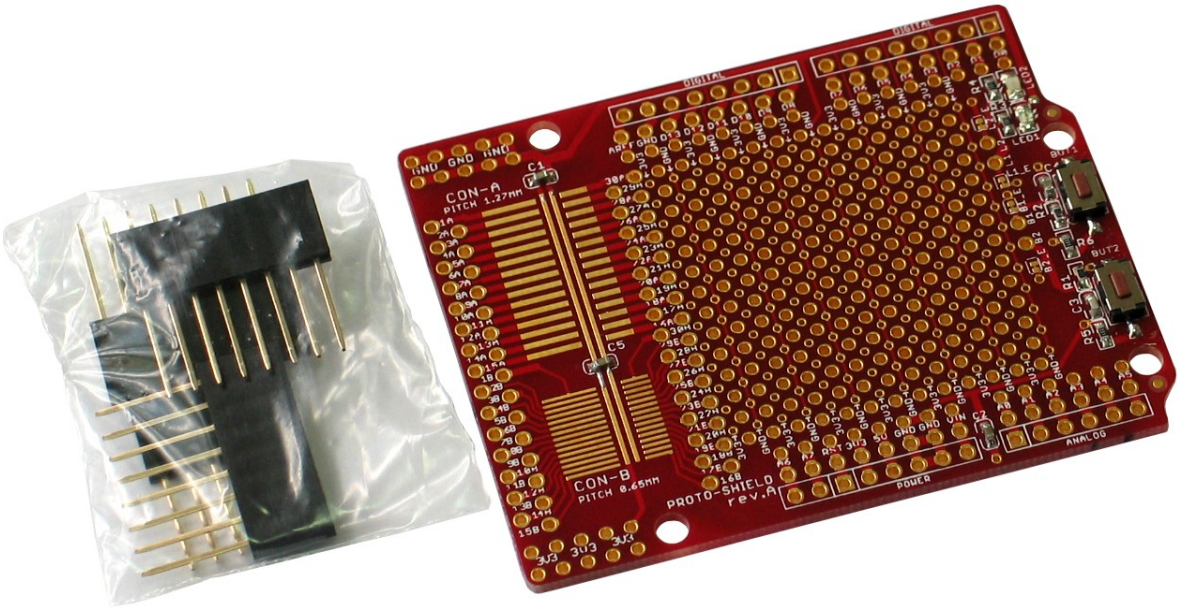



# PROTO-SHIELD development board

## Users Manual

Pb-free, Green All boards produced by Olimex are ROHS compliant

**Revision Initial, June 2011**

# INTRODUCTION:

**PROTO-SHIELD** is prototype board compatible with all of Olimex's ARDUINO compatible boards – like OLIMEXINO-328, OLIMEXINO-STM32 and PIC32-PINGUINO. The board comes without mounted connectors on it, but it is shipped with one 6x1 connector and three 8x1 connectors, which can be mounted by the customer. The prototype area gives user the opportunity to solder different extensions for ARDUINO compatible boards. All this allows you to build a diversity of applications.

# BOARD FEATURES:

- one 6x1 connector – not mounted
- three 8x1 connectors – not mounted
- two status leds
- two user buttons
- prototype area
- FR-4, 1.5 mm, soldermask, component print
- Dimensions: 68.58 x 53.34mm (2.71 x 2.11")

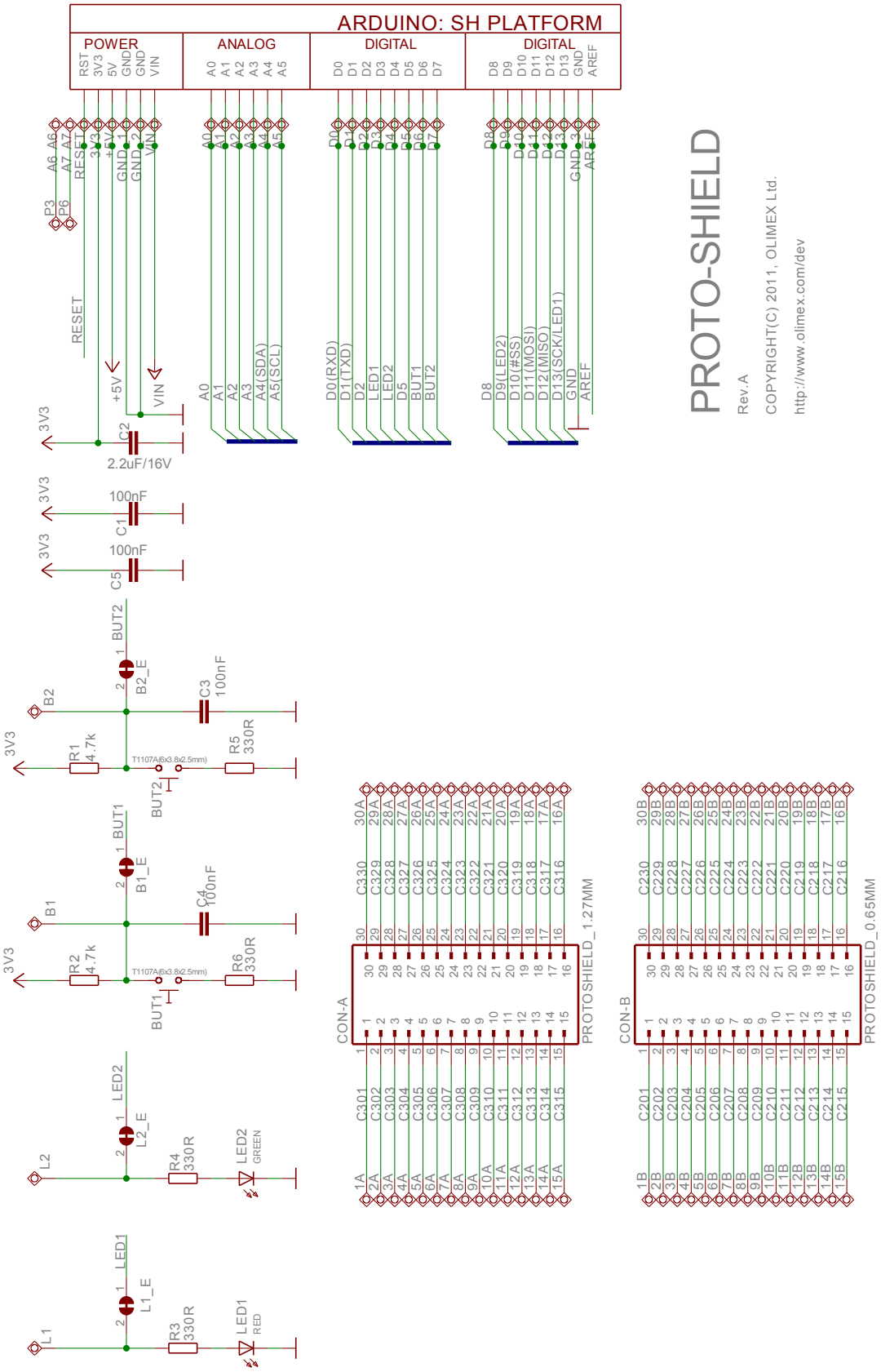
# ELECTROSTATIC WARNING:

The **PROTO-SHIELD** board is shipped in protective anti-static packaging. The board must not be subject to high electrostatic potentials. General practice for working with static sensitive devices should be applied when working with this board.

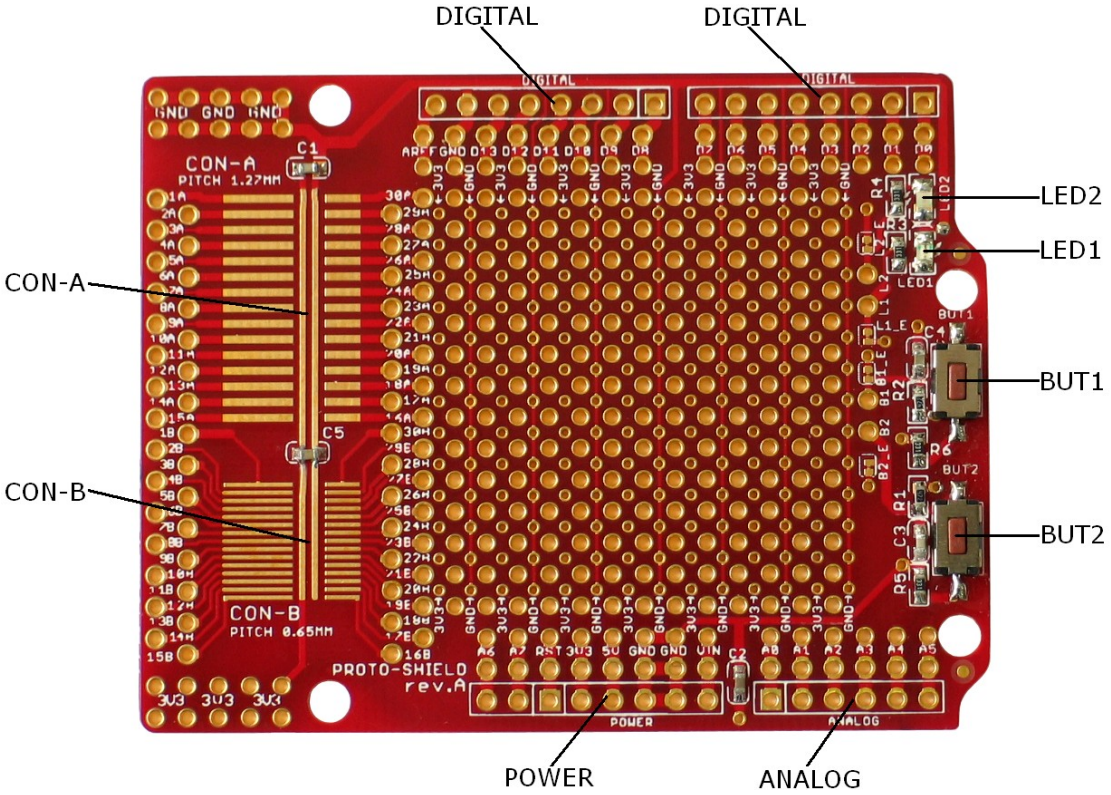
# BOARD USE REQUIREMENTS:

**Hardware:** The board can be used with any of our ARDUINO compatible boards: OLIMEXINO-328, OLIMEXINO-STM32, PIC32-PINGUINO, PIC32-PINGUINO-OTG.

## SCHEMATIC:


ARDUINO: SH PLATFORM
POWER
ANALOG
DIGITAL
DIGITAL
PROTO-SHIELD
Rev.A
COPYRIGHT(C) 2011, OLIMEX Ltd.
http://www.olimex.com/dev
RESET
+5V
VIN
3V3
2.2uF/16V
100nF
BUT2
BUT1
LED2
LED1
R1 4.7k
R2 4.7k
R3 330R
R4 330R
R5 330R
R6 330R
LED2 GREEN
LED1 RED
CON-A
CON-B
PROTOSHIELD_1.27MM
PROTOSHIELD_0.65MM

## BOARD LAYOUT:




## POWER SUPPLY CIRCUIT:

**PROTO-SHIELD** is power supplied via POWER connector from the ARDUINO compatible board with which is used.

## JUMPER DESCRIPTION:

### L1_E

This jumper, when closed, LED1 is connected to D3 line.
This jumper, when opened, LED1 is connected to L1 pad.
Default state is closed.

### L2_E

This jumper, when closed, LED2 is connected to D4 line.
This jumper, when opened, LED2 is connected to L2 pad.
Default state is closed.

### B1_E

This jumper, when closed, BUT1 is connected to D6 line.
This jumper, when opened, BUT1 is connected to B1 pad.
Default state is closed.

## B2_E

This jumper, when closed, BUT2 is connected to D7 line.
This jumper, when opened, BUT2 is connected to B2 pad
Default state is closed.

# INPUT/OUTPUT:

**Status Led** with name **LED1 (red)** connected via jumper L1_E to DIGITAL connector pin D3 – signal LED1.

**Status Led** with name **LED2 (green)** connected via jumper L2_E to DIGITAL connector pin D4 – signal LED2.

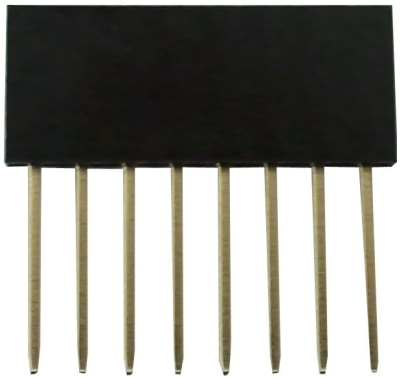
**User button** with name **BUT1** connected via jumper B1_E to DIGITAL connector pin D6 – signal BUT1.

**User button** with name **BUT2** connected via jumper B2_E to DIGITAL connector pin D7 – signal BUT2.

# EXTERNAL CONNECTORS DESCRIPTION:

# POWER:

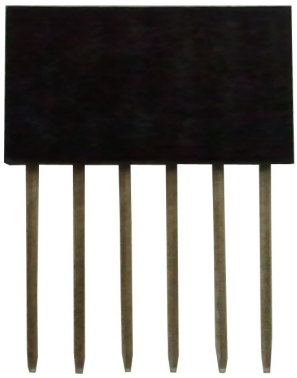
| Pin # | Signal Name |
|---|---|
| 1 | A6 |
| 2 | A7 |
| 3 | RESET |
| 4 | VCC |
| 5 | +5V |
| 6 | GND |
| 7 | GND |
| 8 | +24V (VIN) |



Note: This connector is not mounted on the board.

## ANALOG:

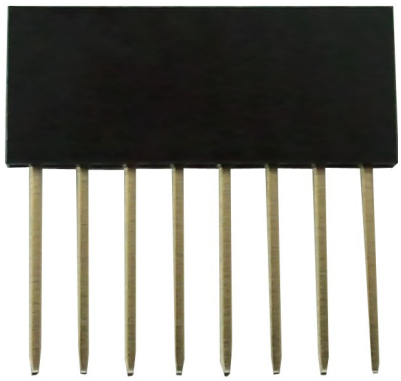
| Pin # | Signal Name |
|---|---|
| 1 | A0 |
| 2 | A1 |
| 3 | A2 |
| 4 | A3 |
| 5 | A4(SDA) |
| 6 | A5(SCL) |



Note: This connector is not mounted on the board.

## DIGITAL:

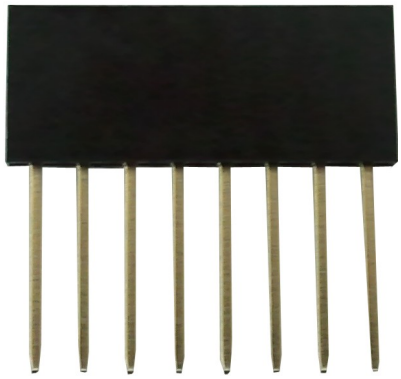
| Pin # | Signal Name |
|---|---|
| 1 | D0(RXD) |
| 2 | D1(TXD) |
| 3 | D2 |
| 4 | LED1 |
| 5 | LED2 |
| 6 | D5 |
| 7 | BUT1 |
| 8 | BUT2 |



Note: This connector is not mounted on the board.

## DIGITAL:

| Pin # | Signal Name |
|---|---|
| 1 | D8 |
| 2 | D9(LED2) |
| 3 | D10(#SS) |
| 4 | D11(MOSI) |
| 5 | D12(MISO) |
| 6 | D13(SCK/LED1) |
| 7 | GND |
| 8 | AREF |

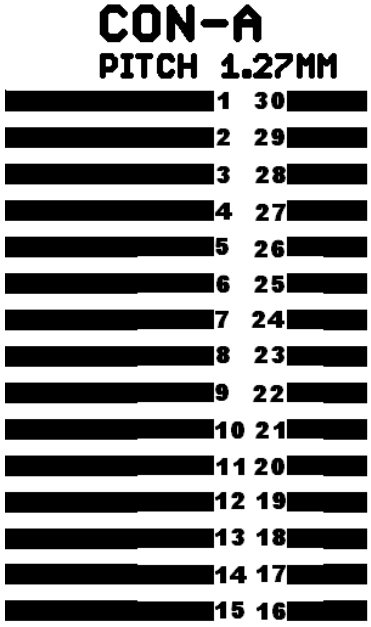


Note: This connector is not mounted on the board.

## CON-A:

Note: This footprint can be used for mounting of SMD IC with 1.27mm pitch. Each of SMD pads is routed to True Hole pad.

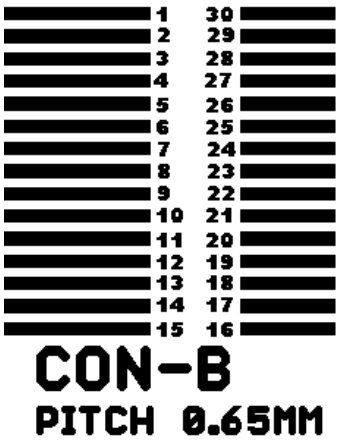
| SMD Pin # | True Hole pin # | SMD Pin # | True Hole pin # |
|---|---|---|---|
| 1 | 1A | 2 | 2A |
| 3 | 3A | 4 | 4A |
| 5 | 5A | 6 | 6A |
| 7 | 7A | 8 | 8A |
| 9 | 9A | 10 | 10A |
| 11 | 11A | 12 | 12A |
| 13 | 13A | 14 | 14A |
| 15 | 15A | 16 | 16A |
| 17 | 17A | 18 | 18A |
| 19 | 19A | 20 | 20A |
| 21 | 21A | 22 | 22A |
| 23 | 23A | 24 | 24A |
| 25 | 25A | 26 | 26A |
| 27 | 27A | 28 | 28A |
| 29 | 29A | 30 | 30A |



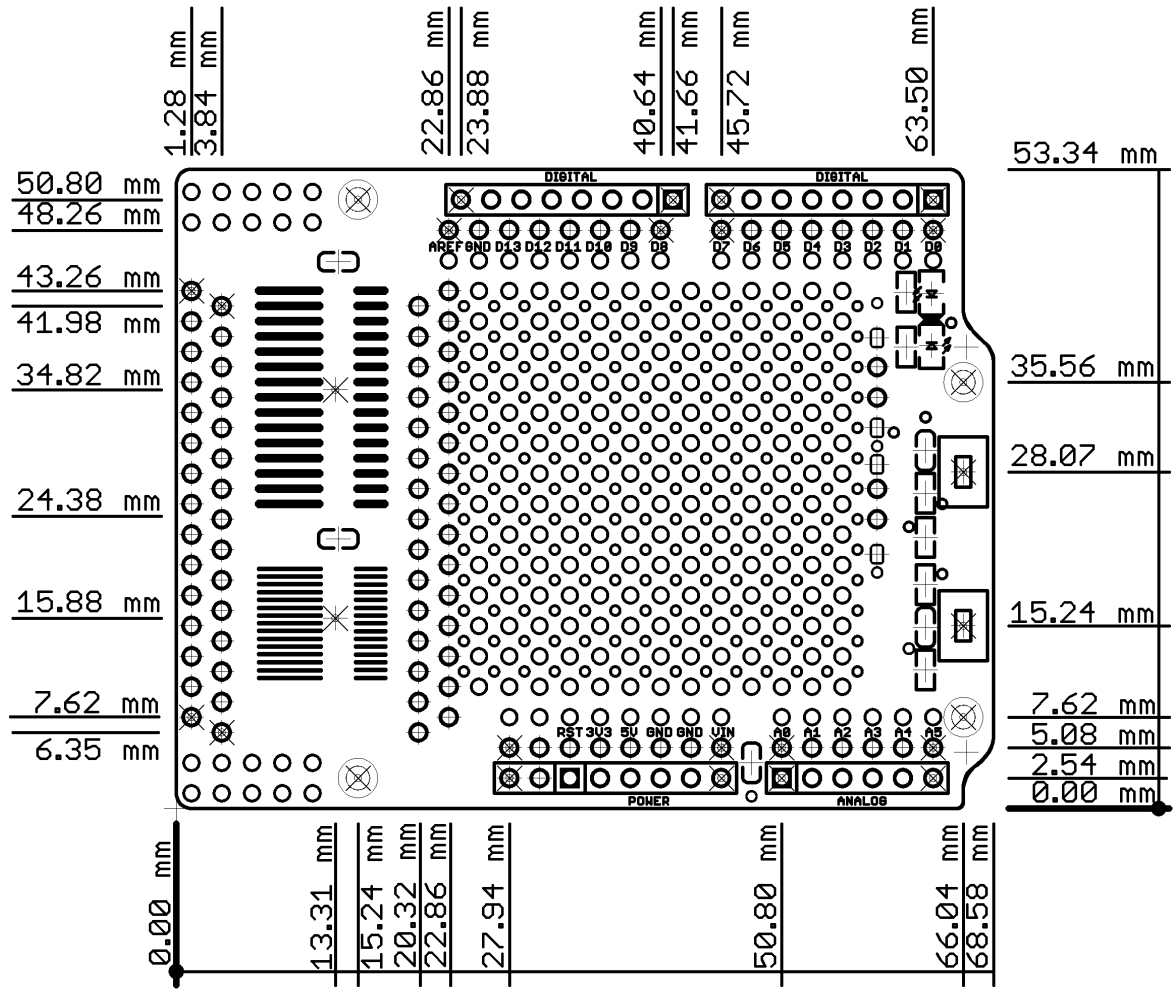
## CON-B:

Note: This footprint can be used for mounting of SMD IC with 0.65mm pitch. Each of SMD pads is routed to True Hole pad.

| SMD Pin # | True Hole pin # | SMD Pin # | True Hole pin # |
|---|---|---|---|
| 1 | 1B | 2 | 2B |
| 3 | 3B | 4 | 4B |
| 5 | 5B | 6 | 6B |
| 7 | 7B | 8 | 8B |
| 9 | 9B | 10 | 10B |
| 11 | 11B | 12 | 12B |
| 13 | 13B | 14 | 14B |
| 15 | 15B | 16 | 16B |
| 17 | 17B | 18 | 18B |
| 19 | 19B | 20 | 20B |
| 21 | 21B | 22 | 22B |
| 23 | 23B | 24 | 24B |
| 25 | 25B | 26 | 26B |
| 27 | 27B | 28 | 28B |
| 29 | 29B | 30 | 30B |



## MECHANICAL DIMENSIONS:



## ORDER CODE:

**PROTO-SHIELD** - assembled and tested board

**How to order?**

You can order to us directly or by any of our distributors.
Check our web www.olimex.com/dev for more info.

## Revision history:

| | |
|---|---|
| Board's revision | Rev. A, May 2011 |
| Manual's revision | Rev. Initial, June 2011 |

**Disclaimer:**

Стандарт Электрон Связь

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