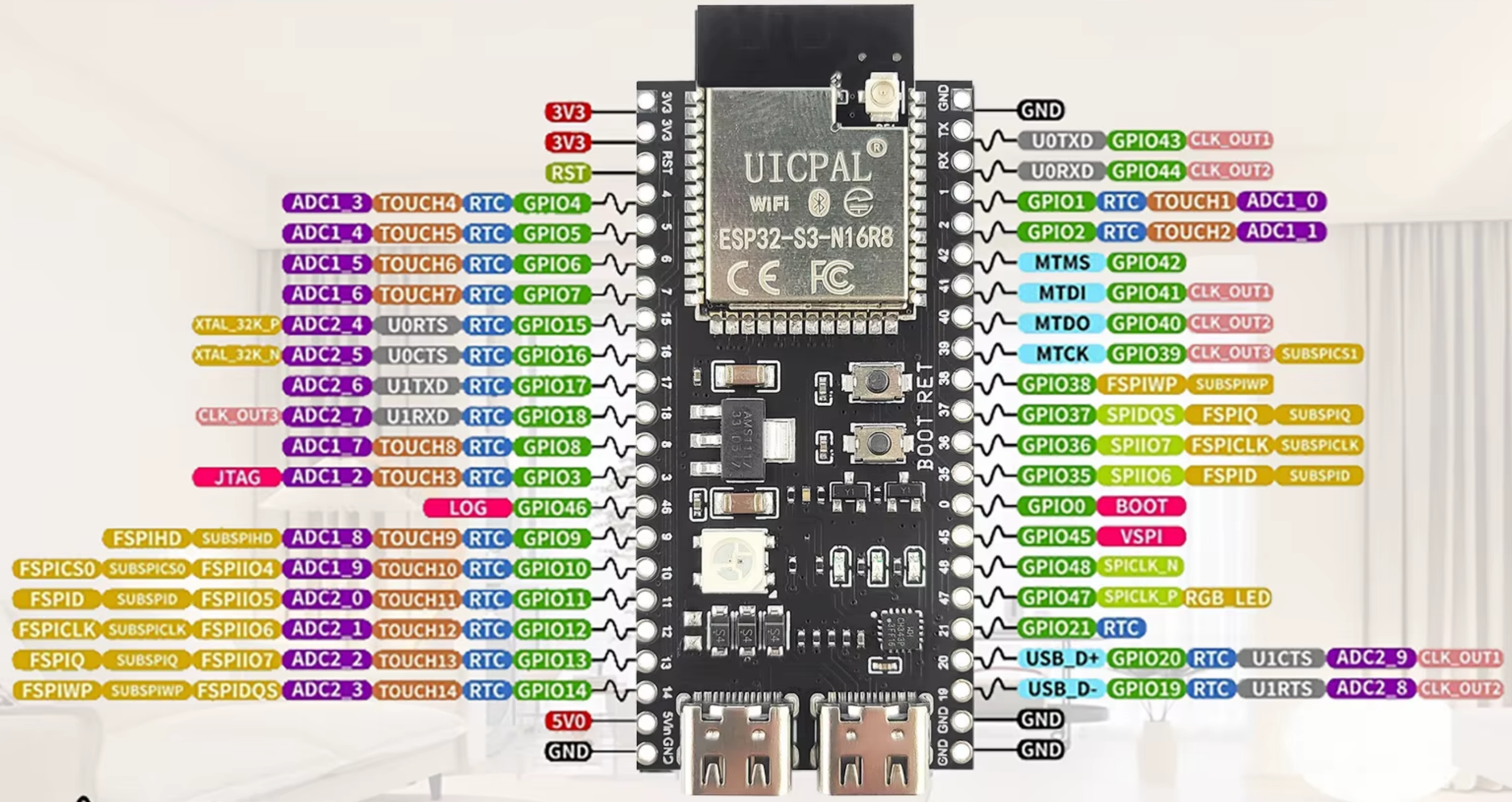
Pin Definitions



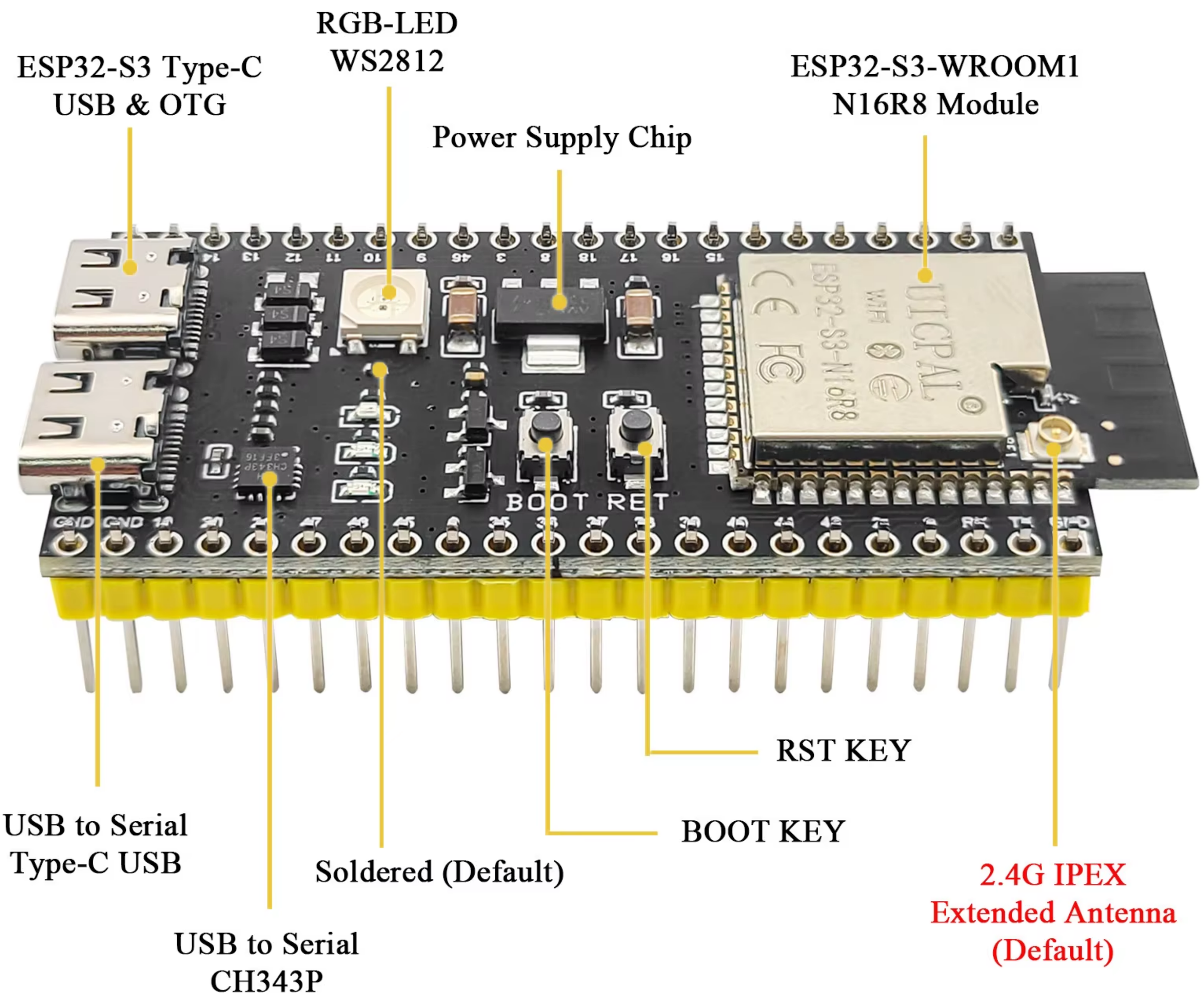
~	PWM Capable Pin
GPIOX	GPIO Input and Output
JTAG/USB	JTAG for Debugging and USB
ADCX_CH	Analog-to-Digital Converter
TOUCHX	Touch Sensor Input Channel
OTHER	Other Related Functions
SERIAL	Serial for Debug/Programming
STRAP	Strapping Pin Functions
RTC	RTC Power Domain(VDD3P3_RTC)
GND	Ground
PWD	Power Rails(3V3 and 5V)
MISC	Miscellaneous/SPI functions
CLK_OUTx	Clock Output

Applications

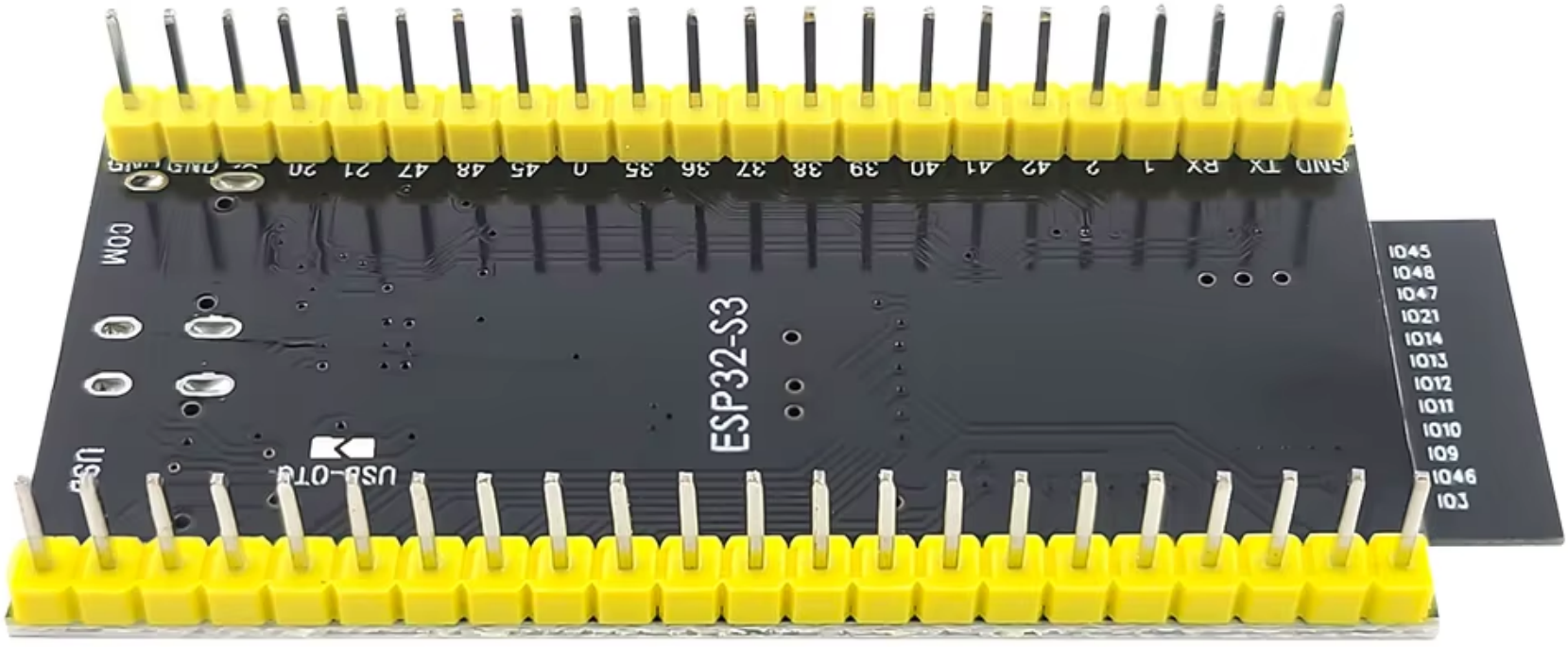
With low power consumption, ESP32-S3 is an ideal choice for IoT devices in the following areas:

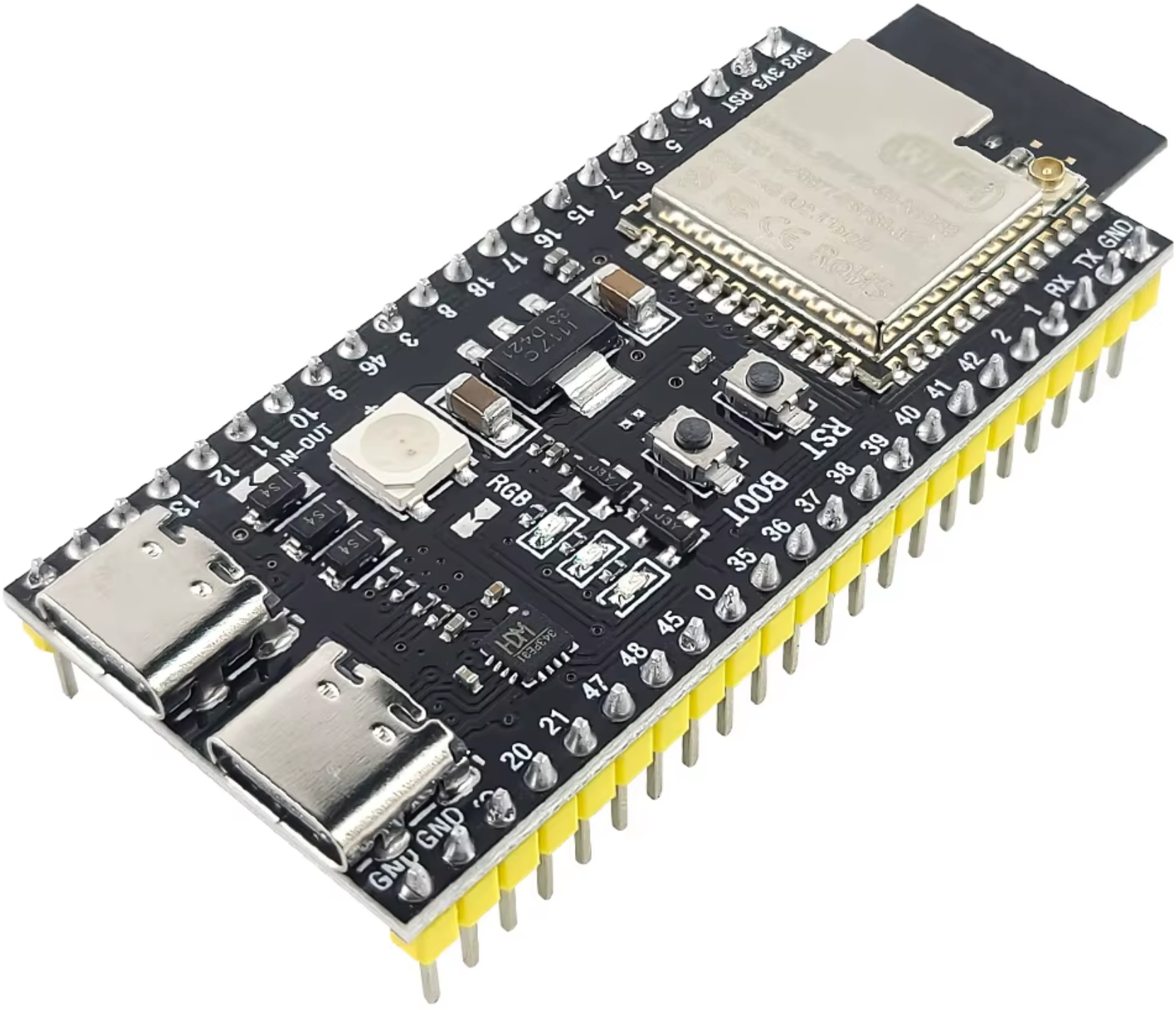
- Smart Home
- Industrial Automation
- Health Care
- Consumer Electronics
- Smart Agriculture
- POS machines
- Service robot
- Audio Devices
- Generic Low-power IoT Sensor Hubs
- Generic Low-power IoT Data Loggers
- Cameras for Video Streaming□USB Devices
- Speech Recognition
- Image Recognition
- Wi-Fi + Bluetooth Networking Card
- Touch and Proximity Sensing

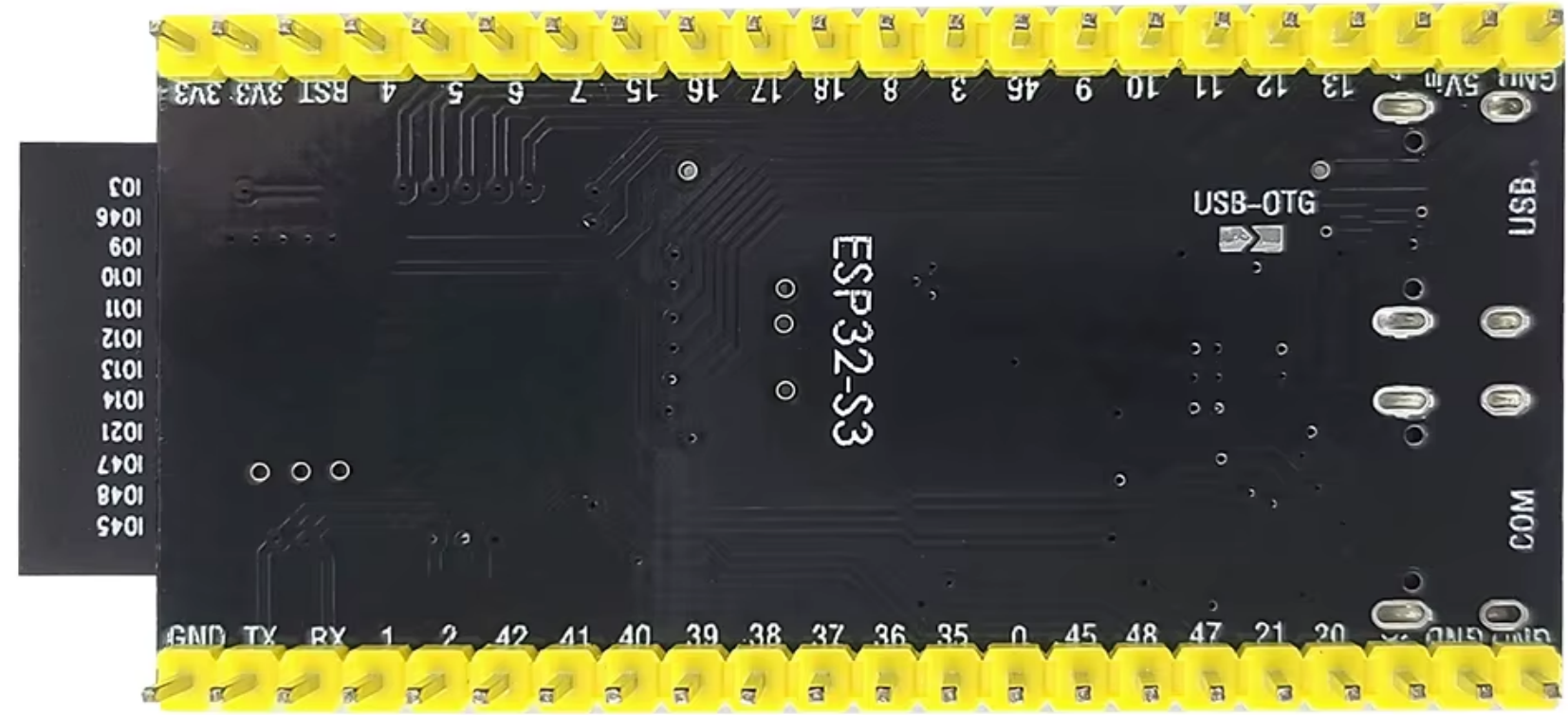
Hardware Introduction

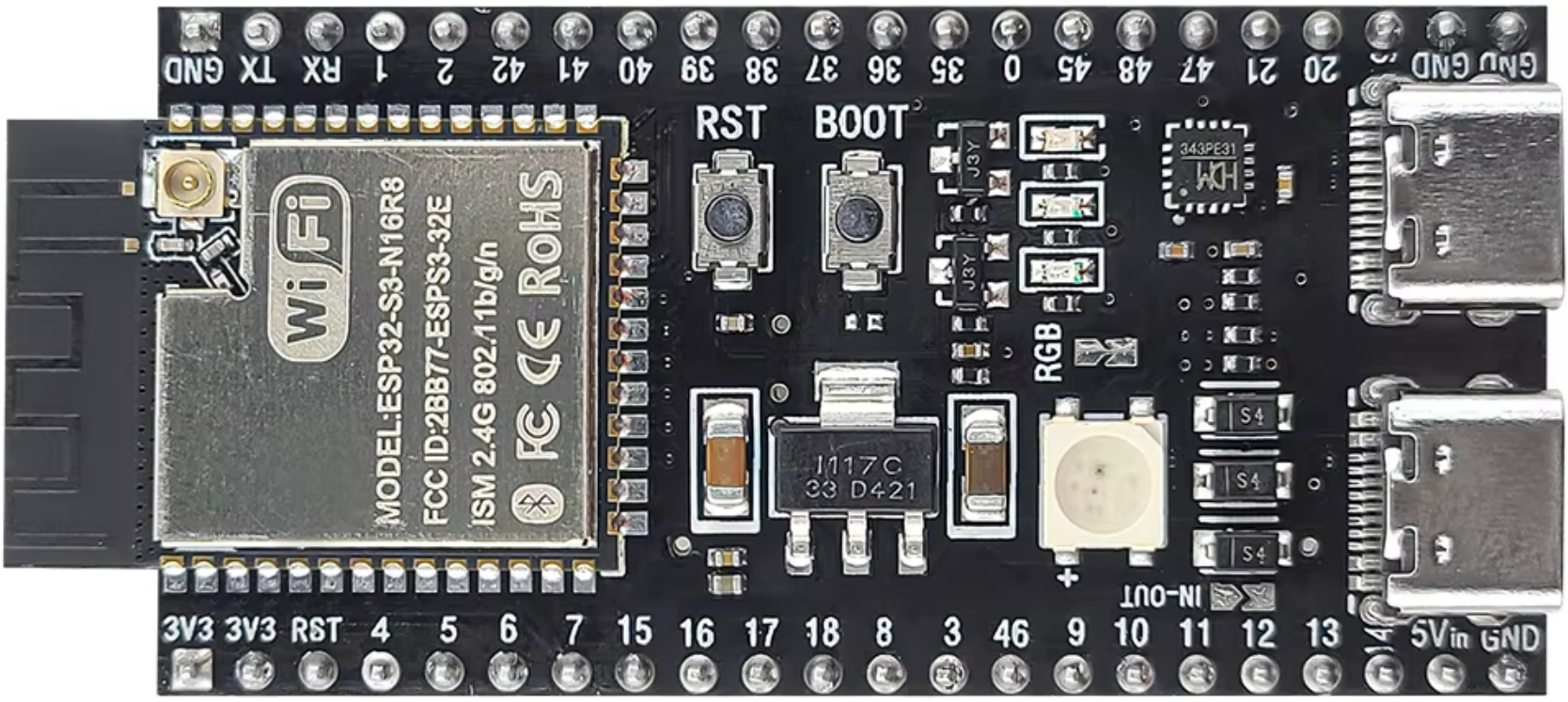


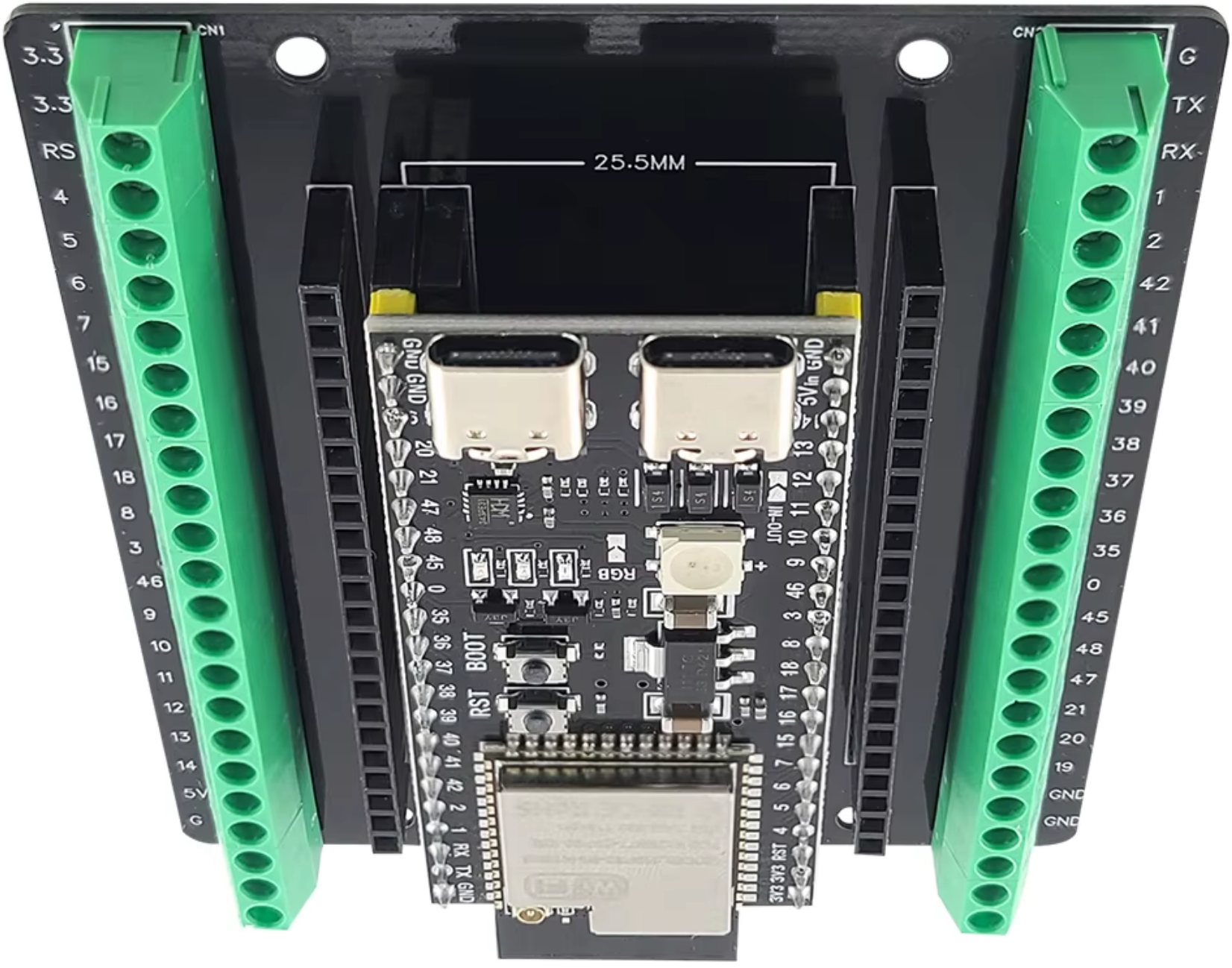
CN1
3.3
3.3
RST
4
5
6
7
15
16
17
18
8
3
46
9
10
11
12
13
14
5V
G
25.5MM
ESP32-S3 44P
23MM
G
TX
RX
1
2
42
41
40
39
38
37
36
35
0
45
48
47
21
20
19

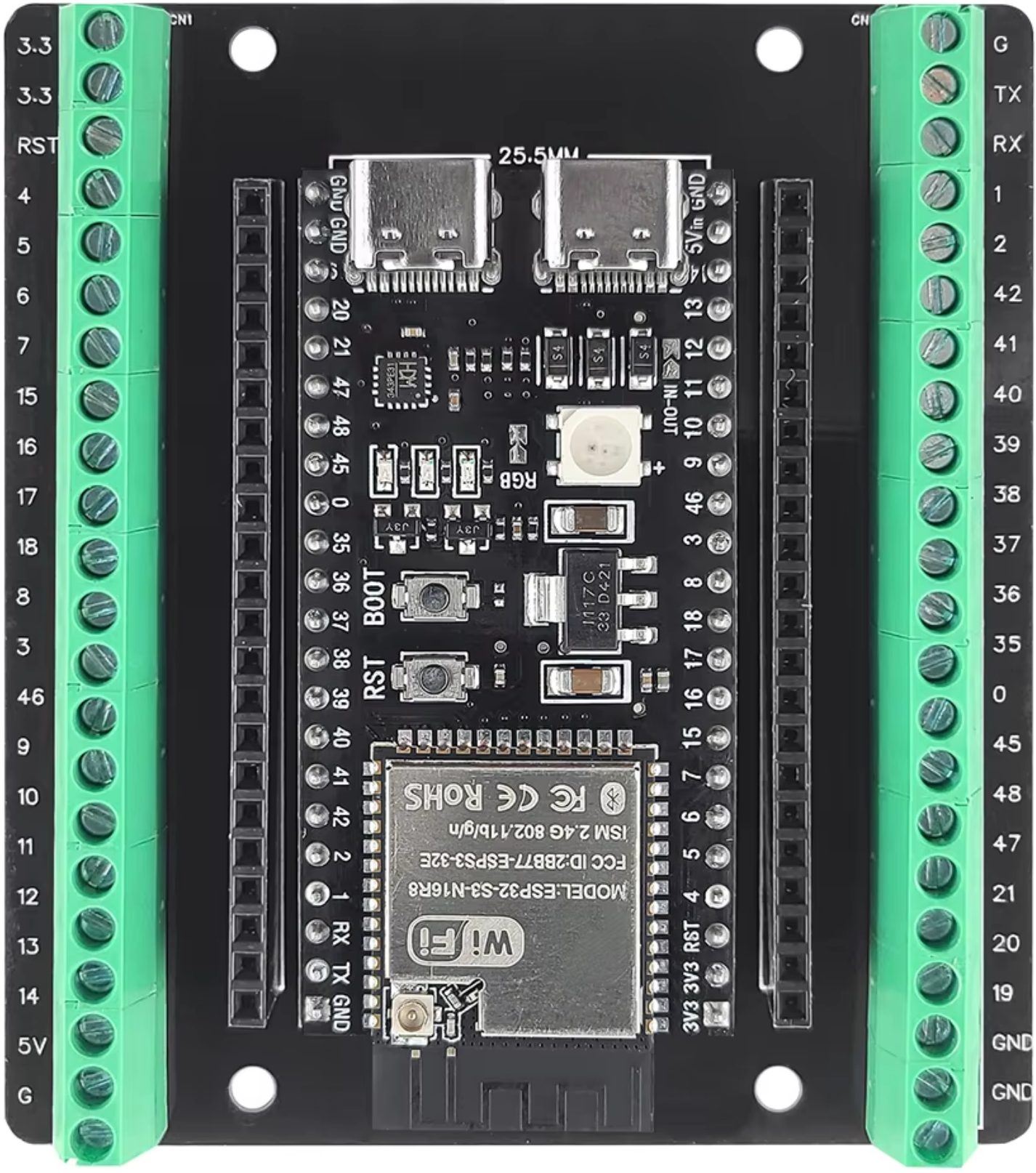

GND
3V
GND
20
21
47
48
45
0
35
36
37
38
39
40
41
42
2
1
RX
TX
GND
COM
USB
USB-OTG
ESP32-S3
1045
1048
1047
1021
1014
1013
1012
1011
1010
109
1046
103


3V3
3V3
RST
4
5
6
7
15
16
17
18
8
3
46
9
10
11
12
13
IN-OUT
RGB
RST
BOOT
40
41
42
2
1
RX
TX
GND
39
38
37
36
35
0
45
48
47
21
20
GND
GND


GND TX RX 1 2 42 41 40 39 38 37 36 35 0 45 48 47 21 20 GND GND
ESP32-S3
USB-OTG
USB
COM
GND 5Vin 13 12 11 10 9 46 3 8 18 17 16 15 7 6 5 4 RST 3V3 3V3
IO45
IO48
IO47
IO21
IO14
IO13
IO12
IO11
IO10
IO9
IO46
IO3


3V3 3V3 RST 4 5 6 7 15 16 17 18 8 3 46 9 10 11 12 13 5Vin GND
MODEL:ESP32-S3-N16R8
FCC ID:2BB77-ESPS3-32E
ISM 2.4G 802.11b/g/n
RoHS
RST
BOOT
RGB
IN-OUT
1117C
33 D421
343PE31
GND TX RX 1 2 42 41 40 39 38 37 36 35 0 45 48 47 21 20 GND GND


CN1
CN2
3.3
3.3
RS
4
5
6
7
15
16
17
18
8
3
46
9
10
11
12
13
14
5V
G
G
TX
RX
1
2
42
41
40
39
38
37
36
35
0
45
48
47
21
20
19
GND
GND
25.5MM
GND GND
5V
5V GND
IN-OUT
RGB
BOOT
RST
3V3 3V3 RST
RX TX GND


CN1
CN
3.3
3.3
RST
4
5
6
7
15
16
17
18
8
3
46
9
10
11
12
13
14
5V
G
G
TX
RX
1
2
42
41
40
39
38
37
36
35
0
45
48
47
21
20
19
GND
GND
25.5MM
GND GND
5Vin GND
20 21 47 48 45 0 35 36 37 38 39 40 41 42 2 1 RX TX GND
13 12 11 10 9 46 3 8 18 17 16 15 7 6 5 4 RST 3V3 3V3
RGB
IN-OUT
BOOT
RST
1117C
33 D421
Wi Fi
MODEL:ESP32-S3-N16R8
FCC ID:2BB77-ESPS3-32E
ISM 2.4G 802.11b/g/n
FC CE RoHS