Overview

The microMCU_STM32F103CBT is a small module based on STM32F103CBT MCU from STMicroelectronics. It was designed to simplify the structure of the end device. You can concentrate on your device without need of developing sch and part of pcb with mcu node.

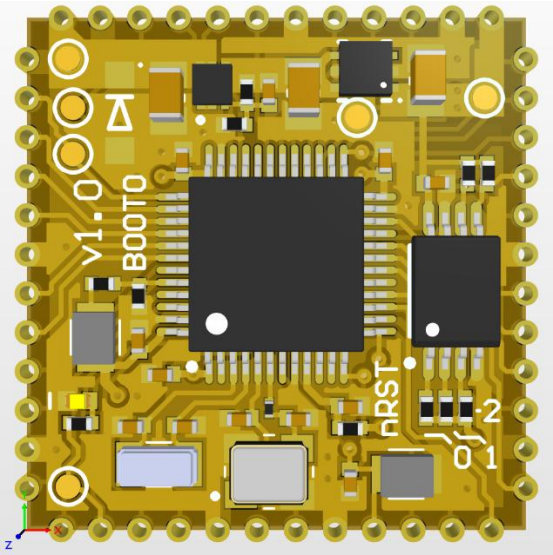

Figure 1. – Top view of the module

Module has safety part for input voltage, low power LDO, 64kbit EEPROM, system buttons and all of necessary parts for mcu working.

Features

- Extra small dimensions - 20.4mm x 21.0mm x 3.0mm
- Input power range – 3.5V – 6V
- Current consumption in standby mode (MCU sleeps) – 100uA
- Built in LDO chip for 3.3V rail and with PSSR of 75dB on 1kHz
- Built in LSE oscillator with ±20ppm
- Built in HSE 12MHz oscillator with ±10ppm
- Built in small buttons for BOOT and nRST
- Built in EEPROM 64kbit chip
- User led on PC13 pin
- Protection against reverse polarity of the power supply
- 3.3V line short circuit protection
- 3.3V line overheating protection
- Built in PULL-UP resistors on I2C2 (PB10 & PB11)
- Temperature range - -20°C ~ +85°C

Pinout table

Number	Name	Function
1	GND	Power
2	PA14	I/O pin
3	PA15	I/O pin
4	PB3	I/O pin
5	PB4	I/O pin
6	GND	Power
7	PB5	I/O pin
8	PB6	I/O pin
9	PB7	I/O pin
10	BOOT0	MCU BOOT0 pin
11	GND	Power
12	PB8	I/O pin
13	PB9	I/O pin
14	PC13	I/O pin
15	PA1	I/O pin
16	PA0	I/O pin
17	GND	Power
18	VBAT	Power for VBAT MCU pin
19	PA2	I/O pin
20	GND	Power
21	NRST	MCU nRST function
22	PA3	I/O pin
23	PA4	I/O pin
24	PA5	I/O pin
25	PA6	I/O pin
26	GND	Power
27	PA7	I/O pin
28	PB0	I/O pin
29	PB1	I/O pin
30	PB2	I/O pin
31	GND	Power
32	PB10	I/O pin, I2C_SCL for internal EEPROM with PULL-UPs
33	PB11	I/O pin, I2C_SDA for internal EEPROM with PULL-UPs
34	PB12	I/O pin
35	PB13	I/O pin
36	PB14	I/O pin
37	3.3V_OUT	3.3V output, 300mA MAX!
38	GND	Power
39	PB15	I/O pin
40	PA8	I/O pin
41	PA9	I/O pin
42	GND	Power
43	PA10	I/O pin
44	PA11	I/O pin
45	PA12	I/O pin
46	PA13	I/O pin
47	GND	Power
48	5V_IN	5V input

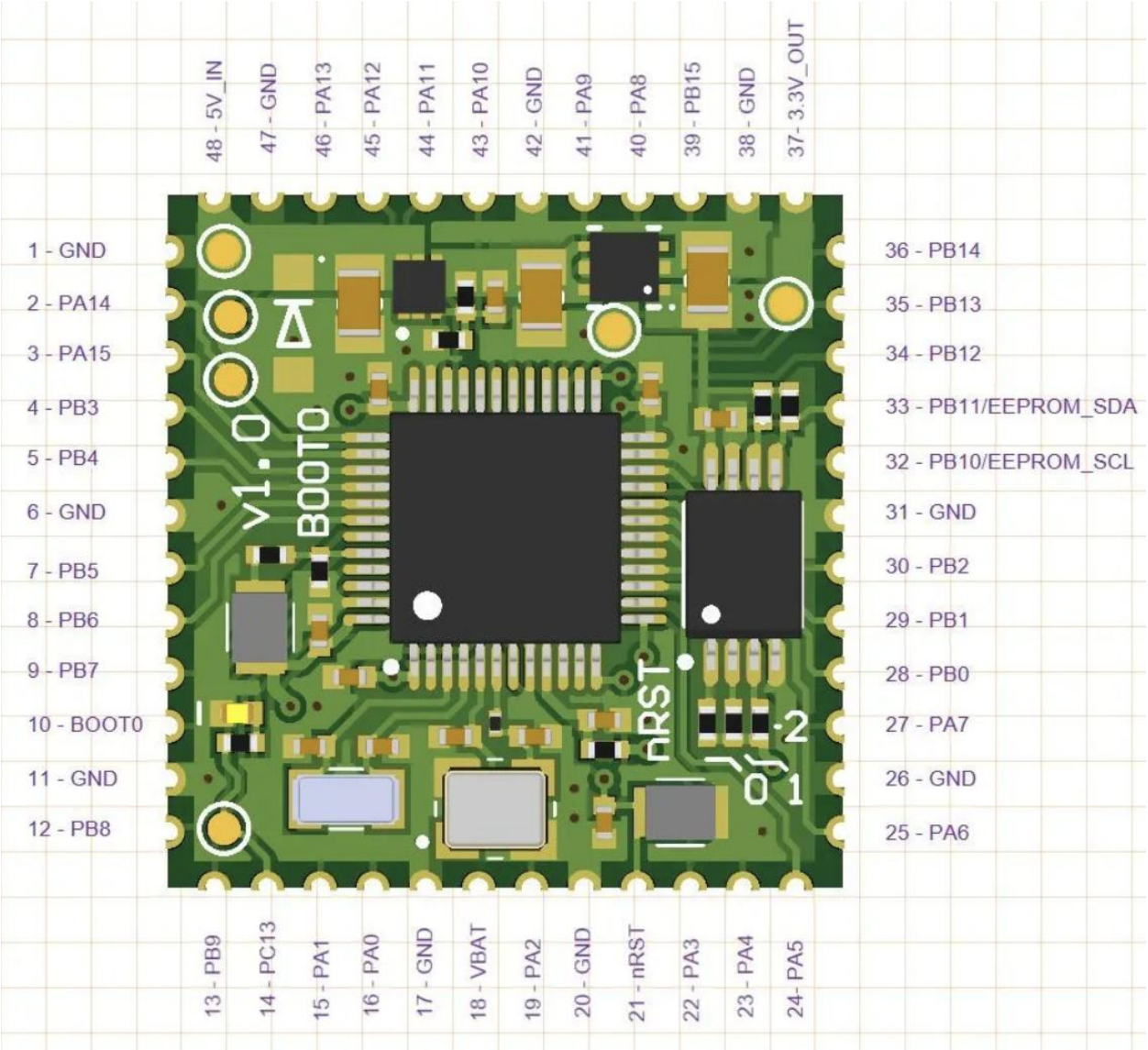

Figure 2. – Module pinout

Electrical characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Supply voltage	5V_IN	3.5	5.0	6.0	V	
Supply current			30		mA	Depends on project and MCU software
Supply current when MCU sleeps		50		100	uA	
Output voltage	3.3V_OUT	3.25	3.3	3.35	V	
Output current on 3.3V line		0.0	250	300	mA	

Internal module structure

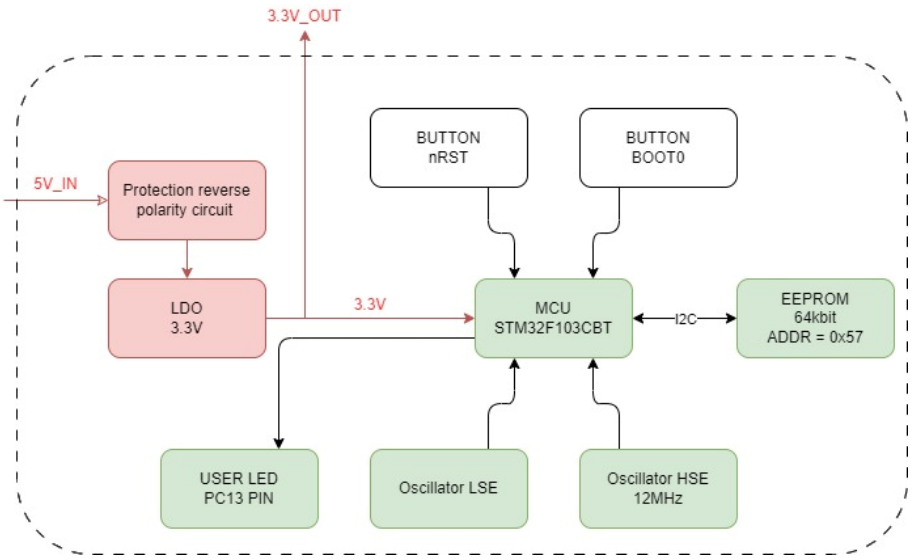

Figure 3. – Module structure

Programming contacts

You can program a module on the main board with your JTAG/SWD connector. Or you may program a module with special debug points. Points are below on figure.

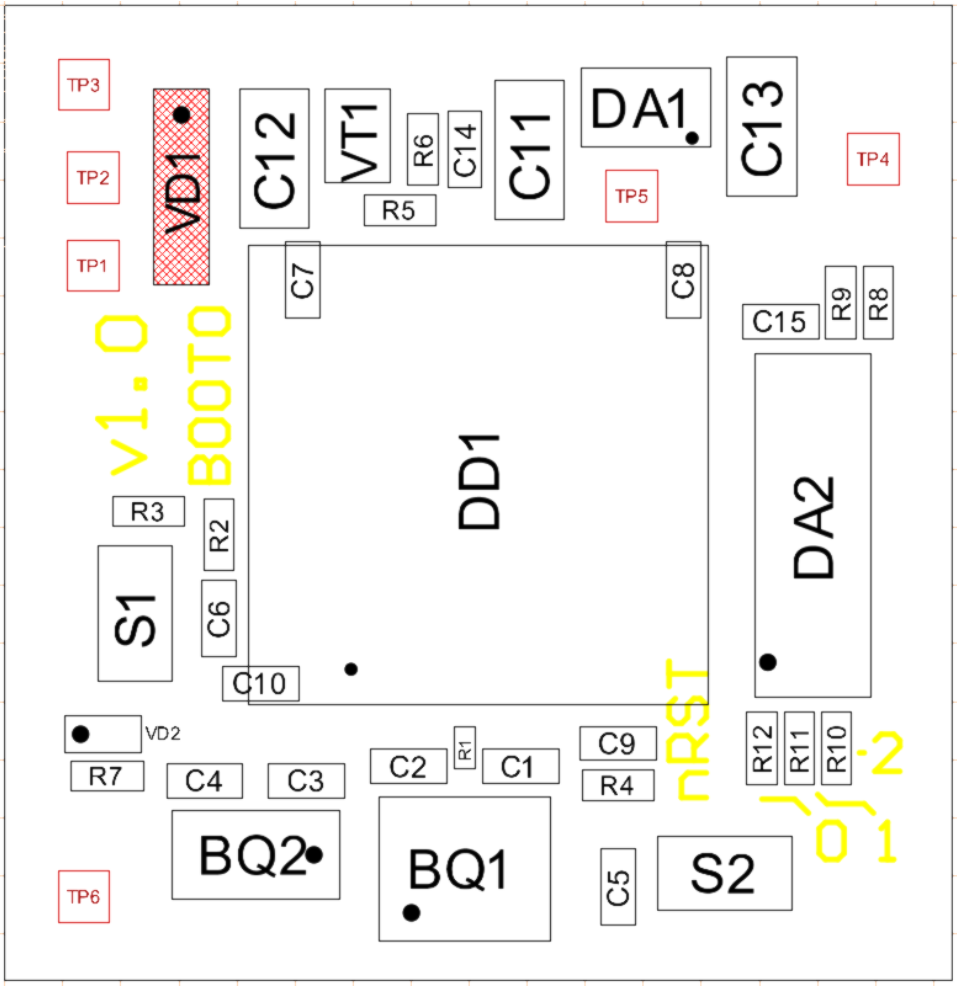

Figure 4. – Test points.

TP designator	Net name
TP1	PA14/SWCLK
TP2	PA13/SWDIO
TP3	+5V_IN
TP4	+3.3V_OUT
TP5	GND
TP6	PC13

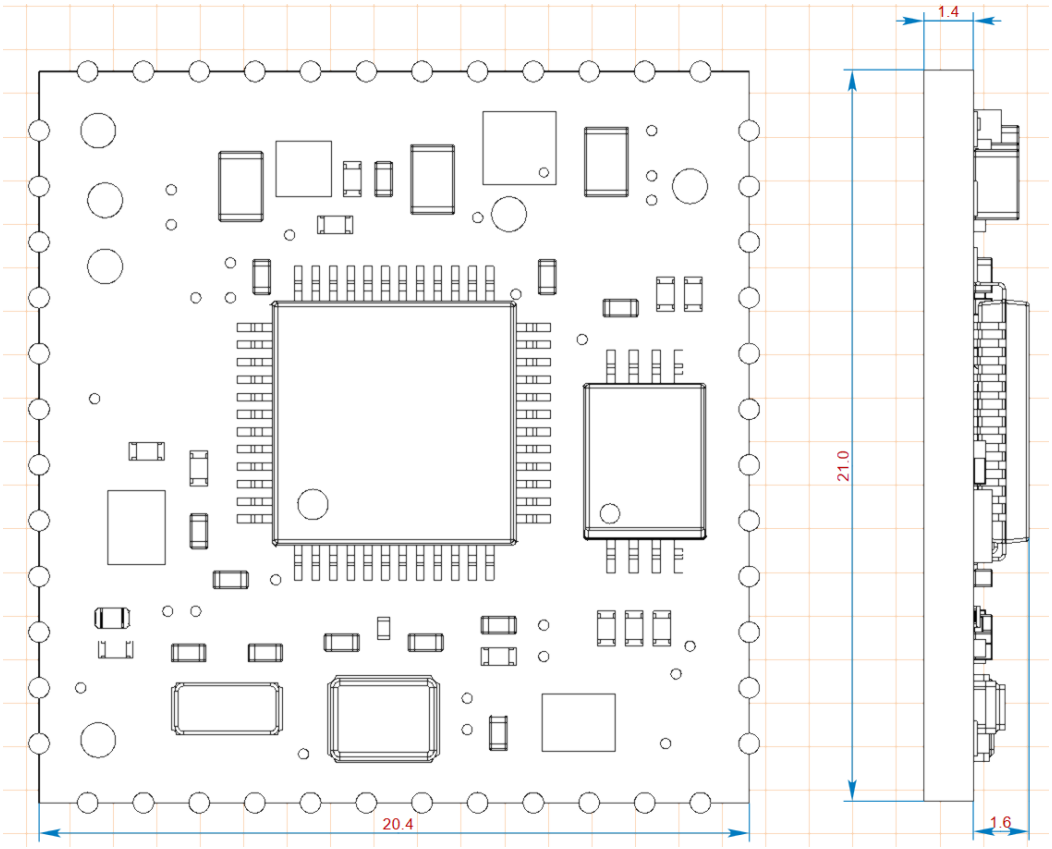

Figure 5. – Module dimensions, mm.

Recommended footprint

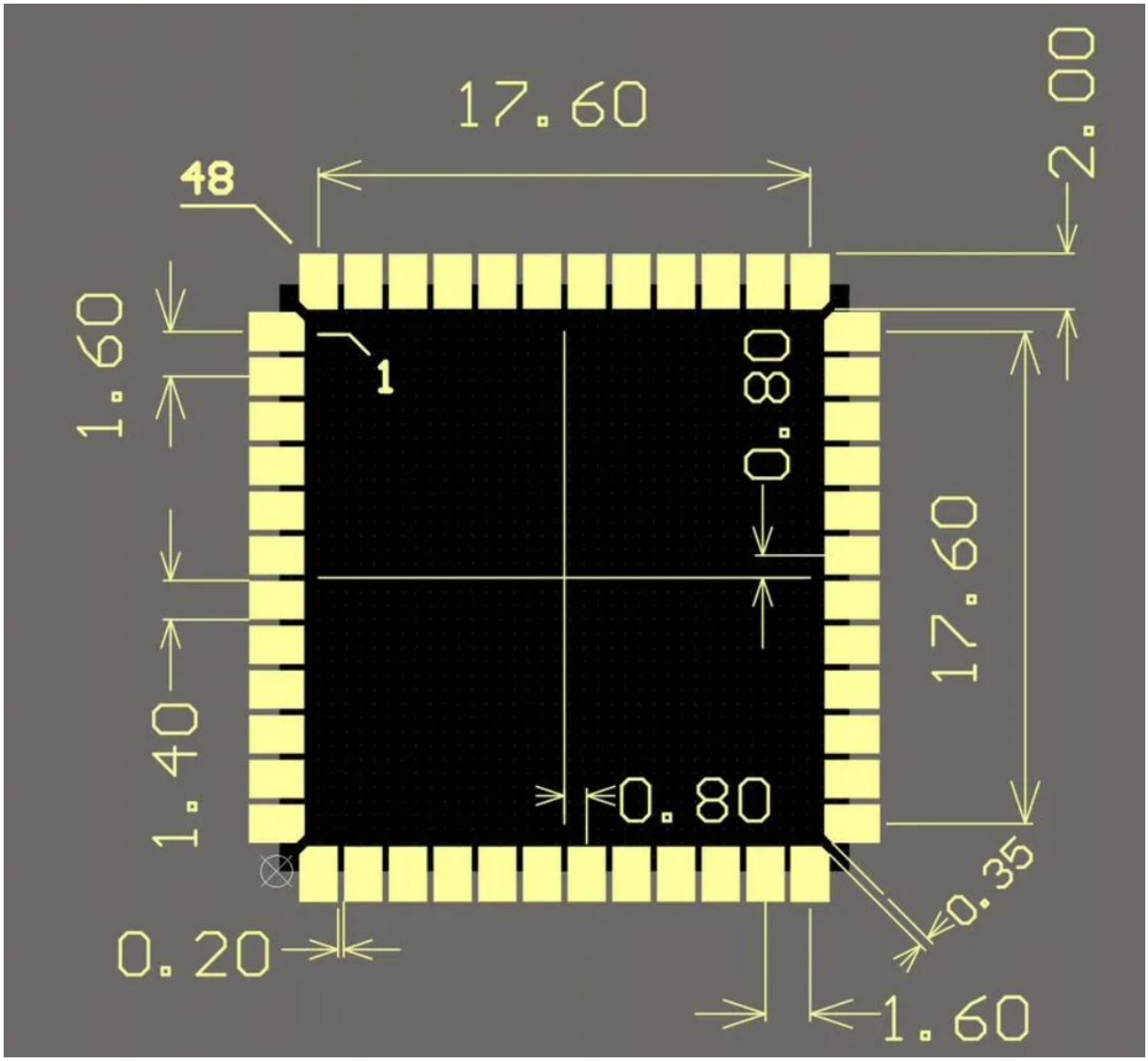

Figure 6. – Recommended footprint, mm.

Recommended keepouts

Module does not have any traces on bottom, but has a small count of power vias. To avoid short circuit between these vias and GND circuit on main pcb you should make keepout zones in footprint.

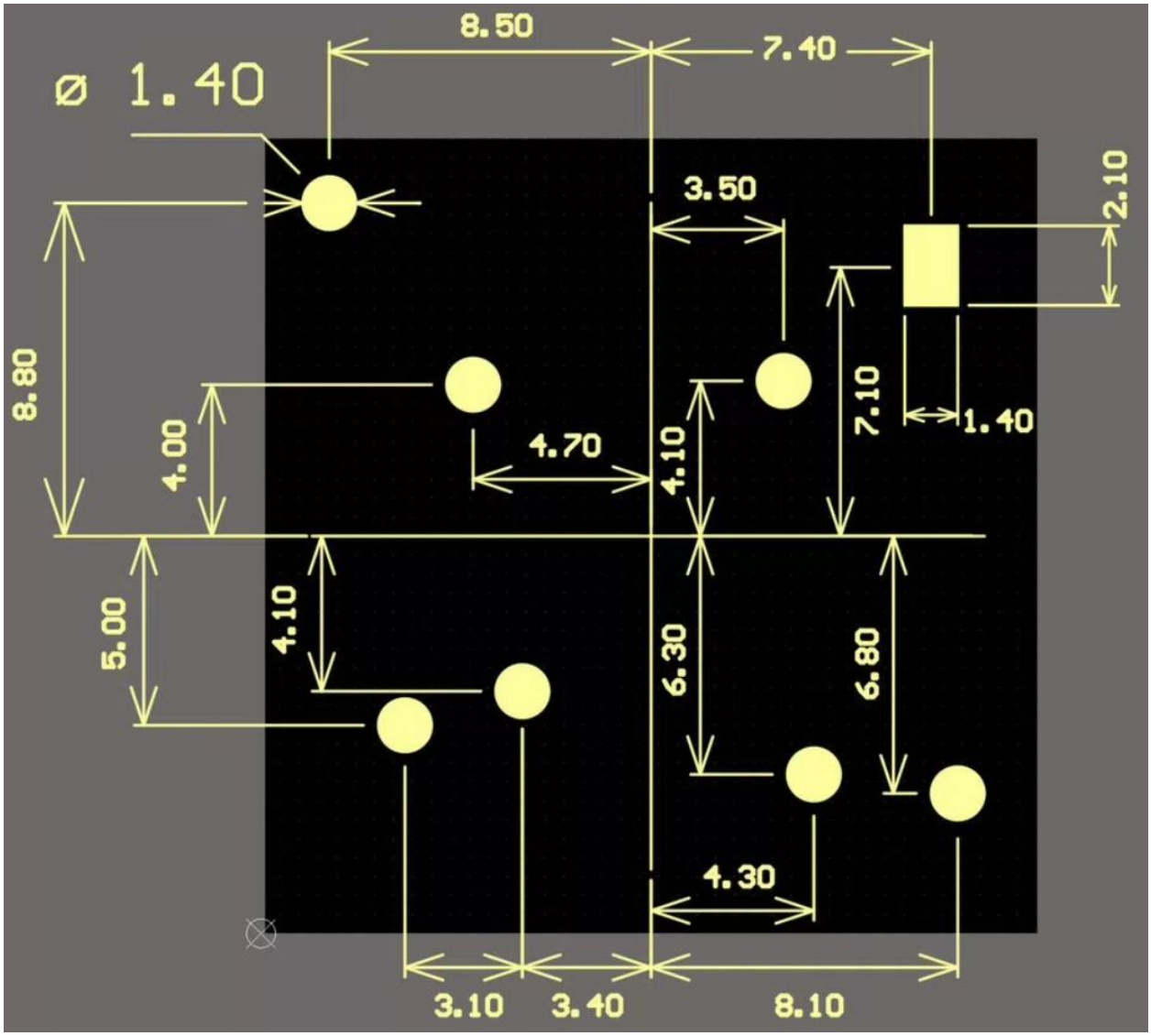

Figure 7. – Recommended footprint, mm.

Version list

version	date	notes
1.0	26.01.2025	First release