

Table of Contents	
01	Title, ToC and Rev History
02	Notes
03	FS86AUT
04	VMON, DEBUG
05	FRDM MCU

Revision History			
Rev	Description	Date	Approved
X1	A055, PPL Released	29-05-2020	Lucie Hernandez
	A070 Released	10-06-2020	Lucie Hernandez
A	A085 (Final SCH, BOM) Prototype Release	02-09-2020	Lucie Hernandez
AX1	As per shared file, Design updated	07-01-2021	Lucie Hernandez
B	A085 (Final SCH, BOM) Release	07-01-2021	Lucie Hernandez
C	LBO1 Changed from 180-79539 to 180-79136 A085 (Final SCH, BOM) Release	24-02-2021	Lucie Hernandez

KITFS86AUTFRDMEM

Automotive Board



Automotive Product Group
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Designer: Avarna Vikraman	Drawing Title: KITFS86AUTFRDMEM		
Drawn by: Ramakrishna CH	Page Title: Title, ToC and Rev History		
Approved: Lucie Hernandez	Size C	Document Number SCH-47410 PDF: SPF-47410	Rev C
Date: Wednesday, March 10, 2021		Sheet 1 of 5	

1. Jumpers default configuration

REF DES	JUMPER(DEFAULT)	PAGE NAME
J14	OPEN	03-FS86AUT
J13	1-2 Short	03-FS86AUT
J12,J7	All open	04-VMON, DEBUG

2. Not populated components

REF DES	ASSY_OPT	PAGE NAME
R5,R47,C69,C448,R45,D2,C449, R9,C4,R169,C17,D20,C66,C18, R34,C67,R36,R148,C15,R11,R38, C14,C447,R42	DNP	03-FS86AUT
R142,R141,R73,R80,R87,R137, R76,R89	DNP	04-VMON, DEBUG
C450	DNP	05-FRDM MCU

3. Switch default configuration

REF DES	SWITCH(DEFAULT)	PAGE NAME
SW3	OFF	03-FS86AUT
SW1	ON	03-FS86AUT
SW2	OPEN	03-FS86AUT

VDDI2C: Assigned on SUP_I2C (set to 3.3V) by default)

Vpre & Pi Filter Coil Selection :

For Vpre 10 Amps :
- PiFilter : SPM6545VT-1R0M-D Isat 17.9A / Itemp 13.3A (7x6.5mm)
- Vpre 455K : SPM10065VT-4R7M-D Isat 19.3A / DCR 9.2 mOhm / Itemp@40°C 11.7A (10 x 10.5mm)

For Vpre 6 Amps :
- PiFilter : SPM6545VT-1R0M-D Isat 17.9A / Itemp 13.3A (7x6.5mm)
- Vpre 455K : SPM7054VT-4R7M-D Isat 11.2A / DCR 16.6 mOhm / Itemp@40°C 7.8A (7.5 x 7mm)

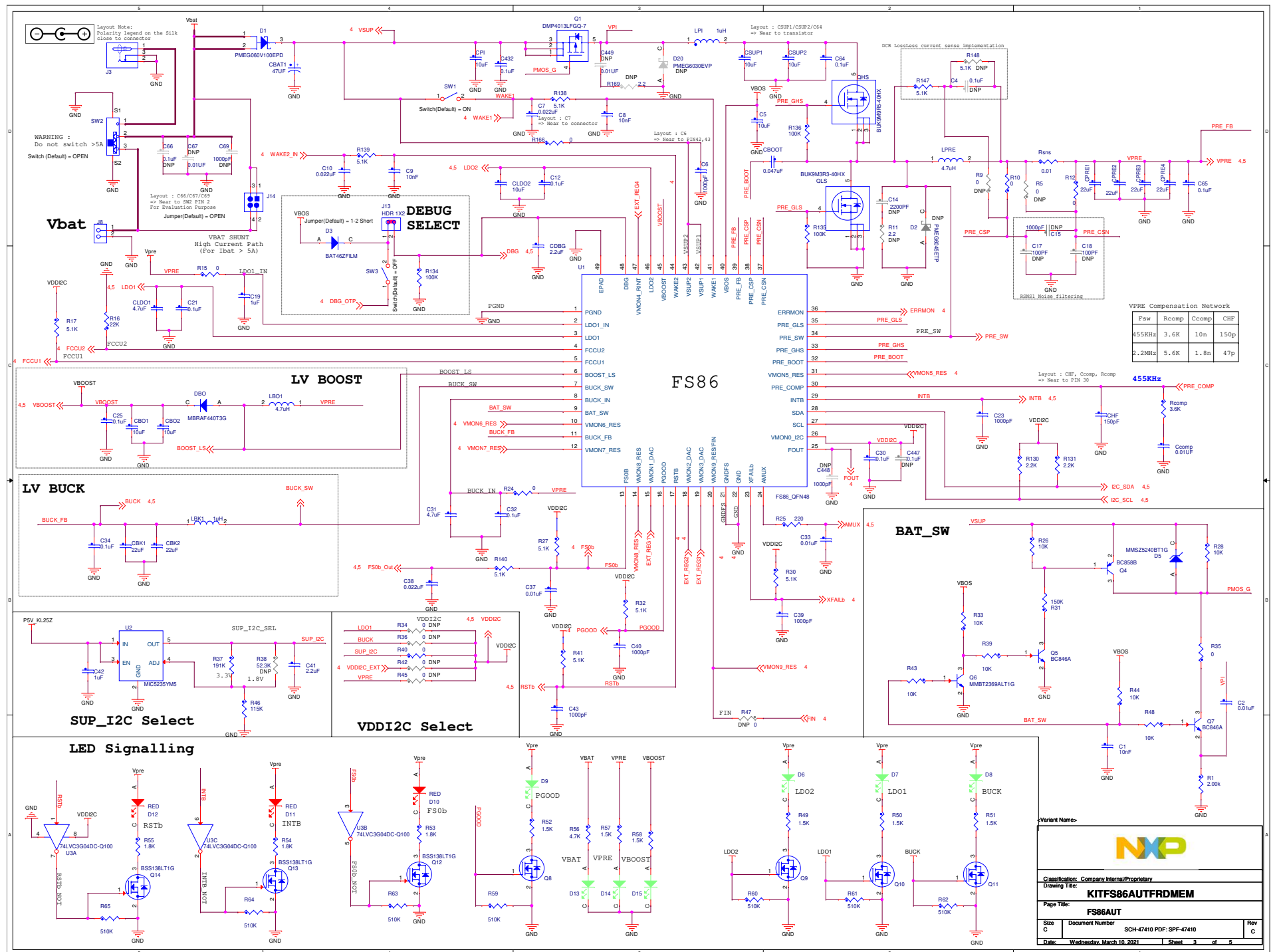
Alternative parts for 2.22MHz (fit with 455KHz inductors footprint for evaluation purpose) :
- Vpre 2.22M : SPM10040VT-2R2M-HZ Isat 13A / DCR 6.8 mOhm / Itemp@40°C 16.7A (10 x 10.7mm)
- Vpre 2.22M : SPM7054VT-2R2M-D Isat 14.1A / DCR 7.4 mOhm / Itemp@40°C 12A (7.5 x 7mm)

Board Configuration

	Switching Frequency	Output Voltage	Output max Current	Input	Voltage Monitoring
VPRE	455KHz	4.1V	10A	VSUP	VMON8_RES
VBOOST	2.22MHz	6V	1A	VPRE	VMON9_RES
BUCK	2.22MHz	1.8V	2.5A	VPRE	VMON7_RES
LDO1	----	3.3V	400mA	VPRE	VMON5_RES
LDO2	----	5V	400mA	VBOOST	VMON6_RES

<Variant Name>

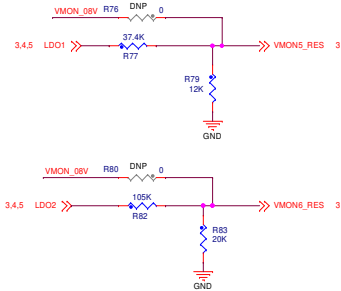
			
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Drawing Title: KITFS86AUTFRDMEM			
Page Title: Notes			
Size C	Document Number SCH-47410 PDF: SPF-47410	Rev C	
Date: Wednesday, March 18, 2021	Sheet 2	of 5	



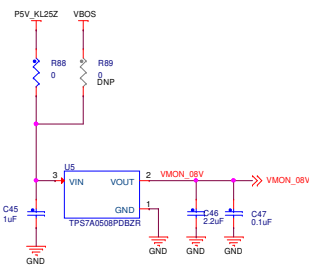
Fixed Voltage Monitoring

VMONs Fixed Resistor Bridges

	Monitoring	
	VMON_3V3	VMON_5V
Voltage	3.3V	5V
RH	37.4K	105K
RL	12K	20K



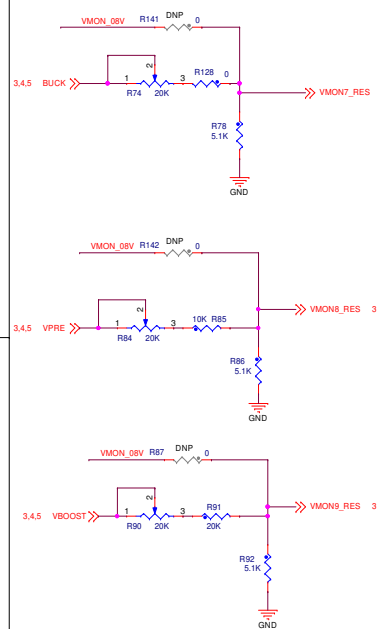
VMON_08V



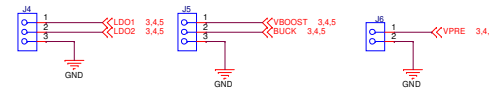
Flexible Voltage Monitoring

VMONs Flexible Resistor Bridges

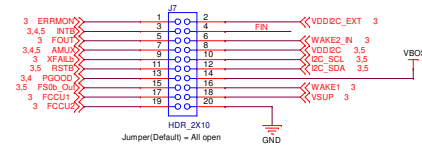
	Monitoring		
	VMON7	VMON8	VMON9
Voltage	0.8V -> 3.9V	2.4V -> 5.5V	3.9V -> 7V
RH	POT 20K	10K + POT 20K	20K + POT 20K
RL	5.1K	5.1K	5.1K



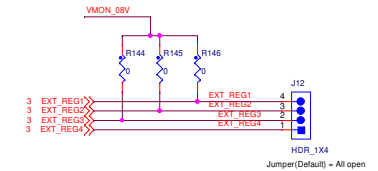
POWER



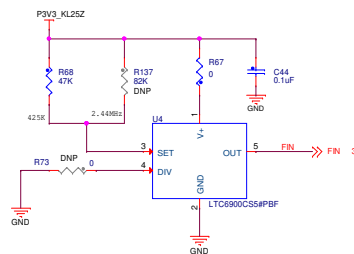
FS8600 Signals



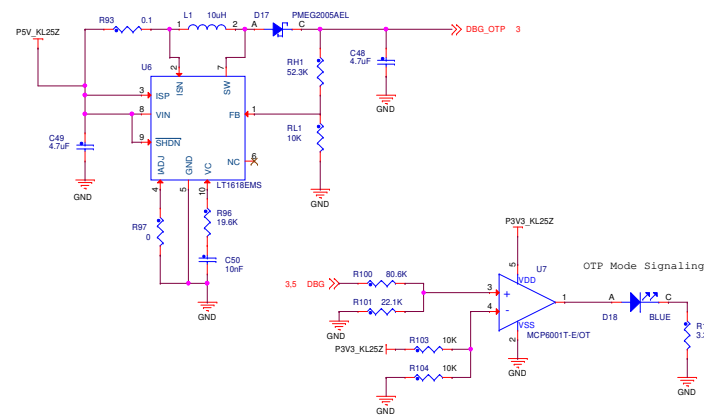
FS8600 External Regulators



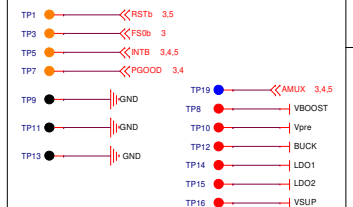
External Clock Generation



OTP Mode entry (Using USB 5V Power Supply)



Test Points



Classification: Company Internal/Proprietary		
Drawing Title: KITFS86AUTFRDMEM		
Page Title: VMON, DEBUG		
Size C	Document Number SCH-47410 PDF: SPF-47410	Rev C
Date: Wednesday, March 10, 2021	Sheet 4 of 5	

FRDM KL25Z – pinout

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