Revision History				
Rev	ECN #	Approved Date	Approved by	Notes
B/E3	N/A	01/05/2018	JAC	N/A

DEFAULT SWITCH/JUMPER SETTINGS

S3 1..4] ON,ON,ON,OFF (MSP430 IN RESET, TDA2XP I2C MASTER)

S4 [1..4] ON,OFF,OFF,ON(CSI-COAX)

S5[1..4] ON,OFF,OFF,ON(CSI-COAX)

J22 1-2 12V CAMERA

J27 1-2 12V RADAR

J40 POWER INPUT FROM TDA2XP EVM

CHANGE SUMMARY Rev B/E3:

Sheet 2: Mirror Q1 for proper orientation.

Sheet 5: Move led on 1.1V rail to PG for the buck regulator. Consider no-popping the 3.3V
and 1.8V leds since PG led is all inclusive.
Change R102 from 220 to 360.
Add Q2 BSS138

Sheet 7: PDB_UB960_cam to 3.3V pullup with RC for reset. R couple in MSP control.
C20 - 10uF
R22 - 487
R26 - 10K
INTB_CAM - Add pullup R186 - 10K
Change camera I2C address population option to 0x3D (R21-13.3k,R25-40.2k)

Sheet 8: PDB_UB960_radar to 3.3V pullup with RC for reset. R couple in MSP control.
C86 - 10uF
R35 - 487
R39 - 10K
INTB_RADAR - Add pullup R245
Change 25Mhz OSC to connect properly to 3.3V supply.
Add L78 - 120 ohm
Add C313 - 0.1uF
Change radar I2C address values for address 0x36 per TI SW team request (R34-113k, R38-88.7k)

Sheet Multiple: NoPop ALL TP except for GND TP41,TP15,TP42,TP40,TP43.

Sheet 10-13
Update serial link components per latest datasheet.
From 0.018uF to 0.015uF - C249, C264, C279, C294, C206, C207, C226, C227
From ADL3225V-470MT-TL000 to LQH3NPZ100MJRL - L51, L62, L70, L74, L28, L29, L38, L39

Layout Changes
1) Fix silksreen size for eval only.
2) Fix logic text as 518522
3) U1, move the unplugged via out from under the part.
4) Reposition TP5,TP6, TP7 and J11 for easier access.
5) Change the PWB stackup to be symetrical for top/bottom with reference to GND planes.
Rev A/E2 looks like the diff pair traces were properly sized but the stackup
was not adjusted accordingly on both top and bottom. Per simulations this created
about a 5-10 ohm delta in impedance.Text

Orderable: EVM_orderable		Designed for:Public Release	Mod. Date: 1/23/2018
TID #: TIDA-01413		Project Title:ADAS Sensor Fusion Board	
Number:518520B	Rev: E3	Sheet Title:	
SVN Rev: Version control disabled		Assembly Variant:[No Variations]	Sheet:1 of 15
Drawn By:		File: ADAS_SF_rev1_CoverSheet.SchDoc	Size: B
Engineer: Spectrum Digital		Contact: http://www.ti.com/support	

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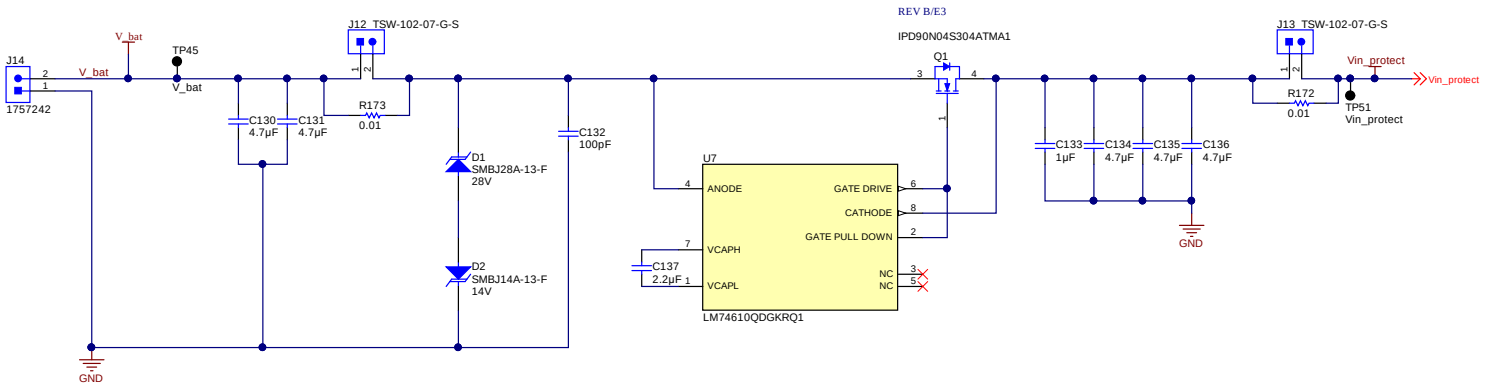
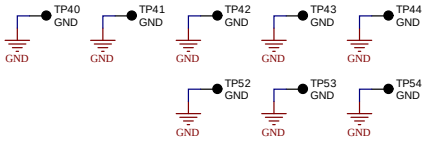
Car Battery Input
Vin = 4V - 60V





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Number:518520B	Rev: E3	Sheet Title:	
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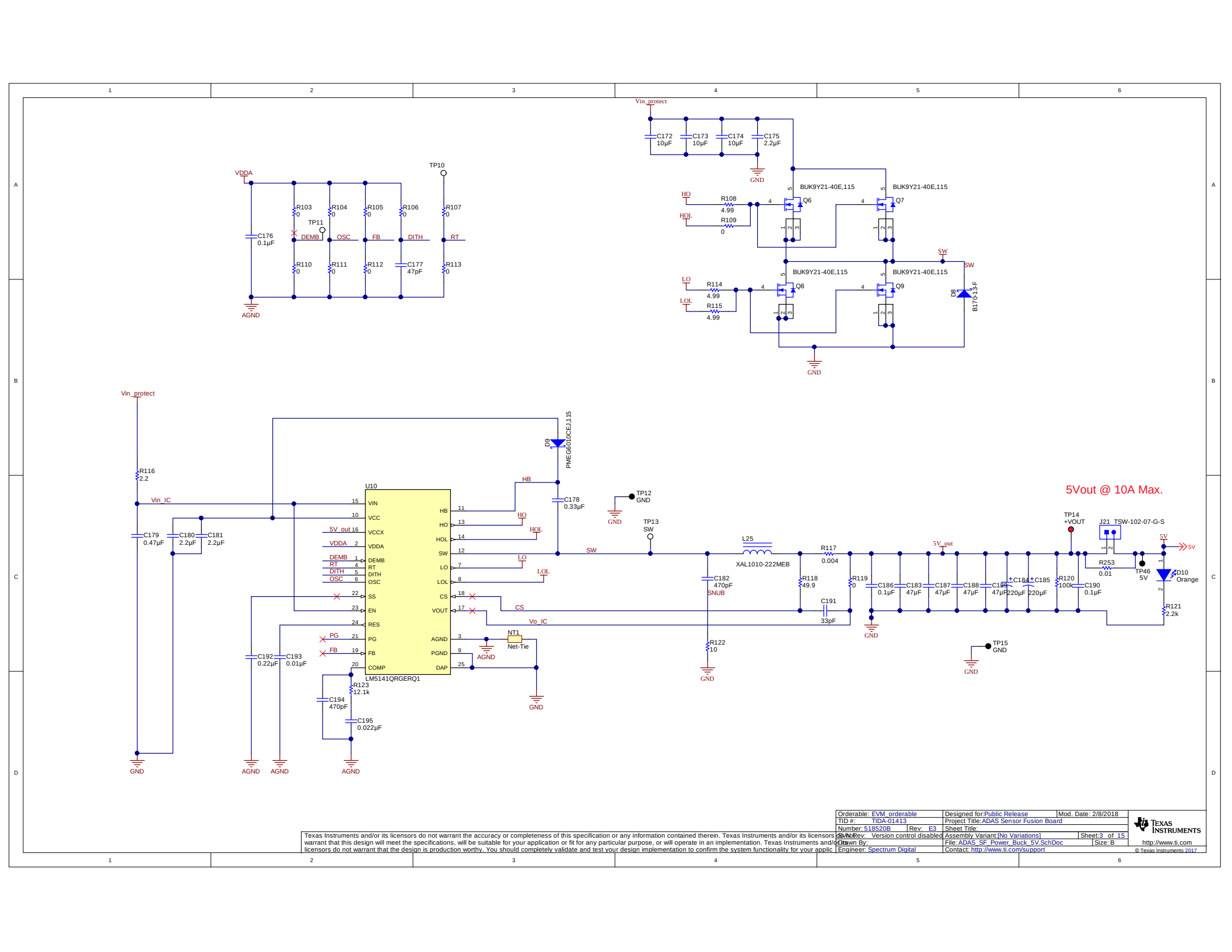
Engineer: Spectrum Digital		Contact: http://www.ti.com/support	



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Number:518520B	Rev: E3	Sheet Title:	
BOM Rev: Version control disabled		Assembly Variant:[No Variations]	Sheet:3 of 15
Drawn By:		File: ADAS_SF_Power_Buck_5V.SchDoc	Size: B
Engineer: Spectrum Digital		Contact: http://www.ti.com/support	

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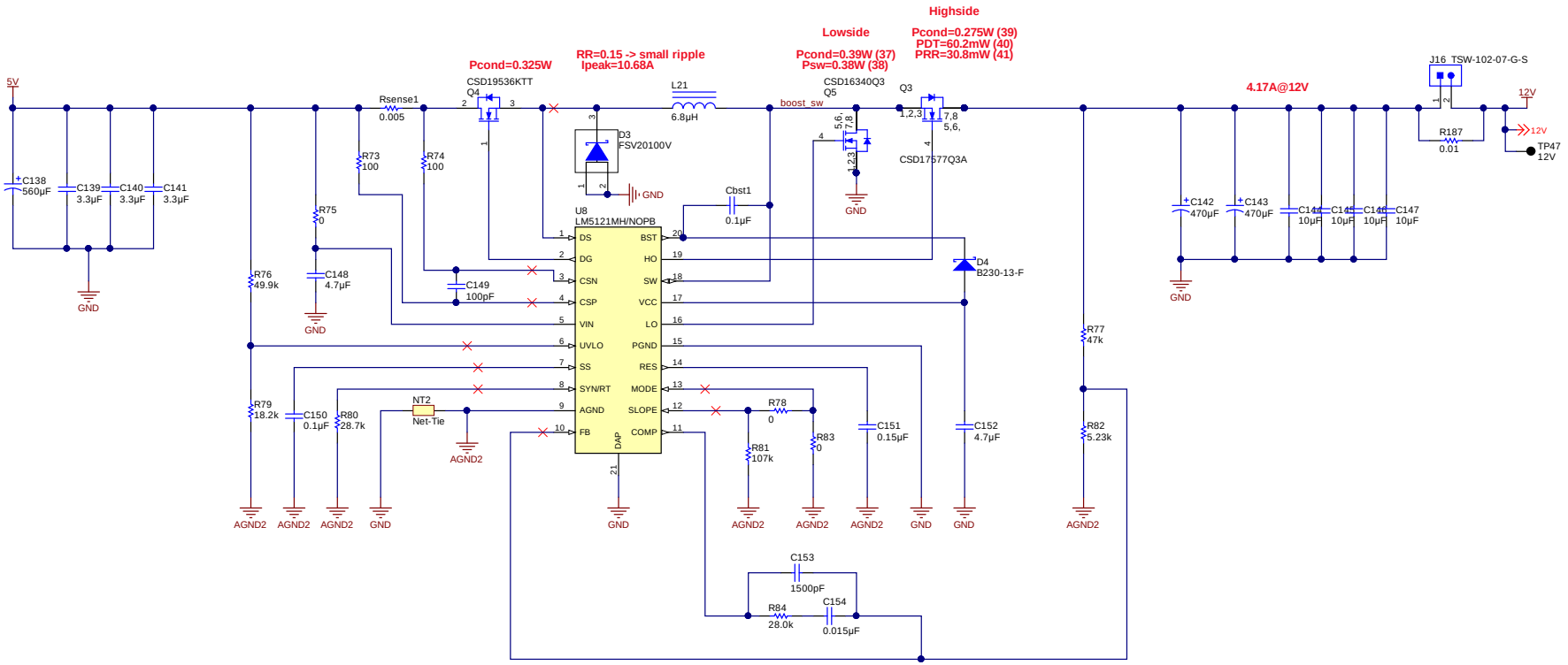

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Number:518520B	Rev: E3	Sheet Title:	
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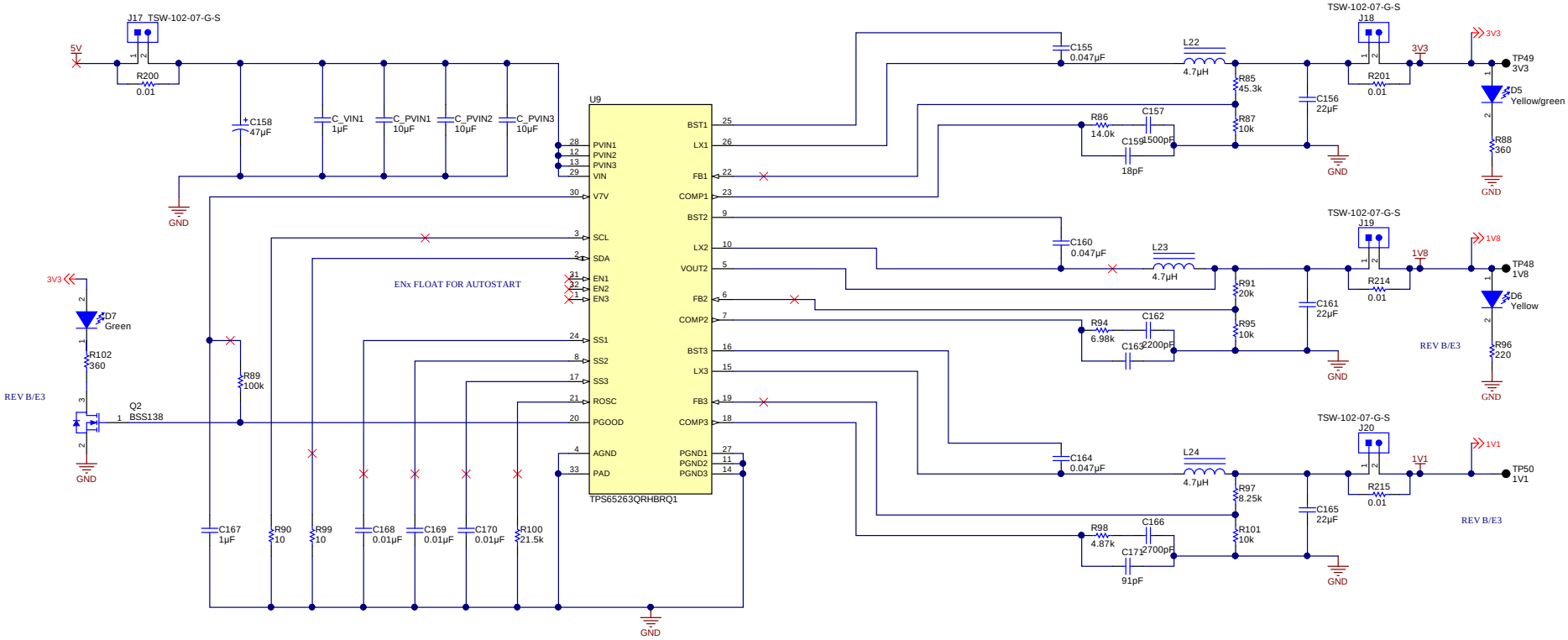
Engineer: Spectrum Digital		Contact: http://www.ti.com/support	



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Number: 518520B	Rev: E3	Sheet Title:	
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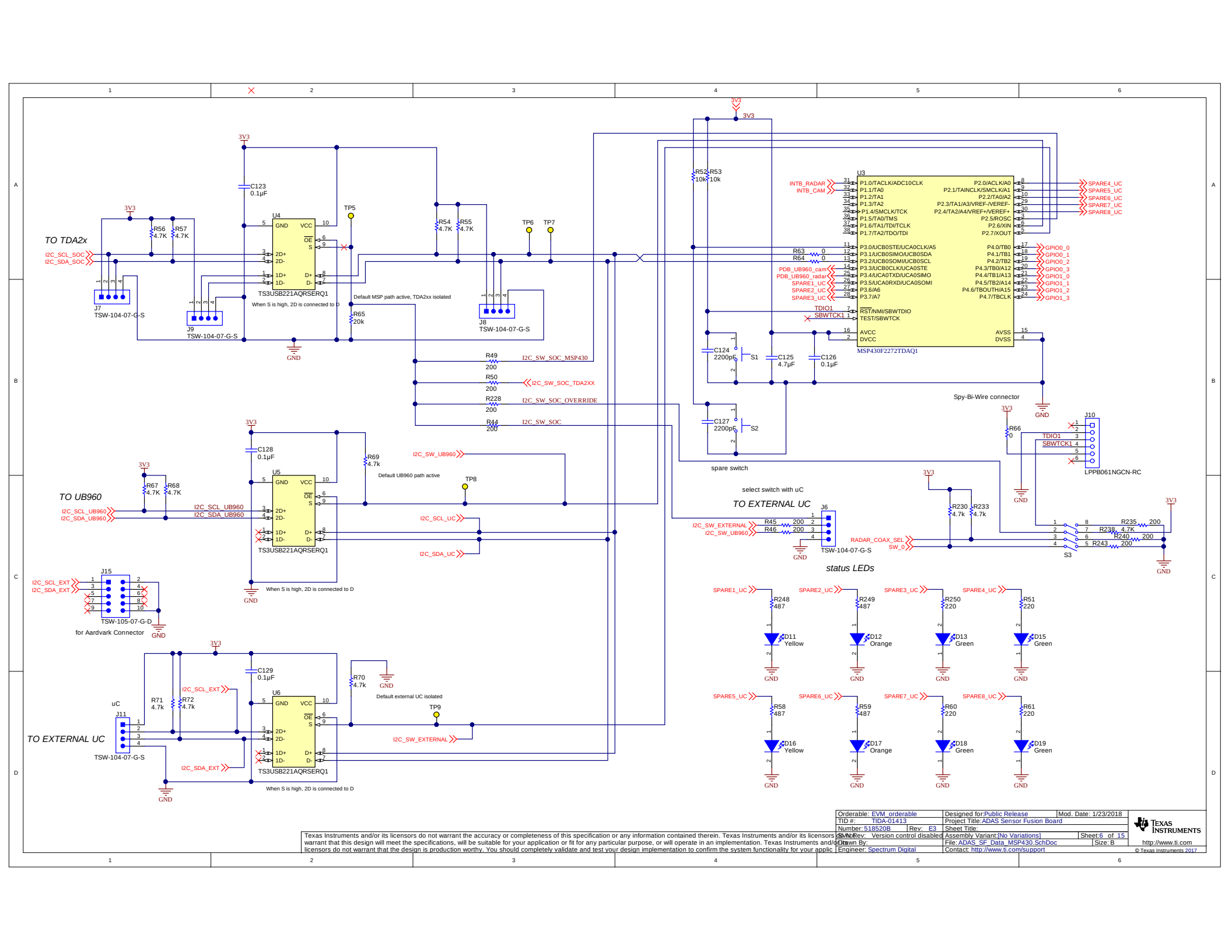
Engineer: Spectrum Digital		Contact: http://www.ti.com/support	



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Number:518520B	Rev: E3	Sheet Title:	
SVN Rev: Version control disabled	Assembly Variant:[No Variations]	Sheet:6 of 15	
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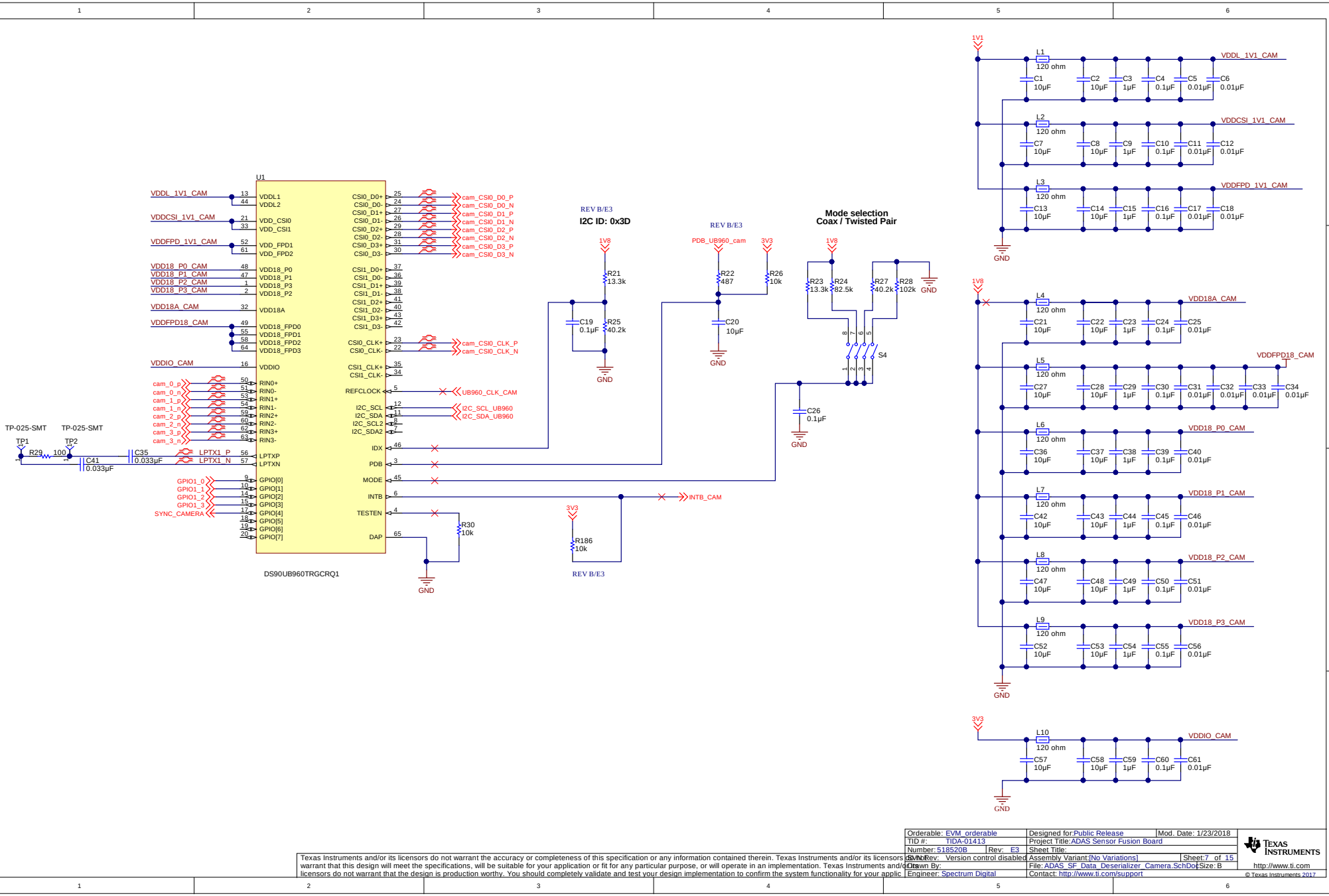

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Number:518520B Rev: E3	Sheet Title:	
BOM Rev: Version control disabled	Assembly Variant:[No Variations]	Sheet:7 of 15
Drawn By:	File: ADAS_SF_Data_Deserializer_Camera.SchDoc	Size: B
Engineer: Spectrum Digital	Contact: http://www.ti.com/support	

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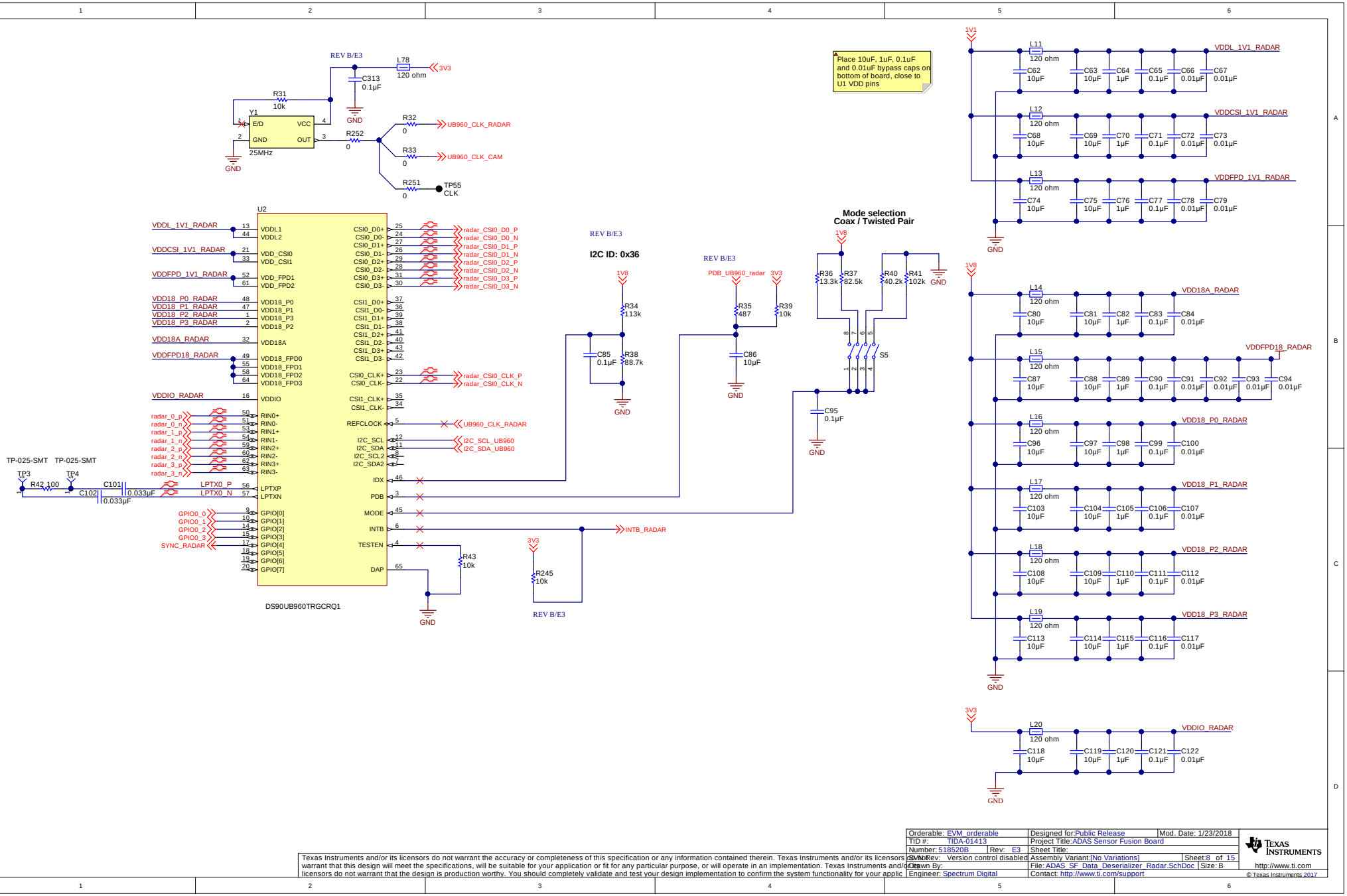
REV B/E3
L78
120 ohm
3V3
C313
0.1µF
GND
R31
10k
Y1
E/D
VCC
GND
OUT
25MHz
R252
0
R32
0
UB960_CLK_RADAR
R33
0
UB960_CLK_CAM
R251
0
TP55
CLK
Place 10uF, 1uF, 0.1uF and 0.01uF bypass caps on bottom of board, close to U1 VDD pins
1V1
L11
120 ohm
C62 10µF
C63 10µF
C64 1µF
C65 0.1µF
C66 0.01µF
C67 0.01µF
VDDL_1V1_RADAR
L12
120 ohm
C68 10µF
C69 10µF
C70 1µF
C71 0.1µF
C72 0.01µF
C73 0.01µF
VDDCSI_1V1_RADAR
L13
120 ohm
C74 10µF
C75 10µF
C76 1µF
C77 0.1µF
C78 0.01µF
C79 0.01µF
VDDFPD_1V1_RADAR
U2
VDDL_1V1_RADAR
VDDCSI_1V1_RADAR
VDDFPD_1V1_RADAR
VDD18_P0_RADAR
VDD18_P1_RADAR
VDD18_P2_RADAR
VDD18_P3_RADAR
VDD18A_RADAR
VDDFPD18_RADAR
VDDIO_RADAR
VDDL1
VDDL2
VDD_CSI0
VDD_CSI1
VDD_FPD1
VDD_FPD2
VDD18_P0
VDD18_P1
VDD18_P3
VDD18_P2
VDD18A
VDD18_FPD0
VDD18_FPD1
VDD18_FPD2
VDD18_FPD3
VDDIO
CSI0_D0+
CSI0_D0-
CSI0_D1+
CSI0_D1-
CSI0_D2+
CSI0_D2-
CSI0_D3+
CSI0_D3-
radar_CSI0_D0_P
radar_CSI0_D0_N
radar_CSI0_D1_P
radar_CSI0_D1_N
radar_CSI0_D2_P
radar_CSI0_D2_N
radar_CSI0_D3_P
radar_CSI0_D3_N
CSI1_D0+
CSI1_D0-
CSI1_D1+
CSI1_D1-
CSI1_D2+
CSI1_D2-
CSI1_D3+
CSI1_D3-
CSI0_CLK+
CSI0_CLK-
radar_CSI0_CLK_P
radar_CSI0_CLK_N
CSI1_CLK+
CSI1_CLK-
REFCLOCK
UB960_CLK_RADAR
I2C_SCL
I2C_SDA
I2C_SCL2
I2C_SDA2
I2C_SCL_UB960
I2C_SDA_UB960
IDX
PDB
MODE
INTB
TESTEN
DAP
INTB_RADAR
R43
10k
GND
DS90UB960TRGCRQ1
REV B/E3
I2C ID: 0x36
1V8
R34
113k
C85
0.1µF
R38
88.7k
GND
REV B/E3
PDB_UB960_radar
3V3
R35
487
R39
10k
C86
10µF
GND
Mode selection
Coax / Twisted Pair
1V8
R36
13.3k
R37
82.5k
R40
40.2k
R41
102k
GND
S5
C95
0.1µF
GND
TP-025-SMT
TP-025-SMT
TP3
TP4
R42 100
C101
0.033µF
C102
0.033µF
LPTX0_P
LPTX0_N
LPTXP
LPTXN
radar_0_p
radar_0_n
radar_1_p
radar_1_n
radar_2_p
radar_2_n
radar_3_p
radar_3_n
RIN0+
RIN0-
RIN1+
RIN1-
RIN2+
RIN2-
RIN3+
RIN3-
GPIO0_0
GPIO0_1
GPIO0_2
GPIO0_3
SYNC_RADAR
GPIO[0]
GPIO[1]
GPIO[2]
GPIO[3]
GPIO[4]
GPIO[5]
GPIO[6]
GPIO[7]
3V3
R245
10k
REV B/E3
1V8
L14
120 ohm
C80 10µF
C81 10µF
C82 1µF
C83 0.1µF
C84 0.01µF
VDD18A_RADAR
L15
120 ohm
C87 10µF
C88 10µF
C89 1µF
C90 0.1µF
C91 0.01µF
C92 0.01µF
C93 0.01µF
C94 0.01µF
VDDFPD18_RADAR
L16
120 ohm
C96 10µF
C97 10µF
C98 1µF
C99 0.1µF
C100 0.01µF
VDD18_P0_RADAR
L17
120 ohm
C103 10µF
C104 10µF
C105 1µF
C106 0.1µF
C107 0.01µF
VDD18_P1_RADAR
L18
120 ohm
C108 10µF
C109 10µF
C110 1µF
C111 0.1µF
C112 0.01µF
VDD18_P2_RADAR
L19
120 ohm
C113 10µF
C114 10µF
C115 1µF
C116 0.1µF
C117 0.01µF
VDD18_P3_RADAR
GND
3V3
L20
120 ohm
C118 10µF
C119 10µF
C120 1µF
C121 0.1µF
C122 0.01µF
VDDIO_RADAR
GND
Orderable: EVM orderable
TID #: TIDA-01413
Number: 518520B
Rev: E3
Custom Rev: Version control disabled
Drawn By:
Engineer: Spectrum Digital
Designed for: Public Release
Mod. Date: 1/23/2018
Project Title: ADAS Sensor Fusion Board
Sheet Title:
Assembly Variant: [No Variations]
Sheet: 8 of 15
File: ADAS_SF_Data_Deserializer_Radar.SchDoc
Size: B
Contact: http://www.ti.com/support
http://www.ti.com
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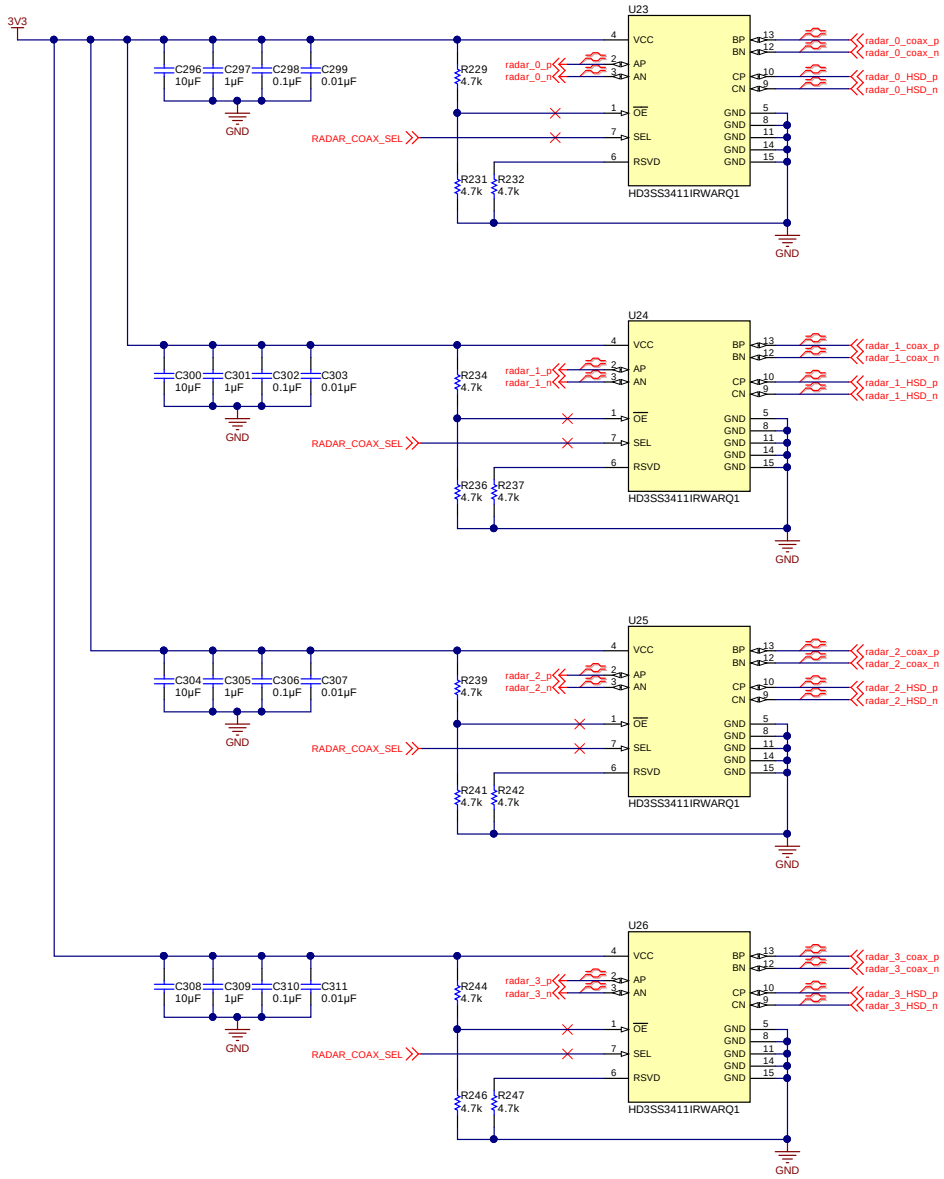

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TID #: TIDA-01413		Project Title: ADAS Sensor Fusion Board	
Number: 518520B	Rev: E3	Sheet Title:	
SVN Rev: Version control disabled		Assembly Variant: [No Variations]	Sheet: 9 of 15
Drawn By:		File: ADAS_SF_Data_Radar_Mux.SchDoc	Size: B
Engineer: Spectrum Digital		Contact: http://www.ti.com/support	

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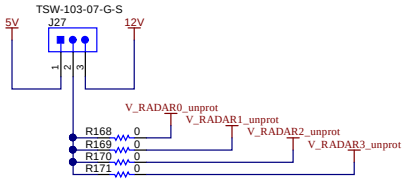
Power Selection



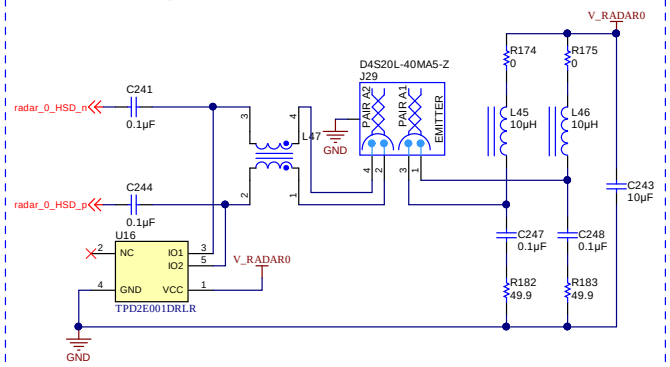
Ilim = 89/Rlim(kohm)

88.7k for ~1Amp

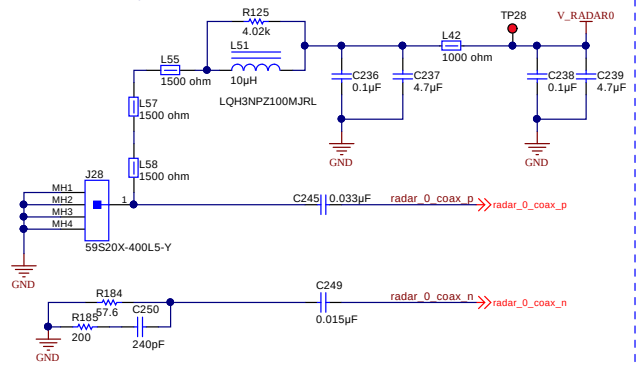
139k for .64Amp

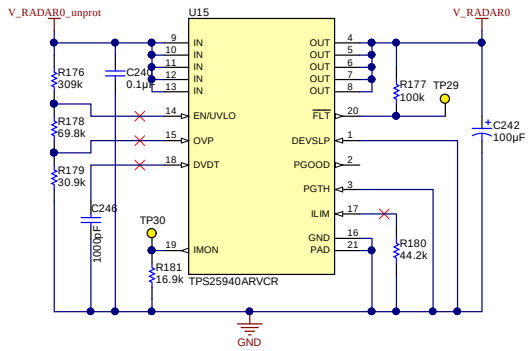
1500pf for inrush

Radar 0 - mount option 1: HSD

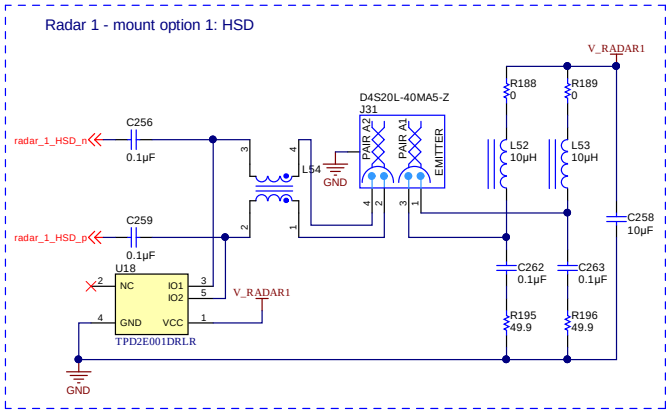


Radar 0 - mount option 2: Coax

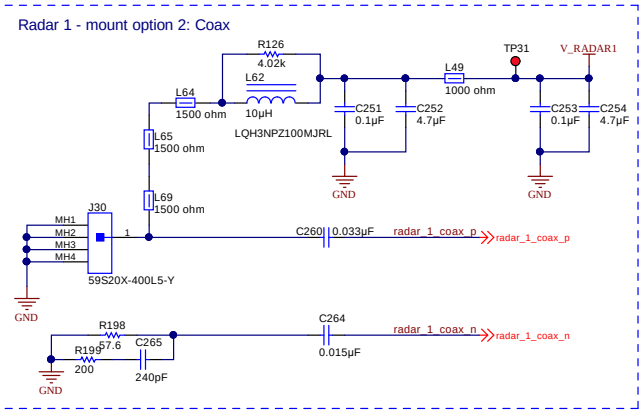


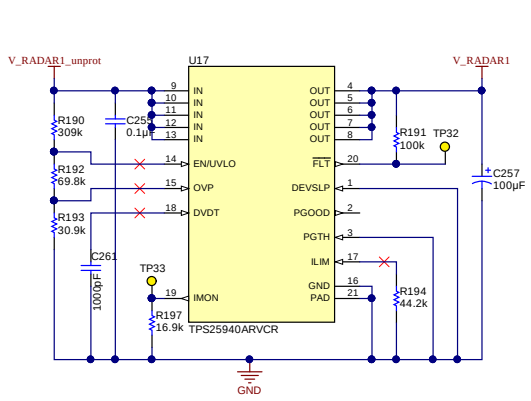


Radar 1 - mount option 1: HSD



Radar 1 - mount option 2: Coax





Orderable: EVM_orderable		Designed for:Public Release	Mod. Date: 1/23/2018
TID #: TIDA-01413		Project Title:ADAS Sensor Fusion Board	
Number:518520B	Rev: E3	Sheet Title:	
EVM Rev: Version control disabled		Assembly Variant:[No Variations]	Sheet:10 of 15
Drawn By:		File: ADAS_SF_Data_Connection_Radar_01.SchDoc	Size: B
Engineer: Spectrum Digital		Contact: http://www.ti.com/support	

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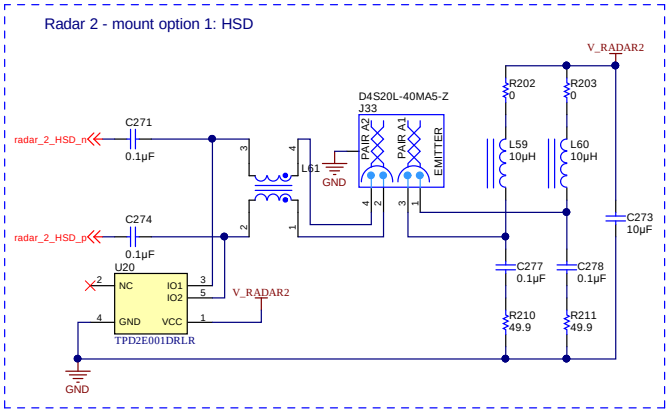
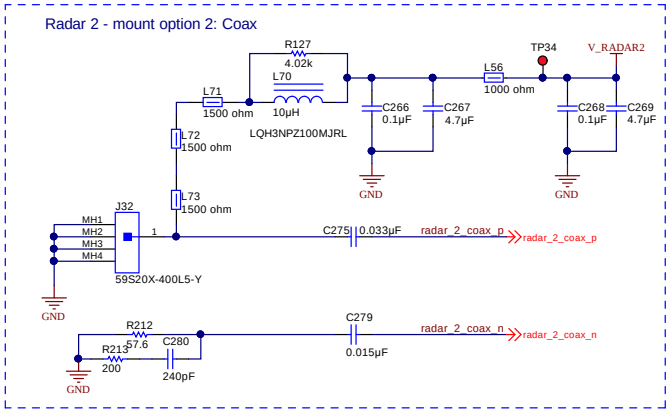
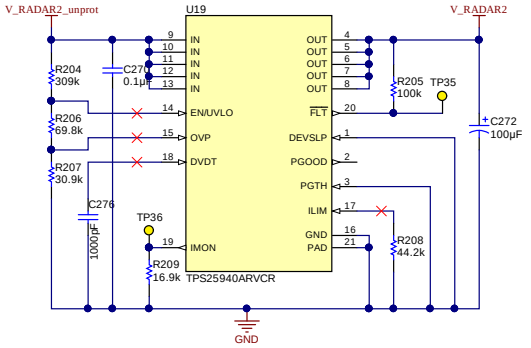
Radar 2 - mount option 1: HSD

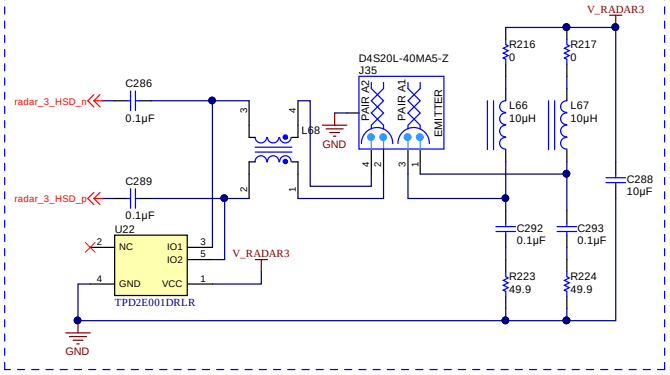


Radar 2 - mount option 2: Coax

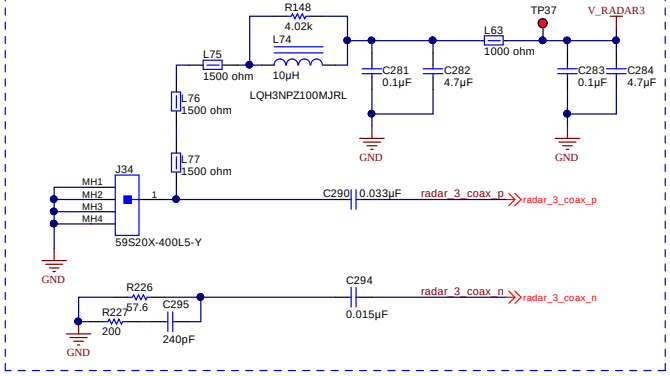


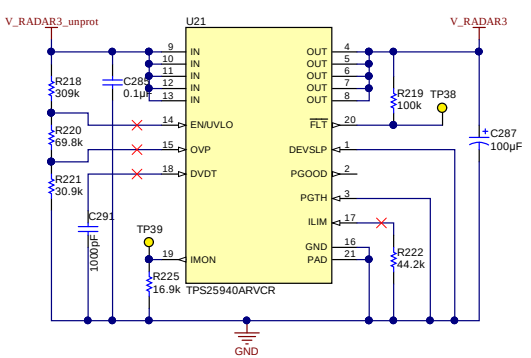


Radar 3 - mount option 1: HSD



Radar 3 - mount option 2: Coax





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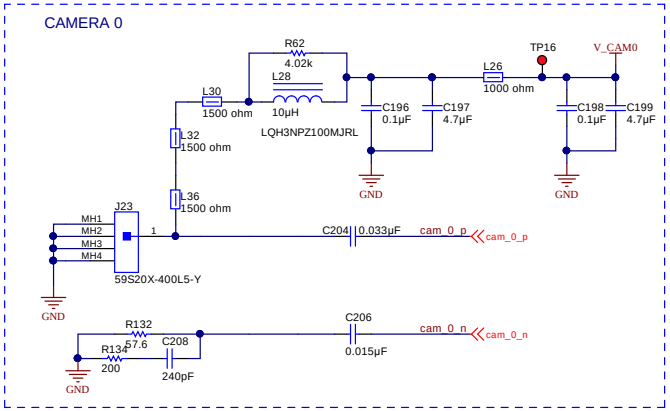
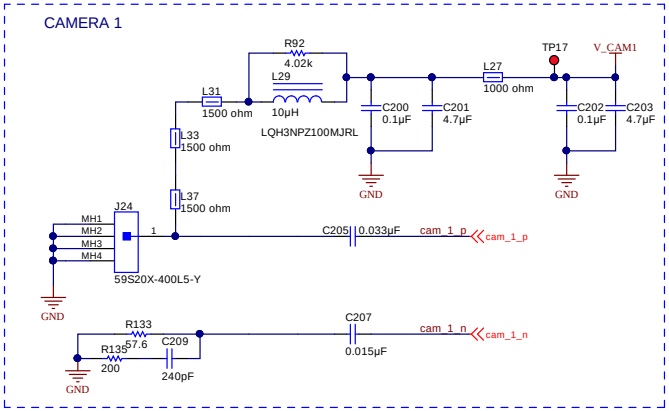
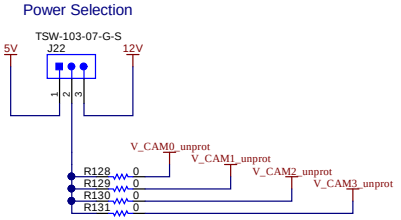
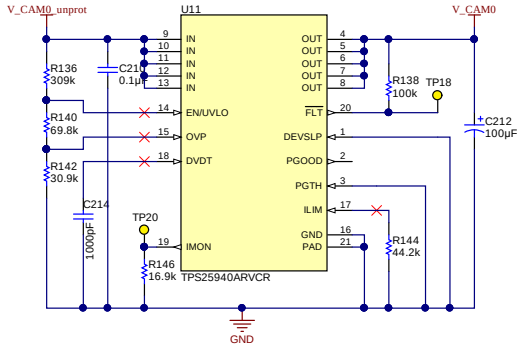
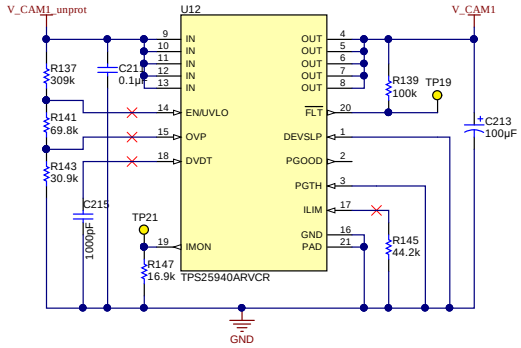
TID #: TIDA-01413		Project Title:ADAS Sensor Fusion Board	
Number:518520B	Rev: E3	Sheet Title:	
BOM Rev: Version control disabled		Assembly Variant:[No Variations]	Sheet:11 of 15
Drawn By:		File:ADAS_SF_Data_Connection_Radar_02.SchDoc	Size: B
Engineer: Spectrum Digital		Contact: http://www.ti.com/support	











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TID #: TIDA-01413	Project Title:ADAS Sensor Fusion Board	
Number:518520B Rev: E3	Sheet Title:	
SVN Rev: Version control disabled	Assembly Variant:[No Variations]	Sheet:12 of 15
Drawn By:	File: ADAS_SF_Data_Connection_Cam_01.SchDoc	Size: B
Engineer: Spectrum Digital	Contact: http://www.ti.com/support	

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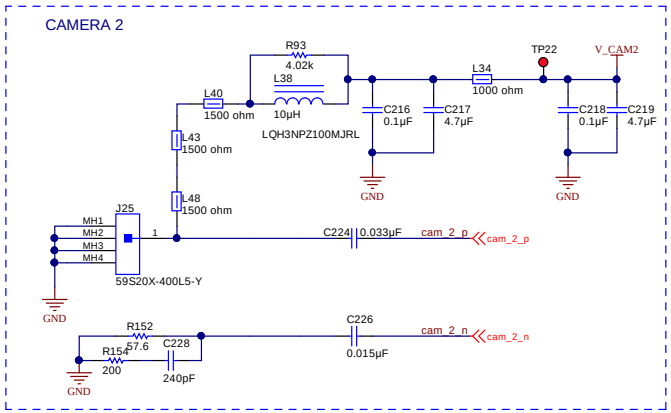

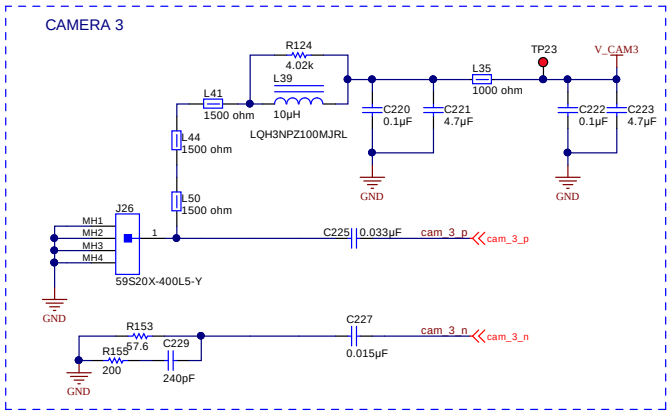

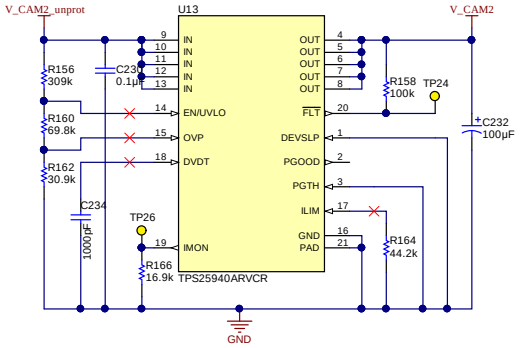

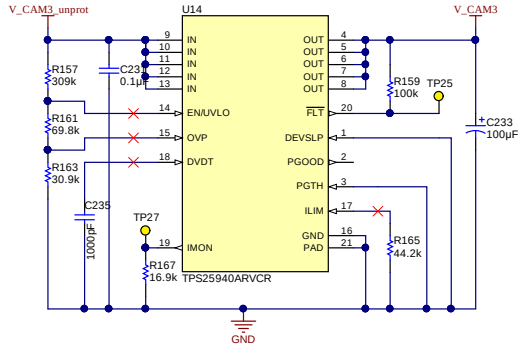

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Engineer: Spectrum Digital		Contact: http://www.ti.com/support	

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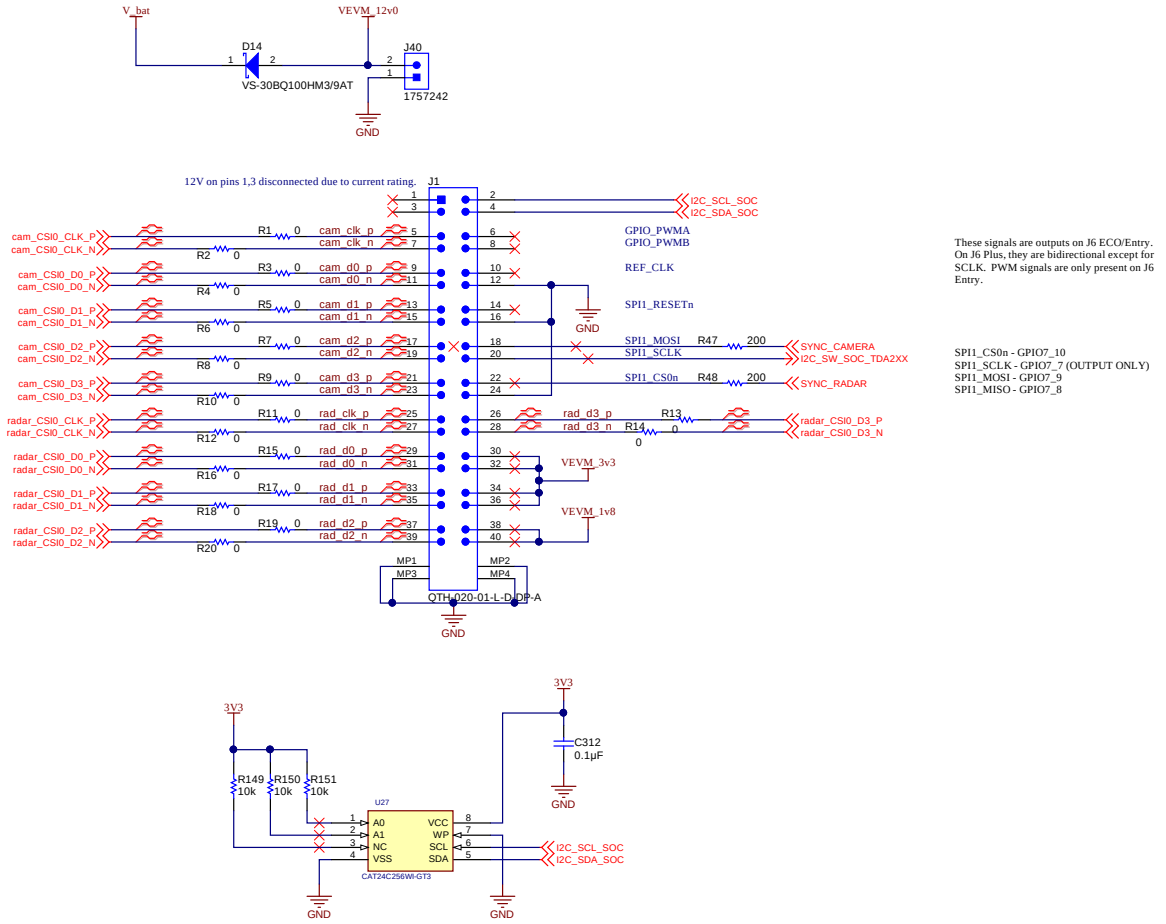

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TID #: TIDA-01413	Project Title:ADAS Sensor Fusion Board	
Number:518520B Rev: E3	Sheet Title:	
BOM Rev: Version control disabled	Assembly Variant:[No Variations]	Sheet:14 of 15
Drawn By:	File: ADAS_SF_Data_CSI2_Connector.SchDoc	Size: B
Engineer: Spectrum Digital	Contact: http://www.ti.com/support	

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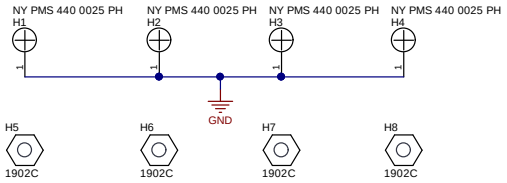

FID1 FID2 FID3 FID4 FID5 FID6

PCB Number: 518520B
PCB Rev: B

PCB LOGO

RoHS Exempt

PCB LOGO

FCC disclaimer

You should delete the nylon screws/standoffs and/or the bumpons as needed for your design (or substitute other parts from Hardware.IntLib). Bumpons are cheaper, but provide less clearance.

Deleting anything else from this page may result in your EVM submission being rejected (until you add them back).

Update the Label Text in the Label Table as needed for each Assembly Variant.

You should delete this note too.

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

ZZ1
Label Assembly Note
This Assembly Note is for PCB labels only

ZZ2
Assembly Note
These assemblies are ESD sensitive, ESD precautions shall be observed.

ZZ3
Assembly Note
These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.

ZZ4
Assembly Note
These assemblies must comply with workmanship standards IPC-A-610 Class 2, unless otherwise specified.

Orderable: EVM_orderable		Designed for:Public Release	Mod. Date: 2/8/2018
TID #: TIDA-01413		Project Title:ADAS Sensor Fusion Board	
Number:518520B	Rev: E3	Sheet Title:	
PCB Rev: Version control disabled		Assembly Variant:[No Variations]	Sheet:15 of 15
Drawn By:		File: ADAS_SF_rev1_Hardware.SchDoc	Size: B
Engineer: Spectrum Digital		Contact: http://www.ti.com/support	

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