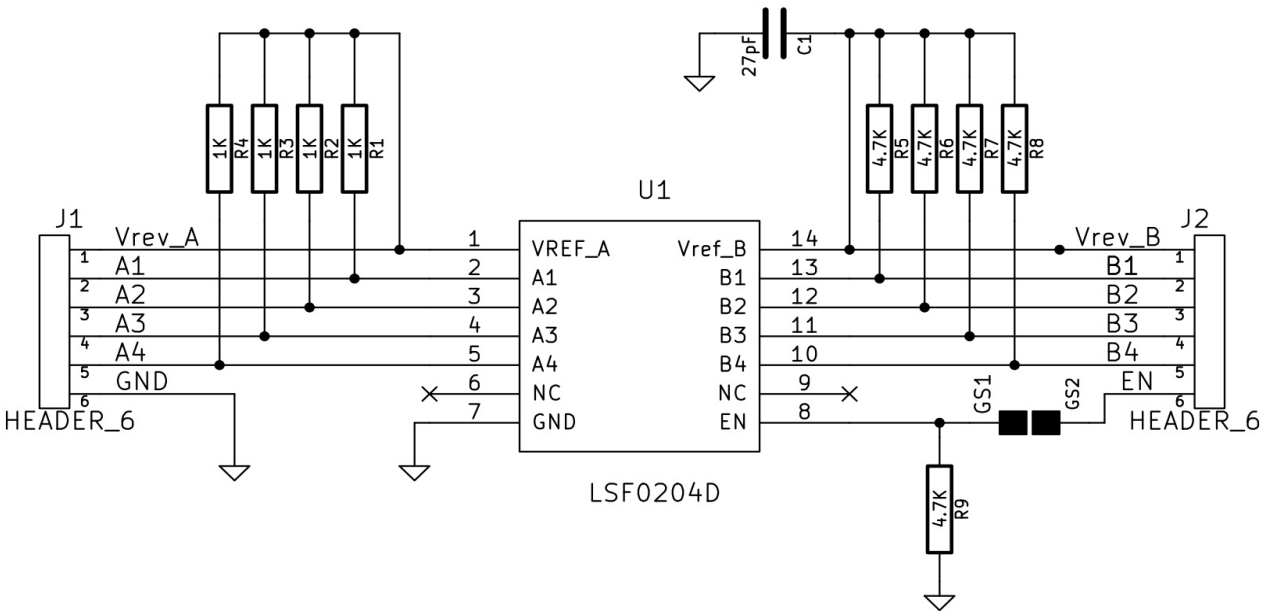


Figure 4. Schematic Diagram of e-Gizmo LSF0204D breakoutboard.

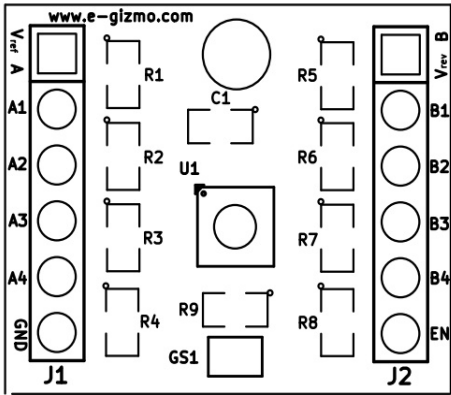


Figure 5. Parts Placement

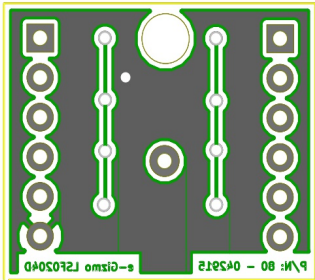


Figure 6. BottomPCBGuide

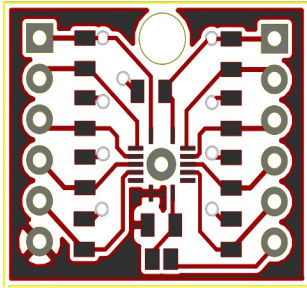


Figure 7. TopPCBGuide