

[illegible][illegible]

The diagram illustrates the electrical connections for an ESP32 module. The module is represented by a central brown rectangle with pins numbered 1 through 40. Key connections include:

- Power and Ground:** A +3V3 supply is connected to pin 1 (GND), pin 2 (VCC), and pin 3 (GND). A 10k pull-up resistor is connected between pins 2 and 3. A 100nF decoupling capacitor is connected between pins 2 and 3. A 10k pull-down resistor is connected between pins 4 and 5.
- Sensors:** A proximity sensor is connected to pins 1 (GND), 2 (VCC), 3 (GND), 4 (SENSE_VP), 5 (SENSE_VN), 6 (VIOA_SENSE), 7 (VIOA_SENSE), 8 (VIOA_SENSE), 9 (VIOA_SENSE), 10 (VIOA_SENSE), 11 (VIOA_SENSE), 12 (VIOA_SENSE), 13 (VIOA_SENSE), 14 (VIOA_SENSE), and 15 (VIOA_SENSE).
- Flash Memory:** The ESP32 is connected to a flash memory chip (labeled "flash") via pins 16 (GND), 17 (GND), 18 (GND), 19 (GND), 20 (GND), 21 (GND), 22 (GND), 23 (GND), 24 (GND), 25 (GND), 26 (GND), 27 (GND), 28 (GND), 29 (GND), 30 (GND), 31 (GND), 32 (GND), 33 (GND), 34 (GND), 35 (GND), 36 (GND), 37 (GND), 38 (GND), 39 (GND), and 40 (GND).
- Other Components:** A 10k pull-up resistor is connected between pins 16 and 17. A 10k pull-down resistor is connected between pins 18 and 19. A 10k pull-down resistor is connected between pins 20 and 21. A 10k pull-down resistor is connected between pins 22 and 23. A 10k pull-down resistor is connected between pins 24 and 25. A 10k pull-down resistor is connected between pins 26 and 27. A 10k pull-down resistor is connected between pins 28 and 29. A 10k pull-down resistor is connected between pins 30 and 31. A 10k pull-down resistor is connected between pins 32 and 33. A 10k pull-down resistor is connected between pins 34 and 35. A 10k pull-down resistor is connected between pins 36 and 37. A 10k pull-down resistor is connected between pins 38 and 39. A 10k pull-down resistor is connected between pins 40 and 41.

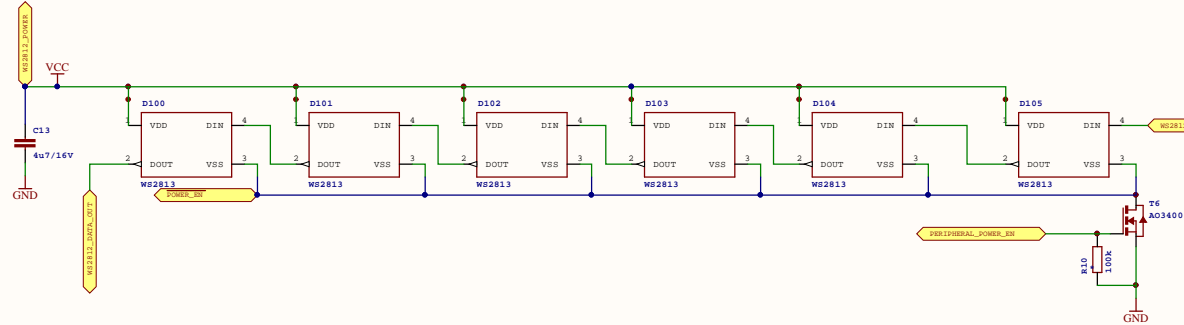
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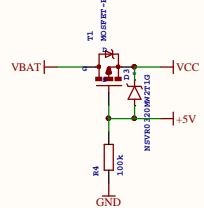
Sheet: 1

8

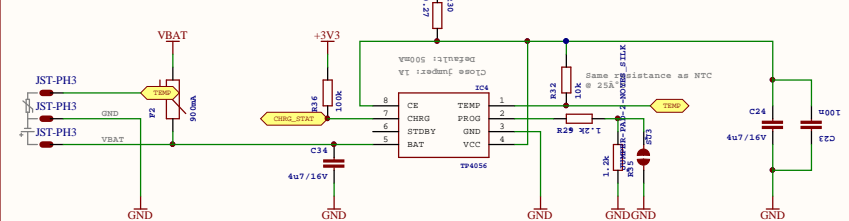
WS2812



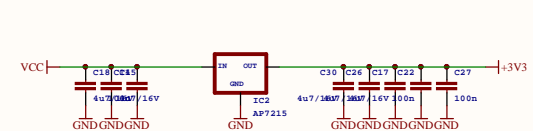
Ideal Diode



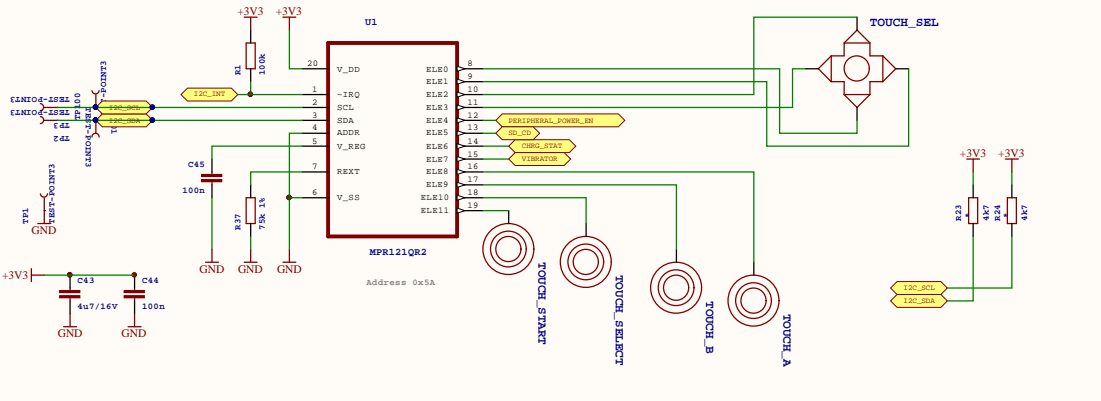
Battery charger



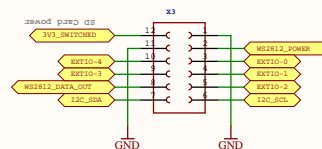
Voltage Regulator



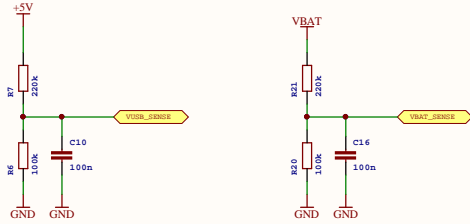
Touch Controller / IO expander



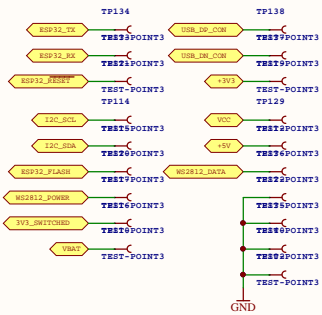
IO header



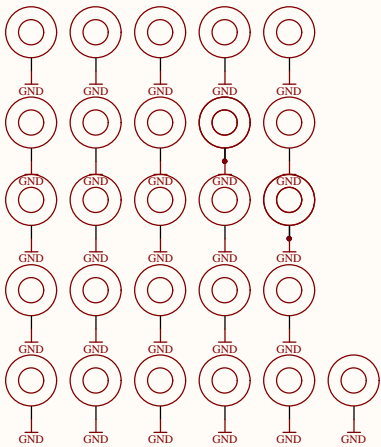
Voltage sensing

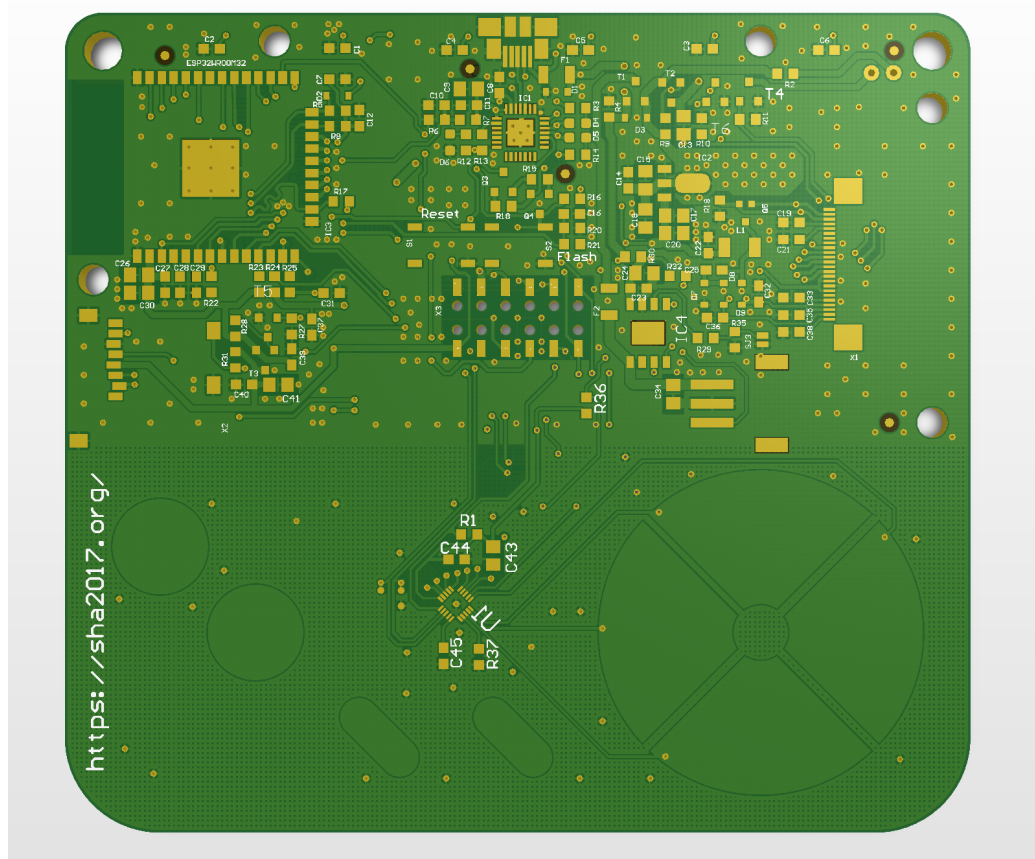
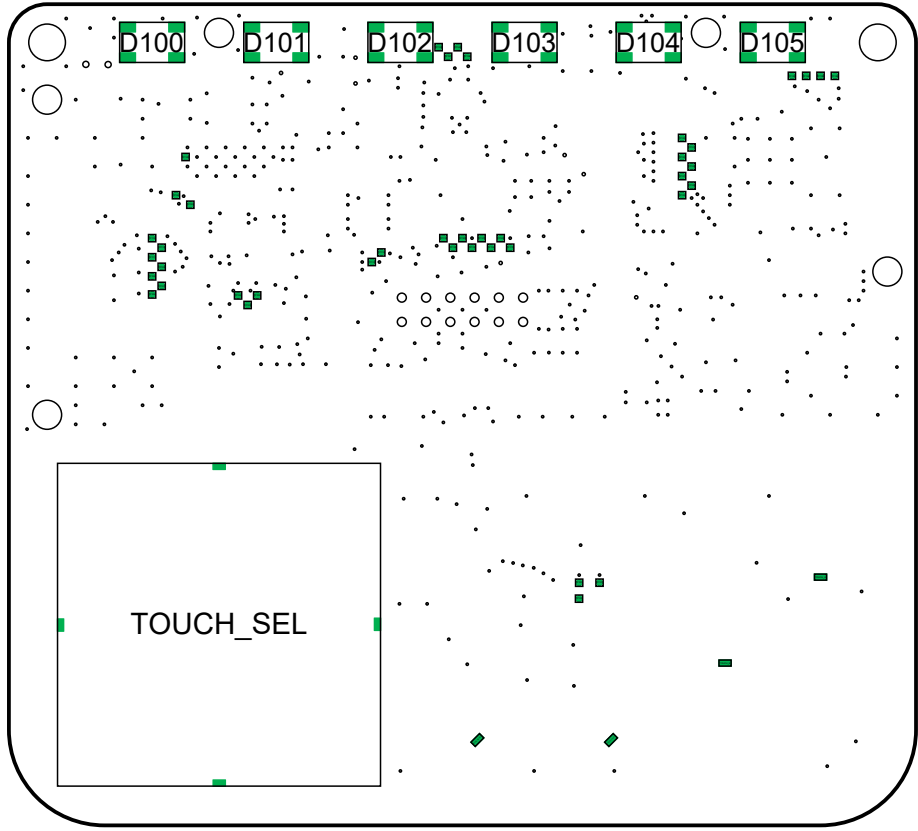


Test points

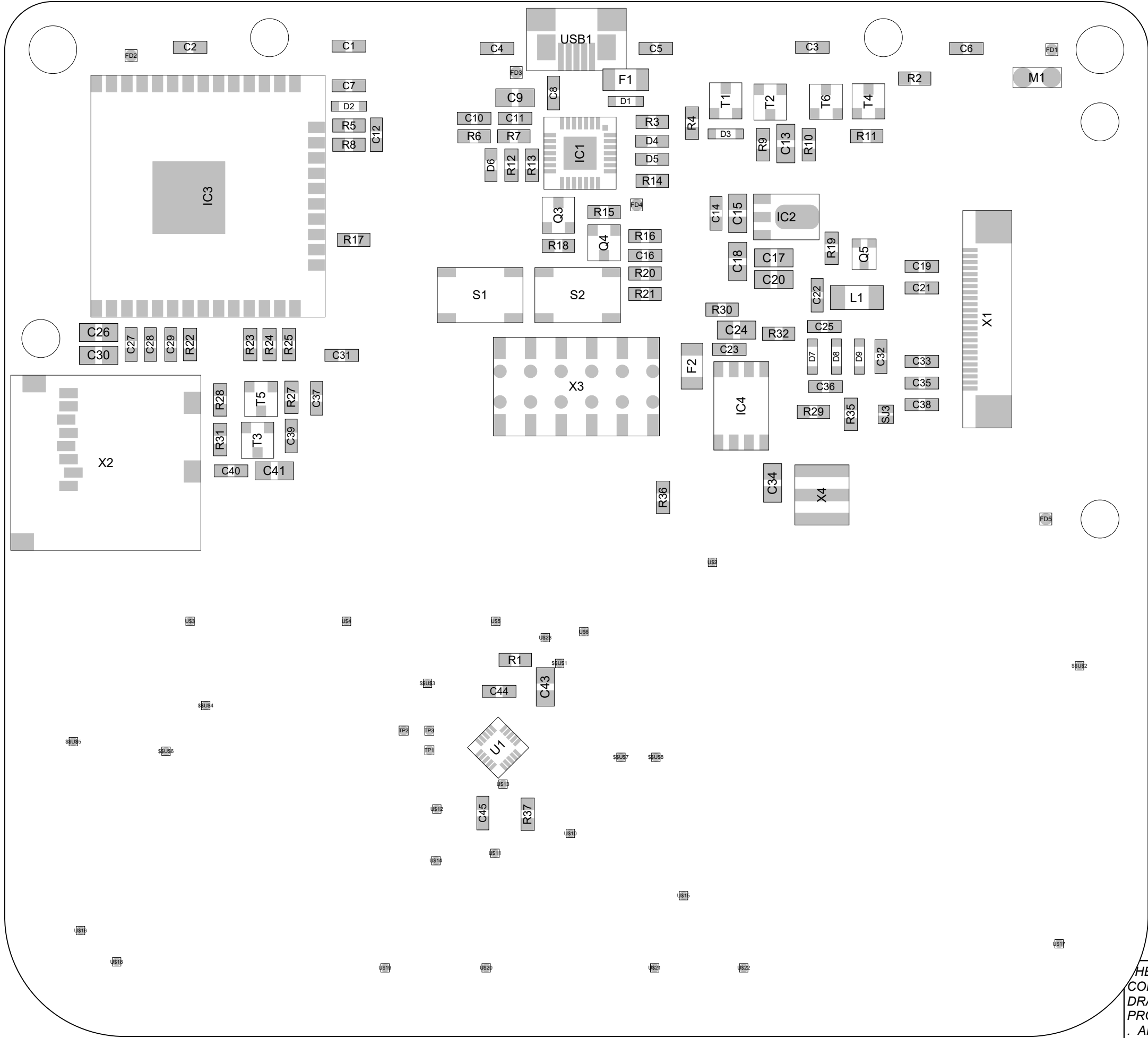


Special Vias with thermals (hack)





View from Top side (Scale 3)



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Bill Of Materials			
Item	Designator	Comment	Quantity
1	C1-C8, C10-C12, C14, C16, C22, C23, C27-C29, C31, C37, C40, C44, C45	100n	23
2	C19, C21, C25, C32, C33, C35, C36, C38, C39	1u	9
3	C9, C13, C15, C17, C18, C20, C24, C26, C30, C34, C41, C43	4u7/16V	12
4	D1	SD05-7	1
5	D100-D105	SK6812	6
6	D4	Yellow	1
7	D5	RED	1
8	D6	green	1
9	D2, D3, D7-D9	NSVR0320MW2T1G	5
10	F1, F2	900mA	2
11	IC1	CP210X_USB_UART	1
12	IC2	AP7215	1
13	IC3	ESP32WROOM32	1
14	L1	22μ	1
15	Q3, Q4	MMBT2222A	2
16	Q5	SI1304 BDL	1
17	R3, R12, R14	1k	3
18	R4, R5, R8-R10, R13, R15-R18, R22, R25, R28, R32	10k	14
19	R19	5R	1
20	R2	27R	1
21	R7, R21	220k	2
22	R23, R24	4k7	2
23	R29, R35	1.2k	2
24	R30	150k	1
25	R1, R6, R11, R20, R27, R31, R36	100k	7
26	R37	75k 1%	1
27	S1, S2	SWITCH-MOMENTARY-2SMD	2
28	SJ3	JUMPER-PAD-2-NOYES_SILK	1
29	T4-T6	AO3400	3
30	U1	MPR121QR2	1
31	USB1, X1, X3, X4, FD1-FD5, TOUCH_B, TOUCH_A, TOUCH_SEL, T1-T3, TP1-TP3, TP100-TP140, M1, U\$2-U\$6, U \$10-U\$23, \$\$U\$1-\$U\$9, IC4, TOUCH_SELECT, TOUCH_START		91
32	X2	2908-05WB-MG	1

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Layer Stack Legend						
Material	Layer	Thickness	Dielectric	Material	Type	Gerber
	Top Paste				Paste Mask	GTP
	Top Overlay				Legend	GTO
Surface Material	Top Solder	0mm	Solder Resist		Solder Mask	GTS
Copper	Top	0mm			Signal	GTL
Core		2mm	FR-4		Dielectric	
Copper	Bottom	0mm			Signal	GBL
Surface Material	Bottom Solder	0mm	Solder Resist		Solder Mask	GBS
	Bottom Overlay				Legend	GBO
	Bottom Paste				Paste Mask	GBP
Total thickness: 2mm						

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF . ANY REPRODUCTION IN PART OR AS A WHOLE PROPRIETARY AND CONFIDENTIAL			UNLESS OTHERWISE SPECIFIED:	NAME	DATE			
			DIMENSIONS ARE IN INCHES	DRAWN	4/24/2017			
			TOLERANCES:	CHECKED		TITLE		
			FRACTIONAL: ±	ENG APPR.				
			ANGULAR: MACH ± BEND	MFG APPR.				
			TWO PLACE DECIMAL ±					
			THREE PLACE DECIMAL ±					
			INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.				
			MATERIAL	COMMENTS:		SIZE	DWG. NO.	
	NEXT ASSY	USED ON	FINISH					
	APPLICATION		DO NOT SCALE DRAWING		SCALE: 1:1		WEIGHT:	SHEET 1 OF 1

