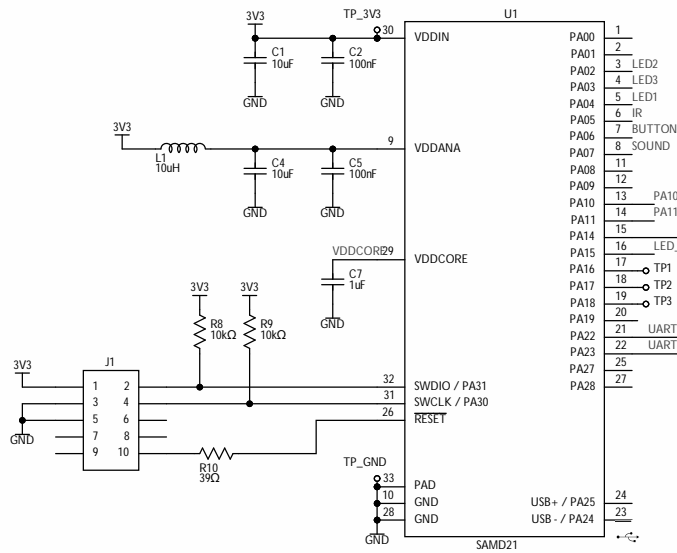
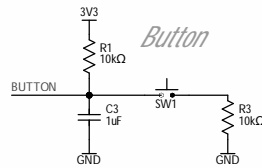
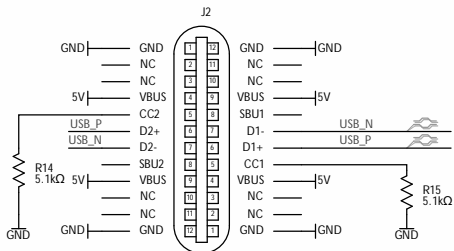


# Spider

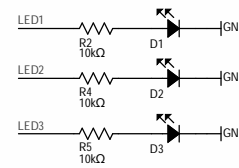
## Microcontroller



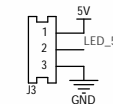
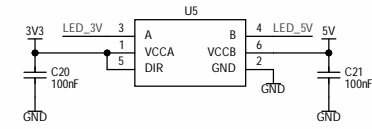
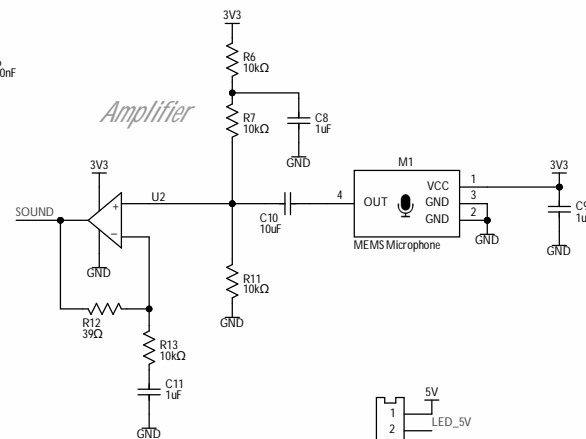
## USB-C



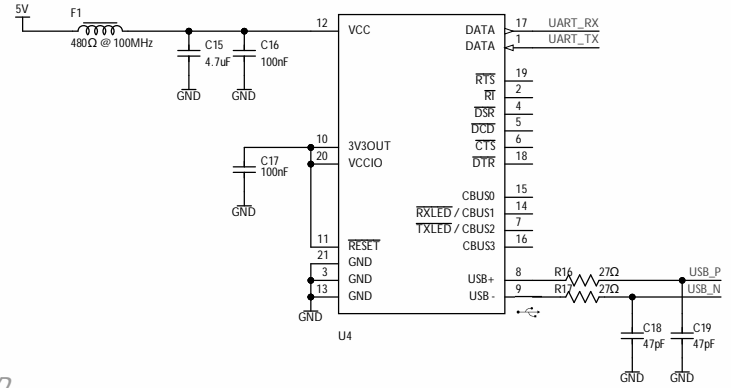
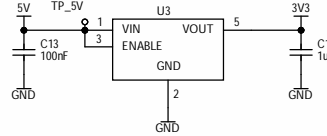
## LED

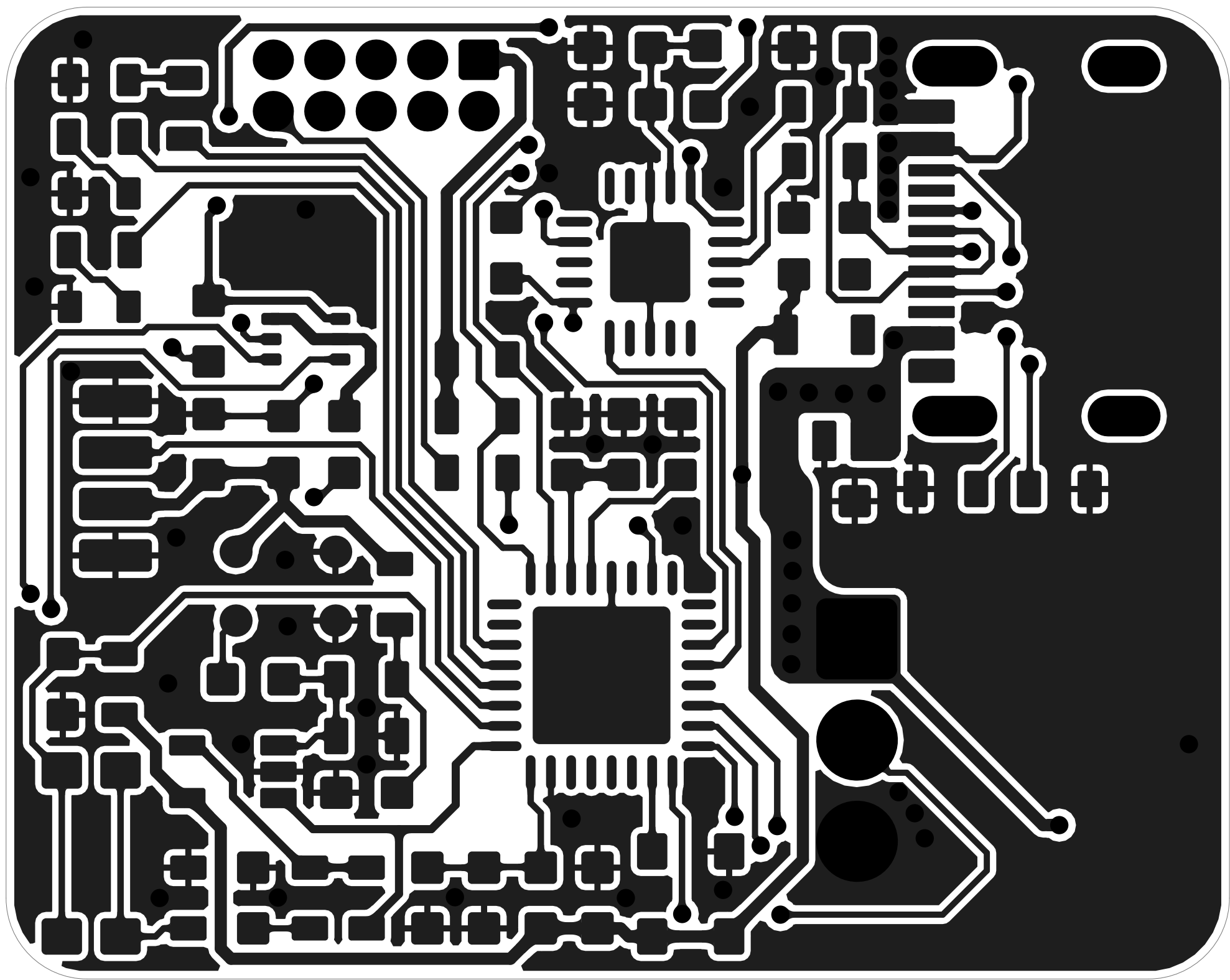


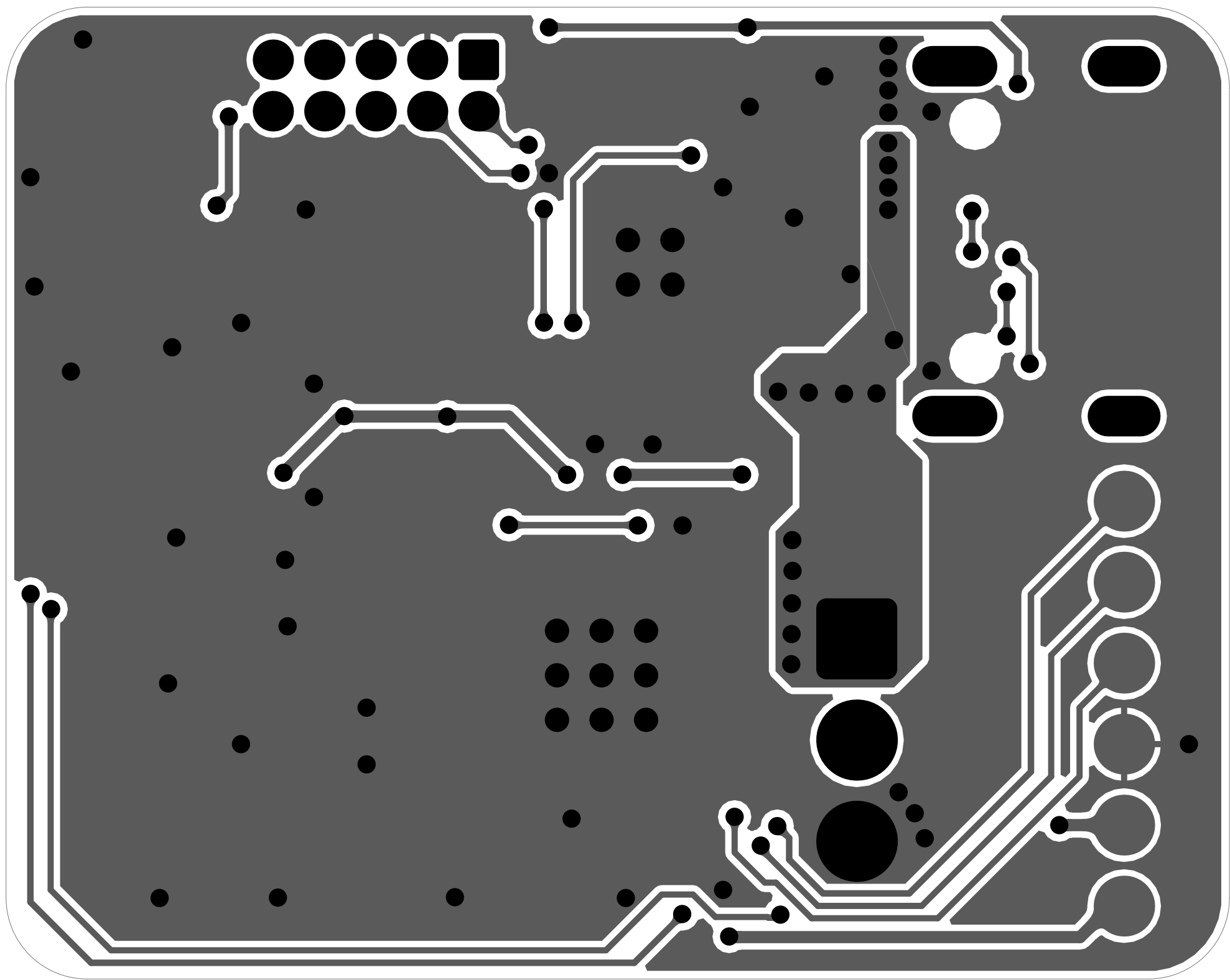
## Amplifier

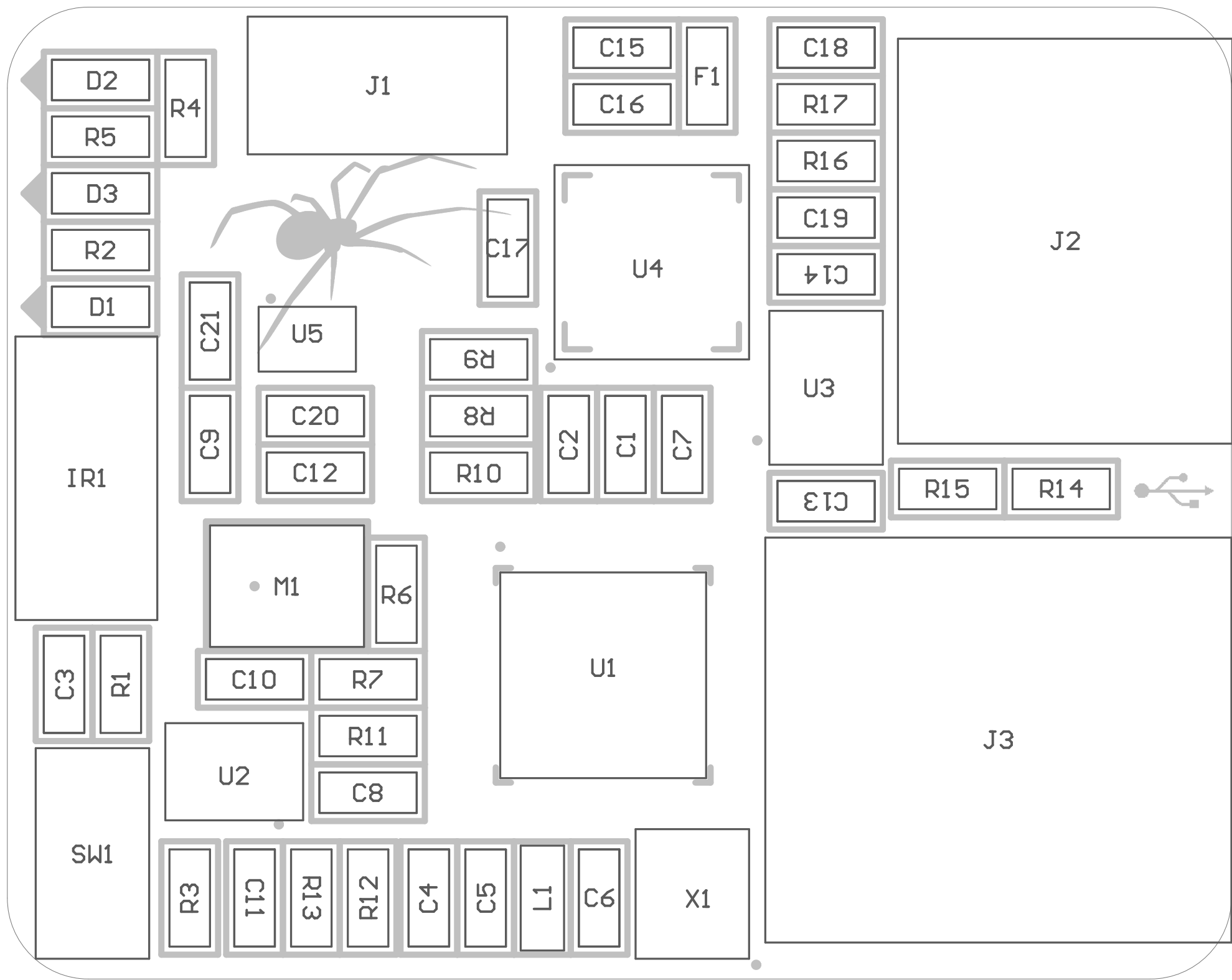


## Regulator









# Spider<sub>v2</sub>

TP3 PA18

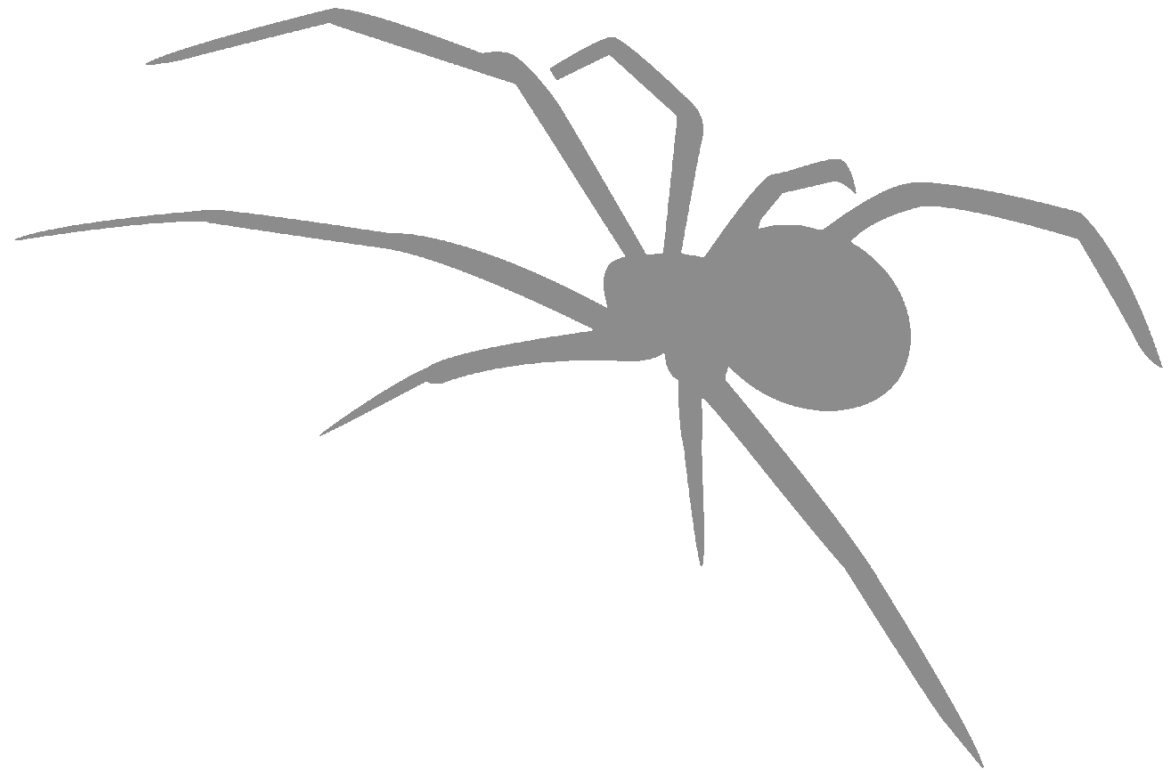
TP2 PA17

TP1 PA16

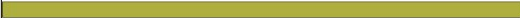








TP GND

TP 5V

TP 3V3



# Board Stack Report

Stack Up		Layer Stack			
Layer	Board Layer Stack	Name	Material	Thickness	Constant
1		Top Paste			
2		Top Overlay			
3		Top Solder	Solder Resist	0.010mm	3.5
4		Top Layer	Copper	0.036mm	
5		Dielectric 1	FR-4	1.530mm	4.8
6		Bottom Layer	Copper	0.036mm	
7		Bottom Solder	Solder Resist	0.010mm	3.5
8		Bottom Overlay			
9		Bottom Paste			
	Height : 1.621mm				

Description	Designator	Quantity	Value	Manufacturer 1	Manufacturer Part Number 1	Supplier 1	Supplier Part Number 1
Capacitor 0603	C1, C4, C10	3	10uF				
Capacitor 0603	C2, C5, C6, C13, C16, C17, C20, C21	8	100nF				
Capacitor 0603	C3, C7, C8, C9, C11, C12, C14	7	1uF				
Capacitor 0603	C15	1	4.7uF				
Capacitor 0603	C18, C19	2	47pF				
Ferrite bead 0603	F1	1	480Ω @ 100MHz				
Header male 2x5, pitch 1.27mm	J1	1					
Inductor 0603	L1	1	10uH				
LED 0603 white	D1, D2, D3	3					
Resistor 0603	R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R13	11	10kΩ				
Resistor 0603	R10, R12	2	39Ω				
Resistor 0603	R14, R15	2	5.1kΩ				
Resistor 0603	R16, R17	2	27Ω				
Test-point round, diameter 1.5mm	TP1, TP2, TP3, TP_3V3, TP_5V, TP_GND	6					
Tactile switch SMD, tiny	SW1	1		C&K	KMR621NG LFS	Digi-Key	CKN10684CT-ND
Level shifter, bidirectional, 1.65V - 5V, SOT-563	U5	1		Diodes Incorporated	74LVC1T45Z6-7	Digi-Key	74LVC1T45Z6-7DITR-ND
USB to UART converter, FTDI, single, 20 pins, QFN	U4	1		FTDI, Future Technology Devices International Ltd	FT231XQ-R	Digi-Key	768-1128-1-ND
USB-C (2.0)	J2	1		GCT	USB4105-GF-A	Digi-Key	2073-USB4105-GF-ACT-ND
JST connector 1x3, pitch 2.5mm, right angle, TH	J3	1		JST (JAPAN SOLDERLESS TERMINALS)	S3B-XH-A (LF)(SN)	Farnell	1516290
Microphone, MEMS, 100 Hz - 10 kHz, 3.3V, SMD	M1	1		Knowles	SPU0410HR5H-PB	Digi-Key	423-1138-1-ND
OpAmp, 1 circuit, rail-to-rail, single supply, 1.8V to 5V, SOT23-5	U2	1		Microchip Technology	MCP6241T-E/OT	Digi-Key	MCP6241T-E/OTCT-ND
Oscillator, 8MHz, 3.3V, 3.2mm x 2.5mm	X1	1		Microchip Technology	DSC6001CE2A-008.0000	Digi-Key	DSC6001CE2A-008.0000-ND
SAMD21, 48 MHz, 128KB flash, 16KB RAM, 32 pins, USB device, QFN	U1	1		Microchip Technology	ATSAMD21E17D-MUT	Digi-Key	ATSAMD21E17D-MUTTR-ND
LDO fixed, 3.3V output, 0.2V dropout, 200mA	U3	1		Toshiba Semiconductor and Storage	TCR2EF33,LM(CT	Digi-Key	TCR2EF33LM(CTCT-ND
IR receiver, 38 kHz, 40m, SMD	IR1	1		Vishay Semiconductor Opto Division	TSSP77038TR	Digi-Key	TSSP77038TRCT-ND