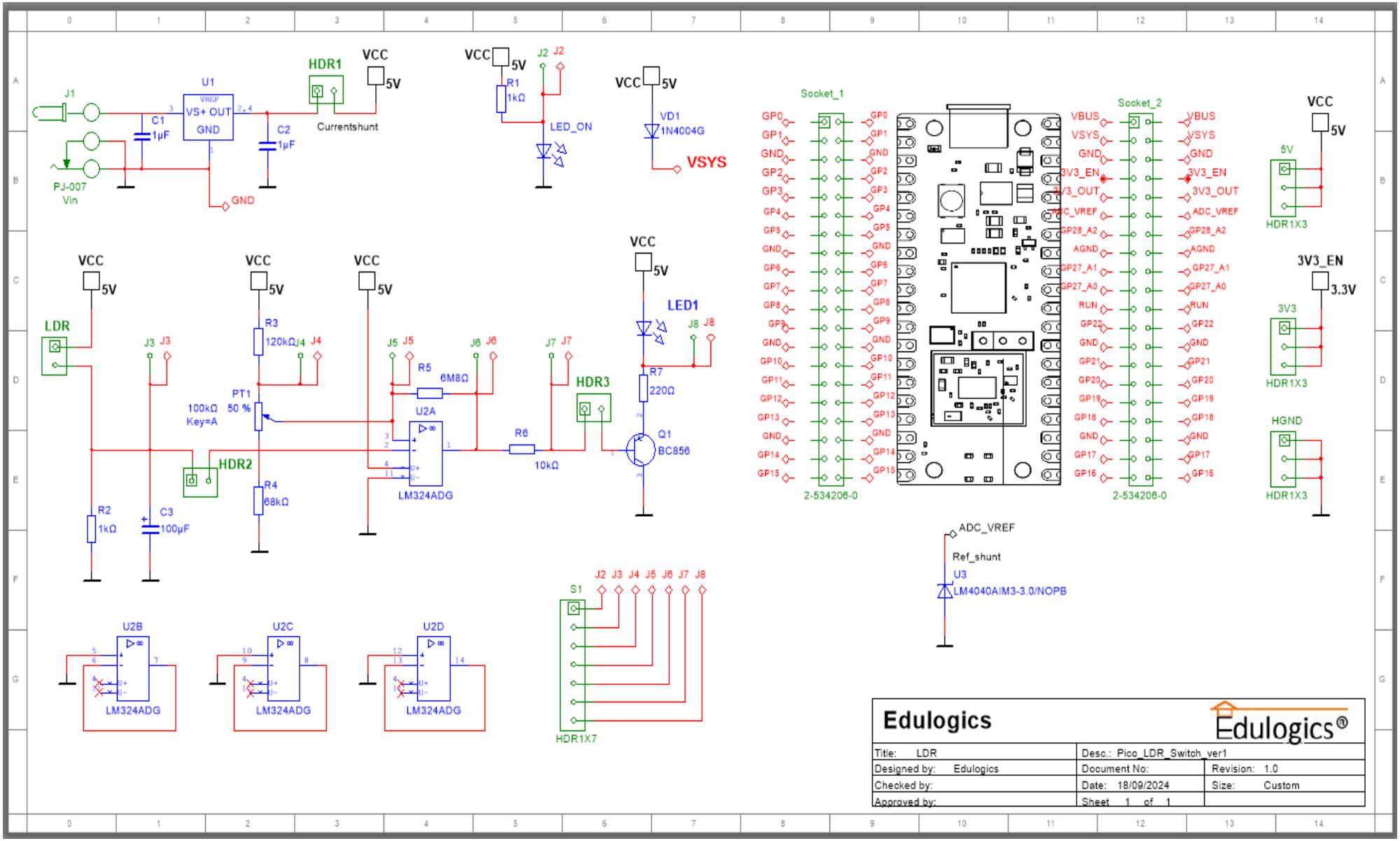
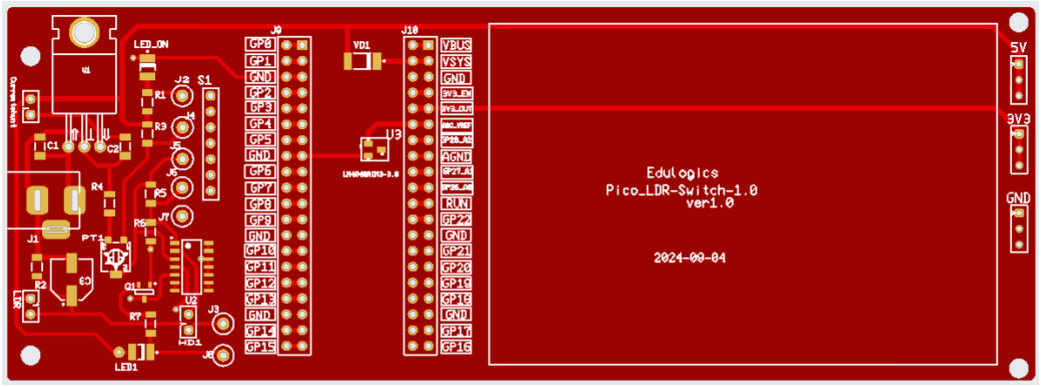
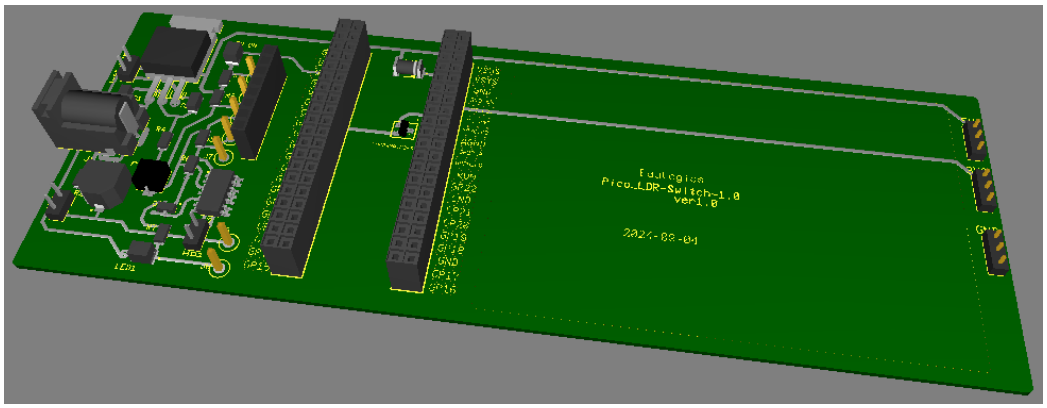
Schematic


HDR1
VCC
5V
J1
U1
VS+ OUT
GND
C1
1µF
C2
1µF
Currentshunt
PJ-007
Vin
GND
R1
1kΩ
LED_ON
VD1
1N4004G
VSYS
LDR
R3
120kΩ
PT1
100kΩ
Key=A
50 %
HDR2
R4
68kΩ
R2
1kΩ
C3
100µF
R5
6M8Ω
U2A
LM324ADG
R6
10kΩ
HDR3
LED1
R7
220Ω
Q1
BC856
U2B
U2C
U2D
S1
HDR1X7
Socket_1
Socket_2
2-534206-0
ADC_VREF
Ref_shunt
U3
LM4040AIM3-3.0/NOPB
3V3_EN
3.3V
HGND
HDR1X3
Edulogics
Title: LDR
Desc.: Pico_LDR_Switch_ver1
Designed by: Edulogics
Document No:
Revision: 1.0
Checked by:
Date: 18/09/2024
Size: Custom
Approved by:
Sheet 1 of 1

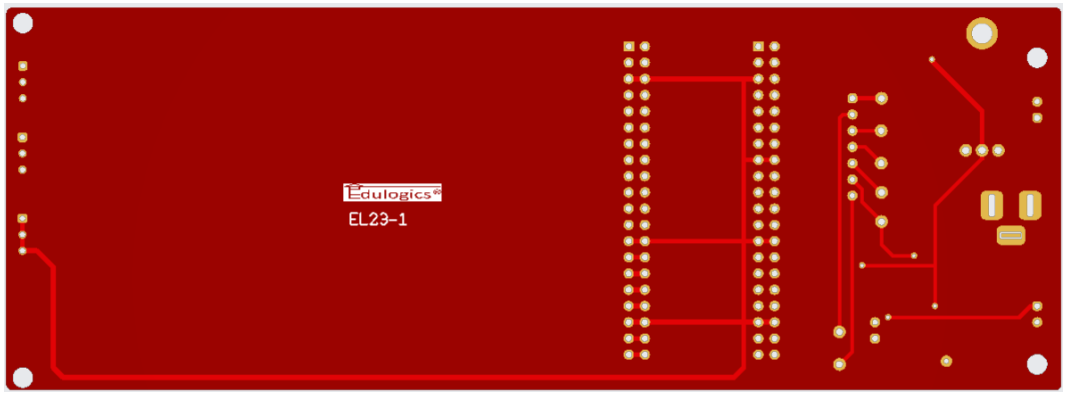
Lay out



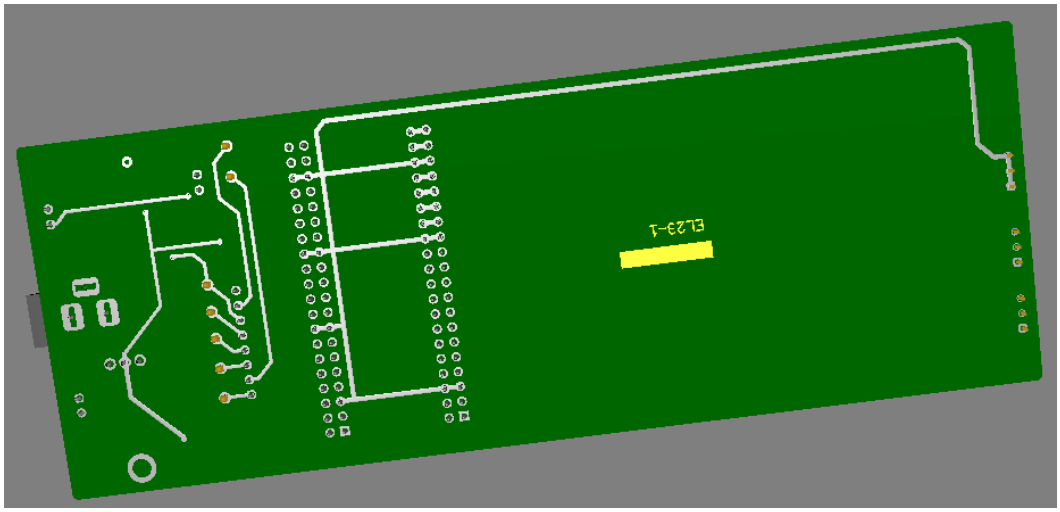
TOP Side



Note:
Solder the LDR directly into the pcb or to the header



Bottom Side

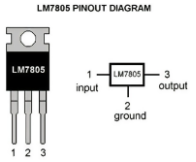


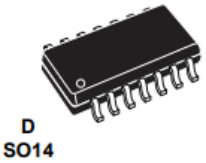
Pico LDR Switch - Introduction to Electronics 2024-2025

Bill of Material

Design Name : Pico LDR switch - Bill of materials

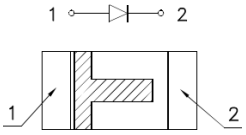
Quantity	Description	RefDes
1	POWER, PJ-007	J1
1	LED_red	LED1
2	RESISTOR, 1kOhm	R1, R2
1	RESISTOR, 68kOhm	R4
1	RESISTOR, 220Ohm	R7
2	CAPACITOR, 1uF	C1, C2
1	CAPACITOR, 10uF	C3
1	LED_blue	LED_ON
1	RESISTOR, 120kOhm	R3
1	VOLTAGE_REG, NCP1117STAT3	U1
1	POTENTIOMETER, 100kOhm	PT1
4	HEADERS_TEST, HDR1X2	HDR1, HDR2, HDR3, LDR
1	DIODE, 1N4004G	VD1
1	RESISTOR, 6M8Ohm	R5
1	RESISTOR, 10kOhm	R6
1	OPAMP, LM324ADG	U2
1	VOLTAGE_REF, LM4040AIM3-3.0/NOPB	U3
1	BJT_PNP, BC856	Q1
3	HDR1X3	3V3, 5V, HGND
2	2-534206-0	Socket_1, Socket_2
1	HDR1X7	S1
7	TEST_PT_THT	J2, J3, J4, J5, J6, J7, J8



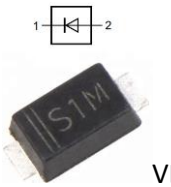


LM324

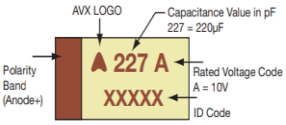
BC856



LED BL

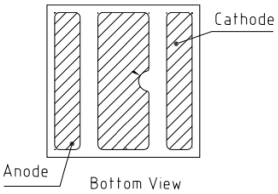


VD1



Tantal Capacitor


100uF



LED White

LM4040AIM3-3.0

WORKING ORDER:

1. Solder Pasta Placing
2. SMD Placing
3. SMD Soldering (Oven)
4. THD soldering
5. Testing main power circuit
6. Testing sub power circuits

Mounting Process:

Surface Mounting Process

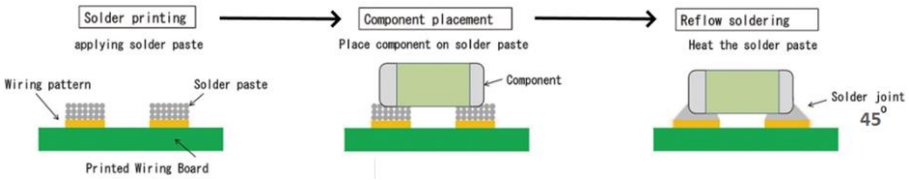


Fig. 4 Surface mounting process

Using Pick and Place Machine

1. Pick a component with a vacuum nozle

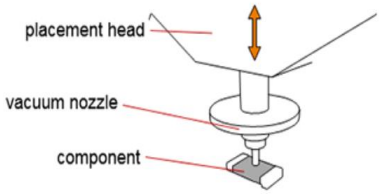


Fig. 5 Pick a component

2. Rotating the component to proper orientation

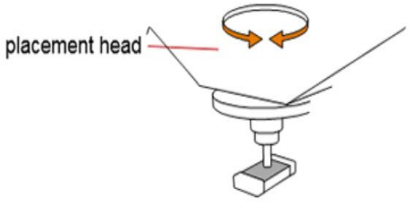


Fig. 6 Rotate component

3. Positioning the component , to its location on the circuit board, placing the component into the solder paste

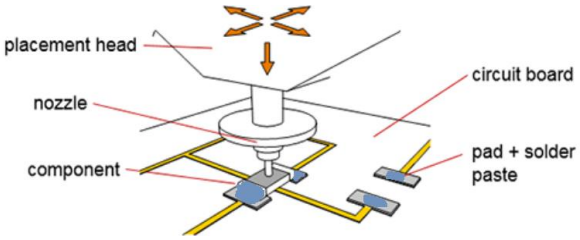
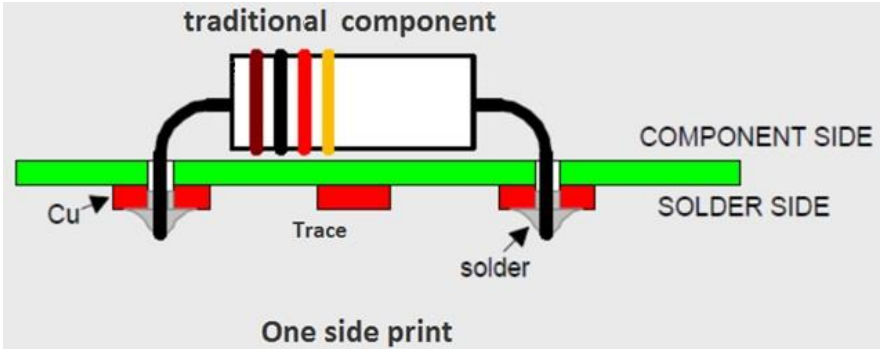


Fig. 7 Positioning and placing the component

Through-Hole Soldering:



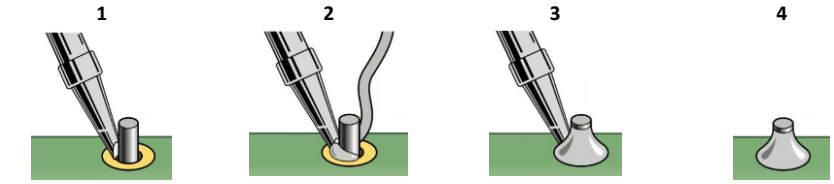


Fig. 7 Soldering THD

Fig. 8 Perfect Soldering