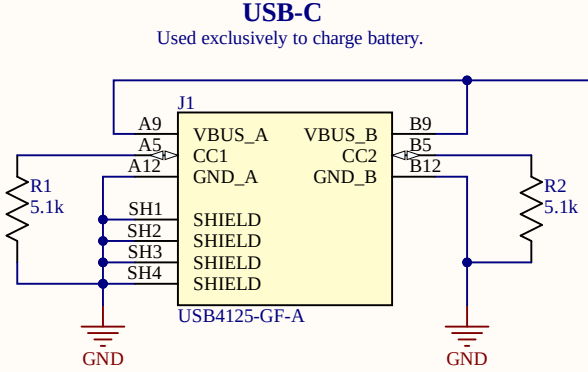
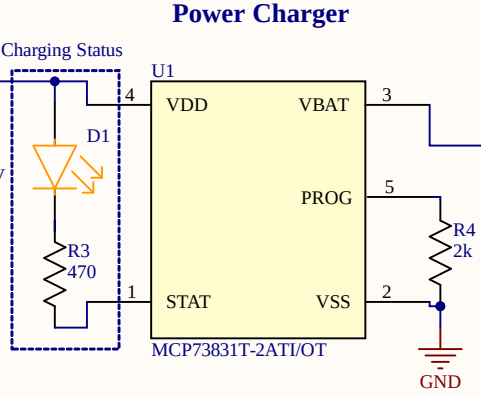
USB-C

Used exclusively to charge battery.



USB-C plug will be placed on edge of the PCB for access through housing.

Power Charger

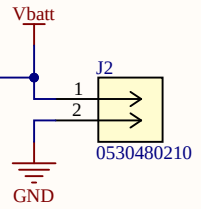


For best thermal performance, add vias from land area of EP to copper layer on opposite side of PCB

Power charger should be placed close to battery connector.

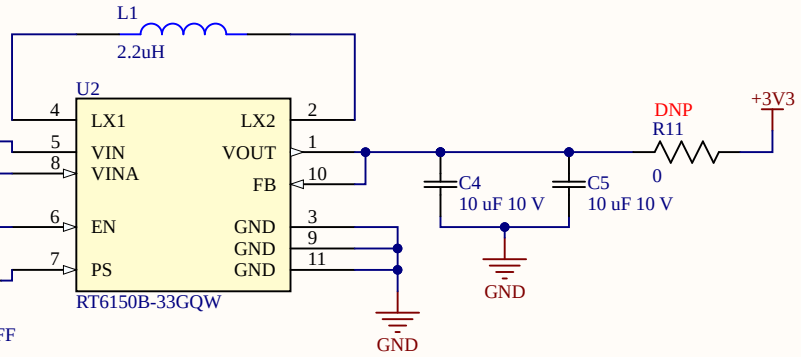
Li Ion Battery

LP384260JU+PCM+MOLEX 51021-0200 35MM



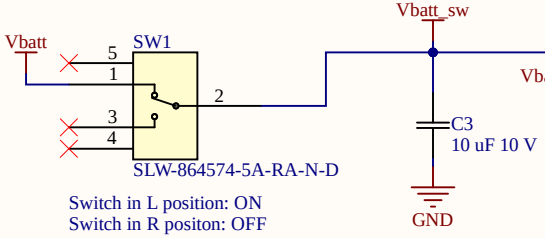
Connector will be placed on edge of the PCB to connect to battery located underneath.

Buck-Boost



C3 should be placed as close as possible to Vin.
C4 and C5 should be placed as close as possible to Vout.
L1 should be connected to inductor by wide and short trace.

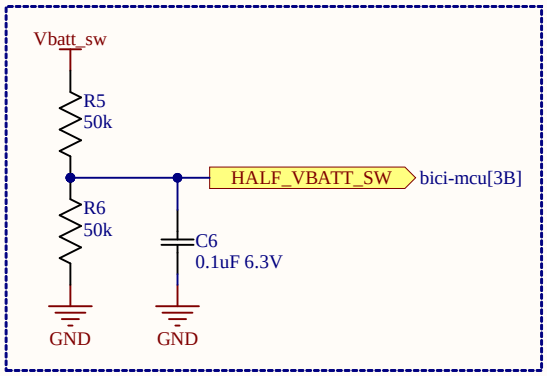
Power Switch



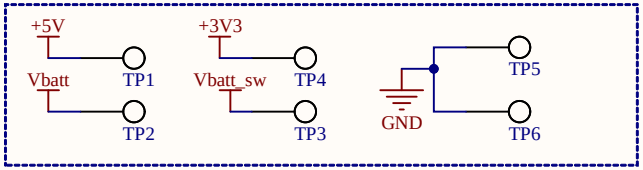
Switch in L position: ON
Switch in R positon: OFF

Switch will be placed on edge of the PCB for access through housing.

Low Power Detection



Test Points



Title	**Bici: Power Management** Circuitry related to system power and charging.	
Size A	Number	Revision V5
Date:	2/17/2026	Sheet1 of 5
File:	C:\Users\..\bici-power.SchDoc	Drawn By: Team Bici

Test Points

Test points should be placed close to IMU.

TP101
TP102
TP103
TP104

IMU

U101

7 FSYNC
4 INT1/INT
9 INT2
8 VDD
5 VDDIO
6 GND

AP_CS 12
AP_SCL/AP_SCLK 13
AP_SDA/AP_SDIO/AP_SDI 14
AP_SDO/AP_AD0 1
RESV 2
RESV 3
RESV 10
RESV 11

SPI_CS bici-mcu[3B]
SPI_CLK bici-mcu[3B]
SPI_MOSI bici-mcu[3B]
SPI_MISO bici-mcu[3B]

bici-mcu[3C] IMU_INT1
TP105
GND
+3V3
+3V3
C103 should be placed as close as possible to VDDIO pin.
C103 10 nF 50V
GND
GND
GND
GND
ICM-42670-P

+3V3
+3V3
C101 0.1uF 6.3V
C102 2.2 uF 25 V
GND
GND

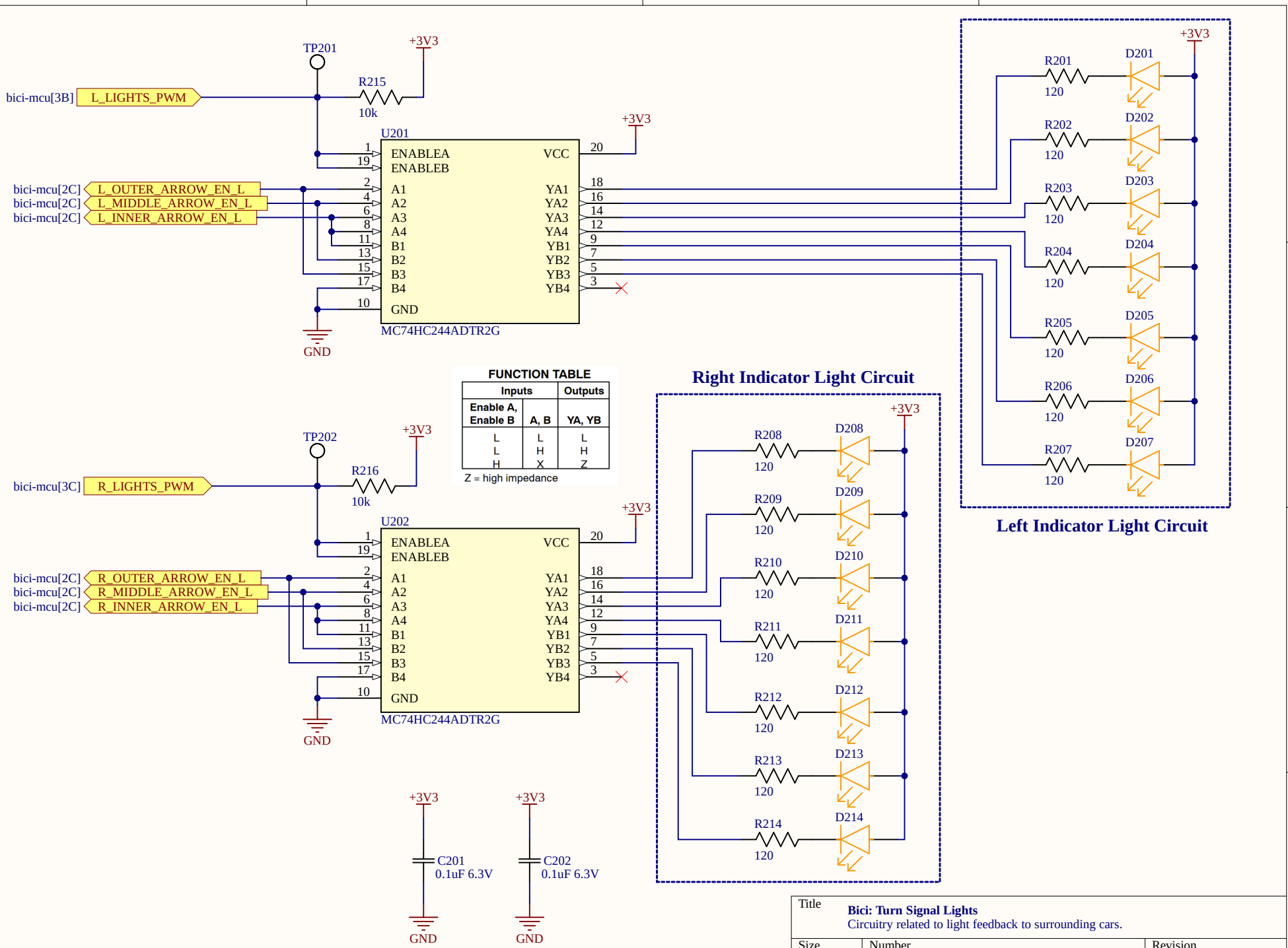
C101 and C102 should be placed as close as possible to VDD pin, with C101 closest to pin.

Spare 0603 Footprints

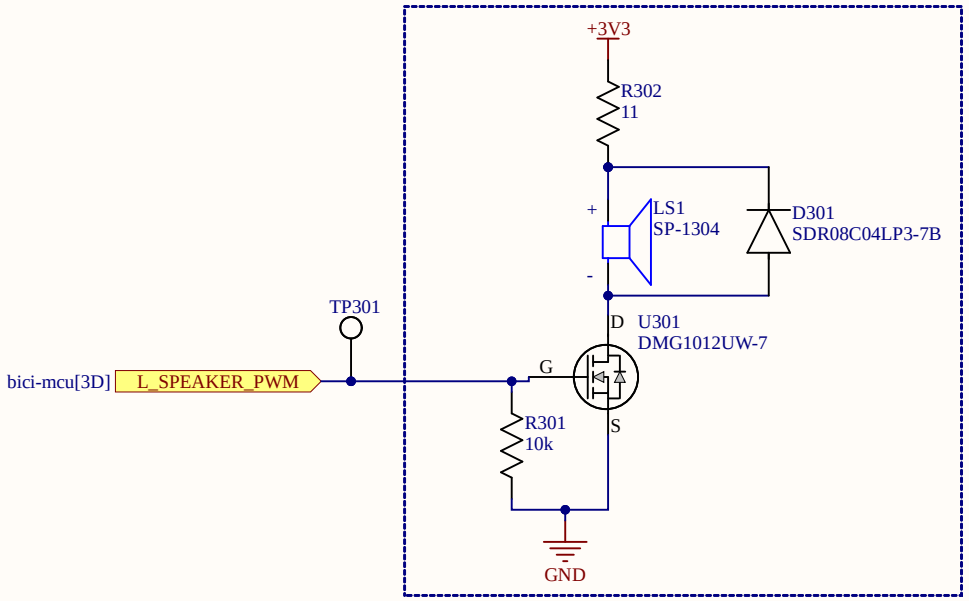
(Not on BOM) To make for easier soldering if we need to add a voltage divider (for eg) later.
(Per Mike Kofron's suggestion at Fall final presentation.)

R101 10k
R102 10k
R103 10k
R104 10k

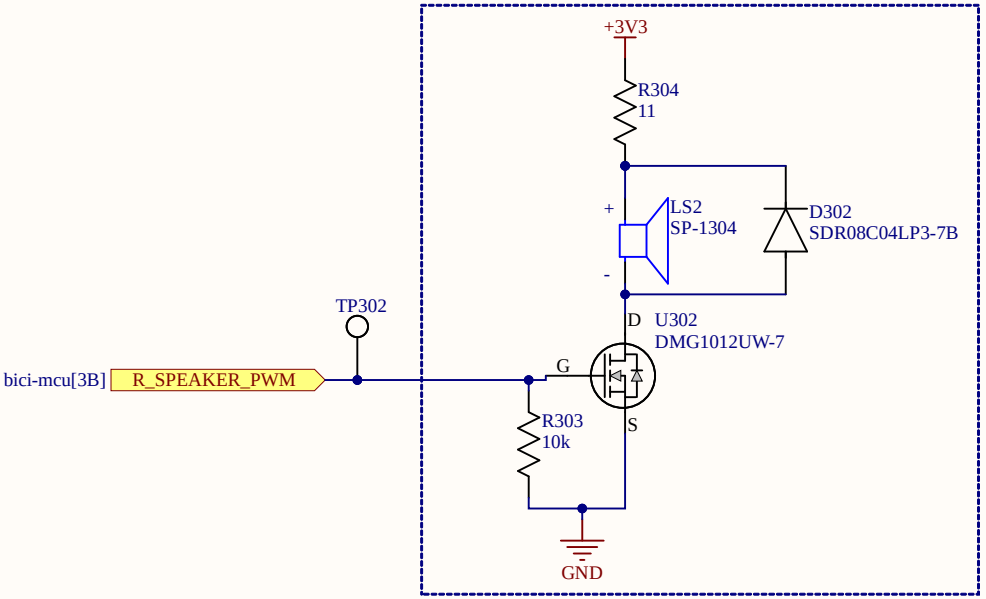
Title: **Bici: IMU** Circuitry related to IMU.		
Size: A	Number:	Revision: V5
Date: 2/17/2026		Sheet2 of 5
File: C:\Users\..\bici-imu.SchDoc		Drawn By: Team Bici


TP201
+3V3
R215
10k
bici-mcu[3B]
L_LIGHTS_PWM
U201
ENABLEA
ENABLEB
VCC
A1
A2
A3
A4
B1
B2
B3
B4
GND
YA1
YA2
YA3
YA4
YB1
YB2
YB3
YB4
MC74HC244ADTR2G
bici-mcu[2C] L_OUTER_ARROW_EN_L
bici-mcu[2C] L_MIDDLE_ARROW_EN_L
bici-mcu[2C] L_INNER_ARROW_EN_L
R201
R202
R203
R204
R205
R206
R207
120
D201
D202
D203
D204
D205
D206
D207
Left Indicator Light Circuit
FUNCTION TABLE
Inputs
Outputs
Enable A, Enable B
A, B
YA, YB
L L H
L H X
L H Z
Z = high impedance
Right Indicator Light Circuit
TP202
R216
10k
bici-mcu[3C]
R_LIGHTS_PWM
U202
bici-mcu[2C] R_OUTER_ARROW_EN_L
bici-mcu[2C] R_MIDDLE_ARROW_EN_L
bici-mcu[2C] R_INNER_ARROW_EN_L
R208
R209
R210
R211
R212
R213
R214
D208
D209
D210
D211
D212
D213
D214
C201
0.1uF 6.3V
C202
0.1uF 6.3V
C202 should be placed as close as possible to U202 VCC pin.
C201 should be placed as close as possible to U201 VCC pin.
Title
Bici: Turn Signal Lights
Circuitry related to light feedback to surrounding cars.
Size
A
Number
Revision
V5
Date: 2/17/2026
Sheet3 of 5
File: C:\Users\..\bici-turn-lights.SchDoc
Drawn By: Team Bici

Left Indicator Audio Feedback Circuit



LS1 should be placed at the edge of the PCB on the left arrow point (to accomodate speaker placement in housing).

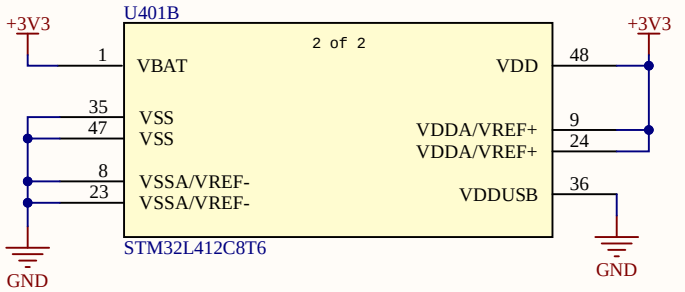


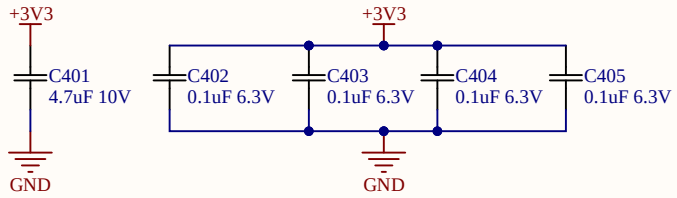
LS2 should be placed at the edge of the PCB on the right arrow point (to accomodate speaker placement in housing).

Right Indicator Audio Feedback Circuit

Title	**Bici: Turn Signal Audio** Circuitry related to audio feedback to user.	
Size A	Number	Revision V5
Date: 2/17/2026		Sheet4 of 5
File: C:\Users\..\bici-turn-audio.SchDoc		Drawn By: Team Bici

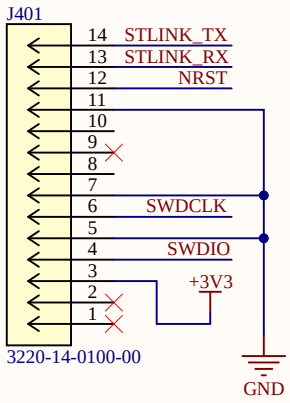
STM Power



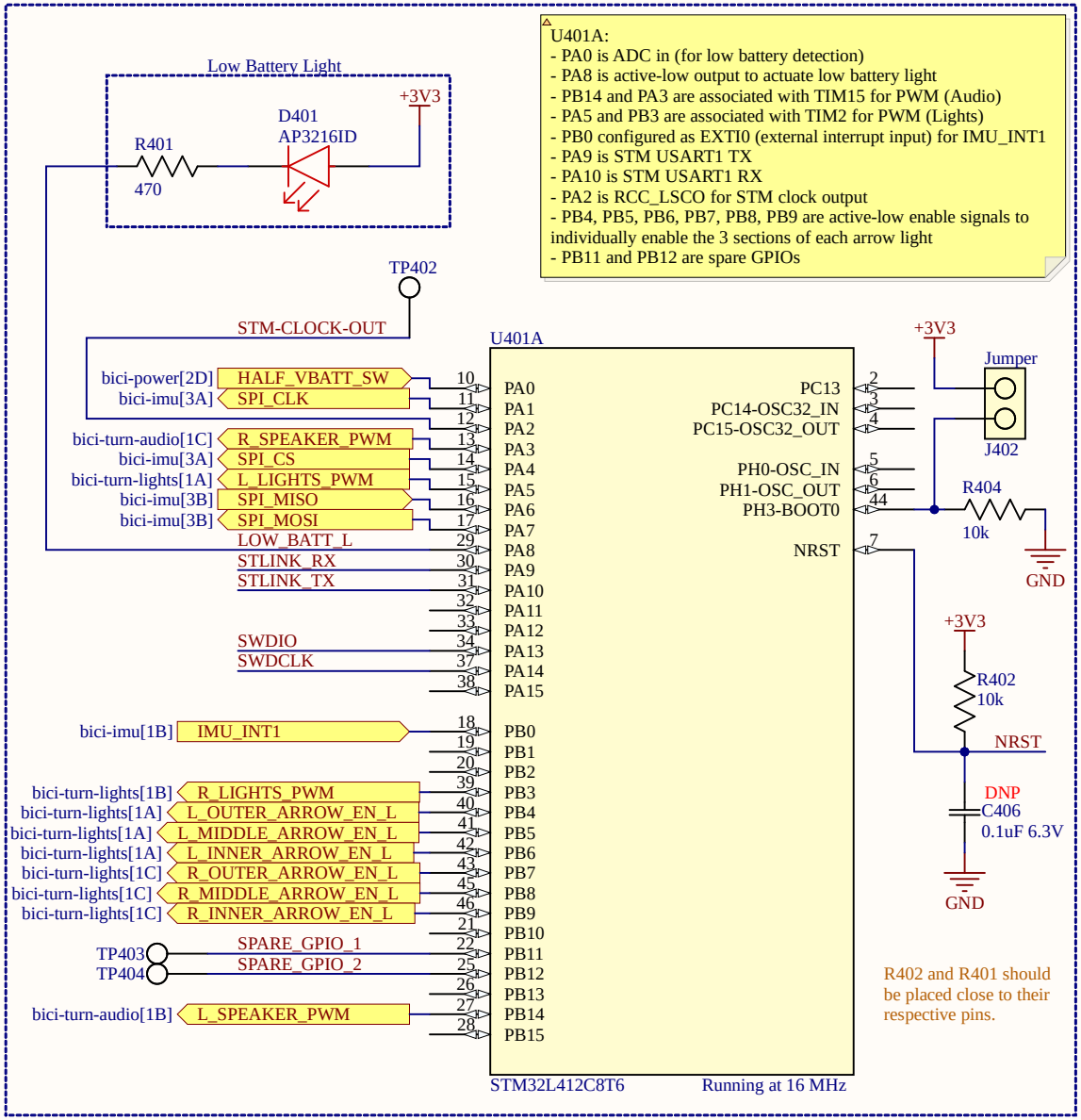


Decoupling caps C402, C403, C404, and C405 should be placed 1 each per pair of VCC/VSS pins on MCU, close to these pins.

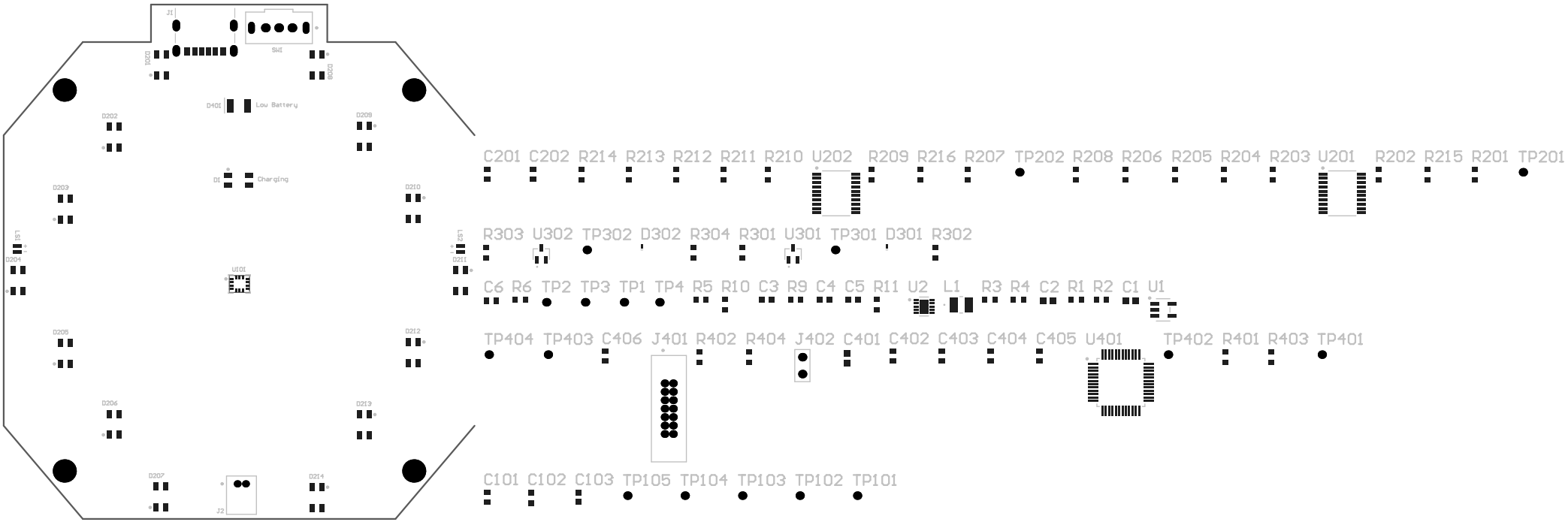
Programming/Debugging Connector



STM I/O



Title	**Bici: MCU** Circuitry related to embedded MCU.	
Size A	Number	Revision V5
Date:	2/17/2026	Sheet5 of 5
File:	C:\Users\..\bici-mcu.SchDoc	Drawn By: Team Bici


J1
SW1
D201
D205
D401
Low Battery
D202
D209
DI
Charging
D203
D210
LS1
D204
U101
D211
D205
D212
D206
D213
D207
D214
J2
C201 C202 R214 R213 R212 R211 R210 U202 R209 R216 R207 TP202 R208 R206 R205 R204 R203 U201 R202 R215 R201 TP201
R303 U302 TP302 D302 R304 R301 U301 TP301 D301 R302
C6 R6 TP2 TP3 TP1 TP4 R5 R10 C3 R9 C4 C5 R11 U2 L1 R3 R4 C2 R1 R2 C1 U1
TP404 TP403 C406 J401 R402 R404 J402 C401 C402 C403 C404 C405 U401 TP402 R401 R403 TP401
C101 C102 C103 TP105 TP104 TP103 TP102 TP101