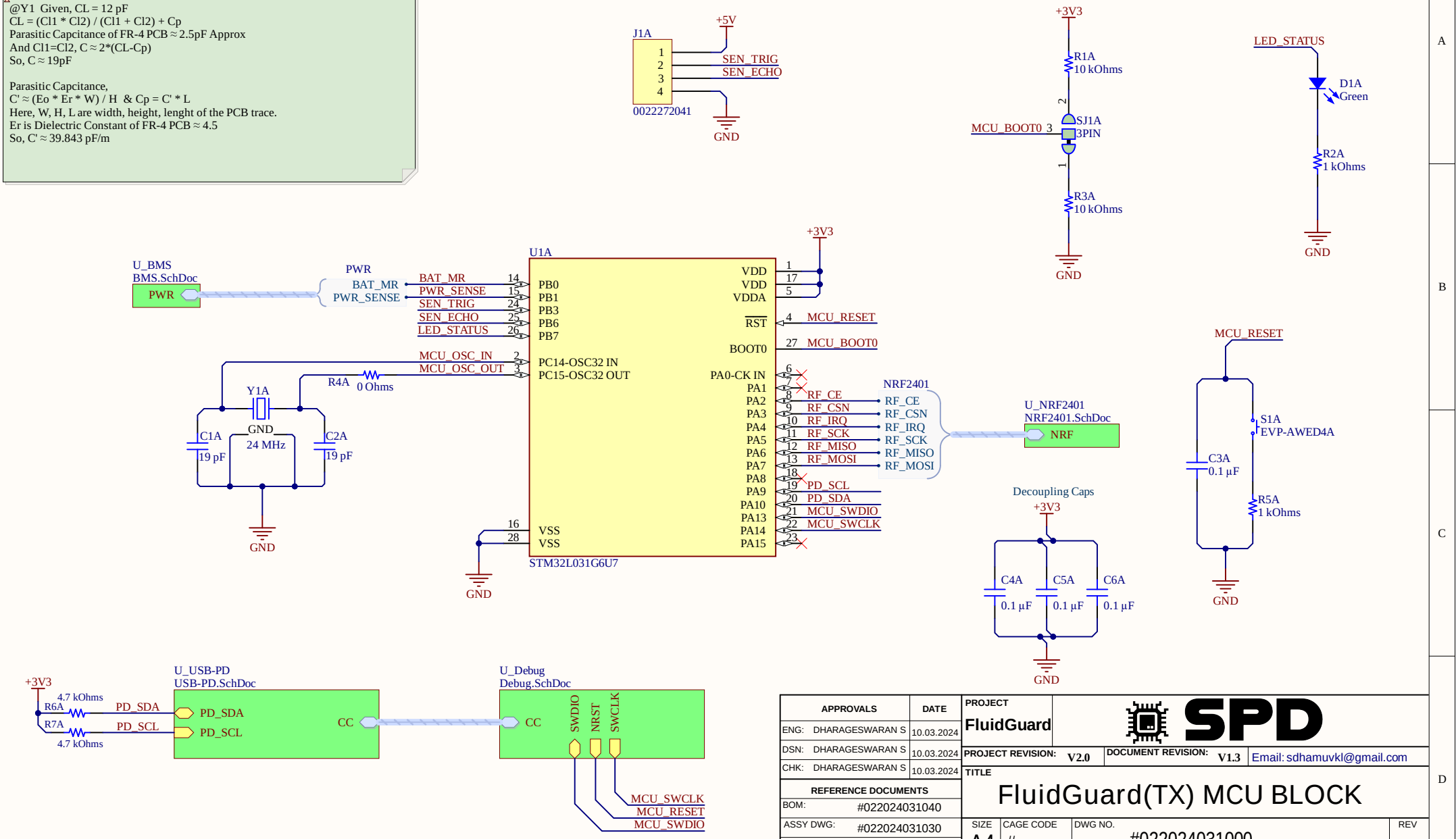
THIS DOCUMENT AND THE DATA DISCLOSED HEREIN OR HEREWITH IS THE PROPERTY OF SPD Ind.

@Y1 Given, CL = 12 pF
CL = (Cl1 * Cl2) / (Cl1 + Cl2) + Cp
Parasitic Capcitance of FR-4 PCB ≈ 2.5pF Approx
And Cl1=Cl2, C ≈ 2*(CL-Cp)
So, C ≈ 19pF

Parasitic Capcitance,
C' ≈ (Eo * Er * W) / H & Cp = 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' ≈ 39.843 pF/m



APPROVALS		DATE
ENG:	DHARAGESWARAN S	10.03.2024
DSN:	DHARAGESWARAN S	10.03.2024
CHK:	DHARAGESWARAN S	10.03.2024

REFERENCE DOCUMENTS	
BOM:	#022024031040
ASSY DWG:	#022024031030
FAB DWG:	#022024031020
PCB DWG:	#022024031010

PROJECT: FluidGuard

PROJECT REVISION: V2.0 | DOCUMENT REVISION: V1.3 | Email: sdhamuvkl@gmail.com

TITLE: FluidGuard(TX) MCU BLOCK

SIZE	CAGE CODE	DWG NO.	REV
A4	#	#022024031000	V2.1

SCALE: | FILE NAME Base IC.SchDoc | SHEET 1 OF 5

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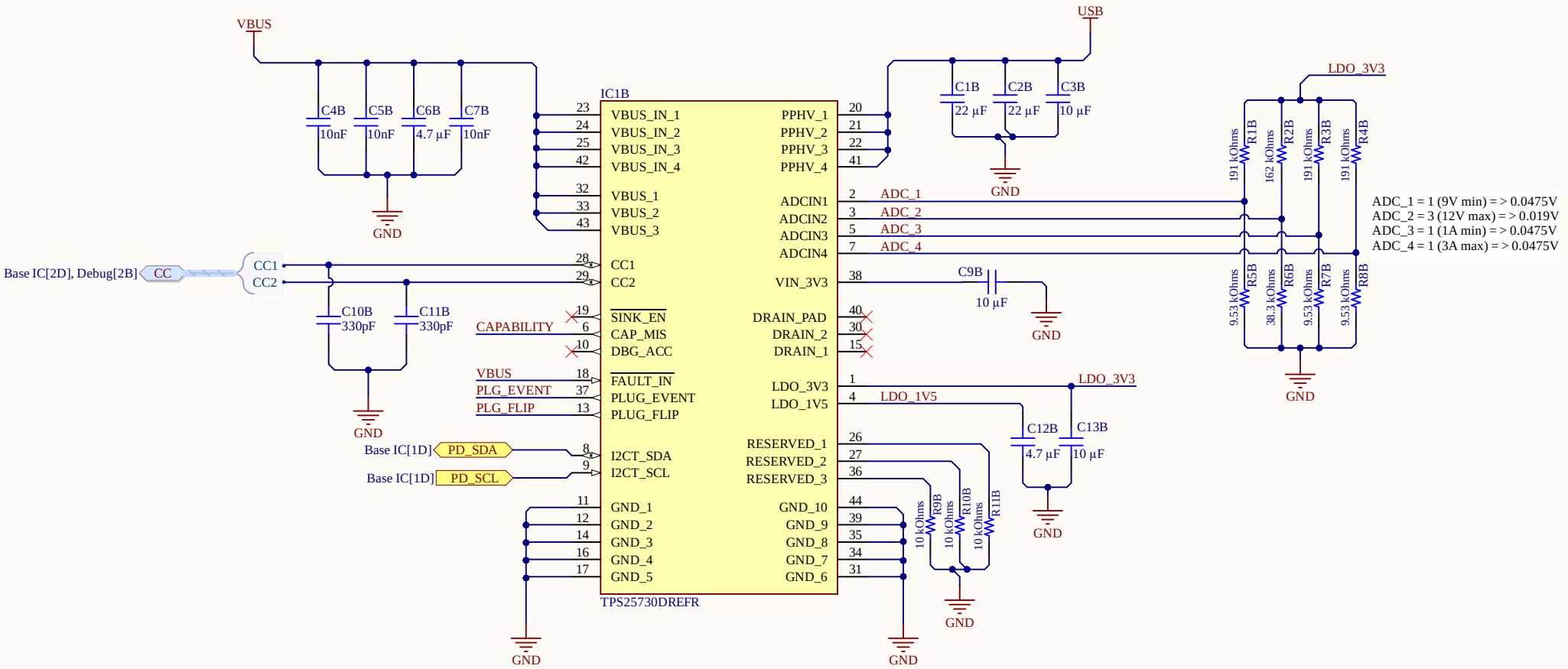

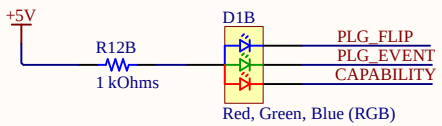

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ENG:	DHARAGESWARAN S	10.03.2024
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CHK:	DHARAGESWARAN S	10.03.2024

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BOM:	#022024031040
ASSY DWG:	#022024031030
FAB DWG:	#022024031020
PCB DWG:	#022024031010

PROJECT: FluidGuard

PROJECT REVISION: V2.0 | DOCUMENT REVISION: V1.3 | Email: sdhamuvkl@gmail.com

TITLE: USB-PD CHARGER

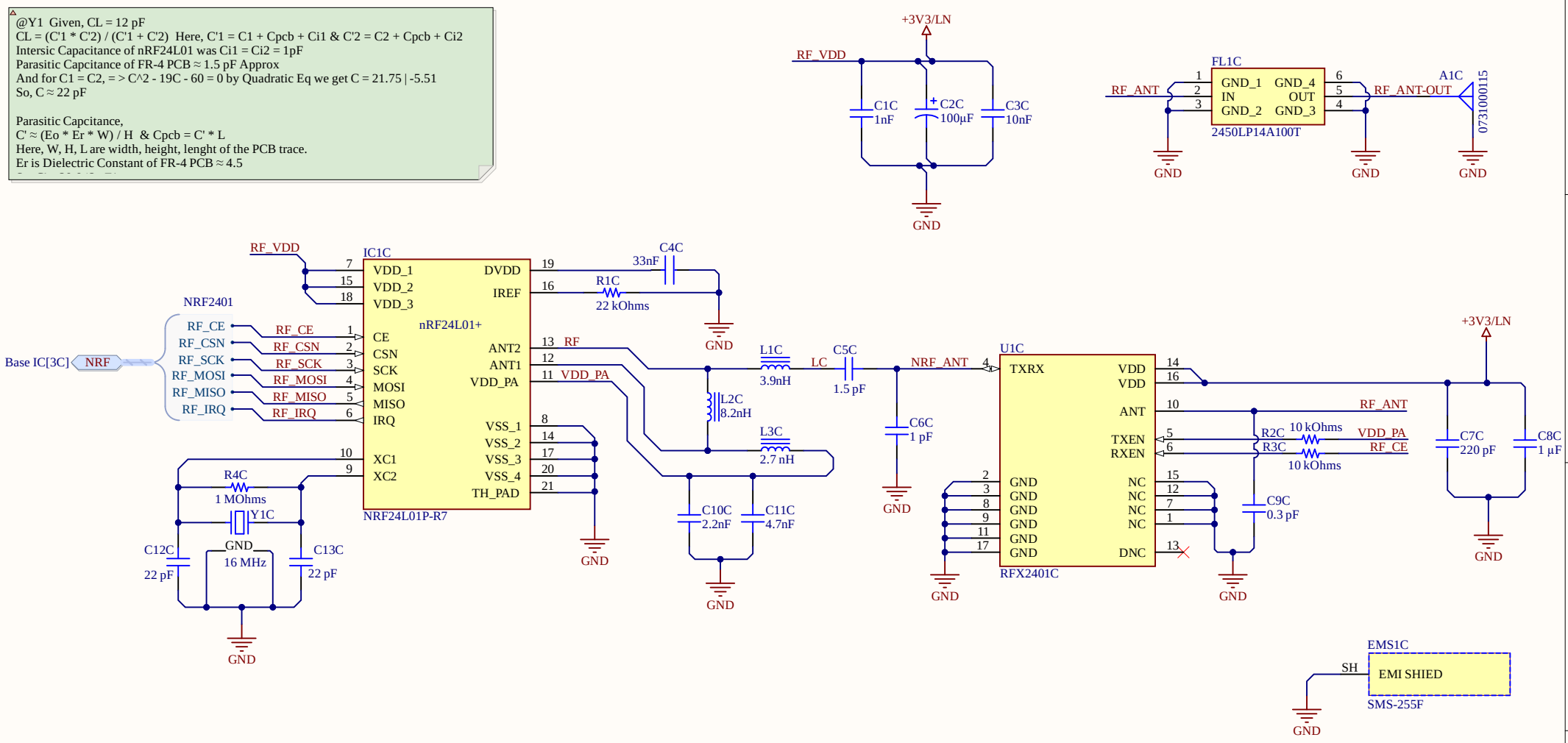
SIZE	CAGE CODE	DWG NO.	REV
A4	#	#022024031001	V2.1

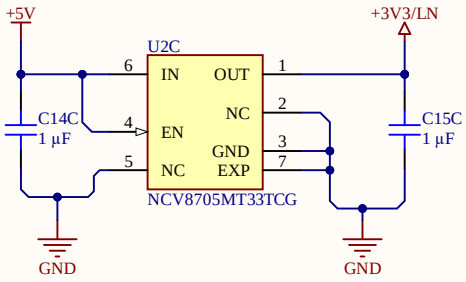
SCALE: | FILE NAME USB-PD.SchDoc | SHEET 2 OF 5

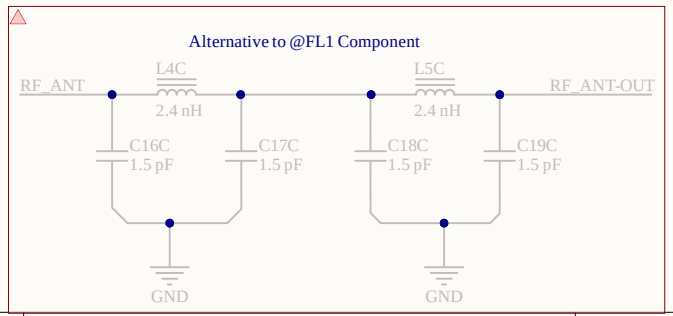
THIS DOCUMENT AND THE DATA DISCLOSED HEREIN OR HEREWITH IS THE PROPERTY OF SPD Ind.

@Y1 Given, CL = 12 pF
CL = (C'1 * C'2) / (C'1 + C'2) Here, C'1 = C1 + Cpcb + Ci1 & C'2 = C2 + Cpcb + Ci2
Intersic Capacitance of nRF24L01 was Ci1 = Ci2 = 1pF
Parasitic Capcitance of FR-4 PCB ≈ 1.5 pF Approx
And for C1 = C2, = > C^2 - 19C - 60 = 0 by Quadratic Eq we get C = 21.75 | -5.51
So, C ≈ 22 pF

Parasitic Capcitance,
C' ≈ (Eo * Er * W) / H & Cpcb = C' * L
Here, W, H, L are width, height, lenght of the PCB trace.
Er is Dielectric Constant of FR-4 PCB ≈ 4.5







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CHK:	DHARAGESWARAN S	10.03.2024

REFERENCE DOCUMENTS	
BOM:	#022024031040
ASSY DWG:	#022024031030
FAB DWG:	#022024031020
PCB DWG:	#022024031010

PROJECT: FluidGuard
PROJECT REVISION: V2.0
DOCUMENT REVISION: V1.3
Email: sdhamuvkl@gmail.com
TITLE: NRF24L01-TX
SIZE: A4
CAGE CODE: #
DWG NO.: #022024031002
REV: V2.1
SCALE:
FILE NAME: NRF2401.SchDoc
SHEET: 3 OF 5

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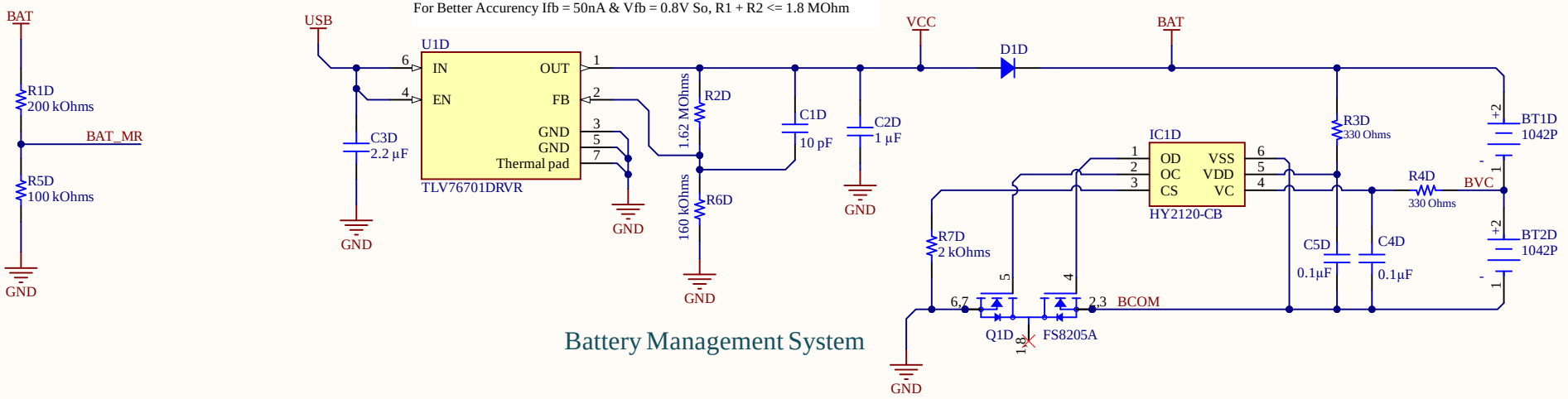
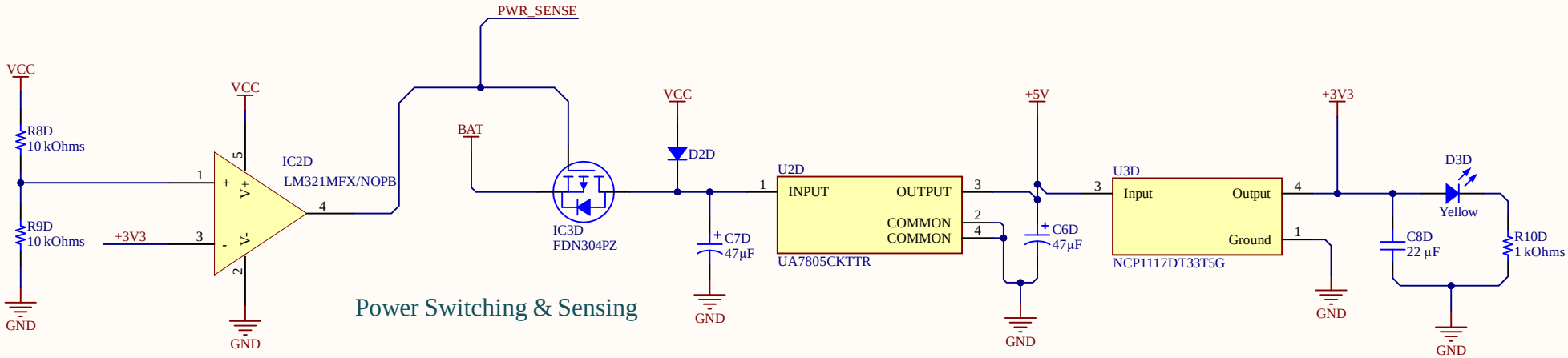
R1 + R2 <= Vout/(Ifb*100)
Vout = Vfb(1+R1/R2)
For Better Accurency Ifb = 50nA & Vfb = 0.8V So, R1 + R2 <= 1.8 MOhm



Battery Management System



Power Switching & Sensing

APPROVALS		DATE
ENG:	DHARAGESWARAN S	10.03.2024
DSN:	DHARAGESWARAN S	10.03.2024
CHK:	DHARAGESWARAN S	10.03.2024

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BOM:	#022024031040
ASSY DWG:	#022024031030
FAB DWG:	#022024031020
PCB DWG:	#022024031010

PROJECT: FluidGuard
PROJECT REVISION: V2.0
DOCUMENT REVISION: V1.3
Email: sdhamuvkl@gmail.com
TITLE: BMS BLOCK

SIZE	CAGE CODE	DWG NO.	REV
A4	#	#022024031003	V2.1

SCALE:
FILE NAME BMS.SchDoc
SHEET 4 OF 5

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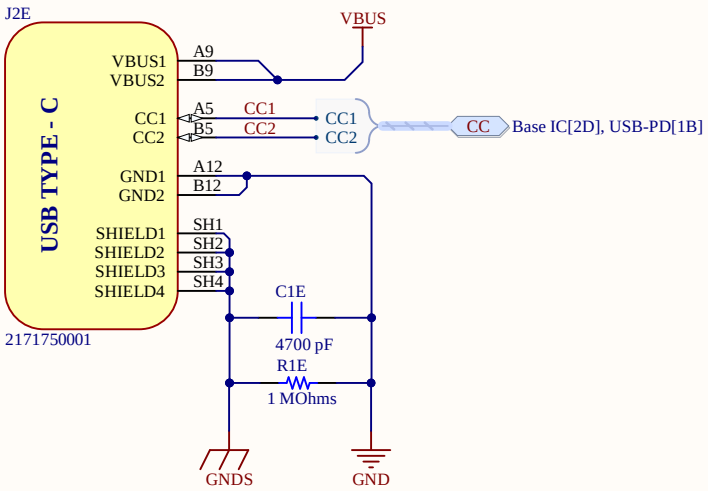

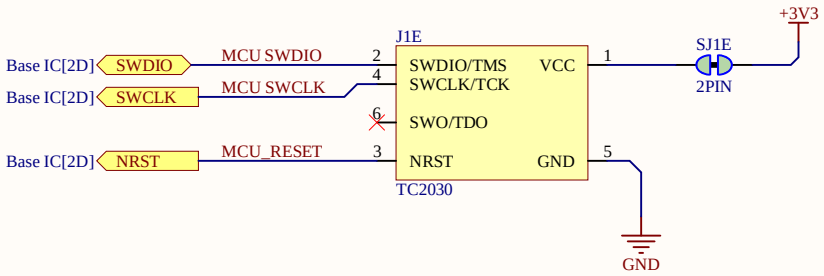

APPROVALS	DATE
ENG: DHARAGESWARAN S	10.03.2024
DSN: DHARAGESWARAN S	10.03.2024
CHK: DHARAGESWARAN S	10.03.2024

REFERENCE DOCUMENTS	
BOM:	#022024031040
ASSY DWG:	#022024031030
FAB DWG:	#022024031020
PCB DWG:	#022024031010

PROJECT: FluidGuard

PROJECT REVISION: V2.0 | DOCUMENT REVISION: V1.3

Email: sdhamuvkl@gmail.com

TITLE: DEBUG PORT

SIZE	CAGE CODE	DWG NO.	REV
A4	#	#022024031004	V2.1

SCALE: | FILE NAME Debug.SchDoc | SHEET 5 OF 5