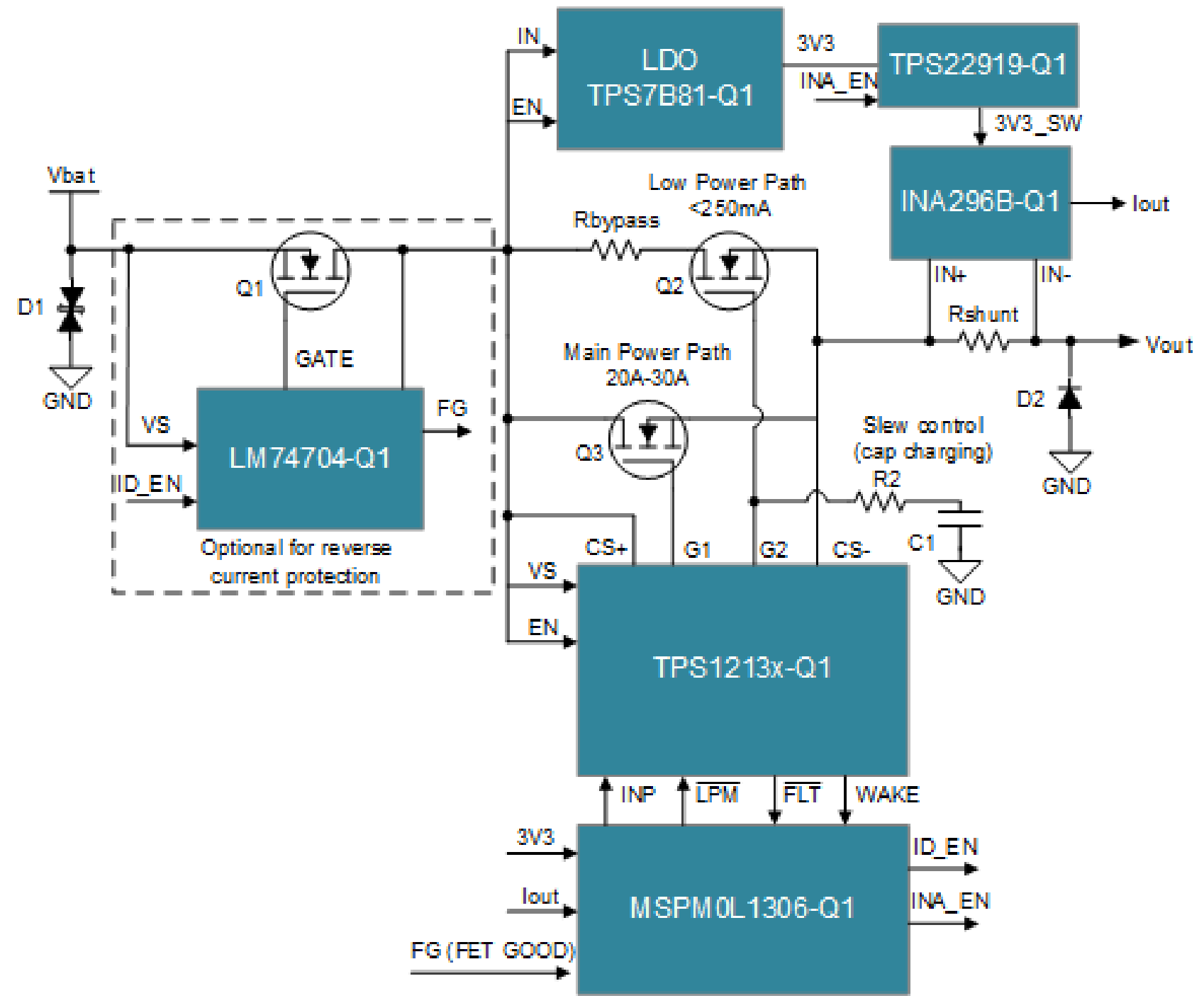


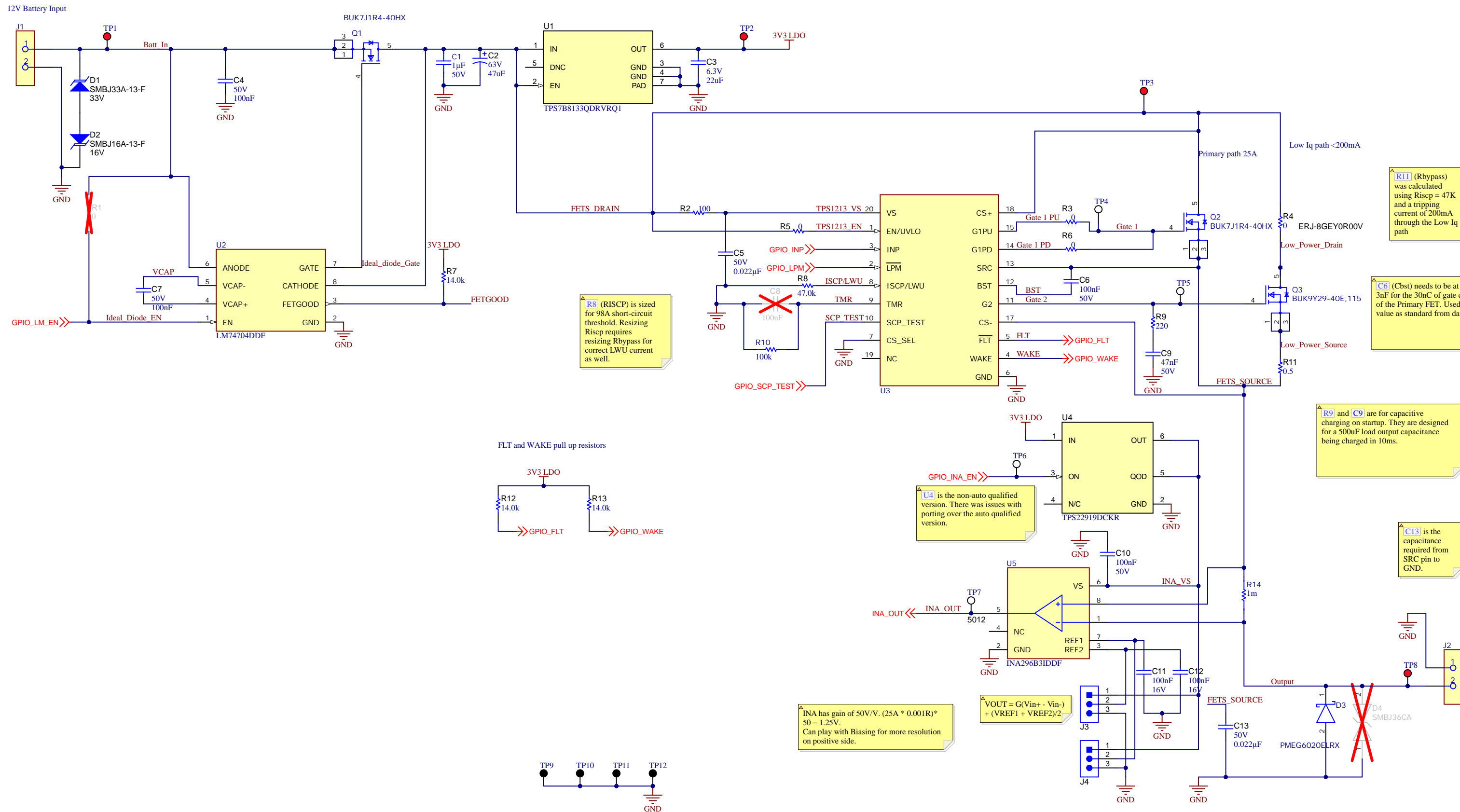
Revision History				
Rev	ECN #	Approved Date	Approved by	Notes
N/A	N/A	N/A	N/A	N/A



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Orderable:	Designed for: Public Release	Mod. Date: 1/25/2024
TID #: TIDA-020065	Project Title: TPS1213-Q1+INA	
Number: TIDA-020065 Rev: E2	Sheet Title:	
SVN Rev: Not in version control	Assembly Variant: Smart Fuse with Populated Components 4	
Drawn By:	File: Smart_Fuse.SchDoc	Size: B
Engineer: David Martinez	Contact: http://www.ti.com/support	





R8 (RISCP) is sized for 98A short-circuit threshold. Resizing Riscp requires resizing Rbypass for correct LWU current as well.

R11 (Rbypass) was calculated using $R_{iscp} = 47K$ and a tripping current of 200mA through the Low Iq path.

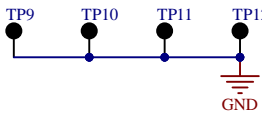
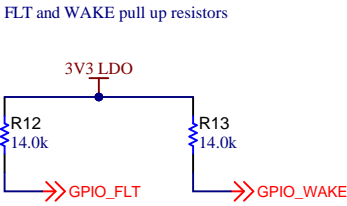
C6 (Cbst) needs to be at least 3nF for the 30nC of gate charge of the Primary FET. Used 100nF value as standard from datasheet.

R9 and **C9** are for capacitive charging on startup. They are designed for a 500uF load output capacitance being charged in 10ms.

C13 is the capacitance required from SRC pin to GND.

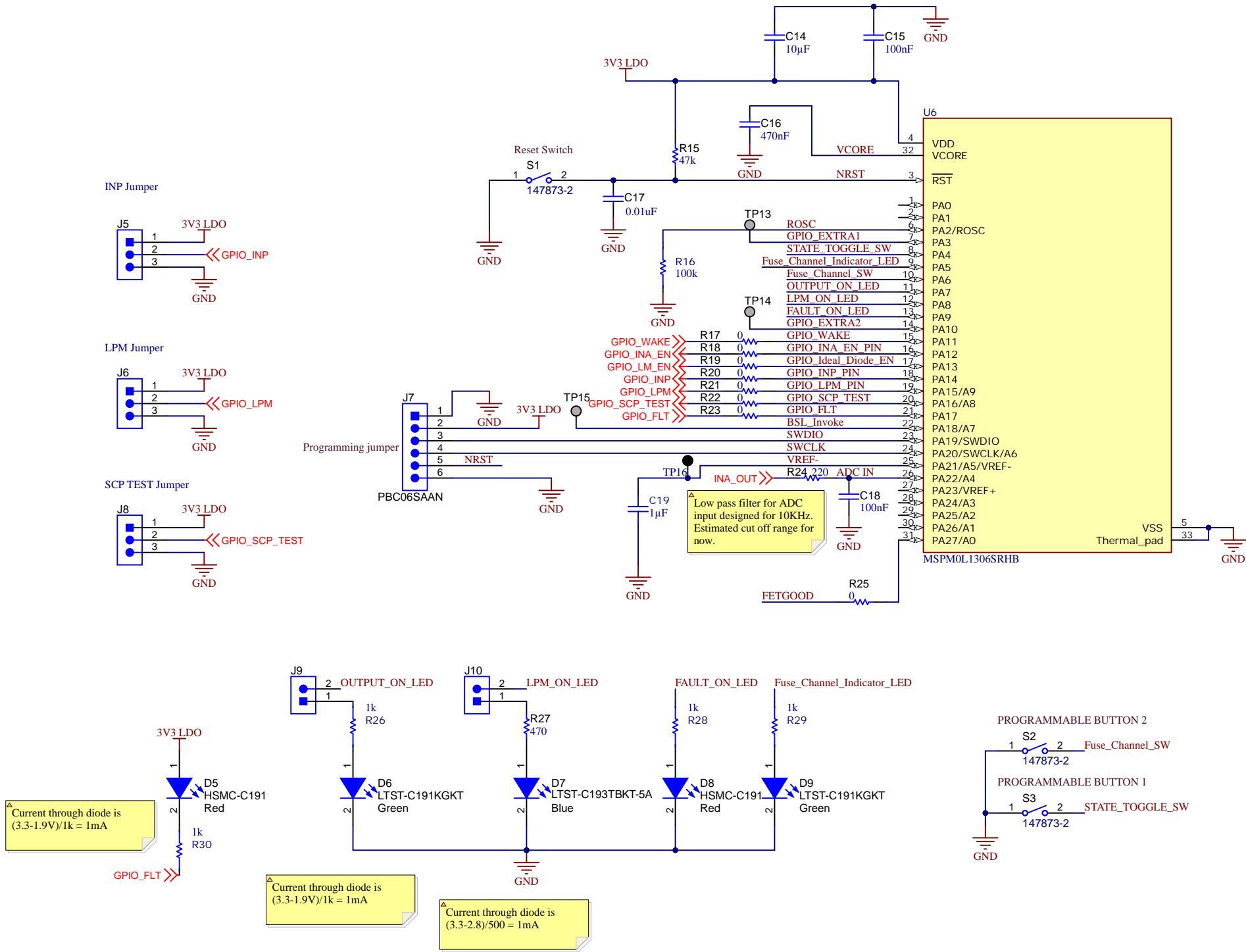
INA has gain of $50V/V$. $(25A * 0.001R) * 50 = 1.25V$. Can play with Biasing for more resolution on positive side.

$$V_{OUT} = G(V_{in+} - V_{in-}) + (V_{REF1} + V_{REF2})/2$$



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TID #: TIDA-020065	Project Title: TPS1213-Q1+INA	
Number: TIDA-020065	Rev: E2	Sheet Title: Main Page
SVN Rev: Not in version control	Assembly Variant: Smart Fuse with Populated Components	Sheet: 4
Drawn By: David Martinez	File: Smart_Fuse_Schematic.SchDoc	Size: B
Engineer: David Martinez	Contact: http://www.ti.com/support	

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Current through diode is (3.3-1.9V)/1k = 1mA

Current through diode is (3.3-1.9V)/1k = 1mA

Current through diode is (3.3-2.8)/500 = 1mA

Orderable:	Designed for: Public Release	Mod. Date: 10/9/2023
TID #: TIDA-020065	Project Title: TPS1213-Q1+INA	
Number: TIDA-020065	Rev: E2	Sheet Title: MSPM0
SVN Rev: Not in version control	Assembly Variant: Smart Fuse with Populated Components	Sheet: 4
Drawn By: Robert Smith	File: Smart_Fuse_MCU_Schematic.SchDoc	Size: B
Engineer: David Martinez	Contact: http://www.ti.com/support	

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H1 NY PMS 440 0025 PH
 H2 NY PMS 440 0025 PH
 H3 NY PMS 440 0025 PH
 H4 NY PMS 440 0025 PH

H5 1902C
 H6 1902C
 H7 1902C
 H8 1902C

FID1
 FID2
 FID3



PCB Number: TIDA-020065
 PCB Rev: E2

PCB LOGO
 Texas Instruments



PCB LOGO
 FCC disclaimer

PCB LOGO
 WEEE logo

LBL1
 PCB Label
 THT-14-423-10
 Size: 0.65" x 0.20 "

Variant/Label Table	
Variant	Label Text
001	ChangeMe!
002	ChangeMe!

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TID #: TIDA-020065	Project Title: TPS1213-Q1+INA	
Number: TIDA-020065	Rev: E2	Sheet Title: Hardware
SVN Rev: Not in version control	Assembly Variant: Smart Fuse with Populated Components	Sheet of 4
Drawn By: Robert Smith	File: Smart_Fuse_Hardware.SchDoc	Size: B
Engineer: David Martinez	Contact: http://www.ti.com/support	

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