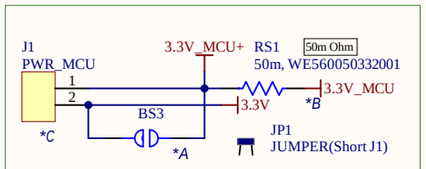
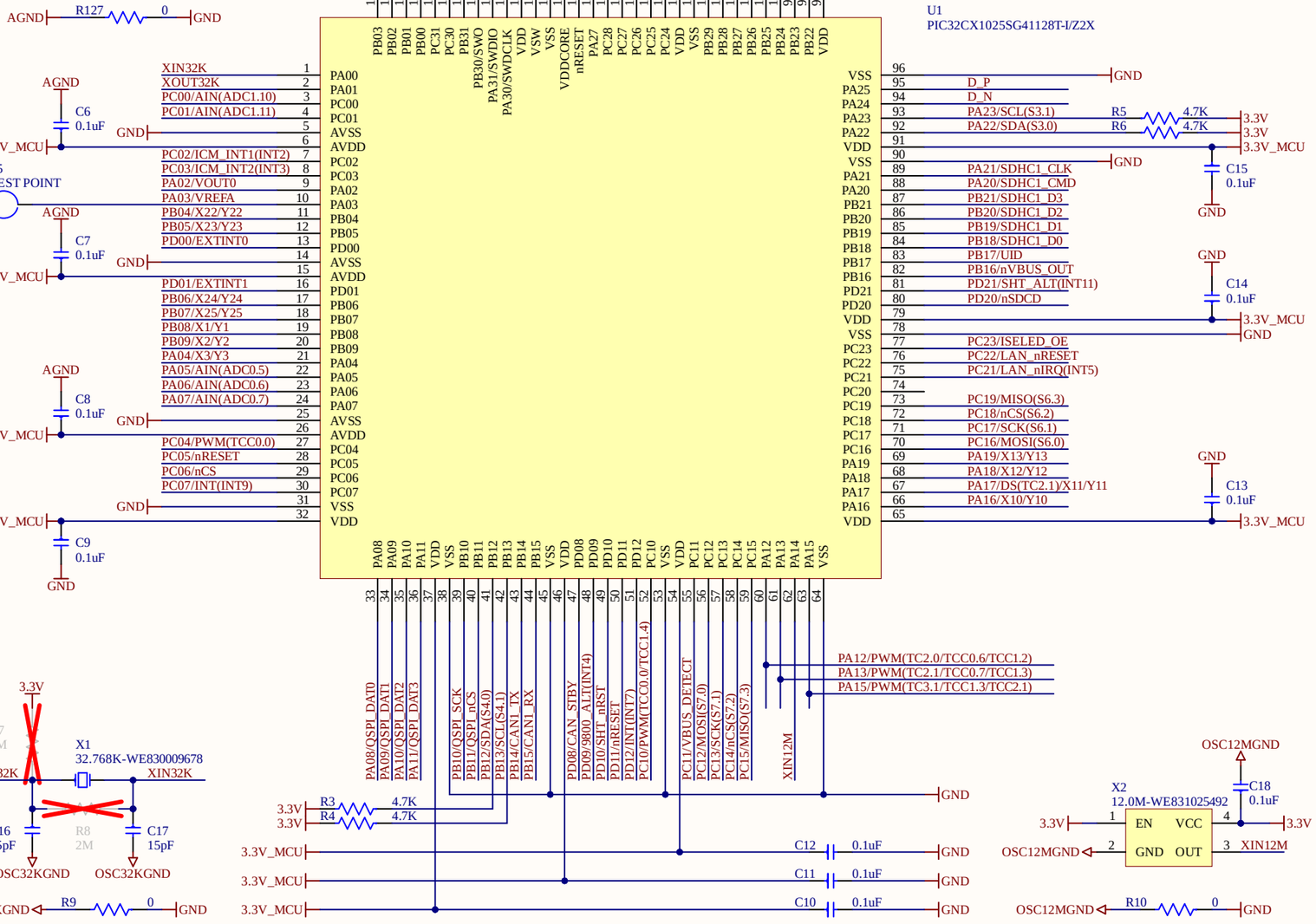
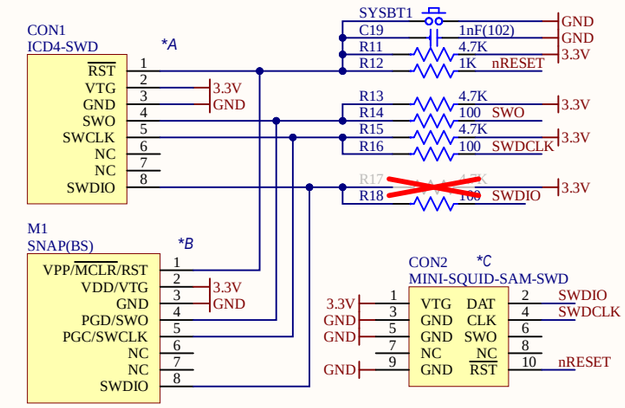


MCU Power with Monitor

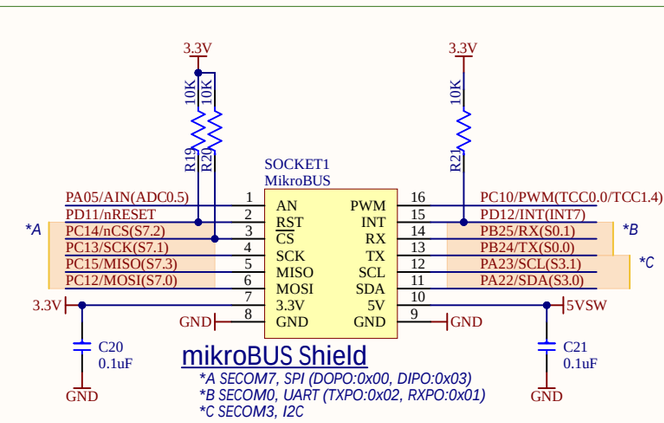
*A PCB short by default
*B Current monitor by PAC1720 (CH.1)
*C External current monitor by J1





Programmer/Debugger Interface

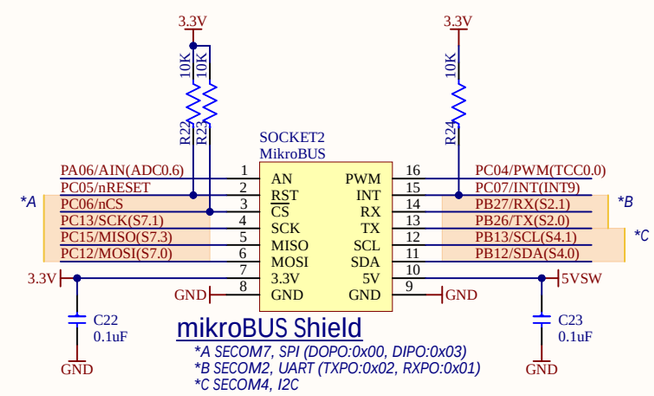
*A 8-Pin(SIP), 100mils, SWD interface for ICD4/PICkit4
*B 8-Pin(SIP, 90°), 100mils, Built-In, SWD interface for SNAP (optional)
*C 10-Pin(DIP), 50mils, SWD interface for Amtel ICE



mikroBUS Shield

*A SECOM7, SPI (DOPO:0x00, DIPO:0x03)
*B SECOM0, UART (TXPO:0x02, RXPO:0x01)
*C SECOM3, I2C

@13

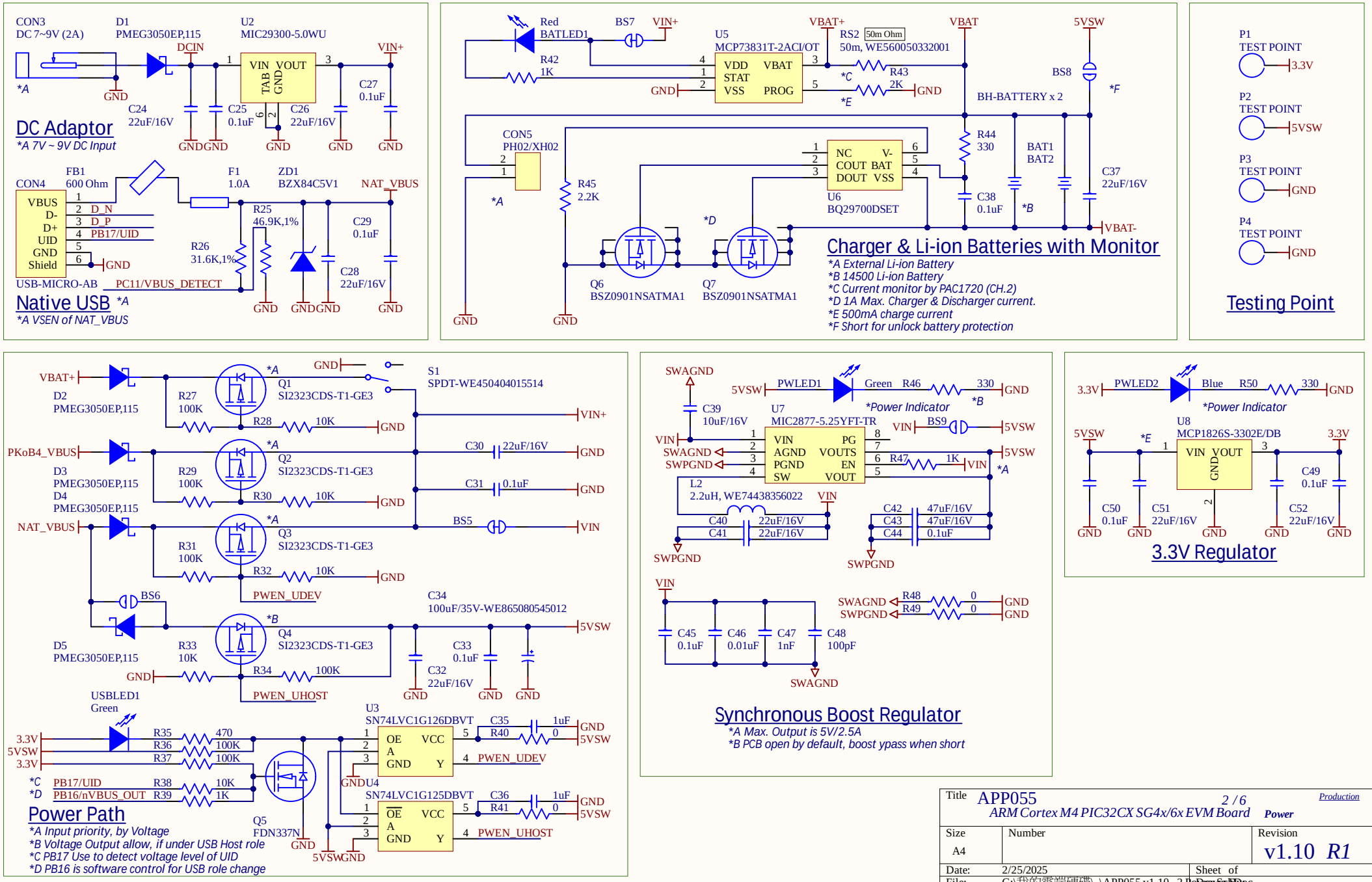


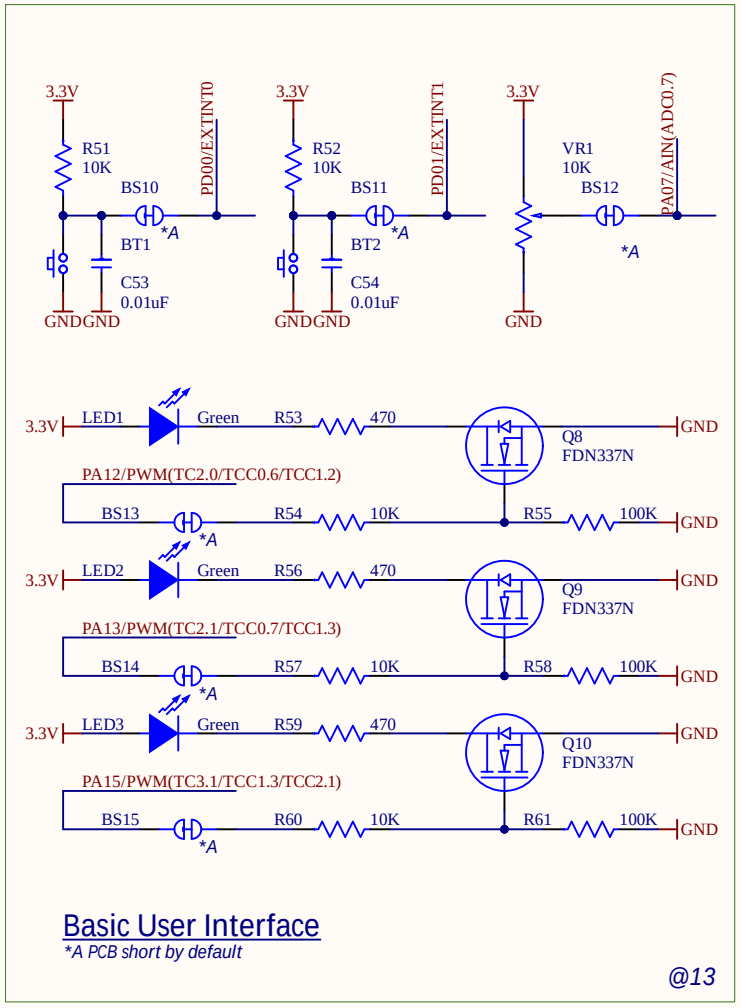
mikroBUS Shield

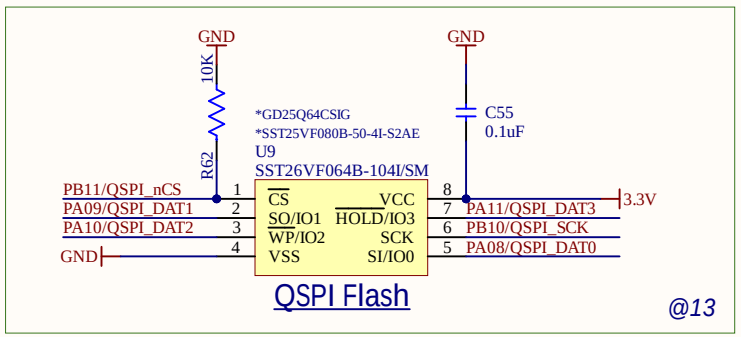
*A SECOM7, SPI (DOPO:0x00, DIPO:0x03)
*B SECOM2, UART (TXPO:0x02, RXPO:0x01)
*C SECOM4, I2C

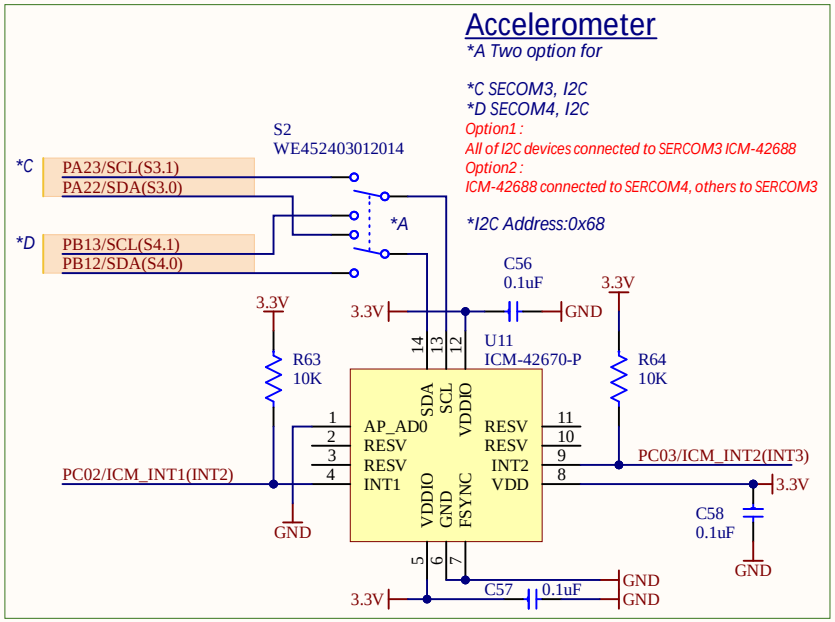
@13

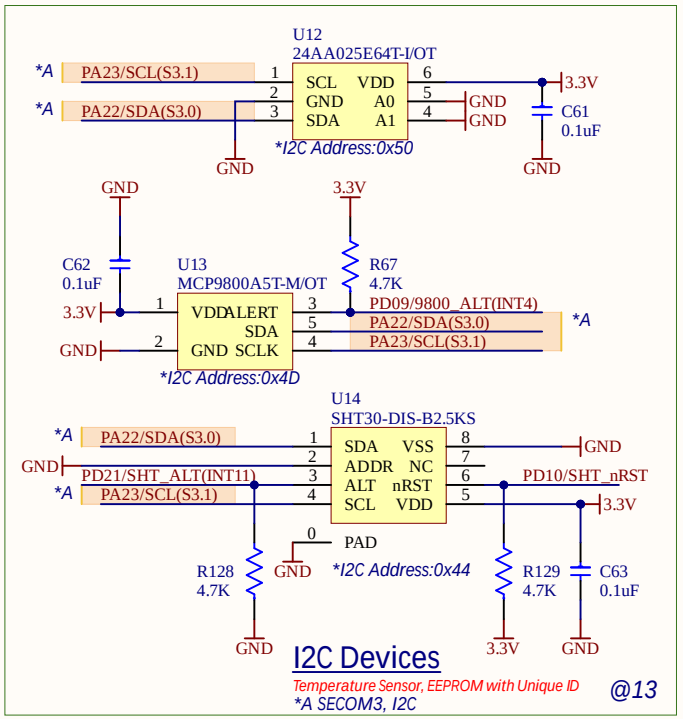
Title	APP055 1 / 6 *Production* *ARM Cortex M4 PIC32CX SG4x/6x EVM Board* **Main MCU**		
Size A3	Number	Revision	v1.10 *R1*
Date:	2/25/2025	Sheet of	
File:	G:\我的雲端硬碟\..\APP055 v1.10 - 1 Main MCU.SchDoc	Adam Syu	

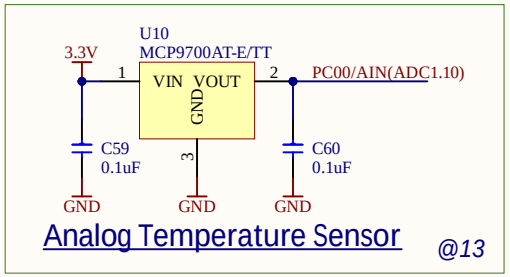

DC Adaptor
*A 7V ~ 9V DC Input
Native USB *A
*A VSEN of NAT_VBUS
Charger & Li-ion Batteries with Monitor
*A External Li-ion Battery
*B 14500 Li-ion Battery
*C Current monitor by PAC1720 (CH.2)
*D 1A Max. Charger & Discharger current.
*E 500mA charge current
*F Short for unlock battery protection
Testing Point
Power Path
*A Input priority, by Voltage
*B Voltage Output allow, if under USB Host role
*C PB17 Use to detect voltage level of UID
*D PB16 is software control for USB role change
Synchronous Boost Regulator
*A Max. Output is 5V/2.5A
*B PCB open by default, boost ypass when short
3.3V Regulator
Title APP055 2 / 6 Production
ARM Cortex M4 PIC32CX SG4x/6x EVM Board Power
Size A4
Number
Revision v1.10 R1
Date: 2/25/2025
Sheet of
File: G:\我的雲端硬碟\..\APP055 v1.10 - 2 Power.SchDoc
Drawn By:

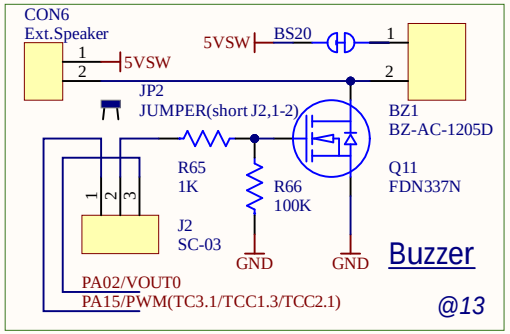


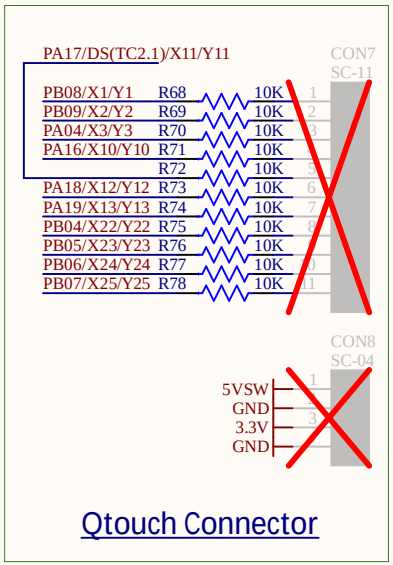


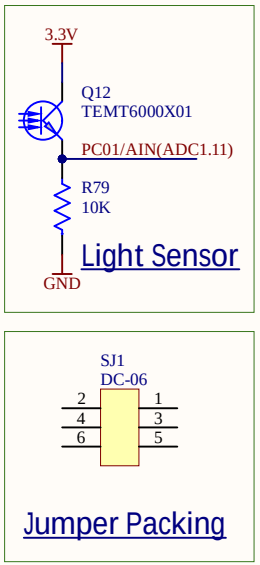












Title	APP055 3 / 6 *ARM Cortex M4 PIC32CX SG4x/6x EVM Board*	*Production* **Peripherals**
Size A4	Number	Revision v1.10 *R1*
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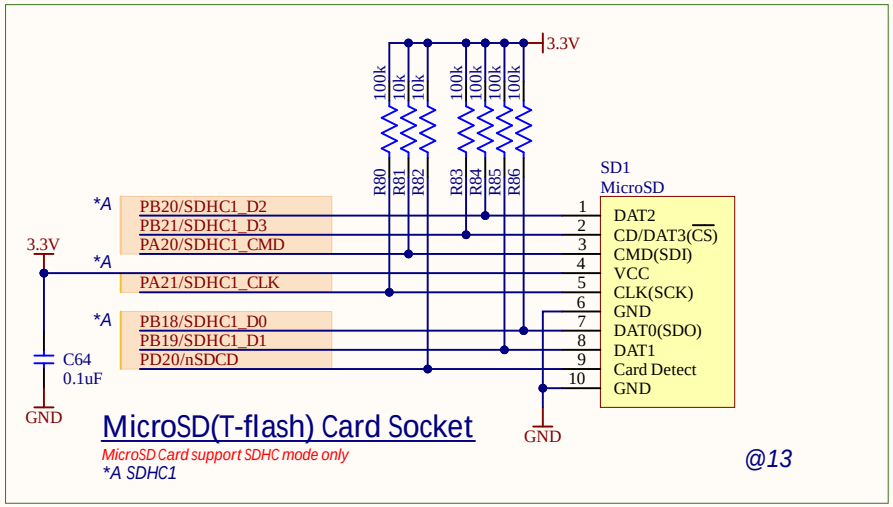
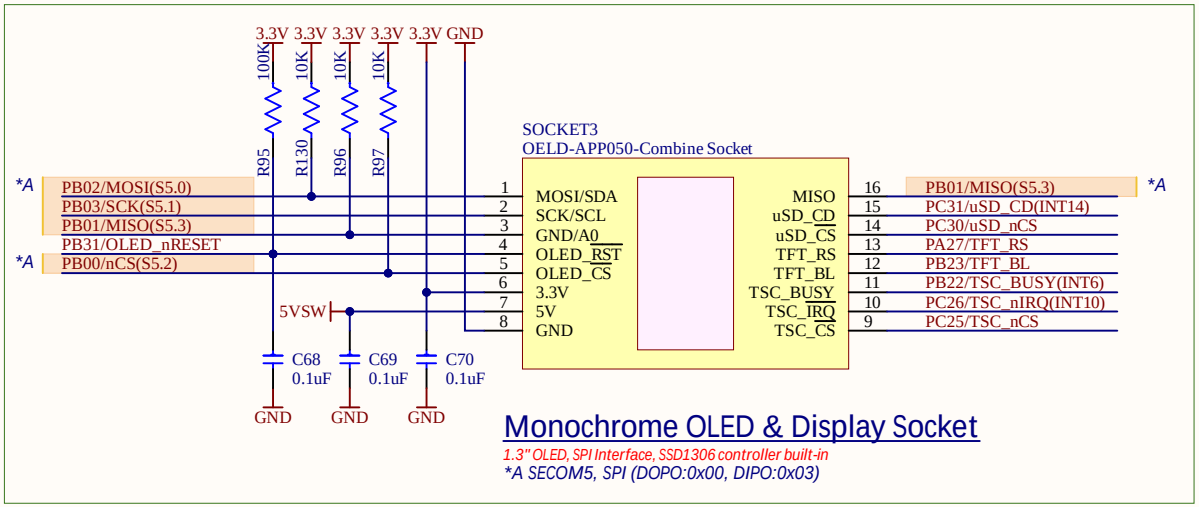
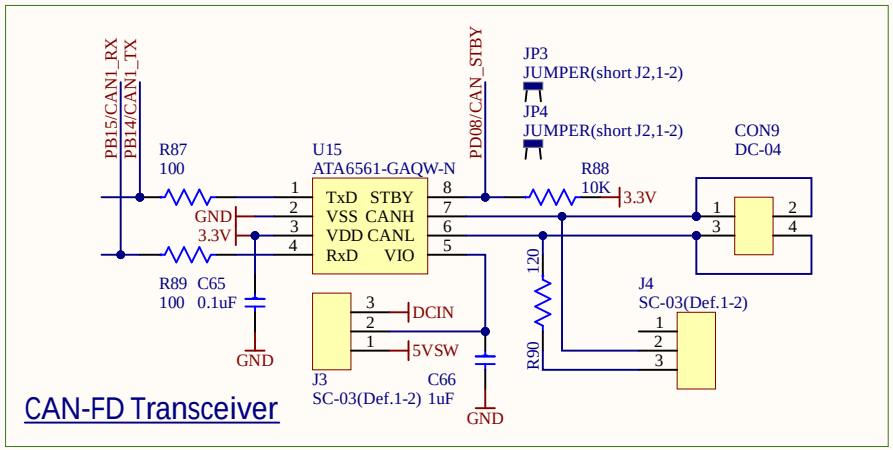
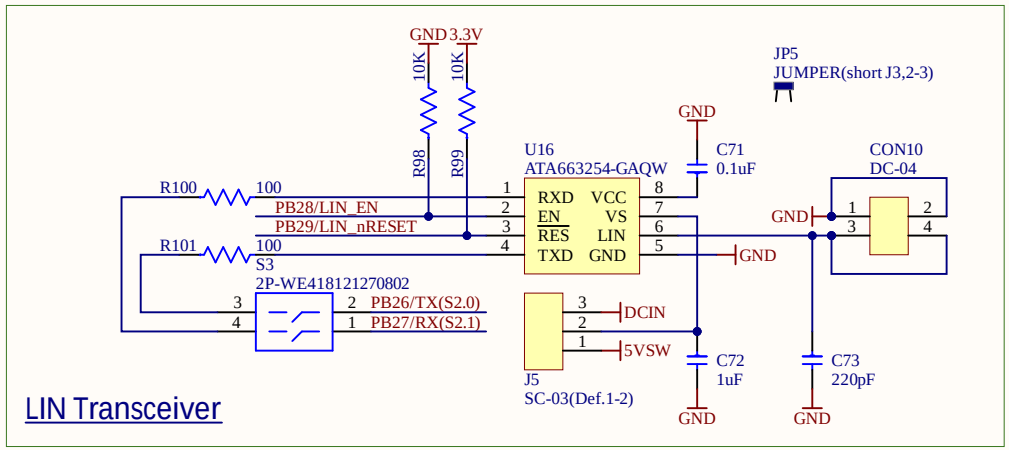
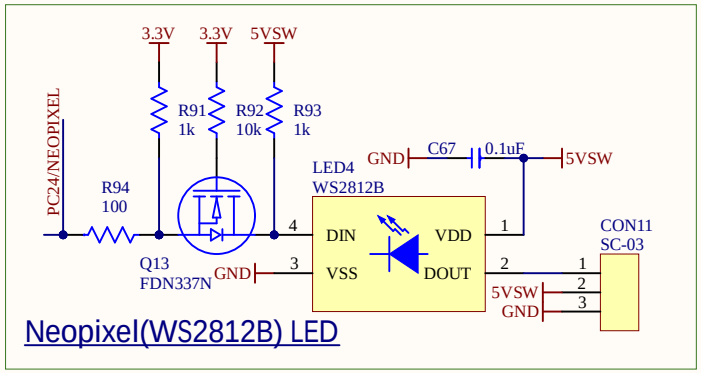
File: G:\我的雲端硬碟\..\APP055 v1.10 - 3 Peripherals.SchDoc		Drawn By:

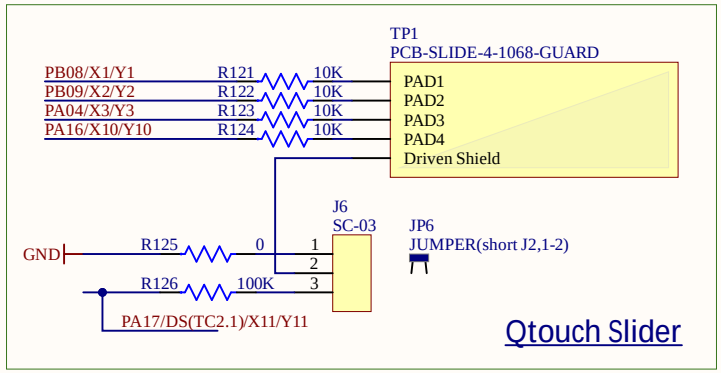












Title	APP055 *4 / 6* — *ARM Cortex M4 PIC32CX SG4x/6x EVM Board*	*Production* — ***Peripherals***
Size: A4	Number:	Revision: v1.10 *R1*
Date: 2/25/2025		Sheet of
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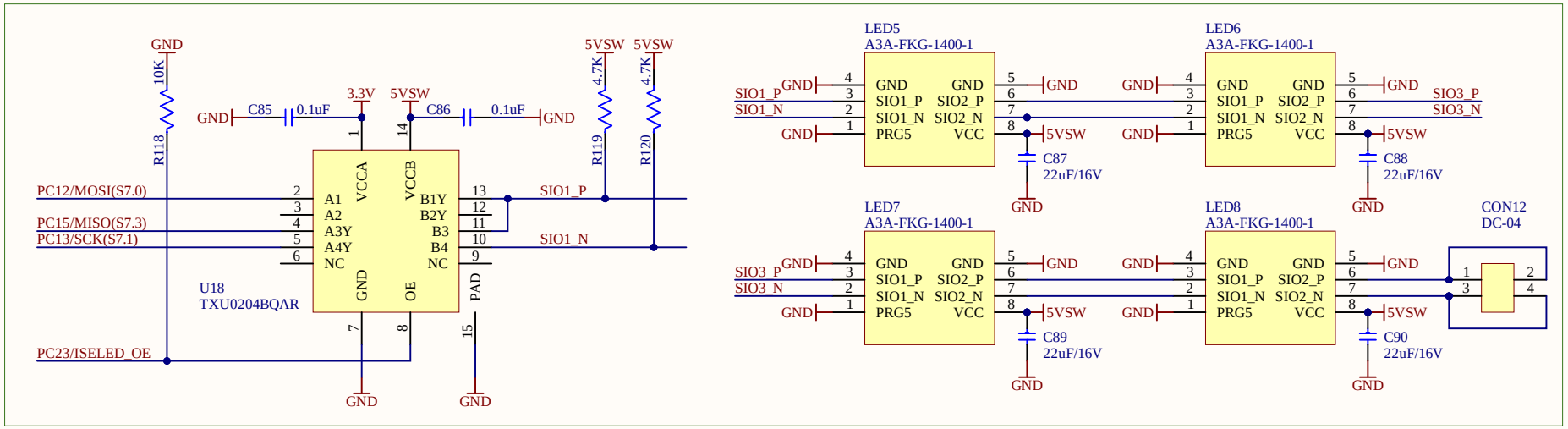
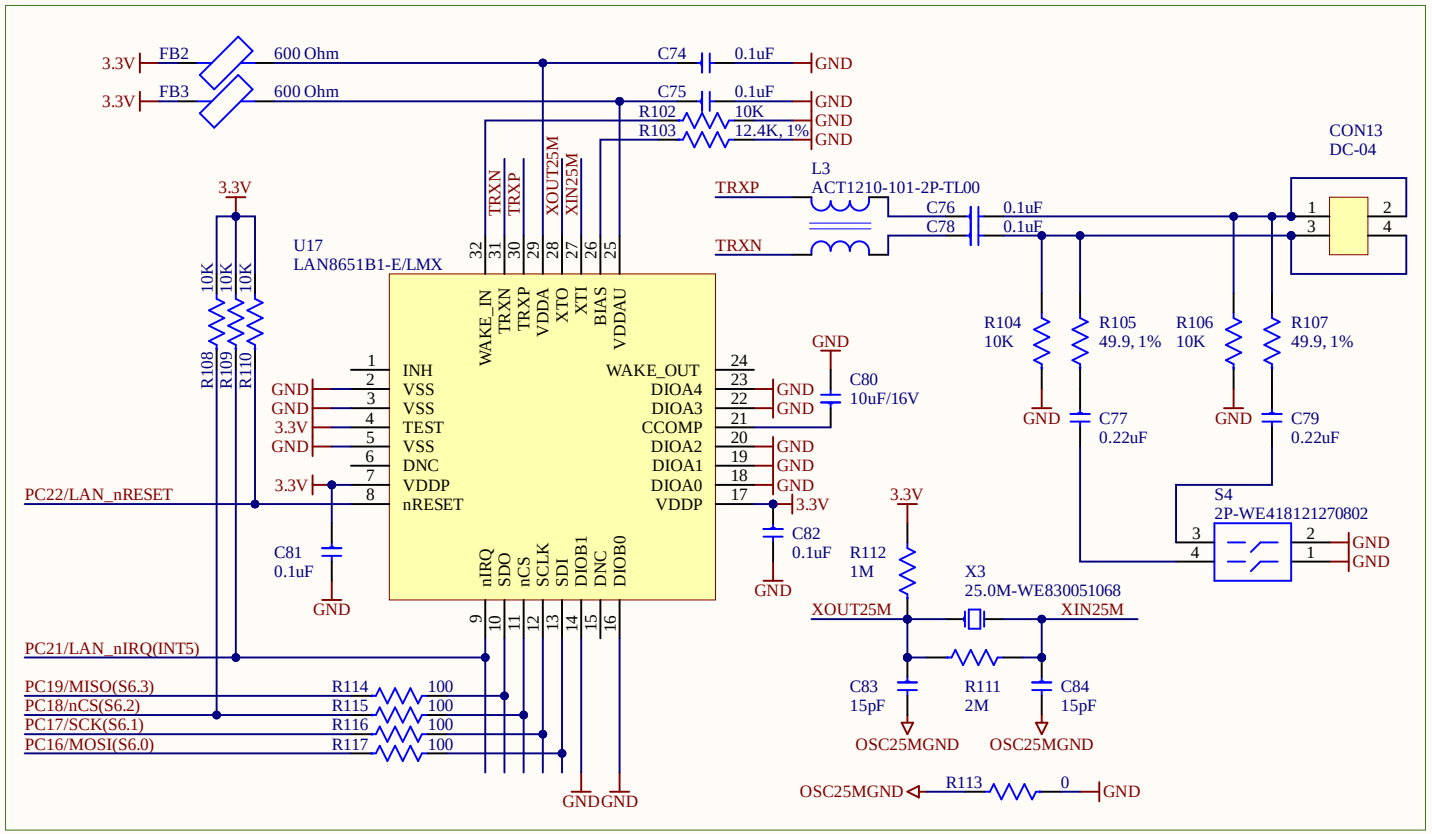
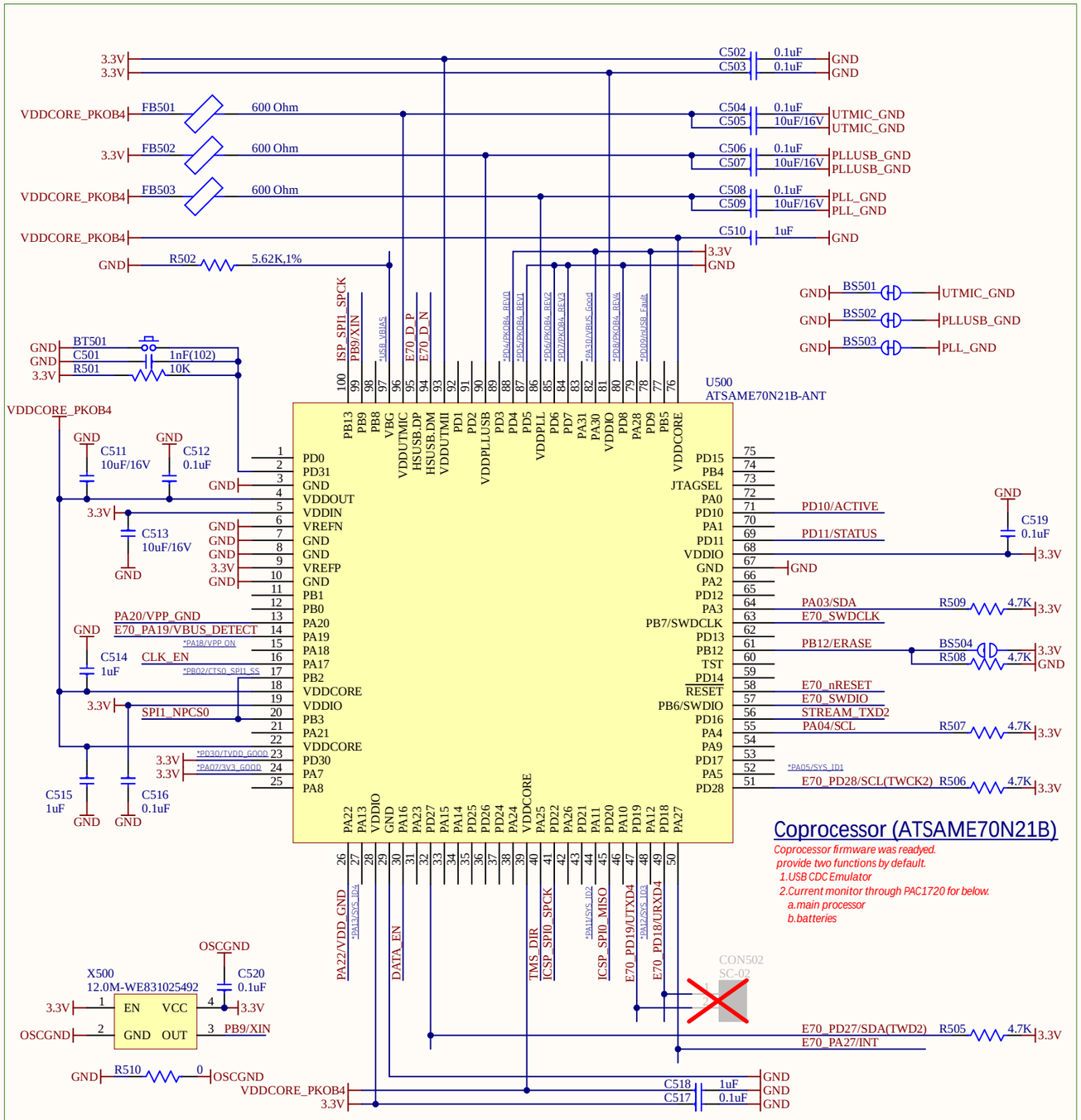
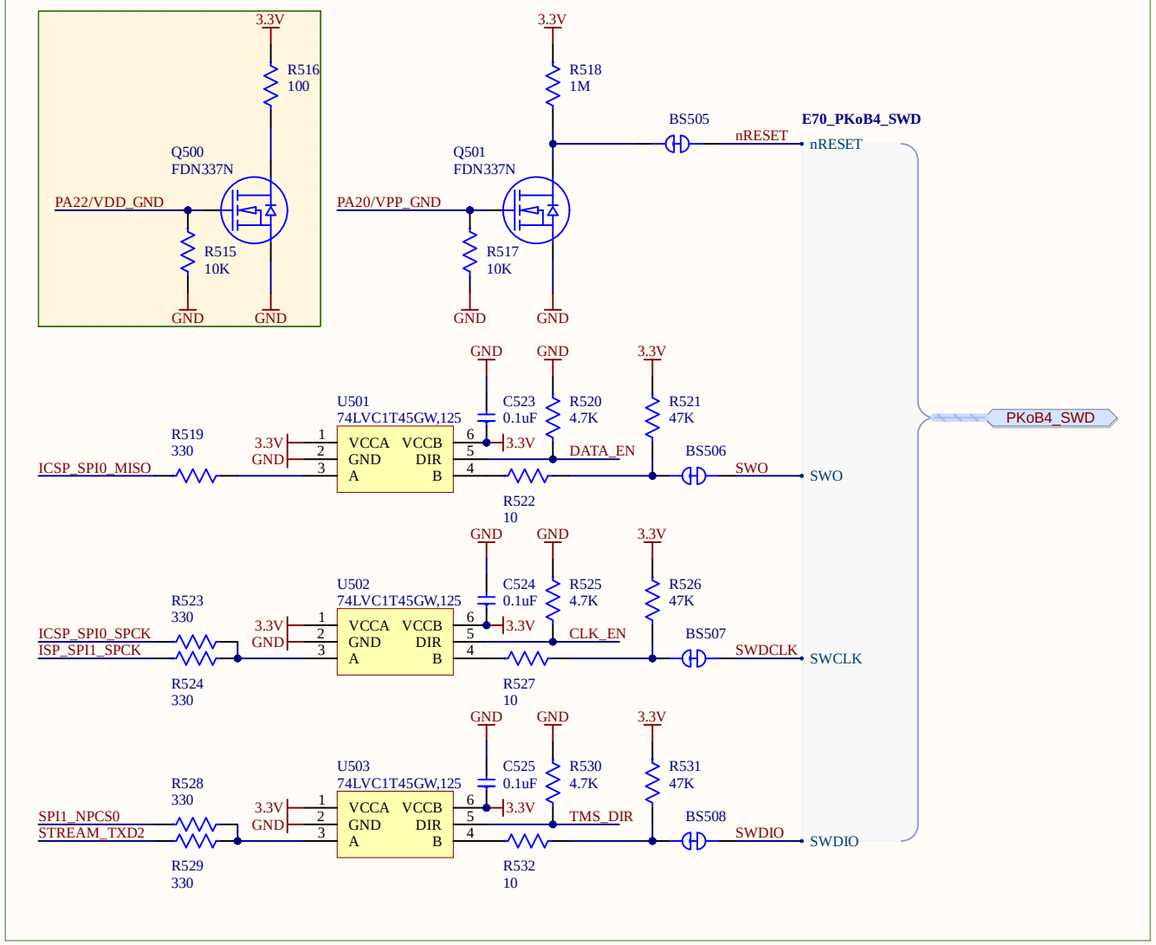
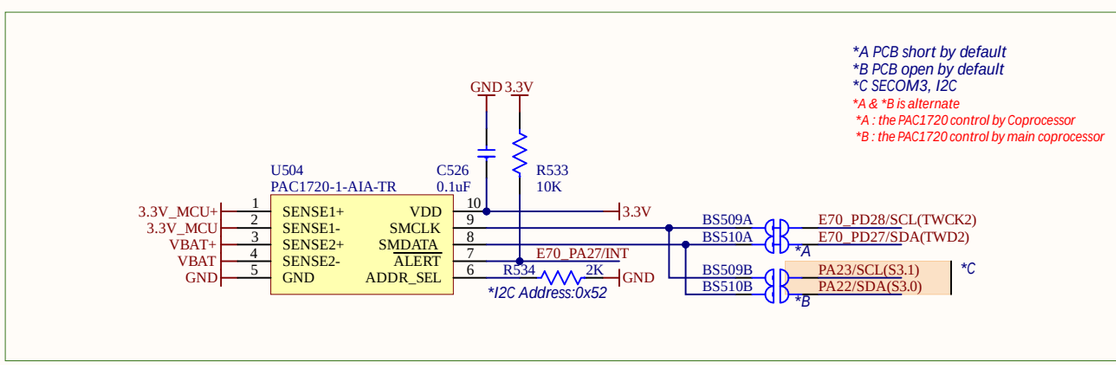


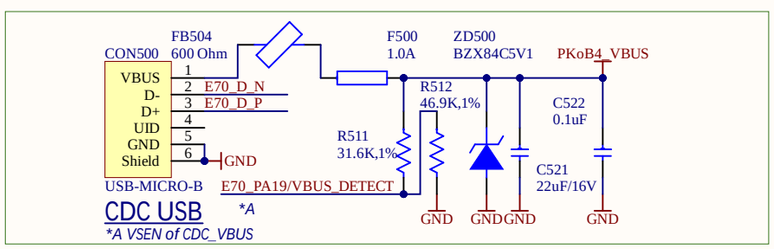


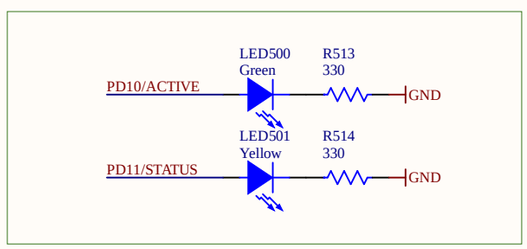
Title	APP055 *ARM Cortex M4 PIC32CX SG4x/6x EVM Board* **Peripherals**	
Size A4	Number	Revision v1.10 *R1*
Date: 2/25/2025		Sheet of
File: G:\我的雲端硬碟\..\APP055 v1.10 - 5 Peripherals.SchDoc		Drawn By:

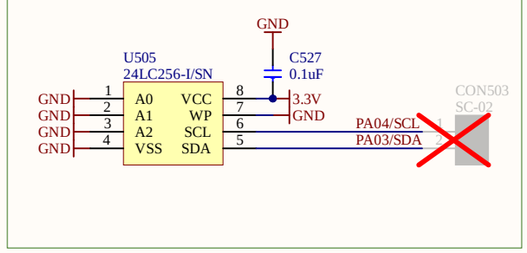


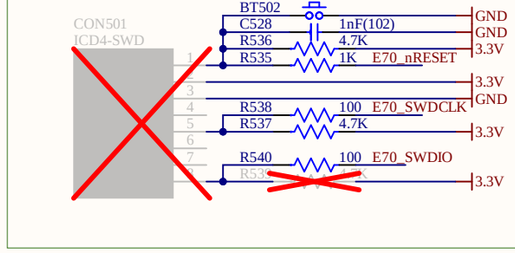




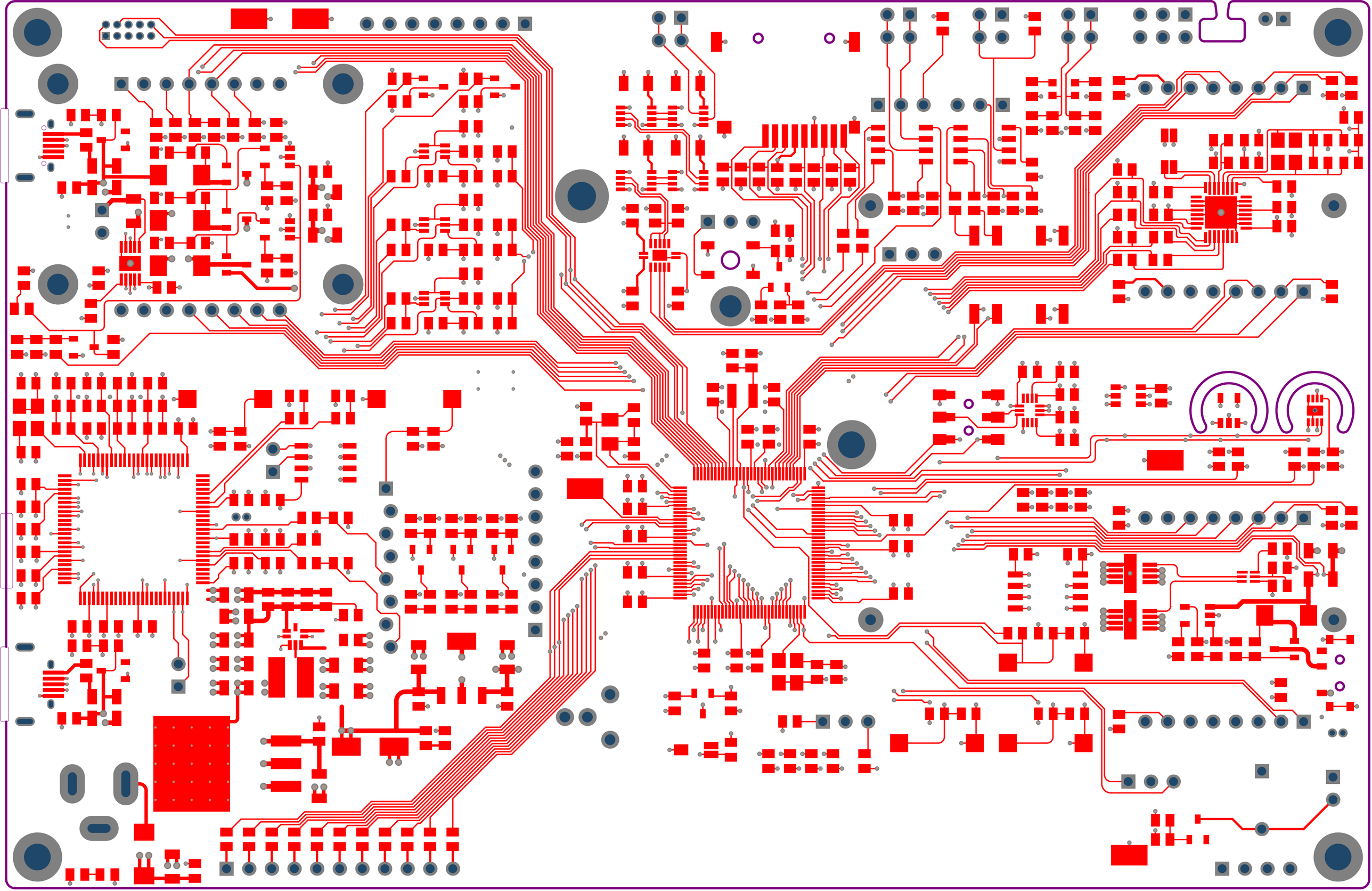


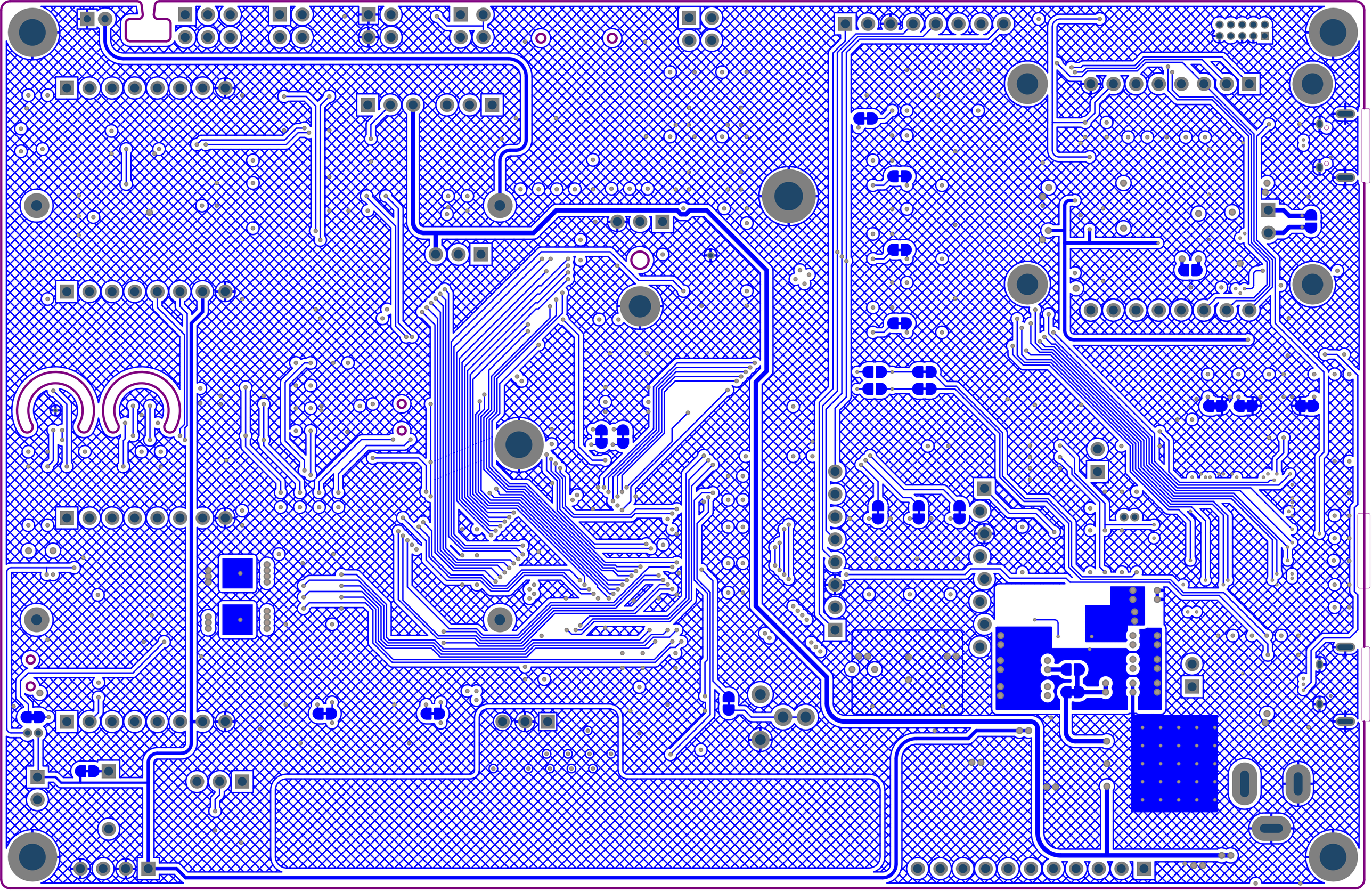






Title	APP055 6 / 6 — ARM Cortex M4 PIC32CX SG4x/6x EVM Board — PKoB4 for SWD		Production
Size	A3	Number	Revision v1.10 R1
Date:	2/25/2025	Sheet of	
File:	G:\我的雲端硬碟\..\APP055 v1.10 - PKoB4.SchDoc		





MICROCHIP
APP055v1.10
20250220
R1
PIC32CX1025SG41128
ATSAME70N21B
PAC1720
Addr:0x52
MCP9700A
MCP9800A5
Addr:0x4D
SHT30-DIS
Addr:0x44
ICM42670
Addr:0x68
LAN8651B1T
MCP73831T-2AC
24AA025E64
Addr:0x50
24LC256
SST26VF064B
ATA6561
ATA663254
MIC2877-5.25
MIC29300-5.0WU
32.768kHz
12MHz
OLED
Mini Squid
ICD4
ISELED
SD1
CAN
LIN
SPE
Parking
TERN.
VS
VIO
RESET
SWO
SWDCLK
SWDIO
WS2812
SERCOM7
SERCOM3
SERCOM4
I2C Devices
6 Axis Motion
EEPROM&EUID
Temperature
Humidity
PKoB4 BT
Active
Status
PKoB4 RESET
PKoB4/USB to UART
USB Device
Native
DC (7~9V)
3.3V
5V
ERASE
QSPI
PIC32 RESET
Charging
Buzzer
Ext. Speaker
Potentiometer
Ambient Light
VREFA
MPLAB HARMONY
Microchip Certification University Program
A0.7
A1.10
A1.11
X11/Y11
X1/Y1
X2/Y2
X3/Y3
X10/Y10
TC3.1
DACO.0
TCC1.3
TCC2.1
PD00
PD01
LIN CONNECT
SPE TERMINAL
SC0
SC3
SC4
SC5
SC2

AN CS MISO 3.3V

RST SCK MOSI GND

BAT1

PWM RX SCL 5V

INT TX SDA GND

14500 Li-ion Battery Only

BS2 BS1

AN CS MISO 3.3V

RST SCK MOSI GND

BAT2

PWM RX SCL 5V

INT TX SDA GND

14500 Li-ion Battery Only

BS11 BS10

BS7 BS8

Charger Enable

BS20

BS12

SNAP

RS CK DT

GND 3.3V OLED RST SCK GND GND VTG

5V OLED CS GND MOSI

BS505 BS506 BS507 BS508

BS3 BS6

TSC IRQ TFT BL uSD CS MISO

TSC CS TSC BUSY TFT RS uSD CD

PIC32 SC3 PKoB4 TWI2

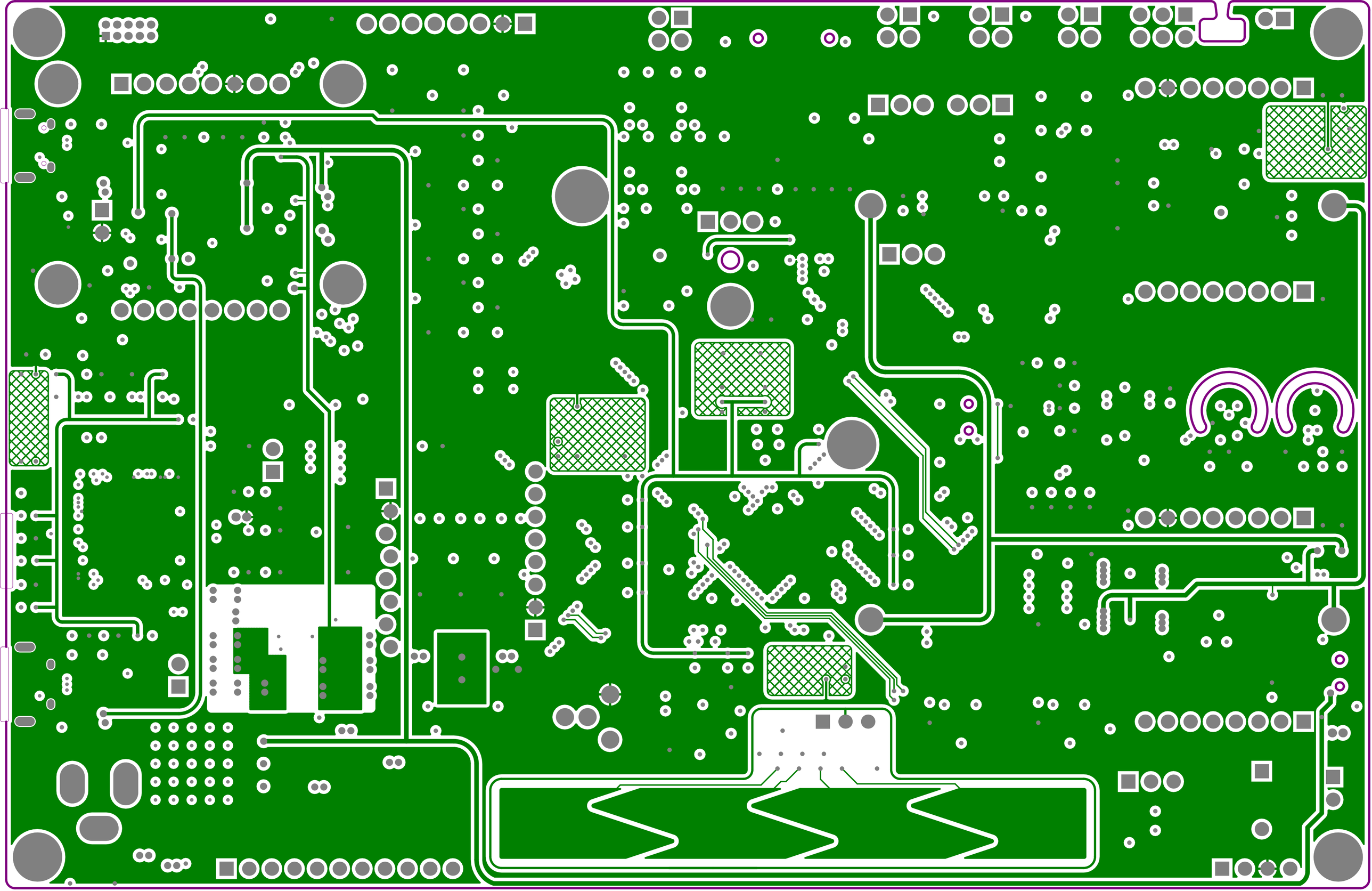
BS509B BS510B BS509A BS510A

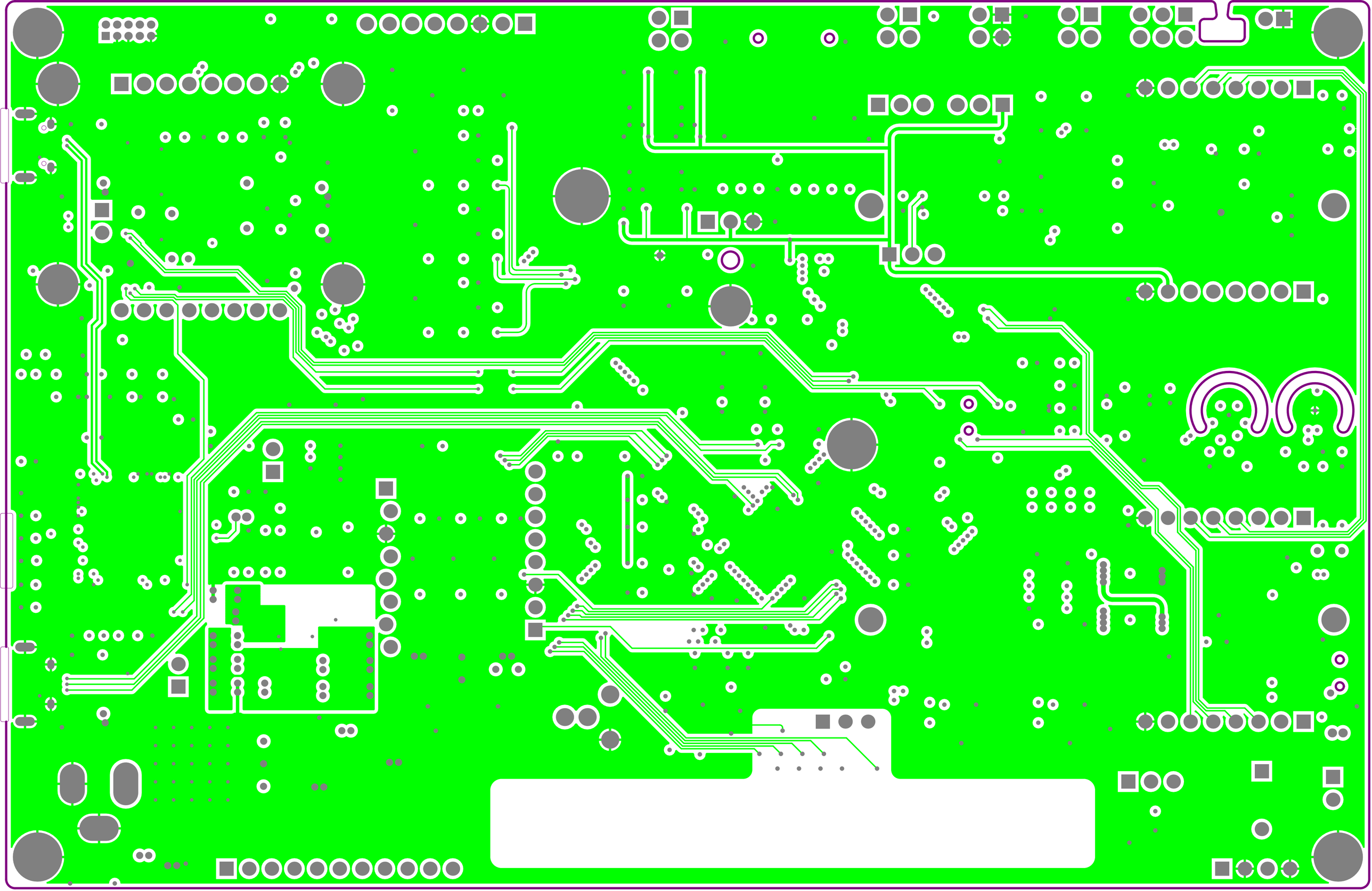
M1

BS503 BS502 BS501

BS15 BS14 BS13

BS9 BS5





Bill of Materials

Production] of Project [APP055 v1.10.PrjPcb]

Source Data From: APP055 v1.10.PrjPcb
Project: APP055 v1.10.PrjPcb
Variant: Production

Creation Date: 2025/2/25 上午 10:45
Print Date: 45713 45713.44819

Designator	Comment	Footprint	Model:Footprint	Description	Quantity
BAT1, BAT2	BH-BATTERY	BH-311-Lithium	AA x 1 Battert Holder	Battery Holder	2
BATLED1	Red	LED-0805	Light-Emitting Diode,	Light-Emitting Diode	1
BT1, BT2, BT501, BT502, SYSBT1	TBD	TACT-SW SMD NARROW		Tact Switch	5
BZ1	BZ-AC-1205D	BZ-AC-1205D	12 x 10mm, 5V 85dBA	12 x 10mm, 5V	1
C1, C2, C4, C5, C6, C7, C8, C9, C10, C11,	0.1uF	CAP-0805	Chip Cap. 0805, * Ref	MLCC Capacitor,	69
C3, C80, C505, C507, C509, C511, C513	10uF/16V	CAP-0805	Chip Cap. 0805, * Ref	MLCC Capacitor,	7
C16, C17, C83, C84	15pF	CAP-0805	Chip Cap. 0805, * Ref	MLCC Capacitor,	4
C19, C501, C528	1nF(102)	CAP-0805	Chip Cap. 0805, * Ref	MLCC Capacitor,	3
C24, C26, C28, C30, C32, C37, C40, C41,	22uF/16V	CAP-1206	Chip Cap. 1206	MLCC Capacitor,	15
C34	100uF/35V-	CAP-WE-WCAP-ASLI-	WE Aluminium	WCAP-ASLI	1
C35, C36, C66, C72, C510, C514, C515,	1uF	CAP-0805	Chip Cap. 0805, * Ref	MLCC Capacitor,	8
C39	10uF/16V	CAP-1206	Chip Cap. 1206	MLCC Capacitor,	1
C42, C43	47uF/16V	CAP-1206	Chip Cap. 1206	MLCC Capacitor,	2
C46, C53, C54	0.01uF	CAP-0805	Chip Cap. 0805, * Ref	MLCC Capacitor,	3
C47	1nF	CAP-0805	Chip Cap. 0805, * Ref	MLCC Capacitor,	1
C48	100pF	CAP-0805	Chip Cap. 0805, * Ref	MLCC Capacitor,	1
C73	220pF	CAP-0805	Chip Cap. 0805, * Ref	Capacitor	1
C77, C79	0.22uF	CAP-0805	Chip Cap. 0805, * Ref	MLCC Capacitor,	2
CON1	ICD4-SWD	DEBUG-SC08-100-SWD-AL	SIP Pin Header, 1x8, 反	ICD4 SWD Interface	1
CON2	MINI-SQUID-SAM-	DEBUG-MINI-SQUID-SWD	Shrouded Header,	Mini Squid, SAM-	1
CON3	DC 7~9V (2A)	POWERJACK 2.1		Power Jack	1
CON4	USB-MICRO-AB	USB-MicroAB-AR-F		USB Micro AB	1
CON5	PH02/XH02	B2B-PH-K-S	JST PH 2.0mm Crimp	PH02/XH02	1
CON6	Ext.Speaker	SC-02	Pin Header, 1x2,	2 Pins	1
CON9, CON10, CON12, CON13	DC-04	DC-04	Pin Header, 2x2,	2x2 Pins	4
CON11, J2, J6	SC-03	SC-03	Pin Header, 1x3,	3 Pins	3
CON500	USB-MICRO-B	USB-MicroB-AR-F		USB Micro B	1
D1, D2, D3, D4, D5	PMEG3050EP,11	SOD-128	SOD-128	Schottky Diode, 5A,	5
F1, F500	1.0A	RES-1206	Chip Resistor (0.25W) *	PTC, 1.0A, 1206	2
FB1, FB2, FB3, FB501, FB502, FB503,	600 Ohm	RES-0805	Chip Resistor (0.125W) *	TDK	7
J1	PWR_MCU	SC-02-AL	Pin Header, 1x2, 90°,	2 Pins	1
J3, J4, J5	SC-03(Def.1-2)	SC-03	Pin Header, 1x3,	3 Pins	3
JP1	JUMPER(Short J1)	JUMPER-JUMPER-1	Jumper	Jumper	1
JP2, JP3, JP4, JP6	JUMPER(short	JUMPER-JUMPER-1	Jumper	Jumper	4
JP5	JUMPER(short	JUMPER-JUMPER-1	Jumper	Jumper	1
L1	10uH,	WE-LQS-3015	WE-PMI Power Inductor,	WE-LQS SMT Power	1
L2	2.2uH,	WE-MAPI-4020	WE-MAPI-4020, Power	WE-MAPI SMT	1
L3	ACT1210-101-2P-	ACT1210-101-2P-TL00		TDK Common Mode	1
LED1, LED2, LED3, LED500, PWLED1,	Green	LED-0805	Light-Emitting Diode,	Light-Emitting Diode	6
LED4	WS2812B	WS2812B		Intelligent Control	1
LED5, LED6, LED7, LED8	A3A-FKG-1400-1	A3A-FKG-1400-1	DOMINANT ISELED	DOMINANT ISELED	4
LED501	Yellow	LED-0805	Light-Emitting Diode,	Light-Emitting Diode	1
M1	SNAP(BS)	DEBUG-SNAP	SNAP Socket, PartA :	Microchip SNAP	1
P1, P2, P3, P4, P5	TEST POINT	KE-5019	Keystone Electronics		5
PWLED2	Blue	LED-0805	Light-Emitting Diode,	Light-Emitting Diode	1
Q1, Q2, Q3, Q4	SI2323CDS-T1-	SOT-23-3 (TT)	3-Lead Plastic Small	P-Channel MOSFET,	4
Q5, Q8, Q9, Q10, Q11, Q13, Q500, Q501	FDN337N	SOT-23-3 (TT)	3-Lead Plastic Small	N-Channel MOSFET,	8
Q6, Q7	BSZ0901NSATMA	PG-TSDSON-8-U03	OptiMOSTMPower-	30V N-Channel	2
Q12	TEMT6000X01	SENSOR-TEMT6000X1		Ambient Light	1
R1, R2, R44, R46, R50, R513, R514, R519,	330	RES-0805	Chip Resistor (0.125W) *	Resistor, 330 Ohm,	12
R3, R4, R5, R6, R11, R13, R15, R67, R119,	4.7K	RES-0805	Chip Resistor (0.125W) *	Resistor, 4.7k Ohm,	22
R9, R10, R40, R41, R113, R125, R127,	0	RES-0805	Chip Resistor (0.125W) *	Resistor, 0 Ohm,	8
R12, R39, R42, R47, R65, R91, R93, R535	1K	RES-0805	Chip Resistor (0.125W) *	Resistor, 1k Ohm,	8
R14, R16, R18, R87, R89, R94, R100,	100	RES-0805	Chip Resistor (0.125W) *	Resistor, 100 Ohm,	15
R19, R20, R21, R22, R23, R24, R28, R30,	10K	RES-0805	Chip Resistor (0.125W) *	Resistor, 10k Ohm,	55
R25, R512	46.9K,1%	RES-0805	Chip Resistor (0.125W) *	Resistor	2
R26, R511	31.6K,1%	RES-0805	Chip Resistor (0.125W) *	Resistor	2
R27, R29, R31, R34, R36, R37, R55, R58,	100K	RES-0805	Chip Resistor (0.125W) *	Resistor, 100K Ohm,	17
R35, R53, R56, R59	470	RES-0805	Chip Resistor (0.125W) *	Resistor, 470 Ohm,	4
R43, R534	2K	RES-0805	Chip Resistor (0.125W) *	Resistor, 2K Ohm,	2
R45	2.2K	RES-0805	Chip Resistor (0.125W) *	Resistor, 2.2K Ohm,	1
R48, R49	0	RES-1206	Chip Resistor (0.25W) *	Resistor, 0 Ohm,	2
R90	120	RES-0805	Chip Resistor (0.125W) *	Resistor, 120 Ohm,	1
R103	12.4K, 1%	RES-0805	Chip Resistor (0.125W) *	Resistor	1
R105, R107	49.9, 1%	RES-0603	Chip Resistor (0.1W) *	Resistor	2
R111	2M	RES-0805	Chip Resistor (0.125W) *	Resistor, 2M Ohm,	1
R112, R518	1M	RES-0805	Chip Resistor (0.125W) *	Resistor, 1M Ohm,	2
R502	5.62K,1%	RES-0805	Chip Resistor (0.125W) *	Resistor	1
R521, R526, R531	47K	RES-0805	Chip Resistor (0.125W) *	Resistor, 47K Ohm,	3
R522, R527, R532	10	RES-0805	Chip Resistor (0.125W) *	Resistor, 10 Ohm,	3
RS1, RS2	50m,	RES-1206	Chip Resistor (0.25W) *	Resistor. WE	2
S1	SPDT-	SW-WE450404015514	WE WS-SLSU Mini Slide	WE WS-SLSU Mini	1
S2	WE452403012014	SW-COMBO-01	WE452403012014 +	WE WS-SLSV SMT	1
S3, S4	2P-	SW-2P-418121270802	SW-2P-418121270802	WW SMD Switch,	2
SD1	MicroSD	SOCKET-112J-TXAR-R	MicroSD Socket (Attend	MicroSD Card	1
SJ1	DC-06	DC-06	Pin Header, 2x3,	2x3 Pins	1
SOCKET1, SOCKET2	MikroBUS	SOCKET-mikroBUS-AR-F	MikroBUS Socket (Main	MikroBUS Socket	2
SOCKET4	OELD-APP050-	SOCKET-OELD-APP050-	WEA012864DWPP3N00	WEA012864DWPP3	1
U1	PIC32CX1025SG4	TQFP-128 (Z2X)	128-Lead Plastic Thin	Advanced Security	1
U2	MIC29300-5.0WU	TO263-3 (DDPAK)		3.0A, 5.0V Fast-	1
U3	SN74LVC1G126D	SOT-23-5 (OT)	5-Lead Plastic Small	Single Bus Buffer	1
U4	SN74LVC1G125D	SOT-23-5 (OT)	5-Lead Plastic Small	Single Bus Buffer	1
U5	MCP73831T-	SOT-23-5 (OT)	5-Lead Plastic Small	Signle-Cell Li-Ion / Li-	1
U6	BQ29700DSET	DSE (S-PWSON-N6)		Ti, Li-Ion/Li Polymer	1
U7	MIC2877-5.25YFT-	FTQFN (FT)	8-Lead, 2x2mm Filp Chip	Microchip 6.5A,	1
U8	MCP1826S-	SOT-223-3 (DB)	3-Lead Plastic Small	250 mA Low	1
U9	SST26VF064B-	SOIC-8 (SM)	8-lead Small Outline	Microchip 64Mb SQI	1
U10	MCP9700AT-E/TT	SOT-23-3 (TT)	3-Lead Plastic Small	Low-Power Linear	1
U11	ICM-42670-P	LGA-14	TDK LGA-14 (ICM-426xx-	High Precision 6-	1
U12	24AA025E64T-	SOT-23-6 (OT)	6-Lead Plastic Small	2K-Bits I2C Serial	1
U13	MCP9800A5T-	SOT-23-5 (OT)	5-Lead Plastic Small	2-Wire High-	1
U14	SHT30-DIS-	SHT3x-DIS		Sensirion Humidity	1
U15	ATA6561-GAQW-	SOIC-8 (SN)	8-lead Small Outline	High-speed CAN-FD	1
U16	ATA663254-	SOIC-8 (SN)	8-lead Small Outline	LIN System Basis	1
U17	LAN8651B1-	VQFN-32	SAM Series VQFN 32	10BASE-T1S MAC-	1
U18	TXU0204BQAR	WQFN-14 (BQAR)	14-Lead Plastic Quad	4-Bit Bidirectional	1
U500	ATSAME70N21B-	TQFP-100 (PF, 100A)	100-Lead Plastic Thin	SMART ARM-Based	1
U501, U502, U503	74LVC1T45GW,12	SC-88	SC-88(SOT-363)	Dual supply	3
U504	PAC1720-1-AIA-	DFN-10	10-Lead Plastic Dual	Dual High-Side	1
U505	24LC256-I/SN	SOIC-8 (SN)	8-lead Small Outline	256 Kbit I2C Bus	1
VR1	10K	RES-VR-PT10	PIHER PT10 Series	Variable Resistor	1
X1	32.768K-	CRYSTAL-3.2/1.5	SMD Crystal, 2 Pins (3.2	WE 32.768KHz	1
X2, X500	12.0M-	CRYSTAL-3.2/2.5	SMD Crystal, 4 Pins (3.2	WE-SPXO Simple	2
X3	25.0M-	CRYSTAL-3.2/2.5	SMD Crystal, 4 Pins (3.2	WE 25MHz Crytal,	1
ZD1, ZD500	BZX84C5V1	SOT-23-3 (CB)	3-Lead Plastic Small	ON Semiconductor,	2
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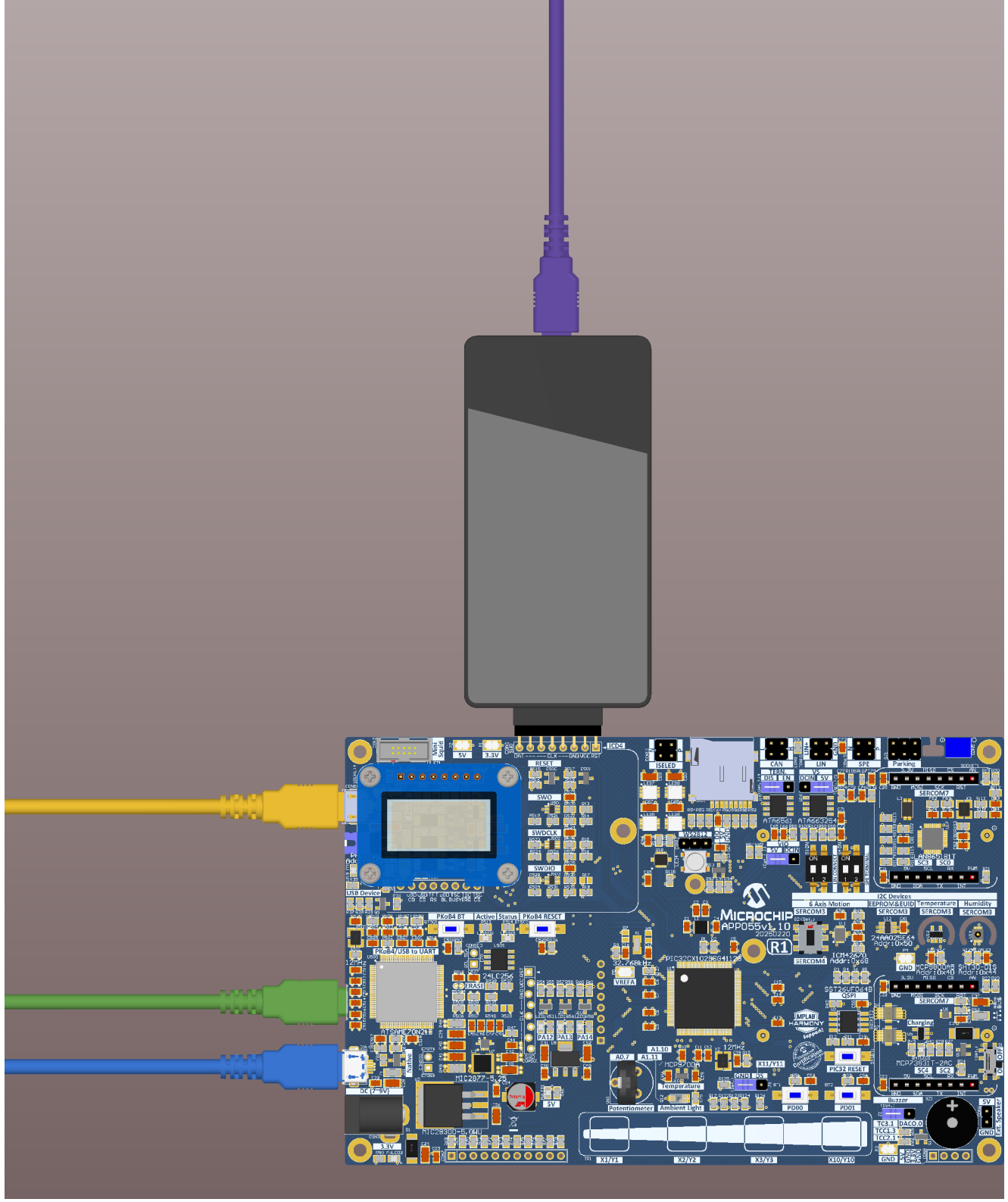
Approved

Notes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Buzzer
Parking
Temperature
Ambient Light
Potentiometer
PIC32 RESET
DC (7-9V)