

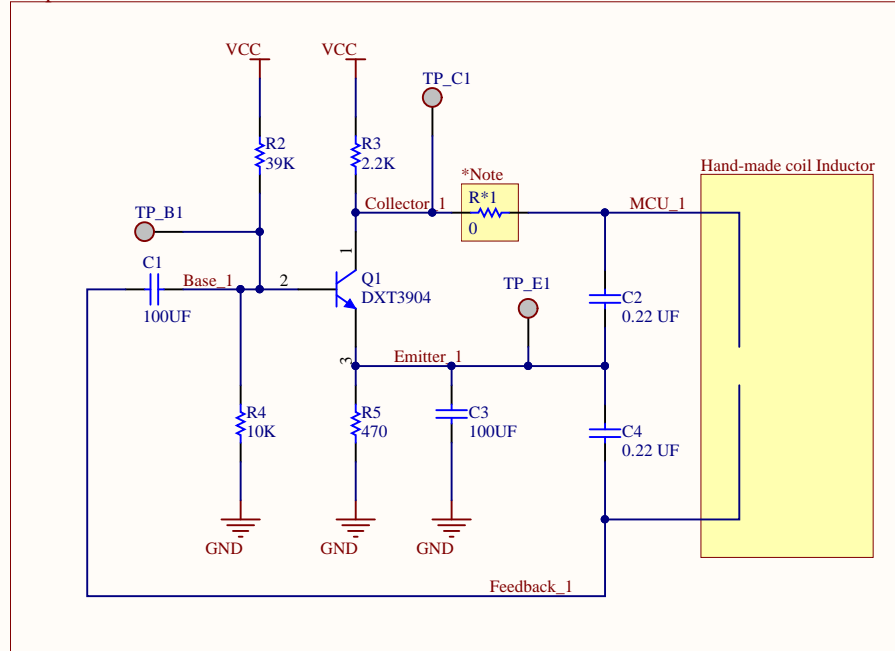
Revision History/ Project Log

REV	COMMENTS	DATE	INITIALS
0.1	First pass of the schematic has been completed. Placement of the components has been completed. All passive component footprints are 0805(M). Top pour is GND, bottom pour is VCC.	2018-JAN-27	NAS
0.1	Still need to complete the MCU subsection and connections back to the PC.	2018-JAN-28	NAS
0.1	Schematic finished, PCB layout & routing finished. All components selected. Generating all outputs, including BOM and gettings quotes started for FAB.	2018-FEB-03	NAS
0.2	Corrected the silk string placement of MCU and INDUCTOR. Inside Sandbox Dimensions: 37" x 26 3/4"	2018-MAR-26	NAS
0.2	Design copied x12 for the base of the sandbox. Increased the size of the euro terminals and changed the 1uF caps to 0.22uF.	2018-MAR-26	NAS
0.2	Changed and verified all hardware is rated for 50V.	2018-MAR-26	NAS
0.2	Capacitor changes for higher voltage rating. Additional 12 position terminal added for connection to the MCU.	2018-MAR-29	NAS
0.2	Finished the cluster placement. Need to make a final decision about the size of the euro terminals.	2018-MAR-30	NAS
0.2	Placement and routing complete. Finishing the silkscreen. Will get off for quoting this evening. Will get fabrication started and will do manual assembly.	2018-MAR-31	NAS

Schematic Documents

PAGE	PAGE NAME
01	Detection_Circuit_History
02	Detection_Circuit_Sheet_01

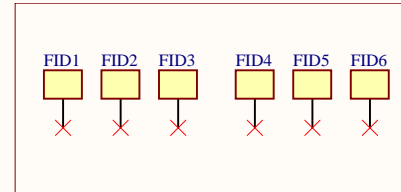
## Colpitts Oscillator #1



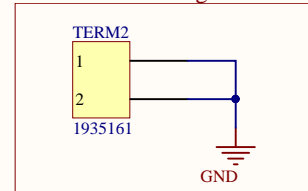
### Notes:

1. MECH4 & 8 are board outlines
2. MECH1 is component outline
3. MECH3 is text (placement insights)
4. Hex nut comes 100 per package
5. Pan head screws come 100 per package
6. \*Note: (R\*) is a zero ohm jumper 0805 footprint in case an additional capacitor is required

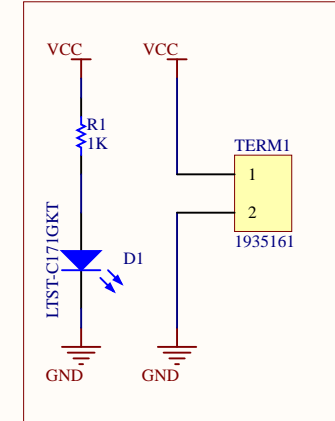
### Fiducials



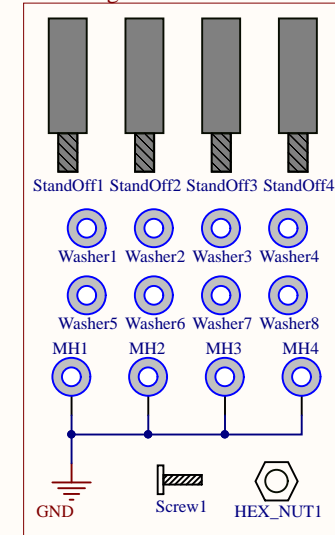
### External Grounding



## Power



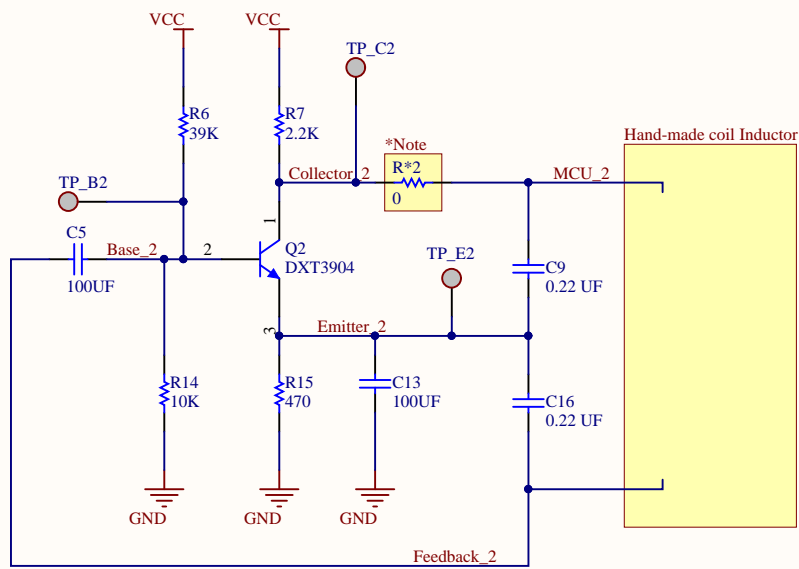
## Mounting



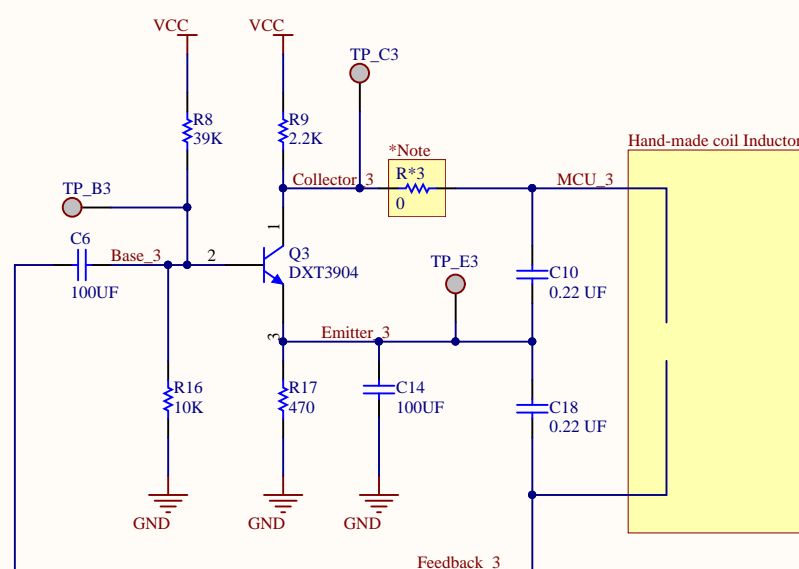
Title			Object Detection Circuit		
Size		Number		Revision	
A		N/A		0.2	
Date:		3/31/2018		Sheet 2 of 3	
File:		G:\UCD\...\Detection_Circuit_Sheet_01.SchDoc			
		Drawn By: N. Schram			

Array of (x12) Colpitts Oscillator Detector Circuits

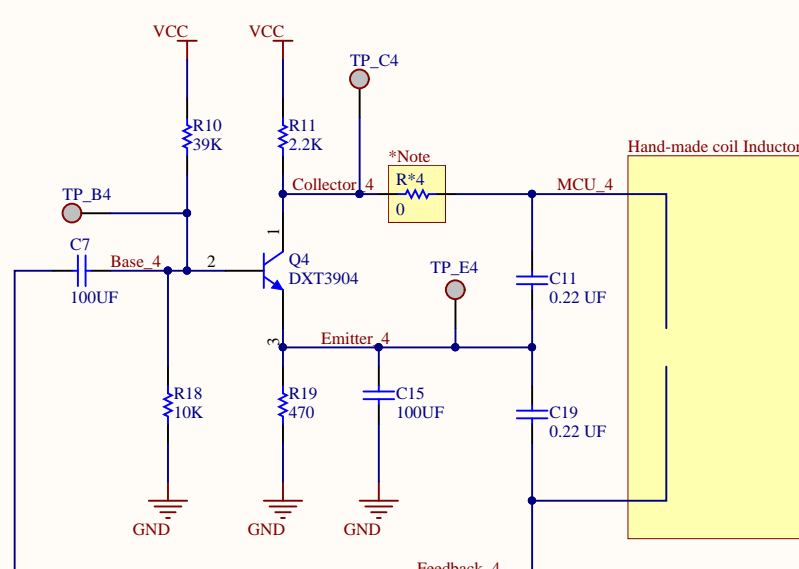
Colpitts Oscillator #2



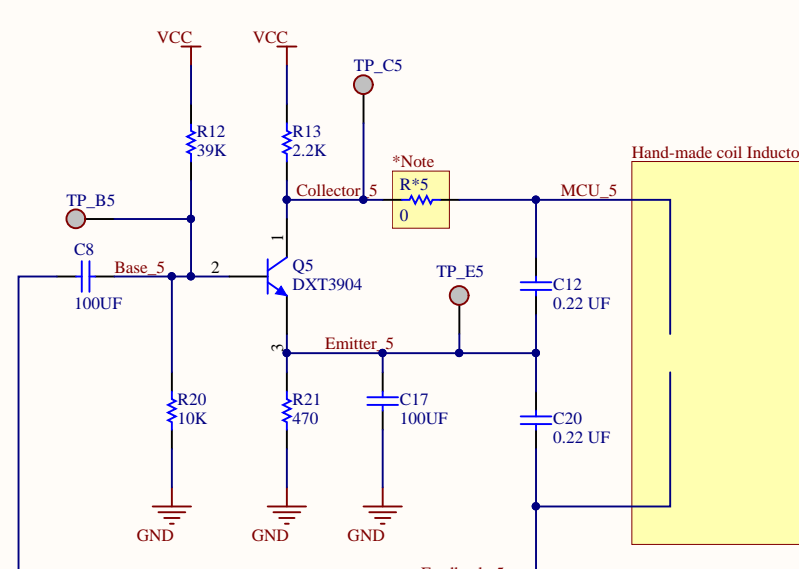
Colpitts Oscillator #3



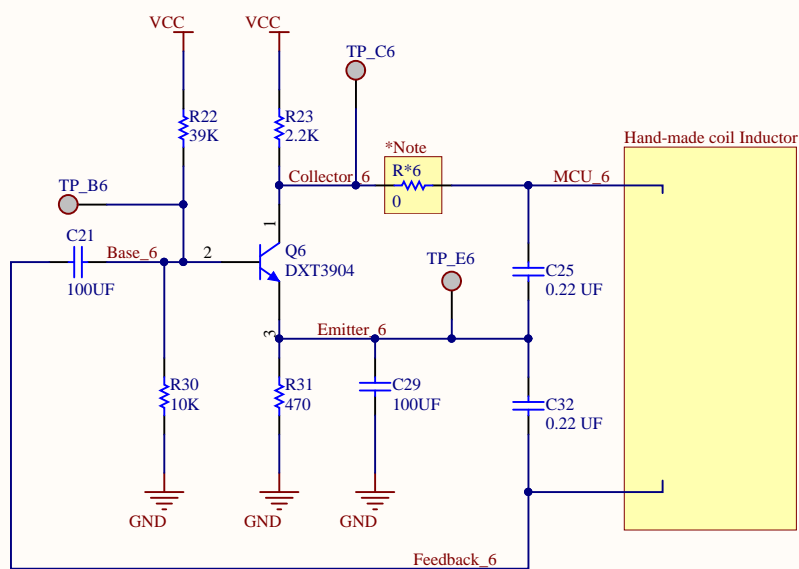
Colpitts Oscillator #4



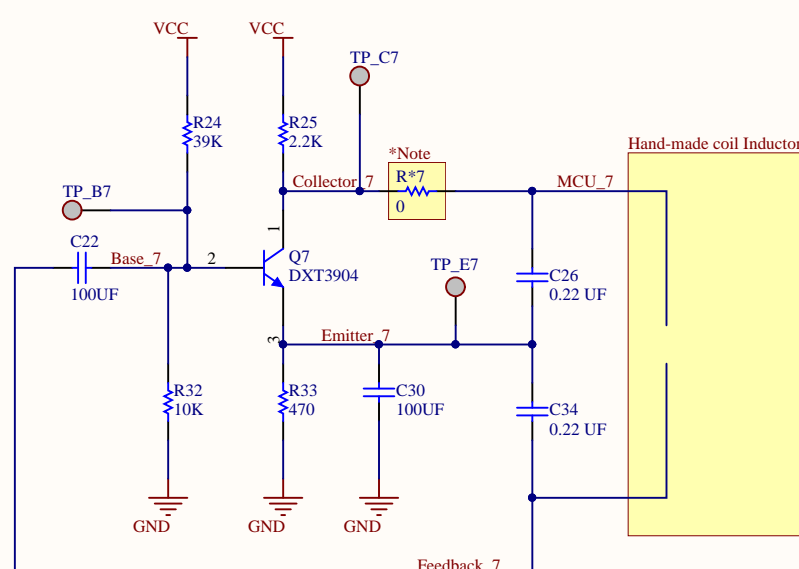
Colpitts Oscillator #5



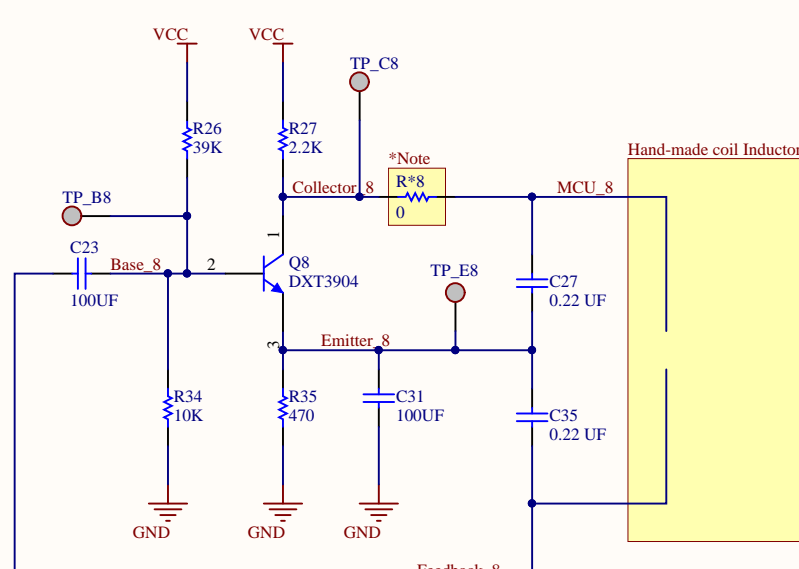
Colpitts Oscillator #6



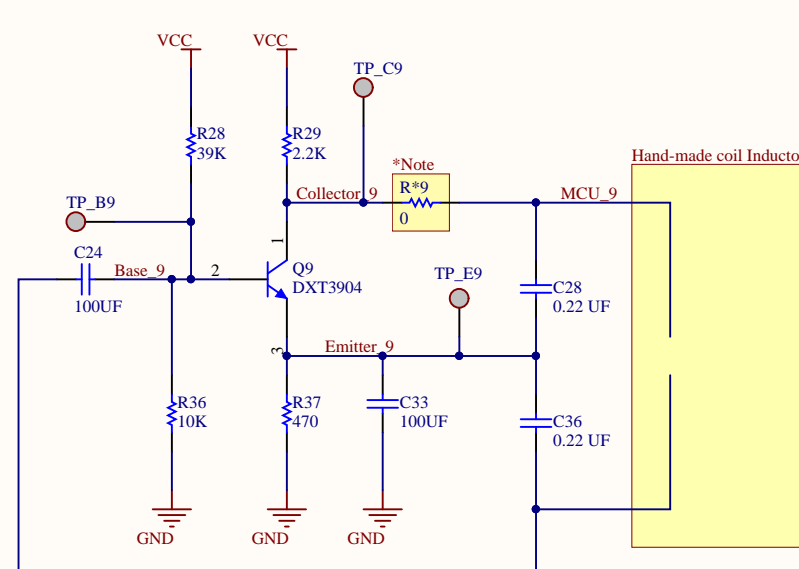
Colpitts Oscillator #7



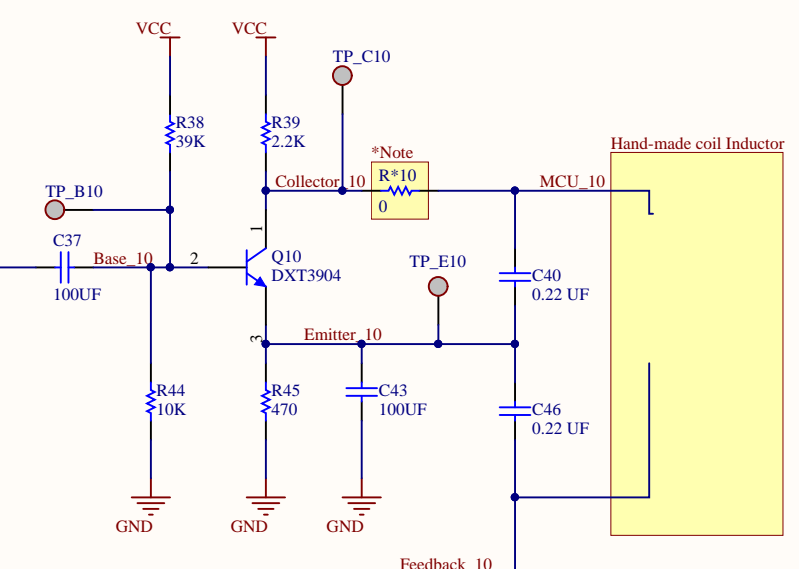
Colpitts Oscillator #8



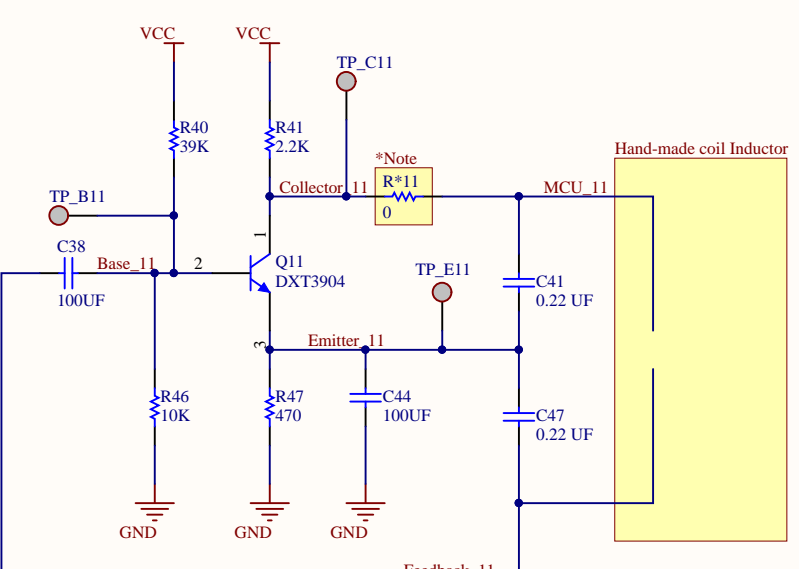
Colpitts Oscillator #9



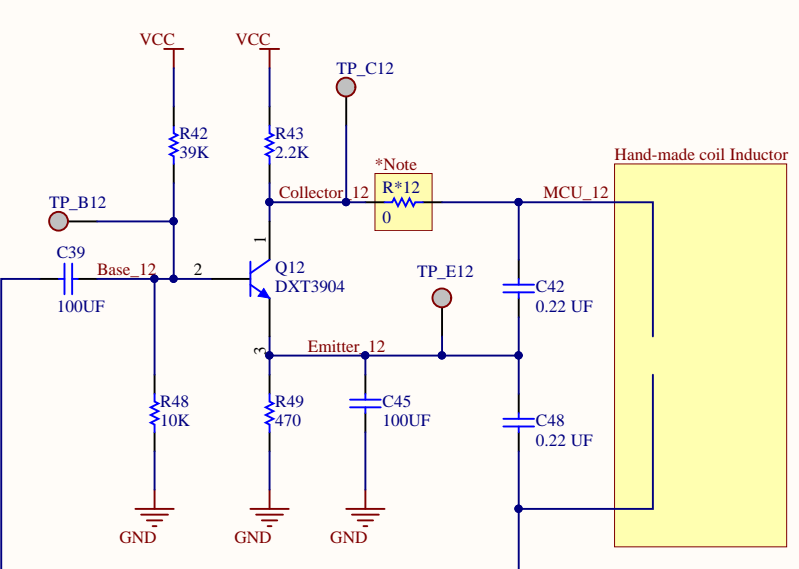
Colpitts Oscillator #10



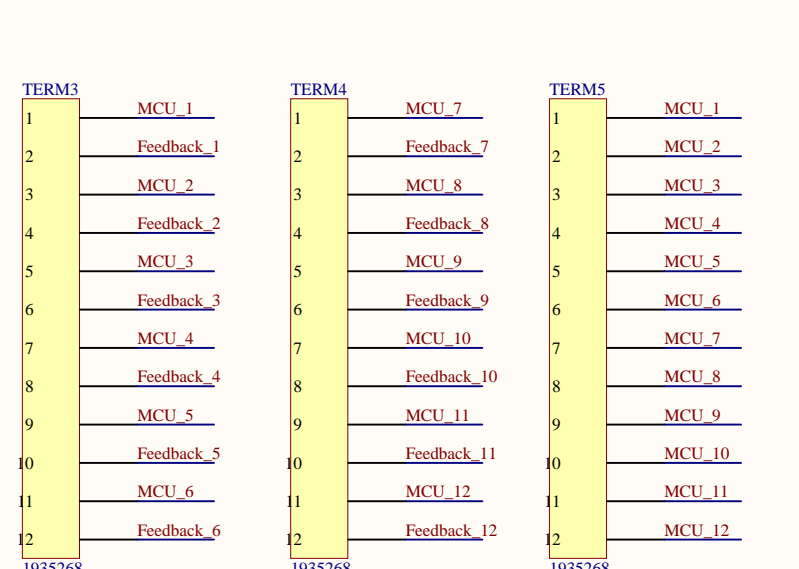
Colpitts Oscillator #11



Colpitts Oscillator #12



12 Position Euro Terminal Connections (x3)





Comment	Description	Designator	Footprint	LibRef	Quantity
100UF	CAP CER 100UF 16V X5R 1210	C1, C3, C5, C6, C7, C8, C13, C14, C15, C17, C21, C22, C23, C24, C29, C30, C31, C33, C37, C38, C39, C43, C44, C45	C1210_M	CC1210MKX5R7BB 107	24
08055C224JAT2A	CAP CER 0.22UF 50V X7R 0805	C2, C4, C9, C10, C11, C12, C16, C18, C19, C20, C25, C26, C27, C28, C32, C34, C35, C36, C40, C41, C42, C46, C47, C48	6-0805_N	08055C224JAT2A	24
LTST-C171GKT	LED GREEN CLEAR 0805 SMD	D1	6-0805_M	LED3	1
Fiducial	Fiducial	FID1, FID2, FID3, FID4, FID5, FID6	Fiducial	Fiducial	6
6-32 Hex Nut	HEX NUT 0.245" STEEL 6-32	HEX_NUT1		HEX_NUT	1
#6 MH	#6 Mounting Hole	MH1, MH2, MH3, MH4	#6_MH	MH	4
DXT3904	TRANS NPN 40V 0.2A SOT89-3	Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q10, Q11, Q12	DXT3904-13	DXT3904-13	12
1K	RES SMD 1K OHM 1% 1/4W 0805	R1	6-0805_M	RNCP0805FTD1K00	1
39K	RES SMD 39K OHM 0.5% 1/4W 0805	R2, R6, R8, R10, R12, R22, R24, R26, R28, R38, R40, R42	6-0805_M	ERJ-PB6D3902V	12
2.2K	RES SMD 2.2K OHM 0.5% 1/4W 0805	R3, R7, R9, R11, R13, R23, R25, R27, R29, R39, R41, R43	6-0805_M	ERJ-PB6D2201V	12
10K	RES SMD 10K OHM 1% 1/4W 0805	R4, R14, R16, R18, R20, R30, R32, R34, R36, R44, R46, R48	6-0805_M	RNCP0805FTD10K0	12
470	RES SMD 470 OHM 0.5% 1/4W 0805	R5, R15, R17, R19, R21, R31, R33, R35, R37, R45, R47, R49	6-0805_M	ERJ-PB6D4700V	12
0	RES SMD 0 OHM JUMPER 1/8W 0805	R*1, R*2, R*3, R*4, R*5, R*6, R*7, R*8, R*9, R*10, R*11, R*12	6-0805_M	ERJ-6GEY0R00V	12
6-32 Pan Head Screw	MACHINE SCREW PAN PHILLIPS 6-32	Screw1		6-32 Screw	1
6-32 Stand Off	HEX STANDOFF 6- 32 ALUMINUM 3/4"	StandOff1, StandOff2, StandOff3, StandOff4		STANDOFF	4
1935161	TERM BLOCK PCB 2POS 5.0MM GREEN	TERM1, TERM2	1935161	1935161	2
1935268	TERM BLOCK PCB 12POS 5.0MM GREEN	TERM3, TERM4, TERM5	1935268	1935268	3
TestPoint	Test Point	TP_B1, TP_B2, TP_B3, TP_B4, TP_B5, TP_B6, TP_B7, TP_B8, TP_B9, TP_B10, TP_B11, TP_B12, TP_C1, TP_C2, TP_C3, TP_C4, TP_C5, TP_C6, TP_C7, TP_C8, TP_C9, TP_C10, TP_C11, TP_C12, TP_E1, TP_E2, TP_E3, TP_E4, TP_E5, TP_E6, TP_E7, TP_E8, TP_E9, TP_E10, TP_E11, TP_E12	TestPoint	TestPoint	36
Nylon Washer	MACHINE SCREW P	Washer1, Washer2		Washer	8