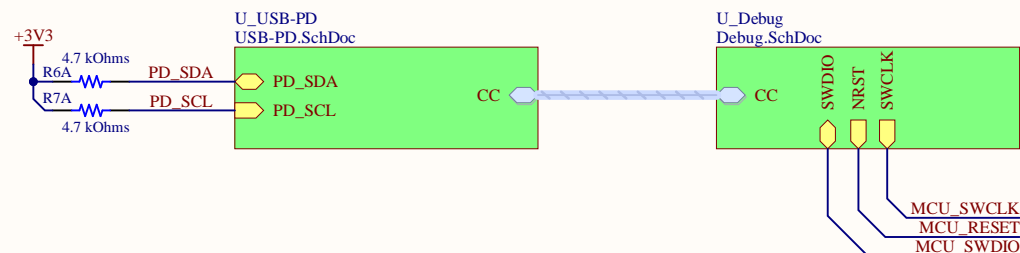
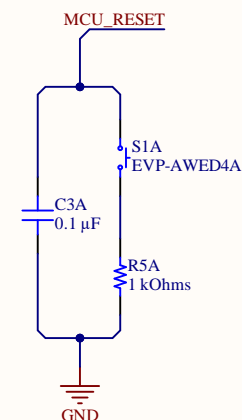
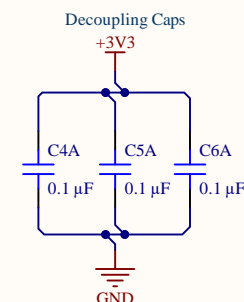
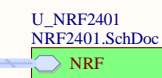
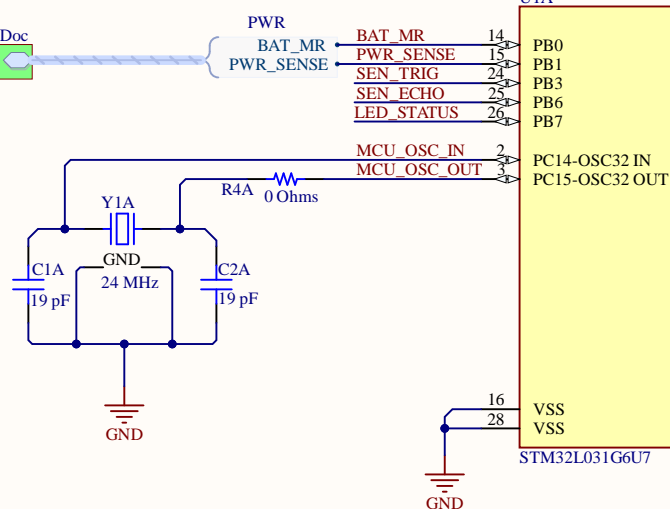
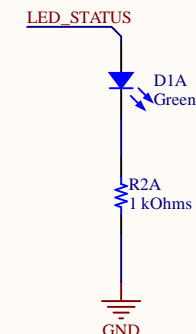
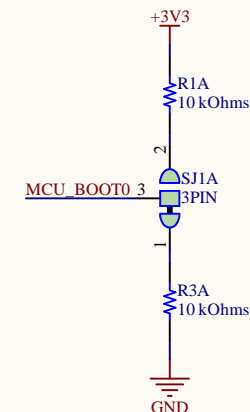
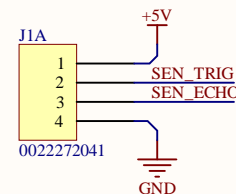



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HEREWITH IS THE PROPERTY OF SPD Ind.

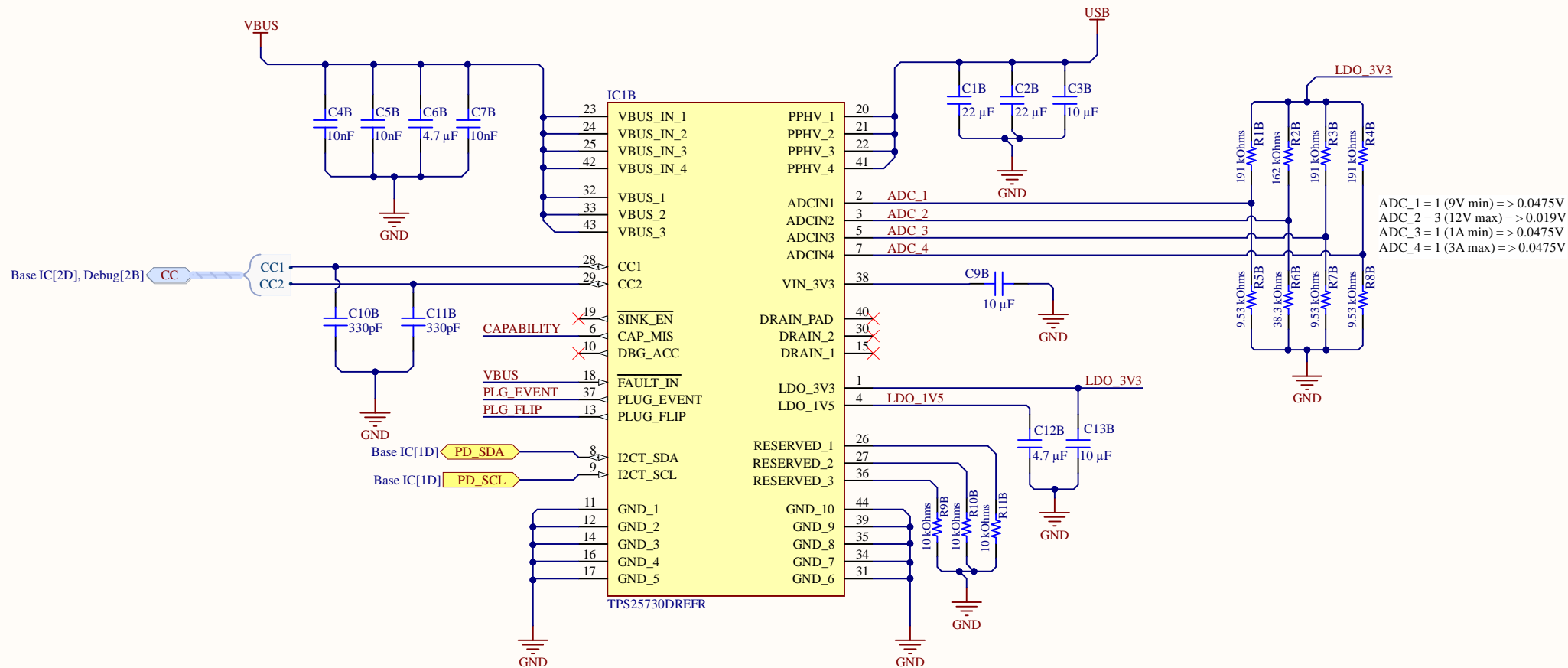
@ Y1 Given, $CL = 12 \text{ pF}$
 $CL = (C_{I1} * C_{I2}) / (C_{I1} + C_{I2}) + C_p$
 Parasitic Capacitance of FR-4 PCB $\approx 2.5 \text{ pF}$ Approx
 And $C_{I1} = C_{I2}$, $C \approx 2 * (CL - C_p)$
 So, $C \approx 19 \text{ pF}$

Parasitic Capacitance,
 $C' \approx (E_o * E_r * W) / H$ & $C_p = C' * L$
 Here, W, H, L are width, height, lenght of the PCB trace.
 Er is Dielectric Constant of FR-4 PCB ≈ 4.5
 So, $C' \approx 39.843 \text{ pF/m}$



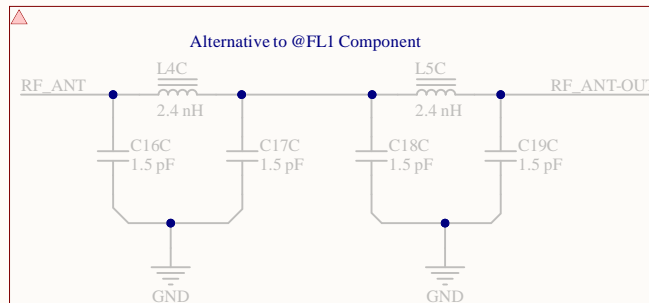
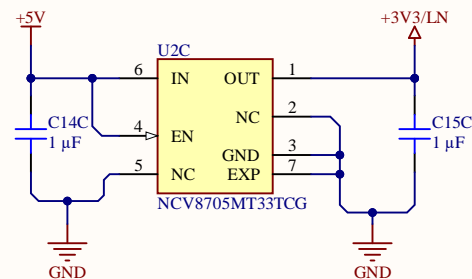
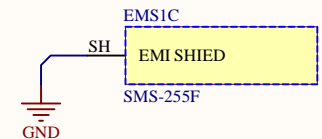
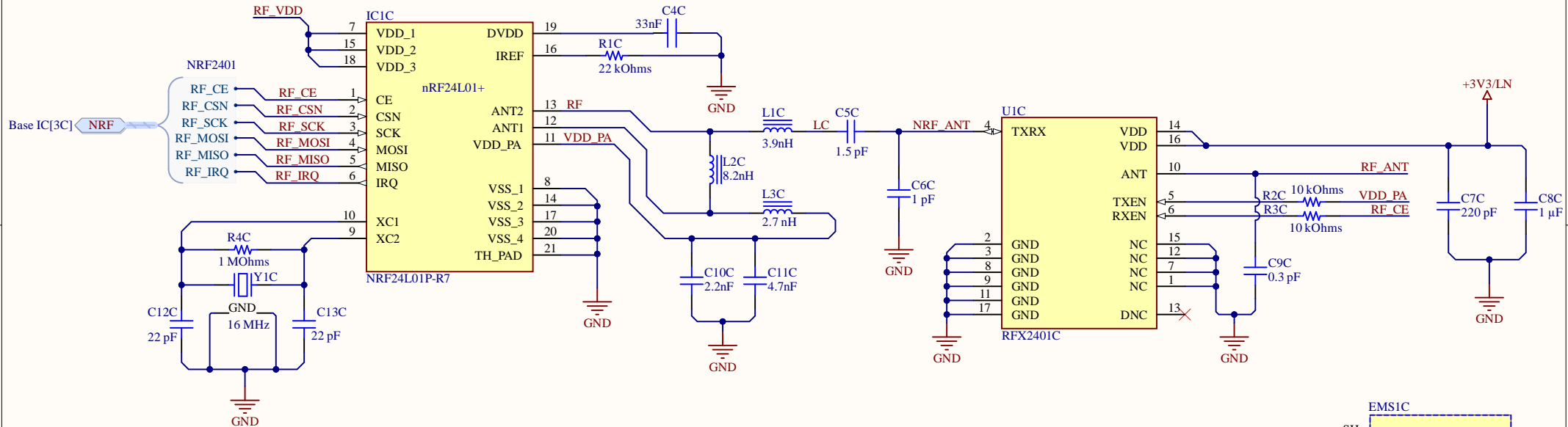
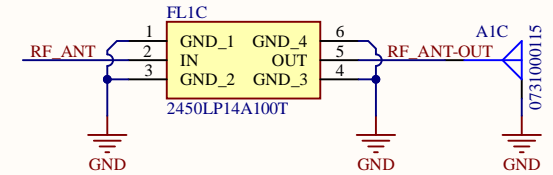
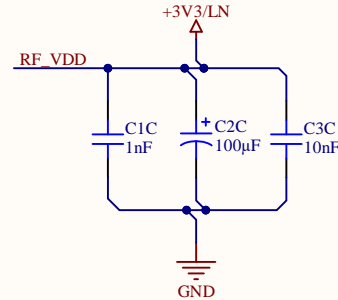
APPROVALS		DATE	PROJECT			
ENG: DHARAGESWARAN S		10.03.2024	FluidGuard			
DSN: DHARAGESWARAN S		10.03.2024	PROJECT REVISION: V2.0		DOCUMENT REVISION: V1.3	
CHK: DHARAGESWARAN S		10.03.2024			Email: sdhamuvkl@gmail.com	
REFERENCE DOCUMENTS			TITLE			
BOM: #022024031040			FluidGuard(TX) MCU BLOCK			
ASSY DWG: #022024031030			SIZE	CAGE CODE	DWG NO.	REV
FAB DWG: #022024031020			A4	#	#022024031000	V2.1
PCB DWG: #022024031010			SCALE:		FILE NAME	SHEET
					Base IC.SchDoc	1 OF 5


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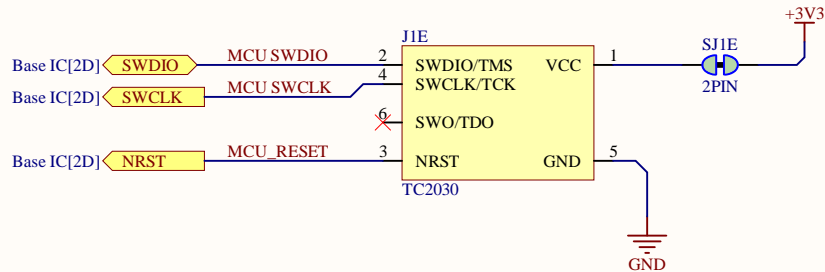
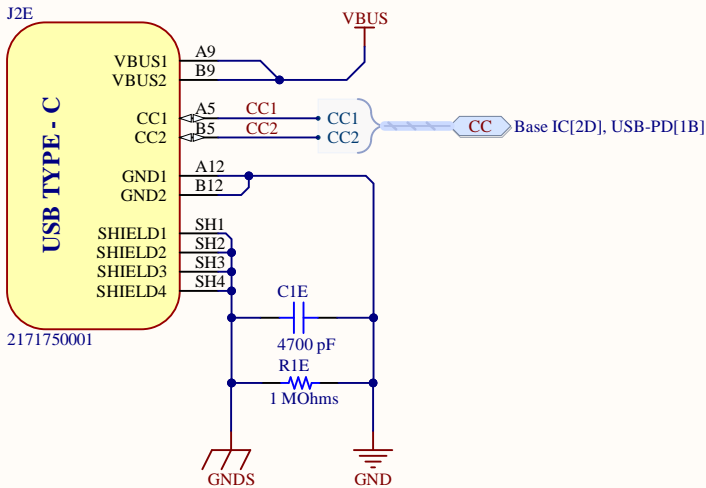



@Y1 Given, $CL = 12 \text{ pF}$
 $CL = (C'1 * C'2) / (C'1 + C'2)$ Here, $C'1 = C1 + C_{pcb} + C_{i1}$ & $C'2 = C2 + C_{pcb} + C_{i2}$
Interisic Capacitance of nRF24L01 was $C_{i1} = C_{i2} = 1 \text{ pF}$
Parasitic Capacitance of FR-4 PCB $\approx 1.5 \text{ pF}$ Approx
And for $C1 = C2, \Rightarrow C^2 - 19C - 60 = 0$ by Quadratic Eq we get $C = 21.75 \mid -5.51$
So, $C \approx 22 \text{ pF}$

Parasitic Capacitance,
 $C' \approx (E_o * E_r * W) / H$ & $C_{pcb} = C' * L$
Here, W, H, L are width, height, length of the PCB trace.
 E_r is Dielectric Constant of FR-4 PCB ≈ 4.5



APPROVALS		DATE	PROJECT		 SPD	
ENG: DHARAGESWARAN S		10.03.2024	FluidGuard			
DSN: DHARAGESWARAN S		10.03.2024	PROJECT REVISION: V2.0		DOCUMENT REVISION: V1.3	Email: sdhamuvkl@gmail.com
CHK: DHARAGESWARAN S		10.03.2024	TITLE			
REFERENCE DOCUMENTS			NRF24L01-TX			
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ASSY DWG: #022024031030			SIZE	CAGE CODE	DWG NO.	REV
FAB DWG: #022024031020			A4	#	#022024031002	V2.1
PCB DWG: #022024031010			SCALE:	FILE NAME NRF2401.SchDoc		SHEET 3 OF 5



APPROVALS		DATE	PROJECT				
ENG: DHARAGESWARAN S		10.03.2024	FluidGuard				
DSN: DHARAGESWARAN S		10.03.2024	PROJECT REVISION: V2.0		DOCUMENT REVISION: V1.3	Email: sdhamuvkl@gmail.com	
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REFERENCE DOCUMENTS			DEBUG PORT				
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ASSY DWG: #022024031030			SIZE	CAGE CODE	DWG NO.		REV
FAB DWG: #022024031020			A4	#	#022024031004		V2.1
PCB DWG: #022024031010			SCALE:		FILE NAME Debug.SchDoc		SHEET 5 OF 5