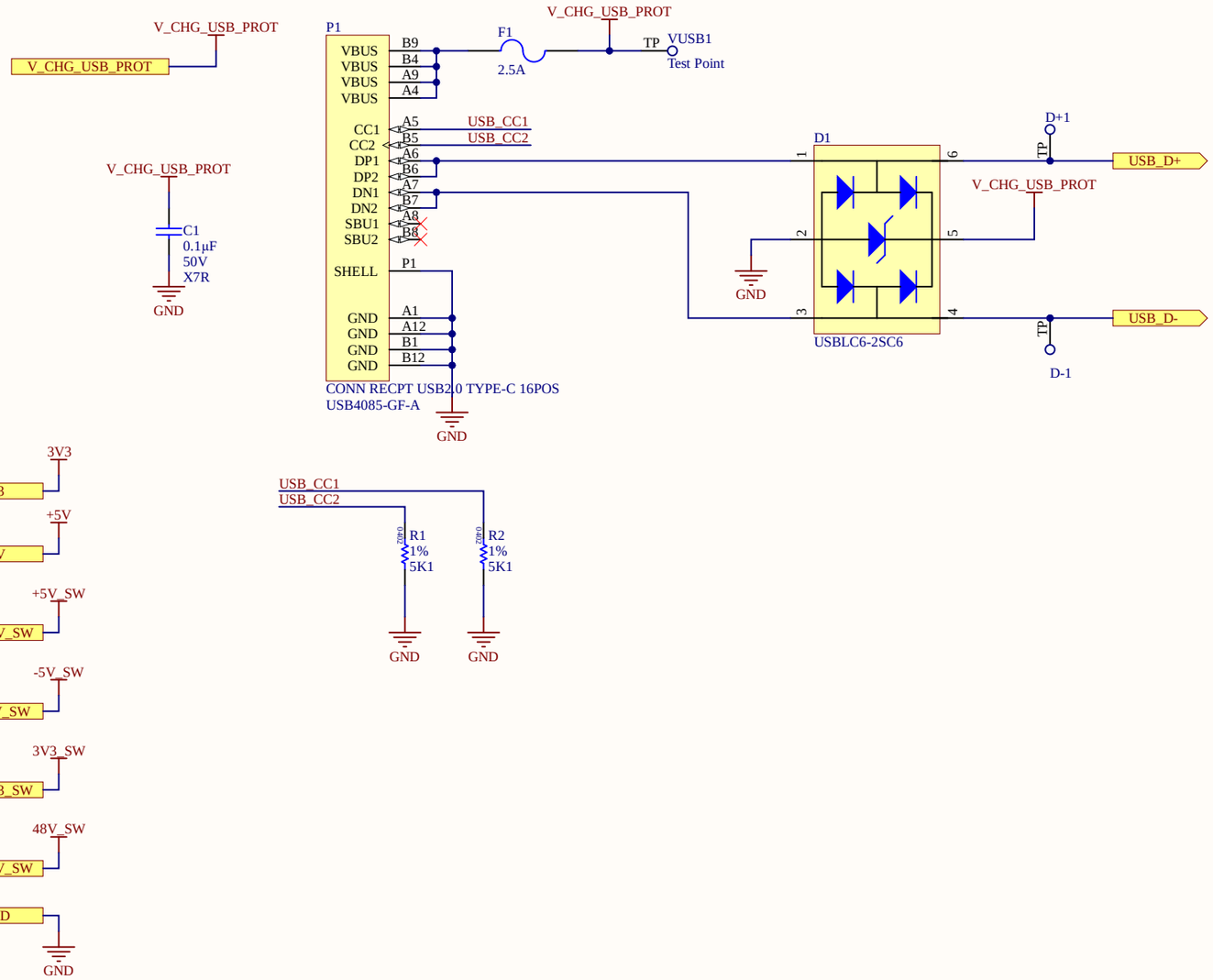
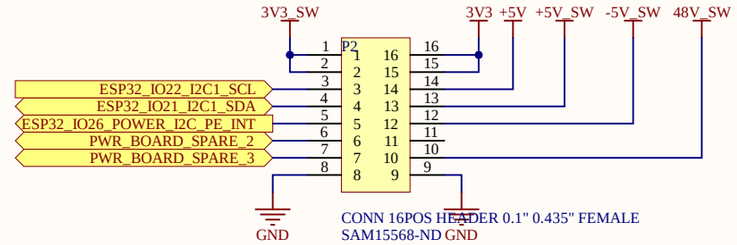
PROJECT	MIXR Power.PrjPcb				
DOCUMENT	Title				
PART NUMBER			VARIANT	[No Variations]	
DRAWN BY	Taiping Li		REVISION	1.0	
LAST MODIFIED	2020-02-03		SHEET	1 OF 5	

Charging USB-C Connector

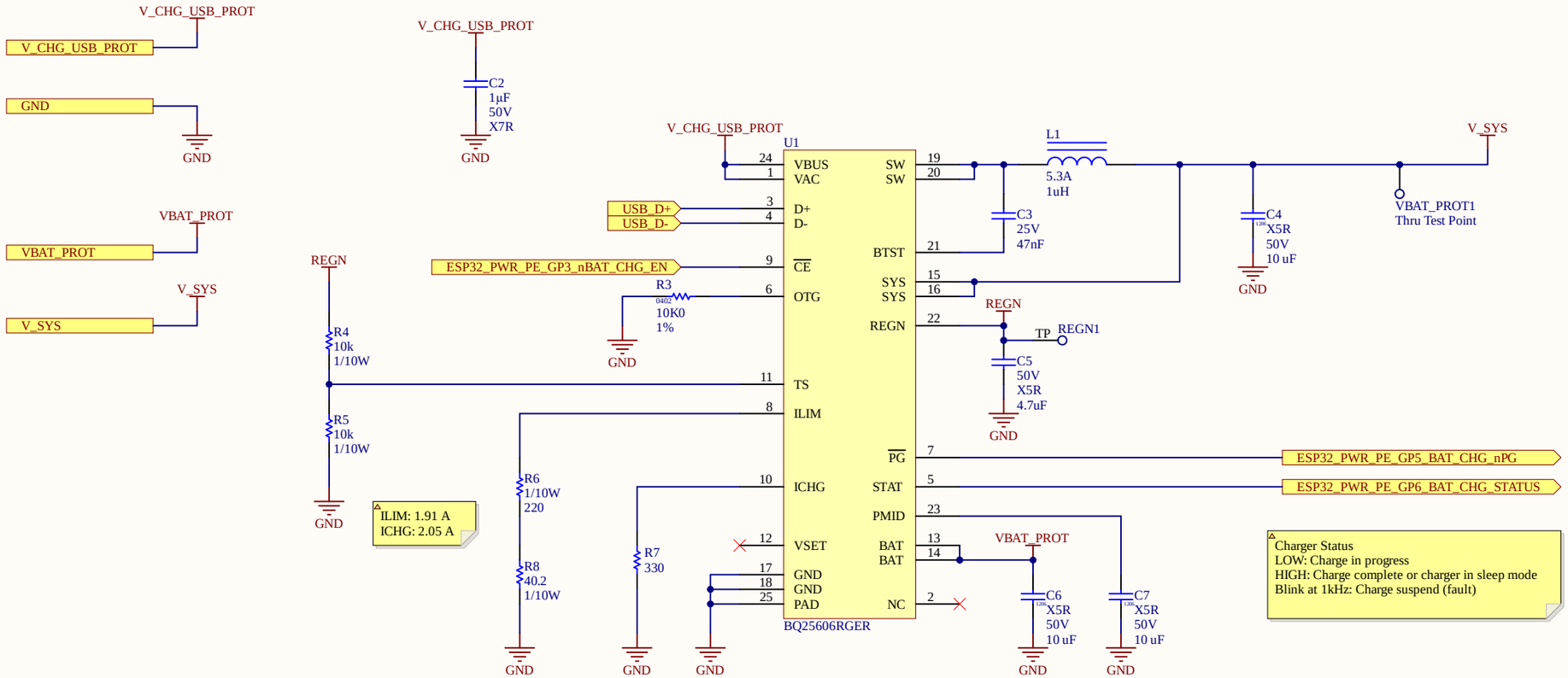


Connection to Processing Board



PROJECT	MIXR Power.PrjPcb		
DOCUMENT	Title		
PART NUMBER		VARIANT	[No Variations]
DRAWN BY	Taiping Li	REVISION	1.0
LAST MODIFIED	2020-02-03	SHEET	2 OF 5

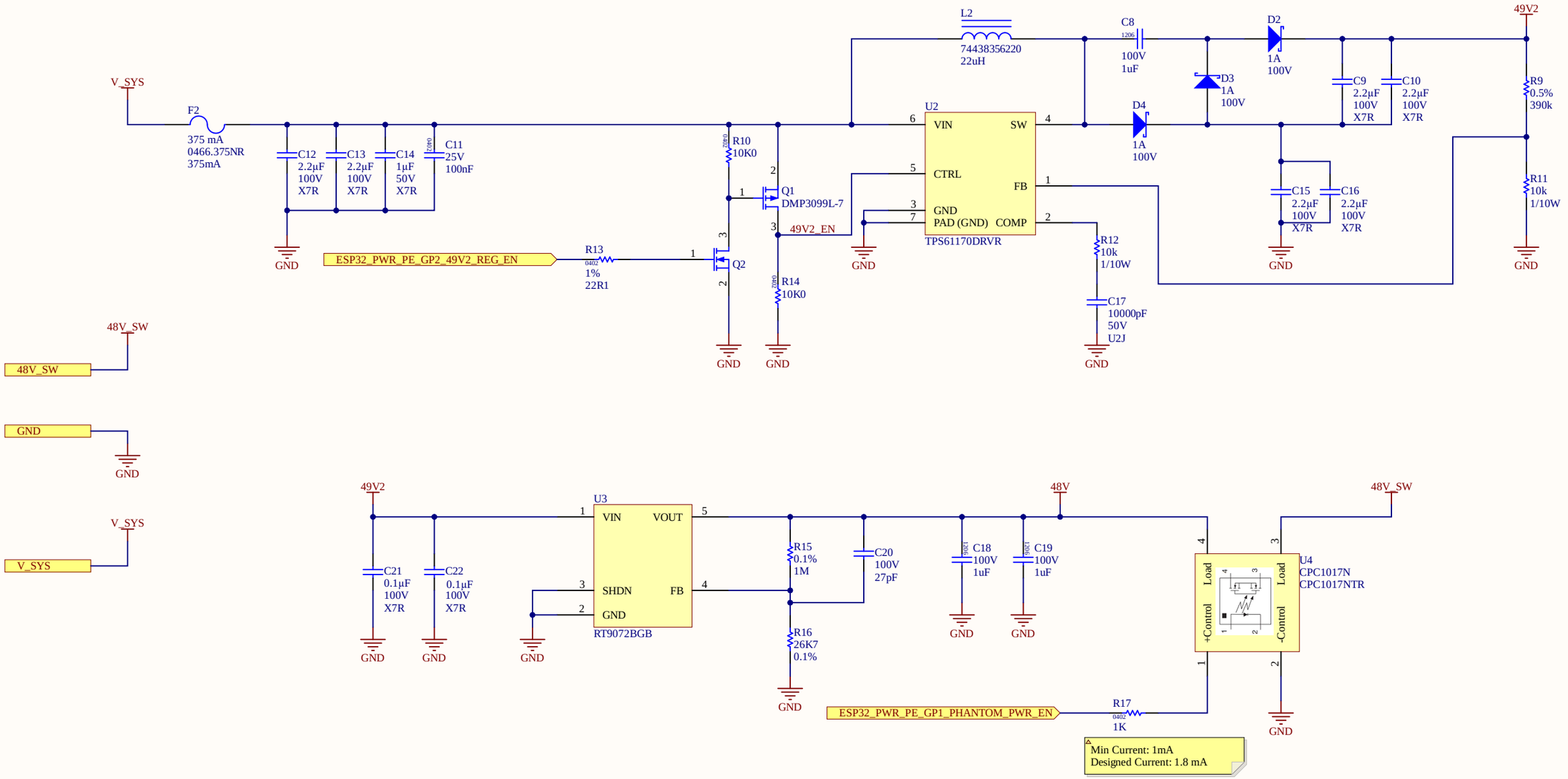
MIXR



PROJECT	MIXR Power.PrjPcb		
DOCUMENT	Title		
PART NUMBER		VARIANT	[No Variations]
DRAWN BY	Taiping Li	REVISION	1.0
LAST MODIFIED	2020-02-03	SHEET	3 OF 5

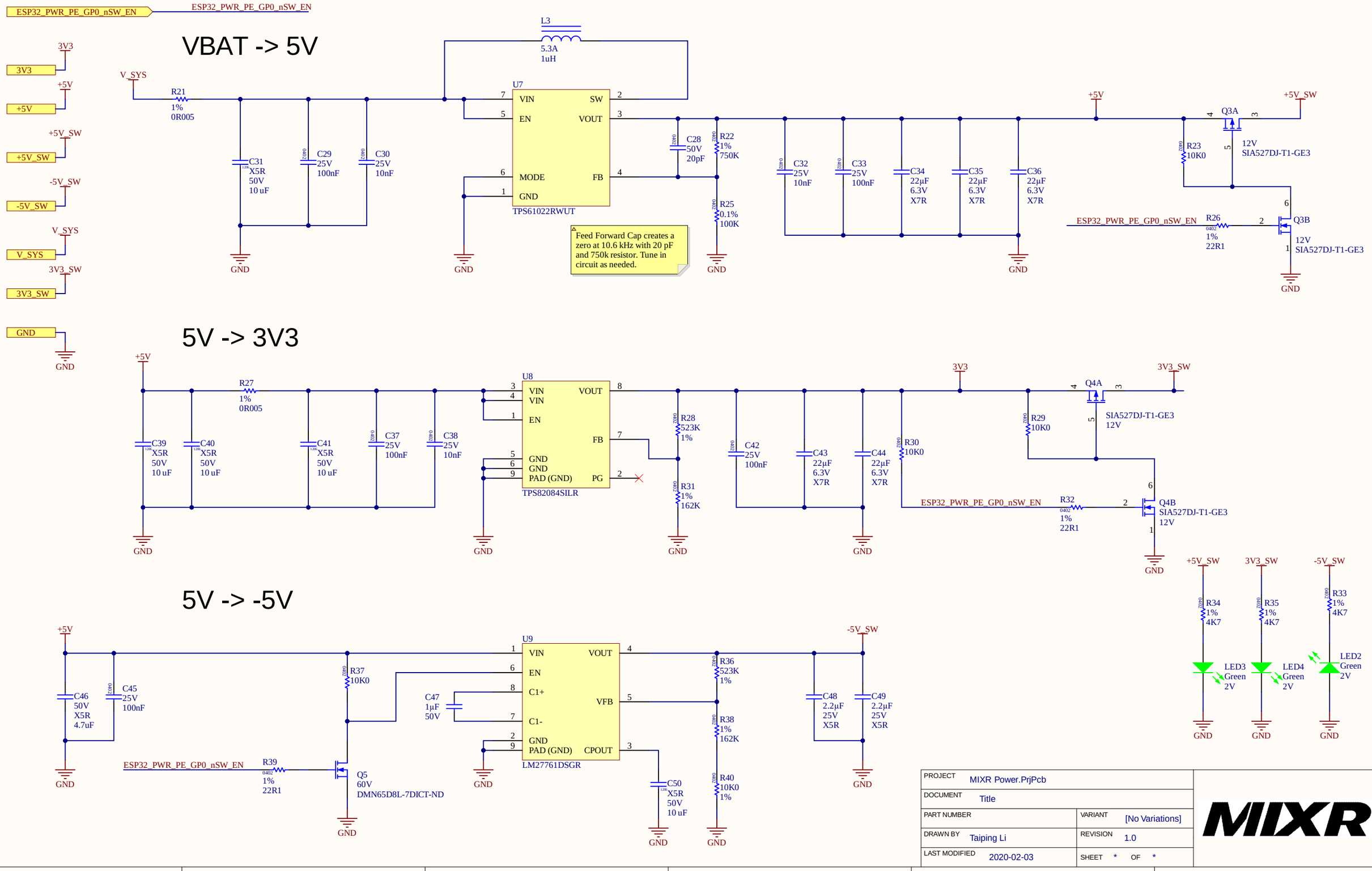
MIXR

48V Phantom Power Regulator



PROJECT	MIXR Power.PrjPcb
DOCUMENT	Title
PART NUMBER	VARIANT [No Variations]
DRAWN BY Taiping Li	REVISION 1.0
LAST MODIFIED 2020-02-03	SHEET * OF *

MIXR


ESP32_PWR_PE_GP0_nSW_EN
ESP32_PWR_PE_GP0_nSW_EN
VBAT -> 5V
3V3
3V3
+5V
+5V
+5V_SW
+5V_SW
-5V_SW
-5V_SW
V_SYS
V_SYS
3V3_SW
3V3_SW
GND
GND
L3
5.3A
1uH
V_SYS
R21
1%
0R005
U7
VIN
SW
EN
VOUT
MODE
FB
GND
TPS61022RWUT
C31
X5R
50V
10 uF
C29
25V
100nF
C30
25V
10nF
C28
50V
20pF
R22
1%
750K
R25
0.1%
100K
Feed Forward Cap creates a zero at 10.6 kHz with 20 pF and 750k resistor. Tune in circuit as needed.
C32
25V
10nF
C33
25V
100nF
C34
22µF
6.3V
X7R
C35
22µF
6.3V
X7R
C36
22µF
6.3V
X7R
+5V
+5V_SW
Q3A
R23
10K0
12V
SIA527DJ-T1-GE3
ESP32_PWR_PE_GP0_nSW_EN
R26
0402
1%
22R1
Q3B
12V
SIA527DJ-T1-GE3
5V -> 3V3
+5V
R27
1%
0R005
U8
VIN
VIN
VOUT
EN
FB
GND
GND
PAD (GND)
PG
TPS82084SILR
C39
X5R
50V
10 uF
C40
X5R
50V
10 uF
C41
X5R
50V
10 uF
C37
25V
100nF
C38
25V
10nF
R28
523K
1%
R31
1%
162K
C42
25V
100nF
C43
22µF
6.3V
X7R
C44
22µF
6.3V
X7R
3V3
3V3_SW
Q4A
SIA527DJ-T1-GE3
12V
R29
10K0
R30
10K0
ESP32_PWR_PE_GP0_nSW_EN
R32
0402
1%
22R1
Q4B
SIA527DJ-T1-GE3
12V
5V -> -5V
+5V
C46
50V
X5R
4.7uF
C45
25V
100nF
R37
10K0
C47
1µF
50V
U9
VIN
VOUT
EN
C1+
VFB
C1-
GND
PAD (GND)
CPOUT
LM27761DSGR
ESP32_PWR_PE_GP0_nSW_EN
R39
0402
1%
22R1
Q5
60V
DMN65D8L-7DICT-ND
C50
X5R
50V
10 uF
R36
523K
1%
R38
1%
162K
R40
10K0
1%
C48
2.2µF
25V
X5R
C49
2.2µF
25V
X5R
-5V_SW
+5V_SW
3V3_SW
-5V_SW
R34
1%
4K7
R35
1%
4K7
R33
1%
4K7
LED3
Green
2V
LED4
Green
2V
LED2
Green
2V
PROJECT
MIXR Power.PrjPcb
DOCUMENT
Title
PART NUMBER
VARIANT
[No Variations]
DRAWN BY
Taiping Li
REVISION
1.0
LAST MODIFIED
2020-02-03
SHEET
*
OF
*
MIXR

Battery Fuel Gauge

VBAT_PROT

GND

M1
PROTECTED 18650
1043P

F3
5A

D5
5V
600W

R20
1%
0R005

U6
MAX17260SETD+T

R41
330R

U10
AP9101CK6-AYTRG1

C51
25V
100nF

R42
1%
2K7

RT1
10K NTC
490-8601-ND

C27
10V
470nF

Q6
13mR
20V

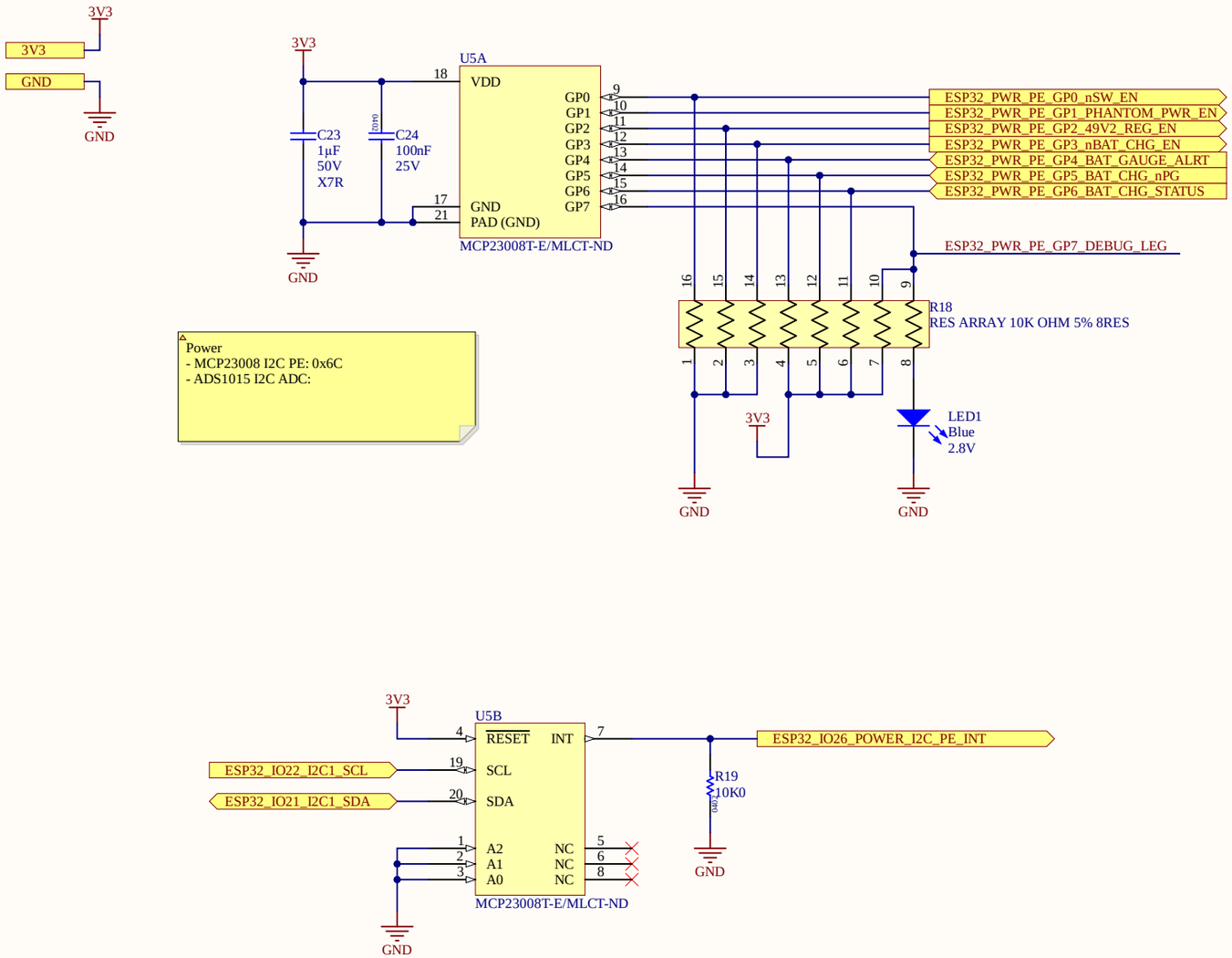
JP1
0.100"
JUMPER

ESP32_PWR_PE_GP4_BAT_GAUGE_ALRT
ESP32_IO22_I2C1_SCL
ESP32_IO21_I2C1_SDA

PROJECT	MIXR Power.PrjPcb
DOCUMENT	Title
PART NUMBER	
VARIANT	[No Variations]
DRAWN BY	Taiping Li
REVISION	1.0
LAST MODIFIED	2020-02-03
SHEET	* OF *

MIXR

I2C Port Expander



PROJECT	MIXR Power.PrjPcb		
DOCUMENT	Title		
PART NUMBER		VARIANT	[No Variations]
DRAWN BY	Taiping Li	REVISION	1.0
LAST MODIFIED	2020-02-03	SHEET *	OF *

MIXR

U_MIXR Power - Connectors
MIXR Power - Connectors.SchDoc

V_CHG_USB_PROT
USB_D+
USB_D-
ESP32_IO22_I2C1_SCL
ESP32_IO21_I2C1_SDA
ESP32_IO26_POWER_I2C_PE_INT
+5V
+5V_SW
3V3
3V3_SW
-5V_SW
48V_SW
PWR_BOARD_SPARE_2
PWR_BOARD_SPARE_3
GND

U_MIXR Power - Battery Charging
MIXR Power - Battery Charging.SchDoc

V_CHG_USB_PROT
V_SYS
USB_D+
USB_D-
ESP32_PWR_PE_GP6_BAT_CHG_STATUS
ESP32_PWR_PE_GP5_BAT_CHG_nPG
ESP32_PWR_PE_GP3_nBAT_CHG_EN
VBAT_PROT
GND

U_MIXR Power - Battery Management
MIXR Power - Battery Management.SchDoc

VBAT_PROT
ESP32_PWR_PE_GP4_BAT_GAUGE_ALRT
ESP32_IO21_I2C1_SDA
ESP32_IO22_I2C1_SCL
GND

U_MIXR Power - Port Expander
MIXR Power - Port Expander.SchDoc

3V3
ESP32_PWR_PE_GP6_BAT_CHG_STATUS
ESP32_PWR_PE_GP5_BAT_CHG_nPG
ESP32_PWR_PE_GP3_nBAT_CHG_EN
ESP32_PWR_PE_GP1_PHANTOM_PWR_EN
ESP32_PWR_PE_GP2_49V2_REG_EN
ESP32_PWR_PE_GP4_BAT_GAUGE_ALRT
ESP32_PWR_PE_GP0_nSW_EN
ESP32_IO22_I2C1_SCL
ESP32_IO21_I2C1_SDA
ESP32_IO26_POWER_I2C_PE_INT
GND

U_MIXR Power - 48V Phantom Power Supply
MIXR Power - 48V Phantom Power Supply.SchDoc

V_SYS
48V_SW
ESP32_PWR_PE_GP1_PHANTOM_PWR_EN
ESP32_PWR_PE_GP2_49V2_REG_EN
GND

U_MIXR Power - 5V & 3V3 Regulators
MIXR Power - 5V & 3V3 Regulators.SchDoc

V_SYS
ESP32_PWR_PE_GP0_nSW_EN
+5V
+5V_SW
3V3
3V3_SW
-5V_SW
GND

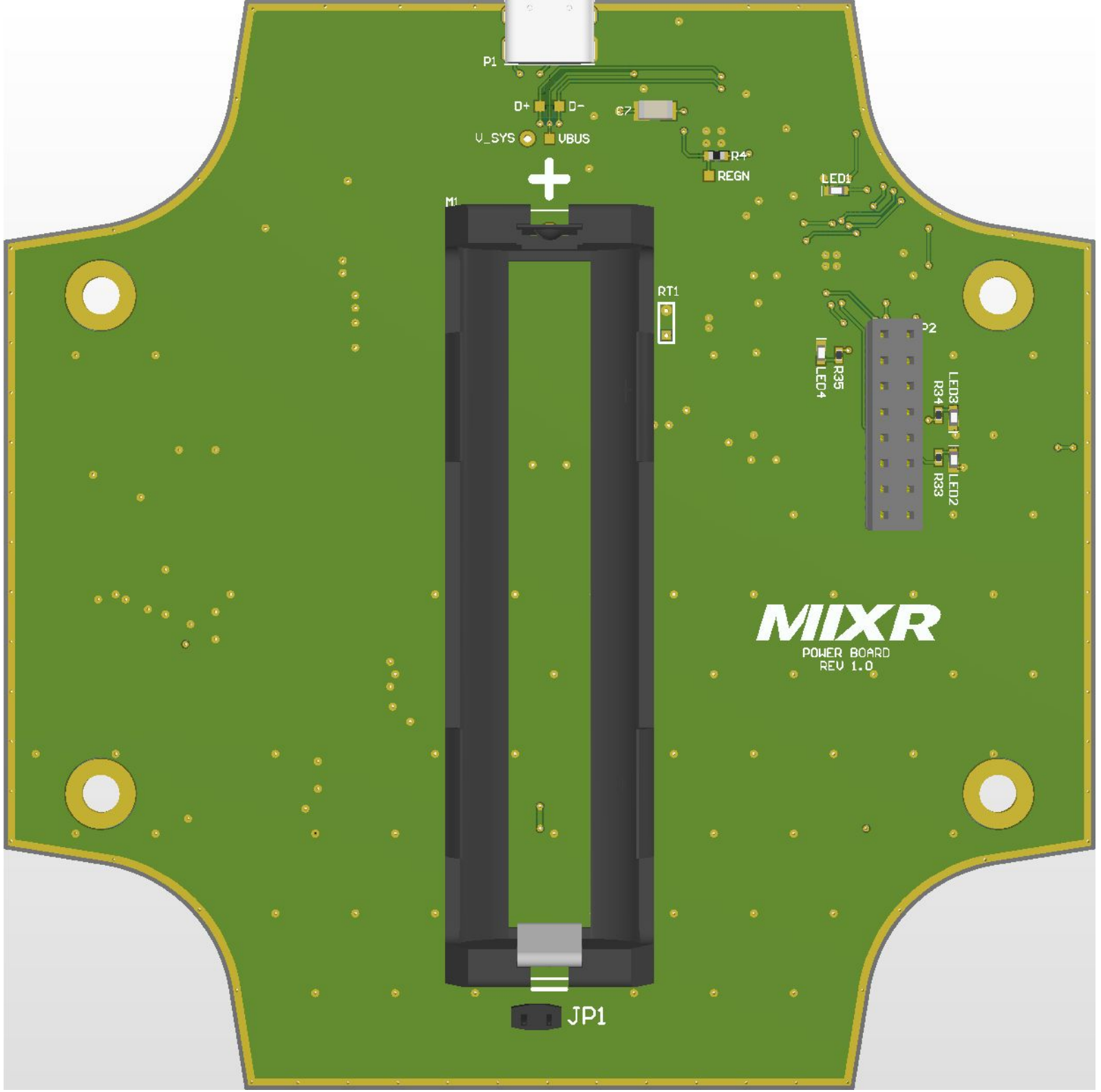
PROJECT	MIXR Power.PrjPcb
DOCUMENT	Title
PART NUMBER	VARIANT [No Variations]
DRAWN BY Taiping Li	REVISION 1.0
LAST MODIFIED 2020-02-03	SHEET * OF *

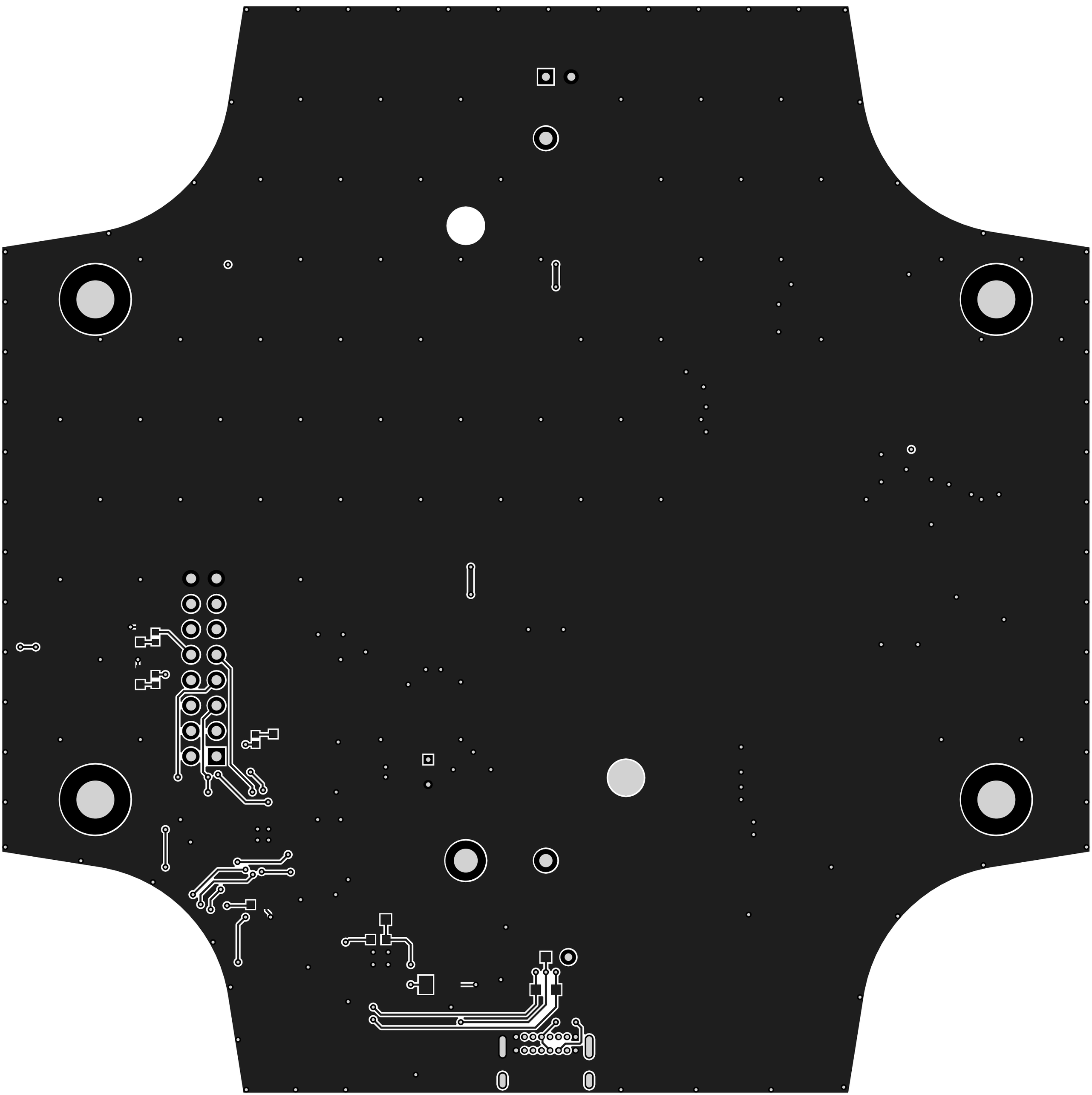
MIXR

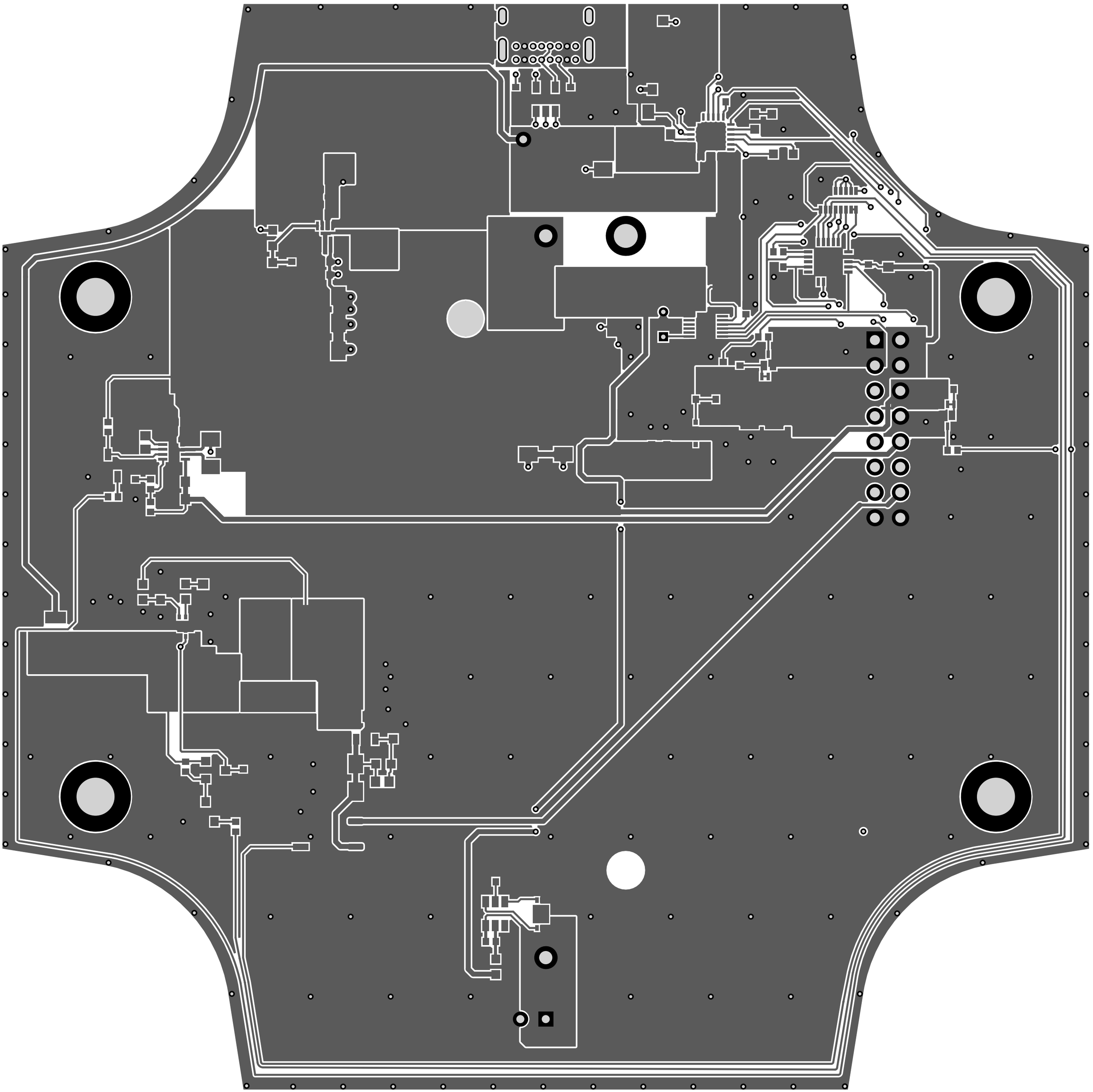
Bill of Materials

Project:	MIXR Power.PrjPcb
Revision:	1.0
Project Lead:	Taiping Li
Generated On:	2020-02-03 8:36 PM
Production Quantity:	1
Currency	CAD
Total Parts Count:	127

LibRef	Designator	Manufacturer 1	Manufacturer Part Number 1	Supplier 1	Supplier Part Number 1	Supplier Unit Price 1	Quantity	Supplier Subtotal 1
CAP CER 0.1UF 50V 10% X7R 0603	C1	Kyocera AVX	06035C104KAT2A	Digi-Key	478-5052-1-ND	0.13234	1	$ 0.13
CAP CER 1UF 50V 10% X7R 0603	C2, C14, C23, C47	Taiyo Yuden	UMK107AB7105KA-T	Digi-Key	587-3247-1-ND	0.33086	4	$ 1.32
CAP CER 0.047UF 10% 25V X7R 0603	C3	KEMET	C0603C473K3RACTU	Digi-Key	399-7931-1-ND	0.14558	1	$ 0.15
CAP CER 10uF 50V 20% X5R 1206	C4, C6, C7, C31, C39, C40, C41, C50	Murata	GRT31CR61H106ME01L	Digi-Key	490-12457-1-ND	0.66172	8	$ 5.29
CAP CER 4.7UF 50V 10% X5R 0805	C5, C46	Murata	GRT21BR61H475ME13L	Digi-Key	490-12395-1-ND	0.58231	2	$ 1.16
CAP CER 1UF 100V X7R 1206	C8, C18, C19	Samsung	CL31B105KCHNNNE	Digi-Key	1276-1838-1-ND	0.4235	3	$ 1.27
CAP CER 2.2UF 100V ±20% X7R 1206	C9, C10, C12, C13, C15, C16	Murata	GRM31CR72A225MA73L	Digi-Key	490-12773-1-ND		6	
CAP CER 0.1UF 16V X7R 0402	C11, C24, C29, C33, C37, C42, C45, C51	Murata	GRM155R71E104KE14D	Digi-Key	490-10698-1-ND	0.13234	8	$ 1.06
CAP CER 10nF 50V 5% X7R 0603	C17	KEMET	C0603C103J5JACTU	Digi-Key	399-13384-1-ND	0.43673	1	$ 0.44
CAP CER 27PF 100V 5% C0G/NP0 0603	C20	Yageo	CC0603JRNPO0BN270	Digi-Key	311-1757-1-ND	0.13234	1	$ 0.13
CAP CER 0.1UF 100V 10% X7R 0805	C21, C22	Murata	GCM21BR72A104KA37L	Digi-Key	490-4789-1-ND	0.4235	2	$ 0.85
CAP CER 0.47UF 10V X7R 0402	C27	Taiyo Yuden	LMK105B7474KV-F	Digi-Key	587-5912-1-ND	0.33086	1	$ 0.33
CAP CER 20PF 50V C0G/NPO 0402	C28	Samsung	CL05C200JB5NNNC	Digi-Key	1276-1661-1-ND	0.13234	1	$ 0.13
CAP CER 10nF 25V X7R 0402	C30, C32, C38	Murata	GCM155R71E103KA37D	Digi-Key	490-6043-1-ND	0.13234	3	$ 0.40
CAP CER 22UF 6.3V ±10% X7R 1206	C34, C35, C36, C43, C44	Murata	GRM31CR70J226KE19L	Digi-Key	490-6515-1-ND	1.56	5	$ 7.81
CAP CER 2.2UF 25V 10% X5R 0603	C48, C49	Murata	GRM188R61E225KA12D	Digi-Key	490-10731-1-ND	0.25145	2	$ 0.50
DIODE TVS 5.25V 17V SOT23-6	D1	STMicroelectronics	USBLC6-2SC6	Digi-Key	497-5235-1-ND	0.62201	1	$ 0.62
DIODE SCHOTTKY 100V 1A SOD123FL	D2, D3, D4	MCC	SL110PL-TP	Digi-Key	SL110PL-TPMSCT-ND	0.55584	3	$ 1.67
DIODE TVS 5VWM 9.1VC DO-214AA (SMB)	D5	Vishay Semiconductors	SMBJ5.0D-M3/H	Digi-Key	SMBJ5.0D-M3/HGICT-ND	0.4632	1	$ 0.46
FUSE 2.5A 32VDC 1206	F1	Littelfuse	046602.5NRHF	Digi-Key	F6143CT-ND	1.11	1	$ 1.11
FUSE 375MA 125VDC 1206	F2	Littelfuse	0466.375NR	Digi-Key	F1453CT-ND	1.11	1	$ 1.11
FUSE 5A 32VDC 1206	F3	Bel TRP	C1F5	Digi-Key	507-1886-1-ND	0.38379	1	$ 0.38
CONN 2POS JUMPER 0.1"	JP1	Omron	XG8T-0231	Digi-Key	XG8T-0231-ND	0.27792	1	$ 0.28
IND 1UH 5.3A 20 MOHM SMD	L1, L3	Wurth Electronics	74437334010	Digi-Key	732-6149-1-ND	3.16	2	$ 6.33
IND 22UH 1.7A 280 MOHM SMD	L2	Wurth Electronics	74438356220	Digi-Key	732-11664-1-ND	2.63	1	$ 2.63
LED BLUE CLEAR 2.8V 0603	LED1	Vishay Lite-On	LTST-C193TBKT-5A	Digi-Key	160-1827-1-ND	0.59554	1	$ 0.60
LED GREEN CLEAR 2V 0603	LED2, LED3, LED4	Wurth Electronics	150060VS75000	Digi-Key	732-4980-1-ND	0.18528	3	$ 0.56
BATTERY HOLDER 18650	M1	Keystone Electronics	1043P	Digi-Key	36-1043P-ND	3.41	1	$ 3.41
CONN RECPT USB2.0 TYPE-C 16POS	P1	Global Connector Technology	USB4085-GF-A	Digi-Key	073-USB4085-GF-ACT-ND		1	
CONN 16POS HEADER 0.1" 0.435" FEMALE	P2	Samtec	ESQ-108-12-T-D	Digi-Key	SAM15568-ND	2.44	1	$ 2.44
MOSFET P-CH 30V 3.8A SOT-23	Q1	Diodes	DMP3099L-7	Digi-Key	DMP3099L-7DICT-ND	0.44997	1	$ 0.45
MOSFET N-CH 30V 6.2A 0.9W SOT-23	Q2	Diodes	DMN3023L-7	Digi-Key	DMN3023L-7DICT-ND	0.48967	1	$ 0.49
MOSFET N/P-CH 12V 4.5A SC-70-6	Q3, Q4	Vishay Semiconductors	SIA527DJ-T1-GE3	Digi-Key	SIA527DJ-T1-GE3CT-ND	0.71465	2	$ 1.43
MOSFET N-CH 60V 310MA SOT23	Q5	Diodes	DMN65D8L-7	Digi-Key	DMN65D8L-7DICT-ND	0.22498	1	$ 0.22
MOSFET 2N-CH 20V 9A 6-UDFN	Q6	Diodes	DMN2014LHAB-7	Digi-Key	DMN2014LHAB-7DICT-ND	0.67495	1	$ 0.67
RES 5.1K OHM 1% 1/16W 0402	R1, R2	Stackpole Electronics	RMCF0402FT5K10	Digi-Key	RMCF0402FT5K10CT-ND	0.13234	2	$ 0.26
RES 10K OHM 1% 1/16W 0402	R3, R10, R14, R19, R23, R29, R30, R37, R40	Yageo	RC0402FR-0710KL	Digi-Key	311-10.0KLRCT-ND	0.13234	9	$ 1.19
RES 10K OHM 1% 1/10W 0603	R4, R5, R11, R12	Yageo Phycomp	RC0603FR-0710KL	Digi-Key	311-10.0KHRCT-ND	0.13234	4	$ 0.53
RES 220 OHM 1% 1/10W 0603	R6	Yageo	RC0603FR-07220RL	Digi-Key	311-220HRCT-ND	0.13234	1	$ 0.13
RES 330 OHM 1% 1/10W 0603	R7, R41	TE Connectivity	CRGCQ0603F330R	Digi-Key	A129682CT-ND	0.13234	2	$ 0.26
RES 40.2 OHM 0.5% 1/10W 0603	R8	Yageo	RT0603DRE0740R2L	Digi-Key	311-2576-1-ND	0.15881	1	$ 0.16
RES 390K OHM 1% 1/10W 0603	R9	Yageo	RT0603DRE07390KL	Digi-Key	311-2555-1-ND	0.17205	1	$ 0.17
RES 22.1 OHM 1% 1/16W 0402	R13, R26, R32, R39	Yageo	RC0402FR-0722R1L	Digi-Key	311-22.1LRCT-ND	0.13234	4	$ 0.53
RES 1M OHM 0.1% 1/10W 0603	R15	Yageo	RT0603BRD071ML	Digi-Key	YAG4498CT-ND	0.43673	1	$ 0.44
RES 26.7K OHM 0.1% 1/10W 0603	R16	Panasonic	ERJ-PB3B2672V	Digi-Key	P20132CT-ND	0.33086	1	$ 0.33
RES 1K OHM 0.1% 1/16W 0402	R17	Yageo	RT0402BRE071KL	Digi-Key	YAG2306CT-ND	0.51614	1	$ 0.52
RES ARRAY 10K OHM 5% 8RES EXB-2HV103JV	R18	Panasonic	EXB-2HV103JV	Digi-Key	Y1103CT-ND	0.38379	1	$ 0.38
RES 0.005 OHM 1% 1/2W 0805	R20, R21, R27	Bourns	CRF0805-FZ-R005ELF	Digi-Key	RF0805-FZ-R005ELFCT-N	0.71465	3	$ 2.14
RES 750K OHM 1% 1/16W 0402	R22	Yageo	RC0402FR-07750KL	Digi-Key	YAG3228CT-ND	0.13234	1	$ 0.13
RES 100K OHM 0.1% 1/16W 0402	R25	Yageo	RT0402BRD07100KL	Digi-Key	YAG1343CT-ND	0.54261	1	$ 0.54
RES 523K OHM 1% 1/16W 0402	R28, R36	Yageo	RC0402FR-07523KL	Digi-Key	YAG3177CT-ND	0.13234	2	$ 0.26
RES 162K OHM 1% 1/16W 0402	R31, R38	Yageo	RC0402FR-07162KL	Digi-Key	YAG2370CT-ND	0.13234	2	$ 0.26
RES 4.7K OHM 1% 1/10W 0402	R33, R34, R35	Yageo	RC0402FR-074K7L	Digi-Key	311-4.7KLRCT-ND	0.13234	3	$ 0.40
RES 2.7K OHM 1% 1/16W 0402	R42	Panasonic	ERJ-2RKF2701X	Digi-Key	P2.70KLCT-ND	0.13234	1	$ 0.13
NTC THERMISTOR 10K 1% BEAD	RT1	Murata	NXRT15XH103FA1B030	Digi-Key	490-8601-ND	0.9264	1	$ 0.93
IC BATT CHG LI-ION 1 CELL 24-VQFN	U1	Texas Instruments	BQ25606RGER	Digi-Key	296-47743-1-ND	3.81	1	$ 3.81
IC REG BOOST 38V 1.2A 6-WDFN	U2	Texas Instruments	TPS61170DRVR	Digi-Key	296-22945-1-ND	2.83	1	$ 2.83
IC REG LDO 80V ADJ 20MA SOT23-5	U3	Richtek	RT9072BGB	Digi-Key	RT9072BGBCT-ND	1.77	1	$ 1.77
RELAY SOLID STATE CPC1017N SPST 100mA	U4	Ixys Clare	CPC1017NTR	Digi-Key	CLA233CT-ND	1.05	1	$ 1.05
IC I/O EXPANDER I2C 8CH 20 QFN	U5	Microchip	MCP23008T-E/ML	Digi-Key	MCP23008T-E/MLCT-ND	1.46	1	$ 1.46
IC BATT FUEL GAUGE LI-ION 14-DFN	U6	Maxim	MAX17260SETD+T	Mouser	700-MAX17260SETD+T	3.16	1	$ 3.16
IC REG BOOST 8A VQFN	U7	Texas Instruments	TPS61022RWUT	Digi-Key	296-TPS61022RWUTCT-N	2.65	1	$ 2.65
IC DCDC 0.8-6V 2A 8-uSIP	U8	Texas Instruments	TPS82084SILR	Digi-Key	296-46279-1-ND	3.72	1	$ 3.72
IC REG INV CHARGE PUMP ADJ 8-WSON	U9	Texas Instruments	LM27761DSGR	Digi-Key	296-44379-1-ND	2.16	1	$ 2.16
IC BATT PROT LI-ION 1-CELL SOT26	U10	Diodes	AP9101CK6-AYTRG1	Digi-Key	9101CK6-AYTRG1DICT-I	0.59554	1	$ 0.60
Thru Test Point	VBAT_PROT1						1	
							Total:	$ 78.75


P1
D+
D-
V_SYS
VBUS
C7
R4
REGN
LED1
M1
RT1
P2
LED4
R35
R34
LED3
R33
LED2
MIXR
POWER BOARD
REV 1.0
JP1





Design Rules Verification Report

Filename : C:\Users\Taiping\Documents\FYDP\mixr-hardware\MIXR Power\MIXR - Power.PcbDoc

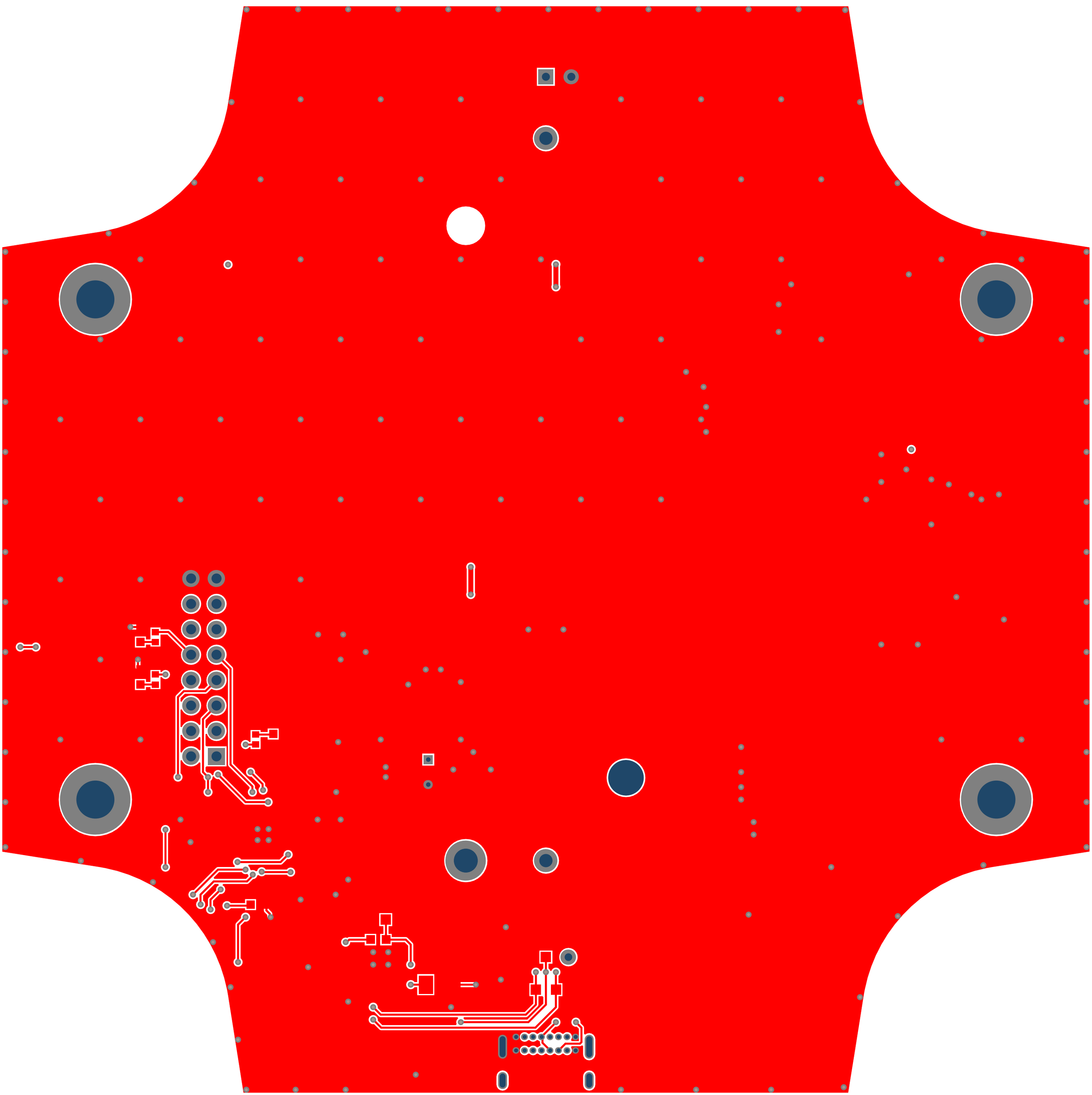
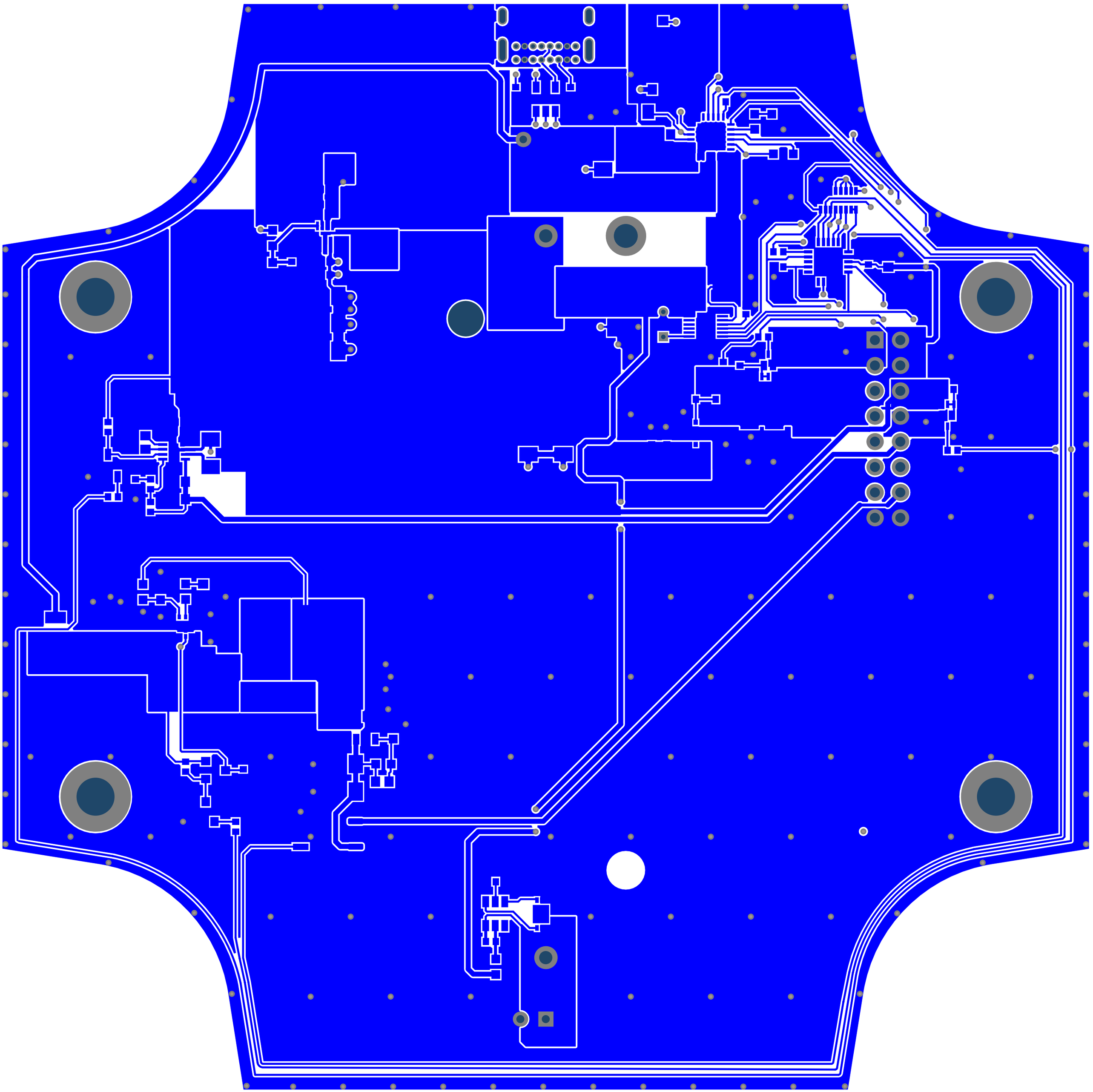
Warnings 0
Rule Violations 28
Waived Violations 6

Warnings	
Total	0

Rule Violations	
Clearance Constraint (Gap=0.152mm) (All),(All)	0
Short-Circuit Constraint (Allowed=No) (All),(All)	0
Un-Routed Net Constraint ((All))	0
Modified Polygon (Allow modified: No), (Allow shelved: No)	0
Width Constraint (Min=0.154mm) (Max=2.54mm) (Preferred=0.2mm) (All)	0
Power Plane Connect Rule(Relief Connect)(Expansion=0.5mm) (Conductor Width=0.2mm) (Air Gap=0.2mm)	0
Power Plane Connect Rule(Relief Connect)(Expansion=0.508mm) (Conductor Width=0.254mm) (Air Gap=0.254mm)	0
Minimum Annular Ring (Minimum=0.12mm) (All)	0
Hole Size Constraint (Min=0.3mm) (Max=6.3mm) (All)	0
Hole To Hole Clearance (Gap=0.254mm) (All),(All)	0
Minimum Solder Mask Sliver (Gap=0.1mm) (Disabled)(All),(All)	0
Silk To Solder Mask (Clearance=0.178mm) (IsPad),(All)	28
Silk to Silk (Clearance=0.254mm) (All),(All)	0
Net Antennae (Tolerance=0mm) (All)	0
Board Clearance Constraint (Gap=0mm) (All)	0
Height Constraint (Min=0mm) (Max=30mm) (Prefered=12.7mm) (All)	0
Total	28

Waived Violations	
Silk to Silk (Clearance=0.254mm) (All),(All)	3
Board Clearance Constraint (Gap=0mm) (All)	3
Total	6

Silk To Solder Mask (Clearance=0.178mm) (IsPad),(All)
Silk To Solder Mask Clearance Constraint: (0.14mm < 0.178mm) Between Pad P1-A1(47.975mm,73.725mm) on Multi-Layer And Track
Silk To Solder Mask Clearance Constraint: (0.14mm < 0.178mm) Between Pad P1-A12(42.025mm,73.725mm) on Multi-Layer And Track
Silk To Solder Mask Clearance Constraint: (0.14mm < 0.178mm) Between Pad P1-A4(47.125mm,73.725mm) on Multi-Layer And Track
Silk To Solder Mask Clearance Constraint: (0.14mm < 0.178mm) Between Pad P1-A5(46.275mm,73.725mm) on Multi-Layer And Track
Silk To Solder Mask Clearance Constraint: (0.14mm < 0.178mm) Between Pad P1-A6(45.425mm,73.725mm) on Multi-Layer And Track
Silk To Solder Mask Clearance Constraint: (0.14mm < 0.178mm) Between Pad P1-A7(44.575mm,73.725mm) on Multi-Layer And Track
Silk To Solder Mask Clearance Constraint: (0.14mm < 0.178mm) Between Pad P1-A8(43.725mm,73.725mm) on Multi-Layer And Track
Silk To Solder Mask Clearance Constraint: (0.14mm < 0.178mm) Between Pad P1-A9(42.875mm,73.725mm) on Multi-Layer And Track
Silk To Solder Mask Clearance Constraint: (0.058mm < 0.178mm) Between Pad Q2-1(11.9mm,-2.5mm) on Bottom Layer And Track
Silk To Solder Mask Clearance Constraint: (0.058mm < 0.178mm) Between Pad Q2-2(10.1mm,-2.5mm) on Bottom Layer And Track
Silk To Solder Mask Clearance Constraint: (0.155mm < 0.178mm) Between Pad Q6-1(44.875mm,-13.135mm) on Bottom Layer And Track
Silk To Solder Mask Clearance Constraint: (0.15mm < 0.178mm) Between Pad Q6-4(44.875mm,-10.365mm) on Bottom Layer And Track
Silk To Solder Mask Clearance Constraint: (Collision < 0.178mm) Between Pad R12-1(9mm,19.75mm) on Bottom Layer And Text "U2"
Silk To Solder Mask Clearance Constraint: (Collision < 0.178mm) Between Pad R17-1(68.75mm,54.5mm) on Bottom Layer And Text "R19"
Silk To Solder Mask Clearance Constraint: (Collision < 0.178mm) Between Pad R17-2(67.75mm,54.5mm) on Bottom Layer And Text "R19"
Silk To Solder Mask Clearance Constraint: (0.175mm < 0.178mm) Between Pad R39-1(1.25mm,30mm) on Bottom Layer And Text "R39"
Silk To Solder Mask Clearance Constraint: (0.175mm < 0.178mm) Between Pad R39-2(2.25mm,30mm) on Bottom Layer And Text "R39"
Silk To Solder Mask Clearance Constraint: (0.173mm < 0.178mm) Between Pad RT1-1(56.75mm,46mm) on Multi-Layer And Track
Silk To Solder Mask Clearance Constraint: (0.173mm < 0.178mm) Between Pad RT1-1(56.75mm,46mm) on Multi-Layer And Track
Silk To Solder Mask Clearance Constraint: (0.173mm < 0.178mm) Between Pad RT1-1(56.75mm,46mm) on Multi-Layer And Track
Silk To Solder Mask Clearance Constraint: (0.176mm < 0.178mm) Between Pad RT1-2(56.75mm,48.5mm) on Multi-Layer And Track
Silk To Solder Mask Clearance Constraint: (0.176mm < 0.178mm) Between Pad RT1-2(56.75mm,48.5mm) on Multi-Layer And Track
Silk To Solder Mask Clearance Constraint: (0.176mm < 0.178mm) Between Pad RT1-2(56.75mm,48.5mm) on Multi-Layer And Track
Silk To Solder Mask Clearance Constraint: (0.125mm < 0.178mm) Between Pad U3-1(26.05mm,8.03mm) on Bottom Layer And Track
Silk To Solder Mask Clearance Constraint: (0.125mm < 0.178mm) Between Pad U3-2(27mm,8.03mm) on Bottom Layer And Track
Silk To Solder Mask Clearance Constraint: (0.125mm < 0.178mm) Between Pad U3-3(27.95mm,8.03mm) on Bottom Layer And Track
Silk To Solder Mask Clearance Constraint: (0.125mm < 0.178mm) Between Pad U3-4(27.95mm,5.73mm) on Bottom Layer And Track
Silk To Solder Mask Clearance Constraint: (0.125mm < 0.178mm) Between Pad U3-5(26.05mm,5.73mm) on Bottom Layer And Track

Silk to Silk (Clearance=0.254mm) (All),(All)
Silk To Silk Clearance Constraint: (0.246mm < 0.254mm) Between Text "LED1" (72.417mm,61.35mm) on Top Overlay And Track
Silk To Silk Clearance Constraint: (0.246mm < 0.254mm) Between Text "M1" (34.667mm,58.975mm) on Top Overlay And Track
Silk To Silk Clearance Constraint: (0.246mm < 0.254mm) Between Text "M1" (34.667mm,58.975mm) on Top Overlay And Track

Board Clearance Constraint (Gap=0mm) (All)
Board Outline Clearance(Outline Edge): (Collision < 0.406mm) Between Board Edge And Track (40.525mm,79.475mm)(40.525mm,79.825mm) on Top
Board Outline Clearance(Outline Edge): (Collision < 0.406mm) Between Board Edge And Track (40.525mm,79.825mm)(49.475mm,79.825mm) on Top
Board Outline Clearance(Outline Edge): (Collision < 0.406mm) Between Board Edge And Track (49.475mm,79.475mm)(49.475mm,79.825mm) on Top