Table of Contents

Revision History

Rev	Description	Date	Approved
X1	Initial Schematic	07-28-2020	Jesús Sánchez
X2	A055 Released	09-21-2020	Jesús Sánchez
X3	A070 Released	09-23-2020	Jesús Sánchez
A	A085 Released	10-23-2020	
A1	Rev A file is wrongly updated in agile so updating correct files as A1 version	11-19-2020	

S32K3X4EVB-Q257

Customer Evaluation Board

C A U T I O N :

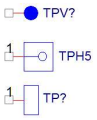
This schematic is provided for reference purposes only. As such, NXP does not make any warranty, implied or otherwise, as to the suitability of circuit design or component selection (type or value) used in these schematics for hardware design using the NXP S32K family of Microprocessors. Customers using any part of these schematics as a basis for hardware design, do so at their own risk and Freescale does not assume any liability for such a hardware design.

3 Different test points used in design:

TPVx - Through Hole Pad small

TPHx - Through Hile Pad Large (for standard 0.1" header). Also used on IO Matrix (IOMx)

TPX - Surface Mount Wire Loop



Notes:

- All components and board processes are to be ROHS compliant
- All connectors and headers are denoted Jx/Px and are 2.54mm pitch unless otherwise stated
- All jumpers are denoted Jx. Jumpers are 2mm pitch
- Jumper default positions are shown in the schematics. For 3 way jumpers, default is always posn 1-2.
  2 Pin jumpers generally have the "source" on pin 1.
- All switches are denoted SWx
- All test points (SMT wire loop style) are denoted TPx
- Test point Vias (just through hole pads) are denoted TPVx

Signals (ports) have not been routed via busses as this makes it harder to determine where each signal goes.

User notes are given throughtout the schematics.

Specific PCB LAYOUT notes are detailed in ITALICS

Automotive Product Group
6501 William Cannon Drive West
Austin, TX 78735-8598

Classification: <FCP> X

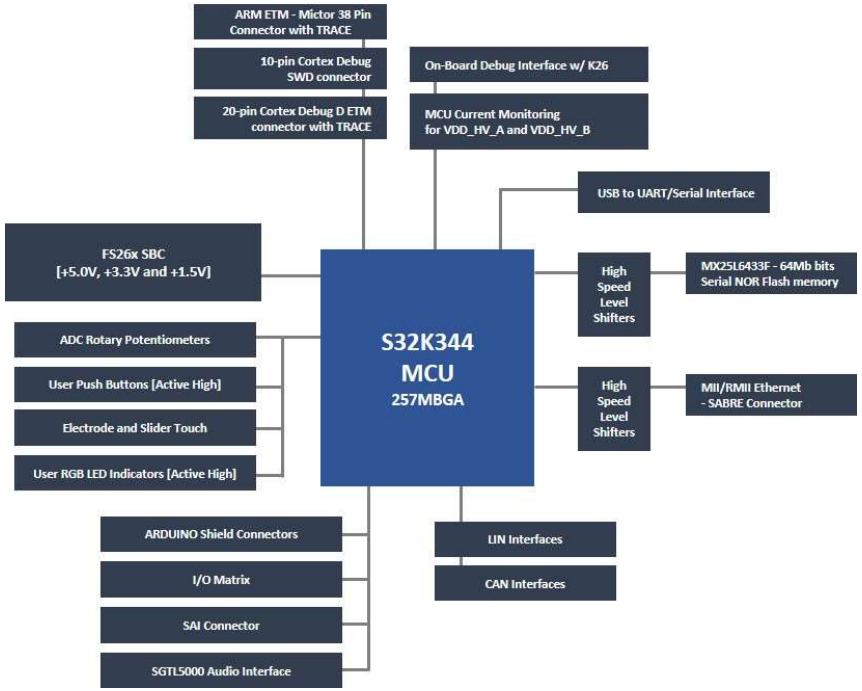
Designer: Jesús Sanchéz	Drawing Title: S32K3X4EVB-Q257		
Drawn by: Jesús Sanchéz	Page Title: TITLE PAGE		
Approved: Jesús Sanchéz	Size B	Document Number SCH-47827 PDF: SPF-47827	Rev A1
	Date: Friday, November 20, 2020	Sheet 1 of 16	

1. DNP Table

REF DES	ASSY_OPT	PAGE NAME
R1314,J407,J408,J15,J14, R1320,R1311,R27,J10,J4,J6, R31,J399,R23,J11,J1,R34,J2, J8,R1319,J404,R1931,R15,J403	DNP	03. FS26
R1052,C105,C132,R81,R72,R82, R73,R71,C129,R87,R60,R77	DNP	04. MCU PWR
R750,R1240,R1108,R1929,R91, R1980,R92,R751,R1112	DNP	05. MCU PORTS1
R1974,R1925,R99,R1926,R1254, R1973	DNP	06. MCU PORTS2
J680,R1948,R158,R200,R194, R1937,R1936,R1943,C143,R1947, R778,R1950,R185,R187,R1945, R161,R1938,R1944,R1949,R1941, R1940,R780,R796,R184,R775, R779,R774,R777,R186,R146, R1939,R188	DNP	07. JTAG/SWD/CORTEX DEBUG+ETM
R260,R283,R202,J687,R240, R270,C166,R245,R224,J676, C172,R261,R280,R257,J53,R251, R254	DNP	08. OPENSDA K26
R308,C196,R313,C198,J677, R302,R294,R305,R310	DNP	09. USB to SCI
R1155,C3836,R1862,R1903, R1165,C3837,R1904,R2024, C3844,R1333,R1225,R2023, R1331,R1876,R1202,R1877, C3839,R1878,R1896,R1205, R1885,C3819,R1882,C3803	DNP	10. CAN/LIN PHY
R480,R479,R427,R380,R461, R428,R481,R401,R332,R1264, R429,R1265,R438,R368,R423, R382,R1272,R379,R463,R338, R1907,R341,R1908	DNP	11. ETHERNET
R1139,R513	DNP	12. QSPIA
R1039,R927,R980,R1023,R982, R978,R926,R1085,R993,R1010, R981,R1030,R1024,R983,J373, R939,R1043,R1009	DNP	13. SAI
J411,C294,J412,C3849,C3853, C3850	DNP	14. USER PERIPHERALS
R2013,R1816,R1814,R1810, R2012,R1920,R1811,R1921, R2014,R1982,R1922,R2020, R1923,R2021	DNP	15 ARDUINO HDRS
J122,J257,J85,J87,J195,J152, J153,J206,J200,J267,J236, J119,J139,J106,J117,J105, J263,J145,J144,J187,J89,J107, J115,J196,J90,J247,J176,J259, J225,J124,J273,J141,J163, J183,J226,J240,J221,J214, J172,J83,J252,J112,J274,J220, J177,J160,J146,J223,J164, J261,J130,J254,J108,J134, J405,J266,J394,J275,J111, J239,J185,J202,J118,J171,J96, J138,J276,J179,J205,J193, J203,J250,J109,J242,J114, J228,J169,J127,J234,J277, J219,J182,J154,J102,J272, J395,J159,J157,J249,J396, J149,J245,J95,J207,J88,J91, J230,J406,J84,J218,J120,J133, J201,J178,J188,J101,J181,J82, J260,J208,J158,J147,J140,J99, J136,J213,J189,J211,J238, J113,J81,J129,J170,J132,J197, J190,J110,J166,J255,J191, J216,J123,J212,J175,J165, J232,J233,J116,J194,J199, J209,J265,J104,J125,J184, J244,J227,J97,J142,J135	DNP	16. IOs MATRIX

2. Jumper Default configuration

REF DES	JUMPER(DEFAULT)	PAGE NAME
J16	1-2 Closed	03. FS26
J686,J685,J13	1-2	03. FS26
J401,J400,J393	OPEN	03. FS26
J374,J375,J25,J23,J410,J31	1-2 Closed	04. MCU PWR
J24,J29,J37	2-3 Closed	04. MCU PWR
J30	5-6 Closed	04. MCU PWR
J360	5-6 Closed	04. MCU PWR
J27,J32	OPEN	04. MCU PWR
J57	1-2 Closed	09. USB to SCI
J60	2-3 Closed	09. USB to SCI
J413	1-2	10. CAN/LIN PHY
J679,J674	2-3 Closed	10. CAN/LIN PHY
J390,J672,J678	CLOSE	10. CAN/LIN PHY
J62,J61	1-2 Closed	11. ETHERNET
J65,J402	1-2 Closed	12. QSPIA
J376	1-2	13. SAI
J670,J321,J671	1-2 Closed	15 ARDUINO HDRS



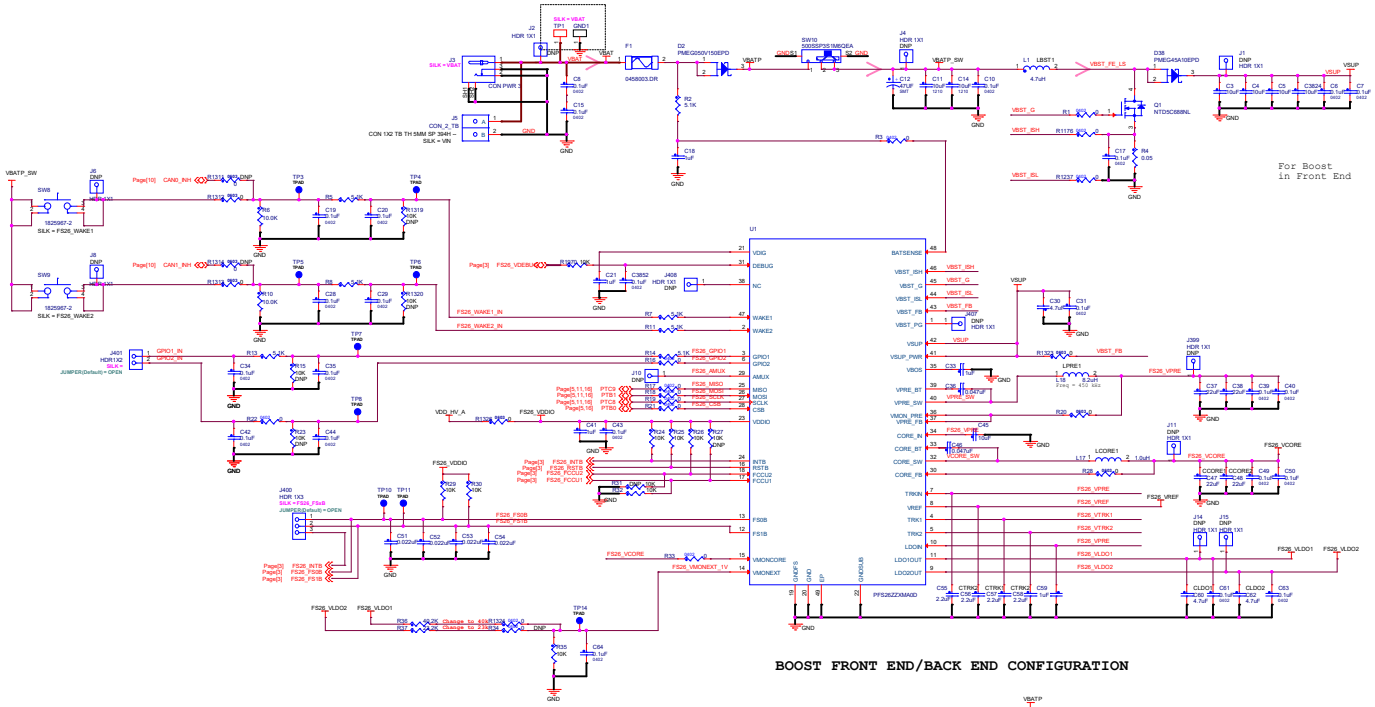
Automotive Product Group
6501 William Cannon Drive West
Austin, TX 78735-8598

Classification: <FCP> X

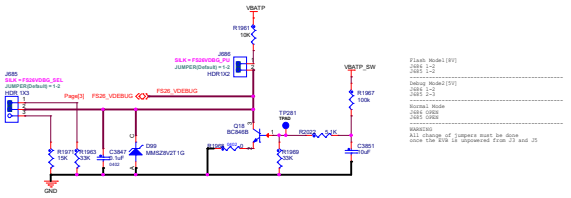
Designer: Jesús Sanchéz	Drawing Title: S32K3X4EVB-Q257		
Drawn by: Jesús Sanchéz	Page Title: NOTES & BLOCK DIAGRAM		
Approved: Jesús Sanchéz	Size C	Document Number SCH-47827 PDF: SPF-47827	Rev A1
	Date: Thursday, July 01, 2021	Sheet 2 of 16	

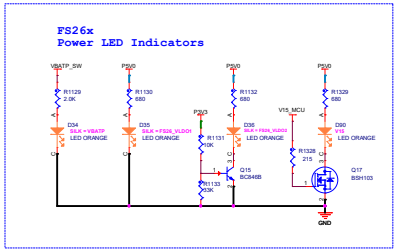
FS26 - Power Supply

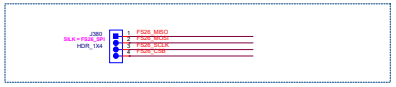
SMPS-based SBC



BOOST FRONT END/BACK END CONFIGURATION



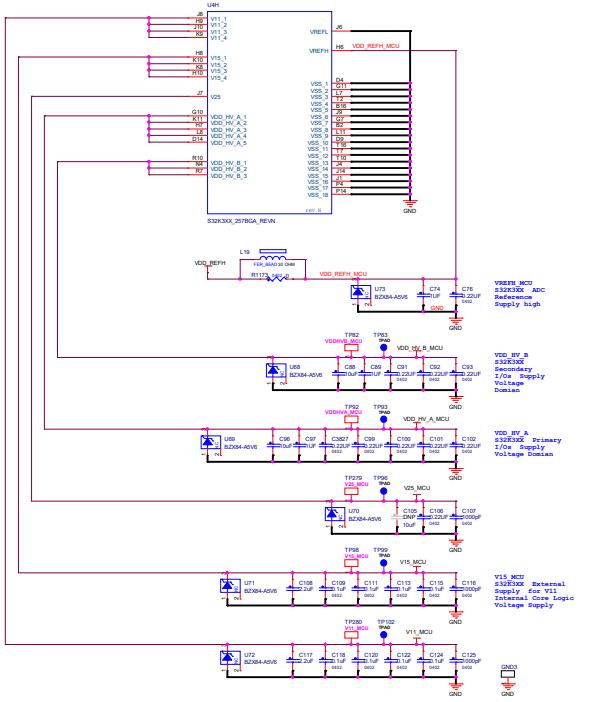


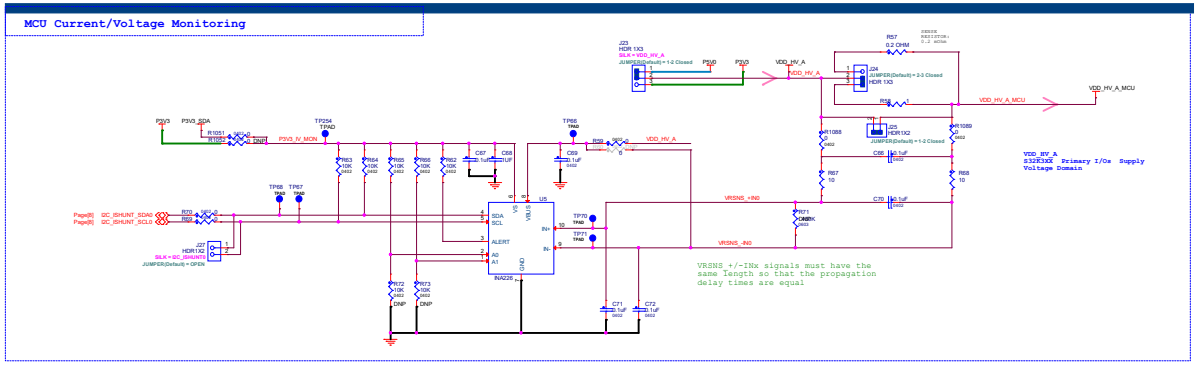


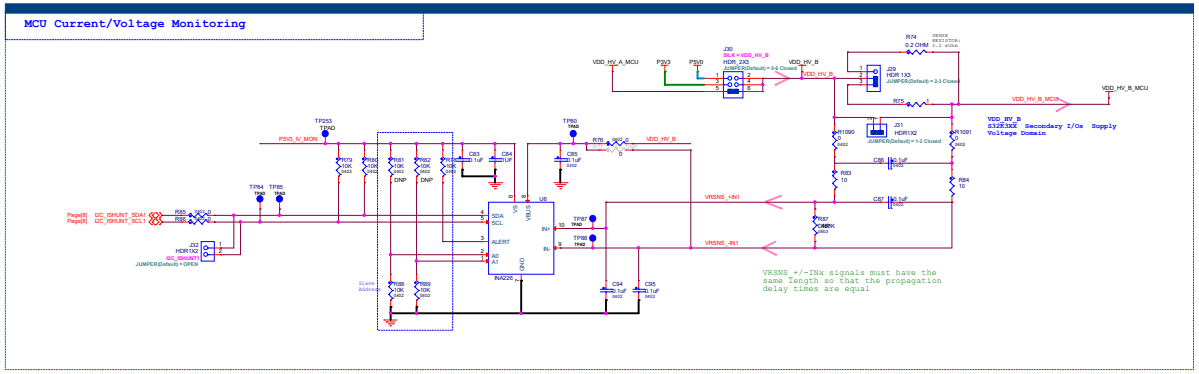
NXP SEMICONDUCTORS	Automotive Product Group 6501 William Cannon Drive West Austin, TX 78735-8598	
This document contains information proprietary to NXP and shall not be used for engineering design, procurement or manufacture in whole or in part without the express written permission of NXP Semiconductors.		
© NXP SEMICONDUCTORS	Classification: <FCP> X	
Designer: Jesús Sanchez	Drawing Title: S32K3X4EVB-Q257	
Drawn by: Jesús Sanchez	Page Title: FS26x SBC Power Supply	
Approved: Jesús Sanchez	Size: D / Document Number: SCH-47827 PDF: SPF-47827 / Rev: A1	
	Date: Tuesday, April 13, 2021 / Sheet 3 of 16	

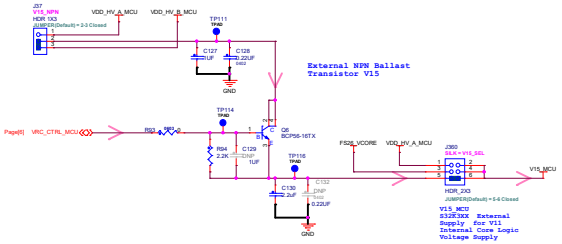
S32K3XX Microcontroller - 257 BGA

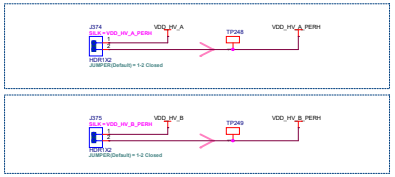
Power Supply Pins

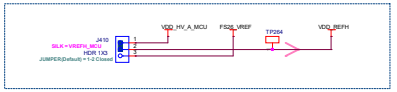








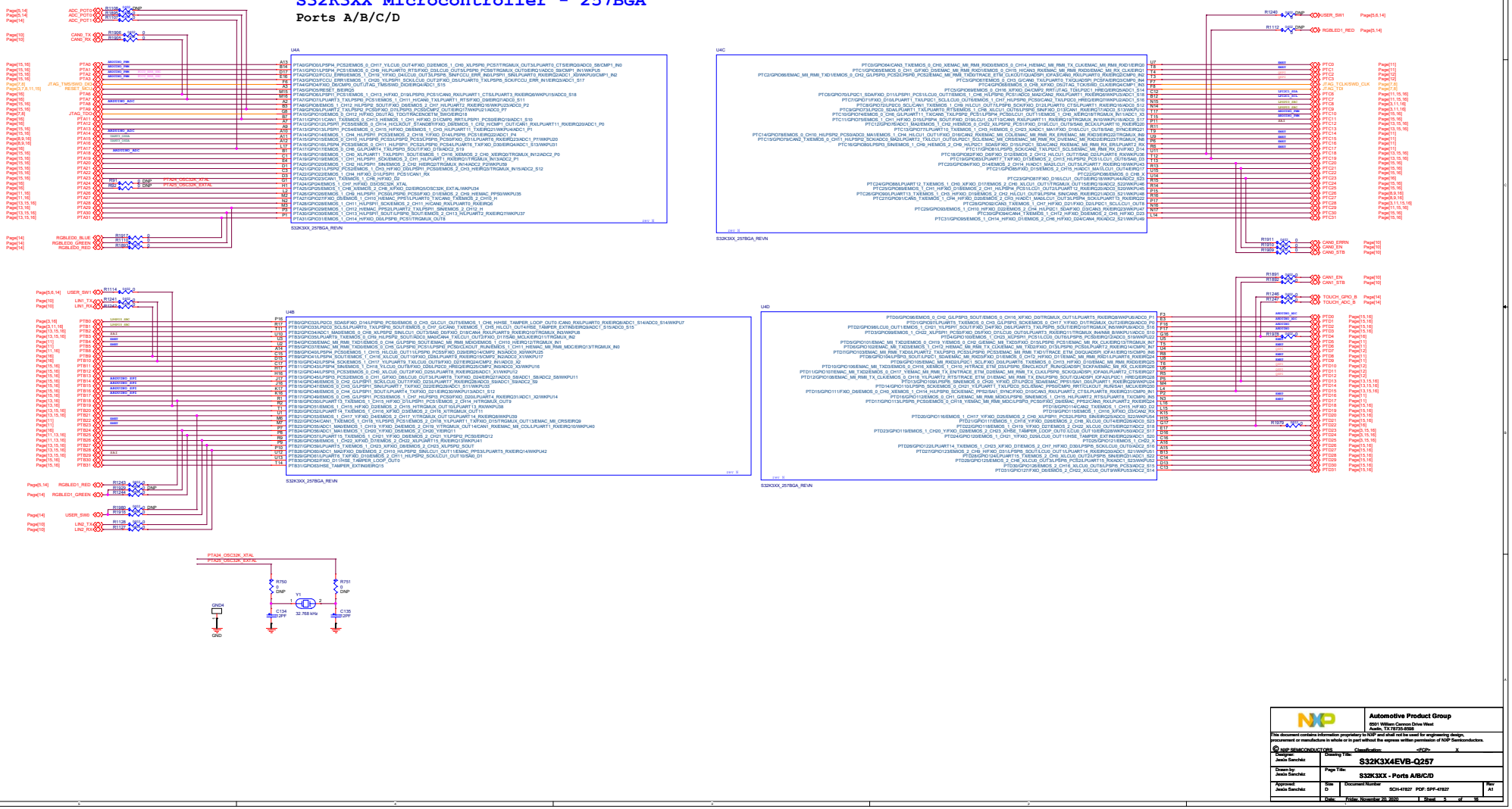




NXP Automotive Product Group, 6501 William Cannon Drive West, Austin, TX 78735-8598		
This document contains information proprietary to NXP and shall not be used for engineering design, procurement or manufacture in whole or in part without the express written permission of NXP Semiconductors.		
© NXP SEMICONDUCTORS	Classification: <FCP> X	
Designer: Jesús Sanchéz	Drawing Title: S32K3X4EVB-Q257	
Drawn by: Jesús Sanchéz	Page Title: S32K3XX - MCU POWER Supply Pins	
Approved: Jesús Sanchéz	Size: D / Document Number: SCH-47827 PDF: SPF-47827 / Rev: A1	
	Date: Wednesday, June 02, 2021 / Sheet: 4 of 16	

S32K3XX Microcontroller - 257BGA

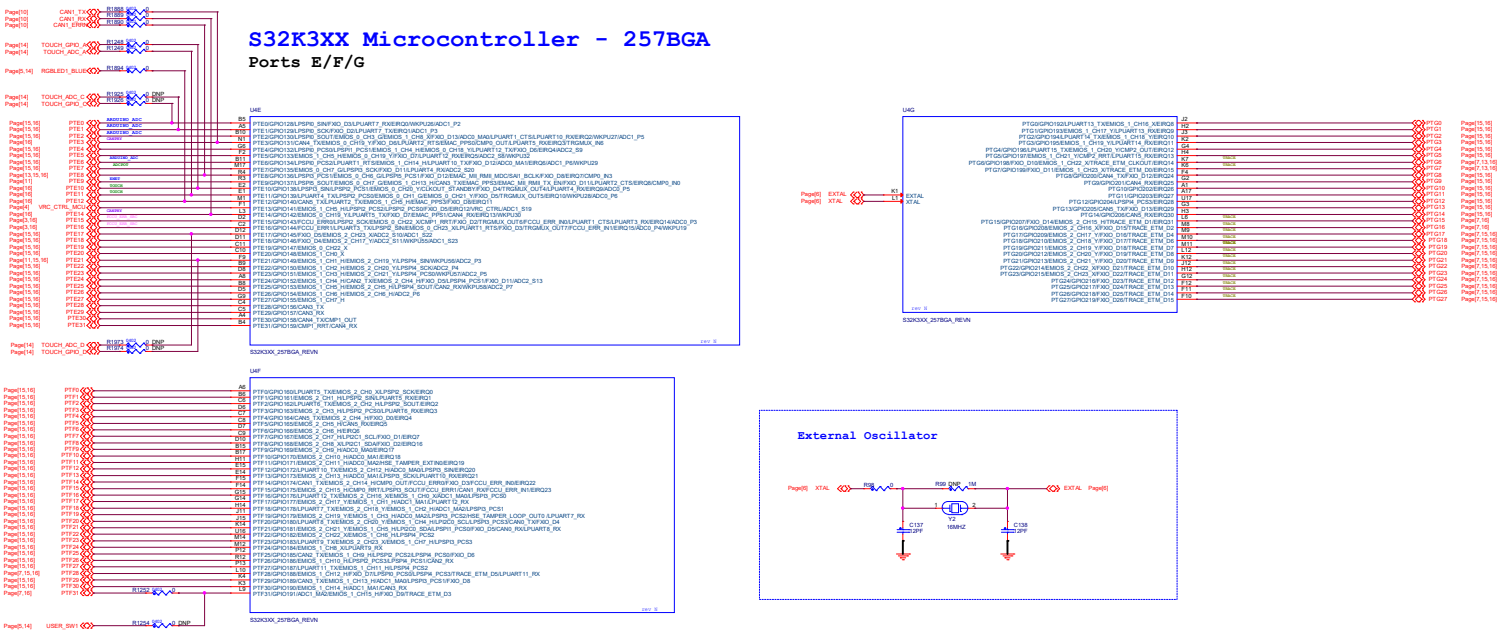
Ports A/B/C/D



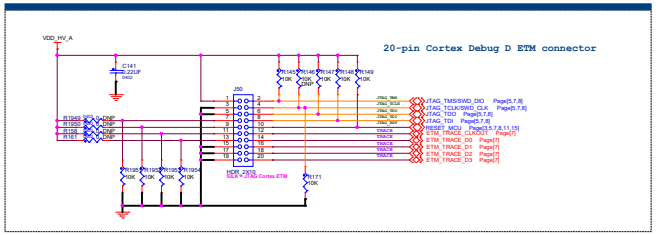
Designer: Jesús Sanchez	Drawing Title: S32K3X4EVB-Q257		
Drawn by: Jesús Sanchez	Page Title: S32K3XX - Ports A/B/C/D		
Approved: Jesús Sanchez	Size: D	Document Number: SCH-47627 PDF: SPF-47627	Rev: A1
	Date: Friday, November 20, 2020	Sheet 3 of 16	

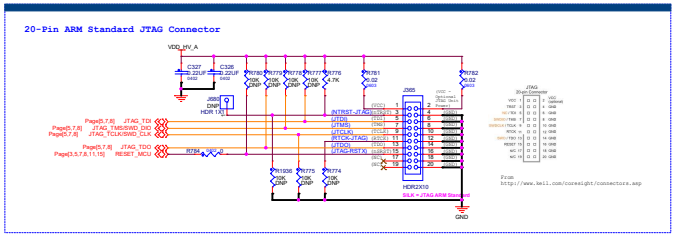
Automotive Product Group
6501 William Cannon Drive West
Austin, TX 78735-8598

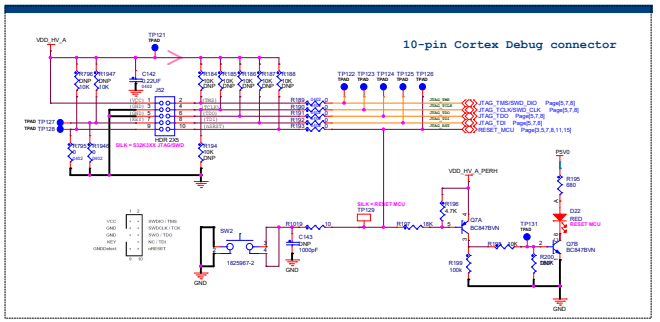
Classification: <FCP> X

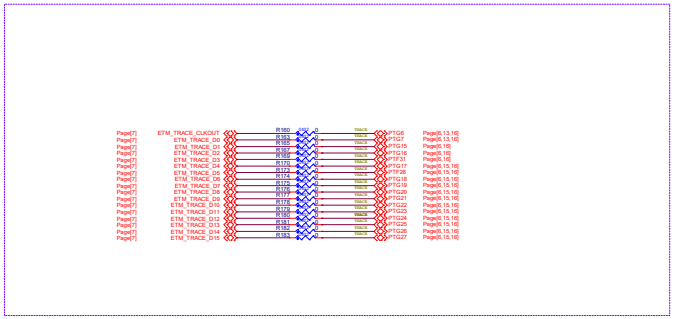


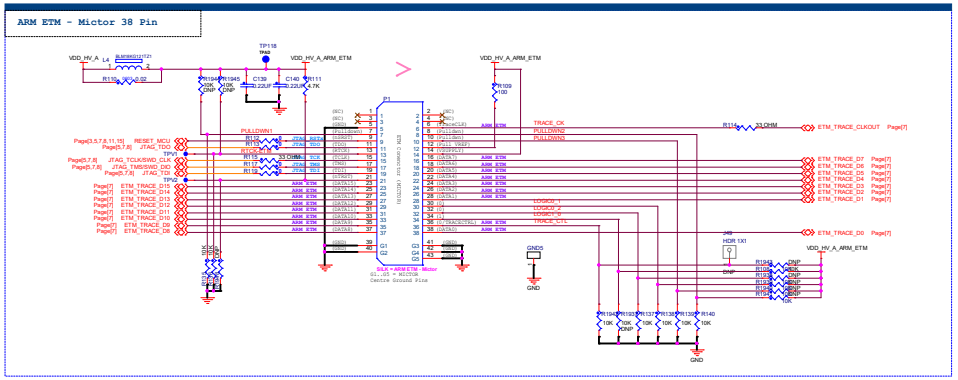
Automotive Product Group	
6501 William Cannon Drive West Austin, TX 78735-8598	
This document contains information proprietary to NXP and shall not be used for engineering design, procurement or manufacture in whole or in part without the express written permission of NXP Semiconductors.	
© NXP SEMICONDUCTORS	Classification: <FCP> X
Designer: Jesús Sanchéz	Drawing Title: S32K3X4EVB-Q257
Drawn by: Jesús Sanchéz	Page Title: S32K3XX - Ports E/F/G
Approved: Jesús Sanchéz	Size: D; Document Number: SCH-47827 PDF: SPF-47827; Rev: A1
	Date: Friday, November 20, 2020; Sheet: 8 of 16







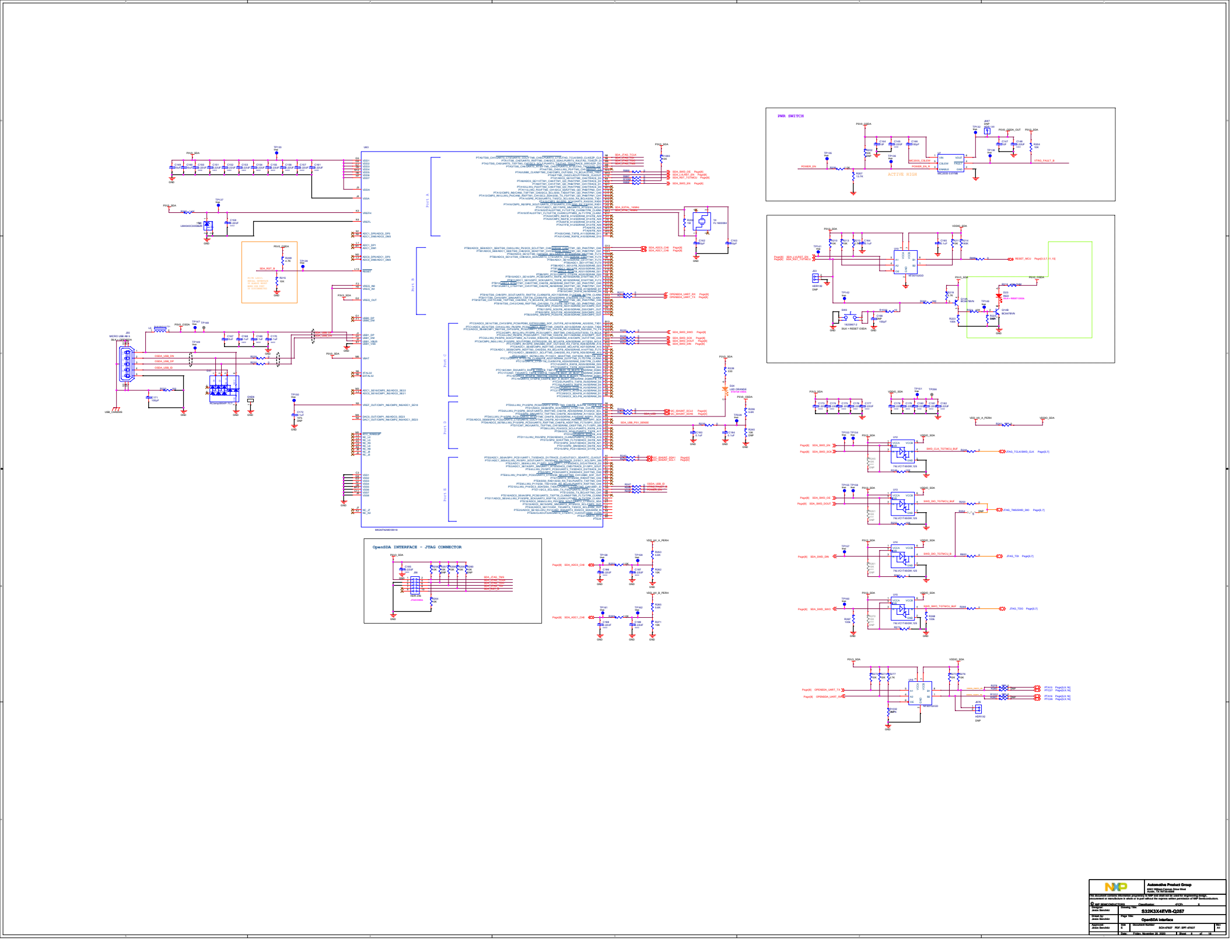




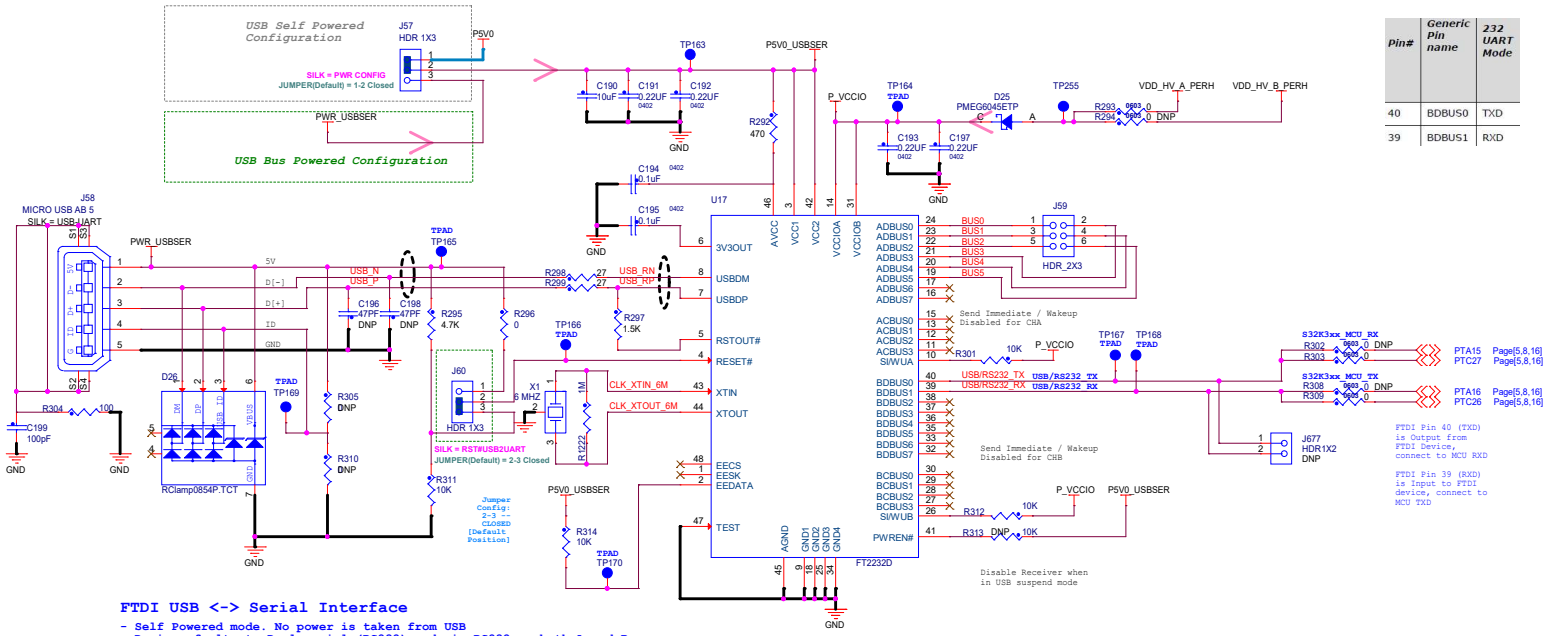
Automotive Product Group
6501 William Cannon Drive West
Austin, TX 78735-8598

Classification: <FCP> <FSU> <PUR>

Designer: Jesús Sanchéz	Drawing Title: S32K3X4EVB-Q257
Drawn by: Jesús Sanchéz	Page Title: JTAG/CORTEX Dedug+ETM
Approved: Jesús Sanchéz	Size: D; Document Number: SCH-47827 PDF: SPF-47827; Rev: A1
	Date: Friday, November 20, 2020; Sheet 7 of 16


PWR SWITCH
ACTIVE HIGH
OpenSDA INTERFACE - JTAG CONNECTOR
SILK = RESET OSBDA
Automotive Product Group
6501 William Cannon Drive West
Austin, TX 78735-8598
Classification: #Cls#
S32K3X4EVB-Q257
OpenSDA Interface
Sheet 1 of 16

USB UART(serial) Interface



Pin#	Generic Pin name	232 UART Mode
40	BDBUS0	TXD
39	BDBUS1	RXD

FTDI USB <-> Serial Interface

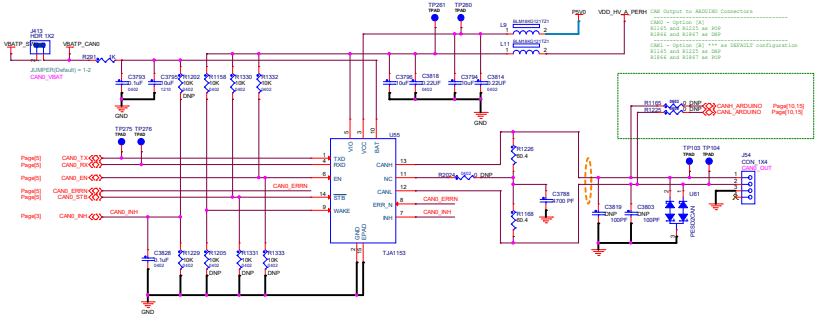
- Self Powered mode. No power is taken from USB
- Device efaults to Dual serial (RS232) mode ie RS232 on both A and B
- Configurable I/O voltage on CHA / CHB via VDDIOA/B

Automotive Product Group
6501 William Cannon Drive West
Austin, TX 78735-8598

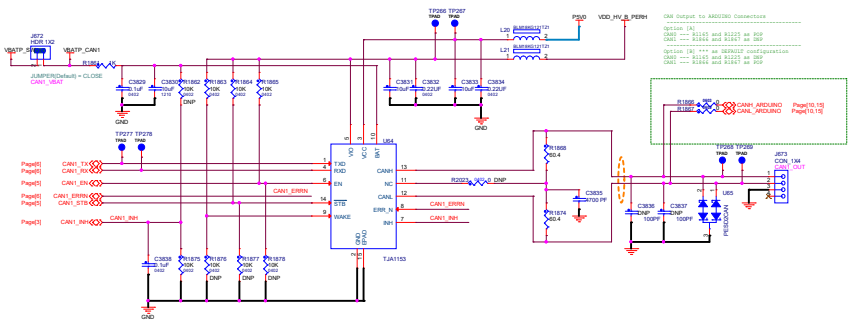
Classification: <FCP> X

Designer: Jesús Sanchéz	Drawing Title: S32K3X4EVB-Q257		
Drawn by: Jesús Sanchéz	Page Title: USB to SCI Interface		
Approved: Jesús Sanchéz	Size C	Document Number SCH-47827 PDF: SPF-47827	Rev A1
	Date: Friday, November 20, 2020	Sheet 9 of 16	

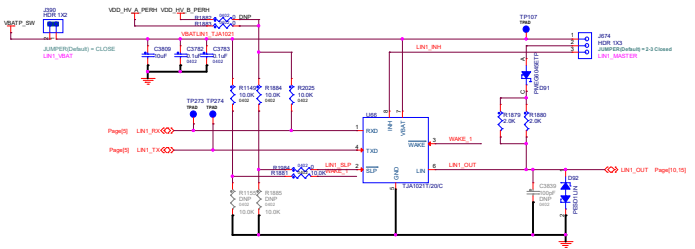
TJA1153 Secure HS-CAN Transceiver



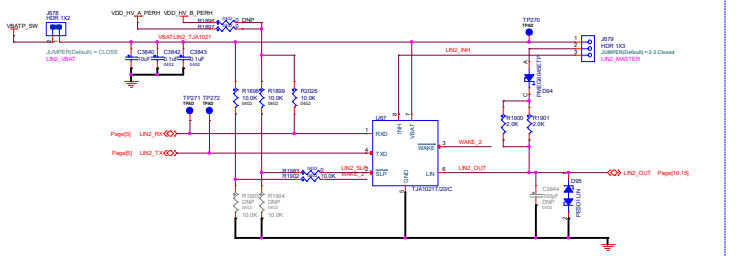
TJA1153 Secure HS-CAN Transceiver



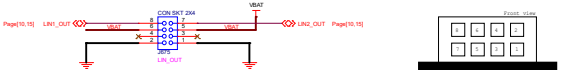
LIN Physical Layer
ISO 17987/LIN 2.x/SAE J2602 transceiver



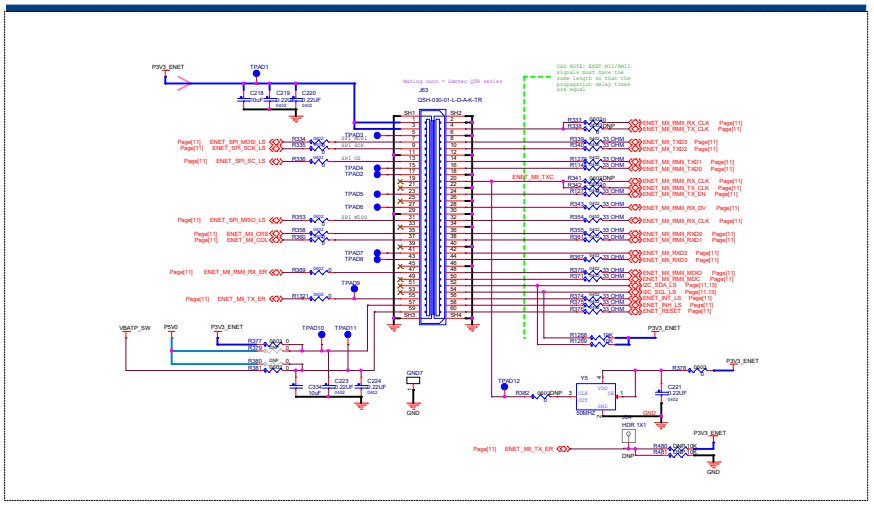
LIN Physical Layer
TJA1021G: Quad LIN 2.2A/SAE J2602 transceiver

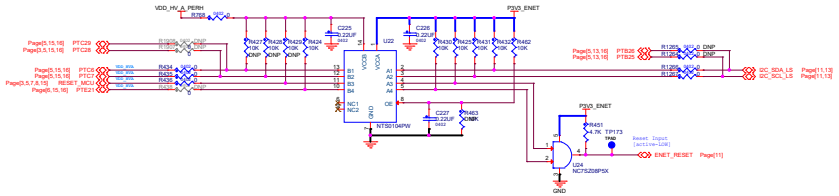


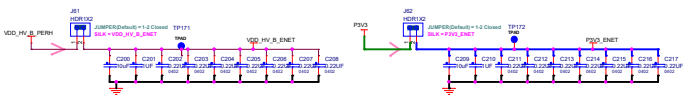
LIN Connector

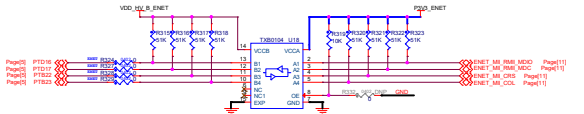


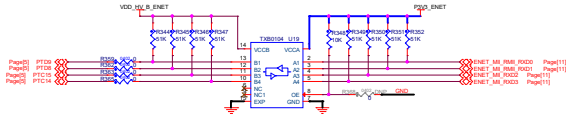
Automotive Product Group	6501 William Cannon Drive West, Austin, TX 78735-8598
Classification:	<FCP> X
Designer: Jesús Sanchéz	Drawing Title: S32K3X4EVB-Q257
Drawn by: Jesús Sanchéz	Page Title: CAN/LIN PHY
Approved: Jesús Sanchéz	Size: D; Document Number: SCH-47827 PDF: SPF-47827; Rev: A1
	Date: Thursday, April 15, 2021; Sheet 10 of 16

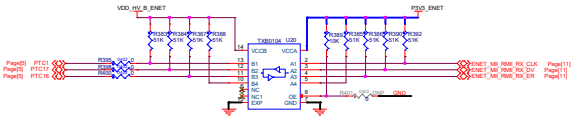


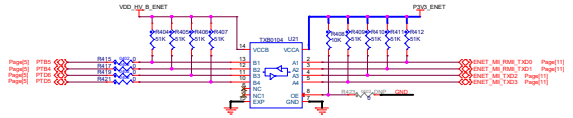


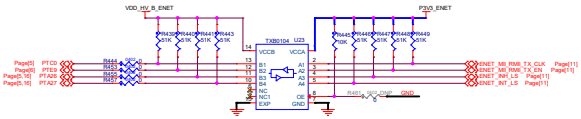


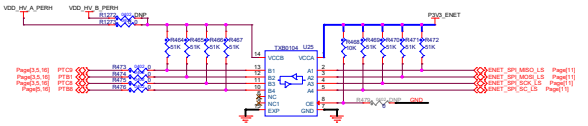




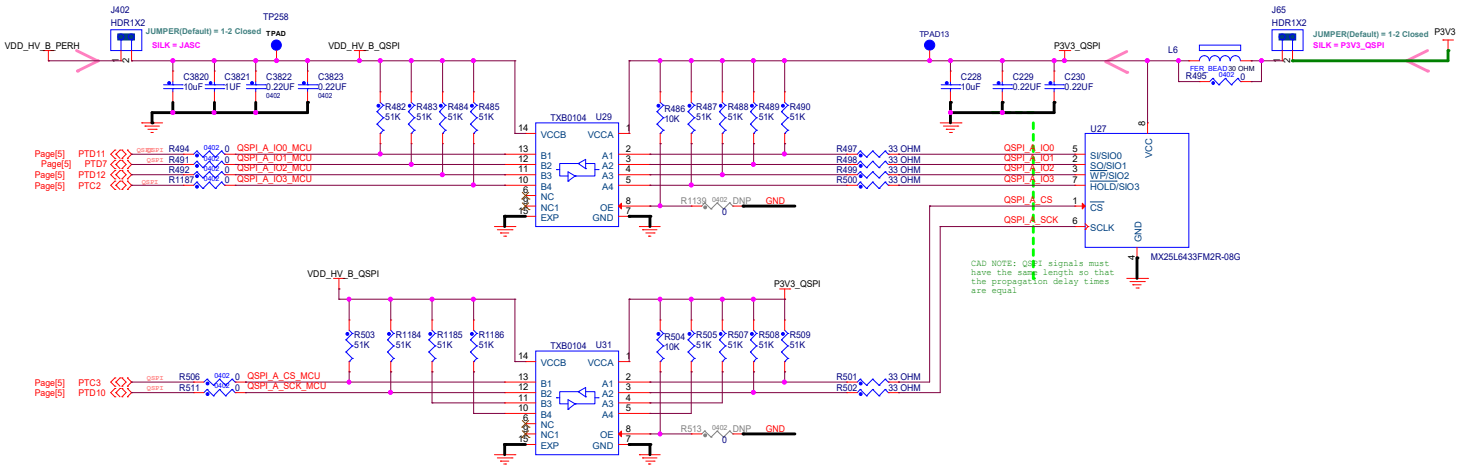








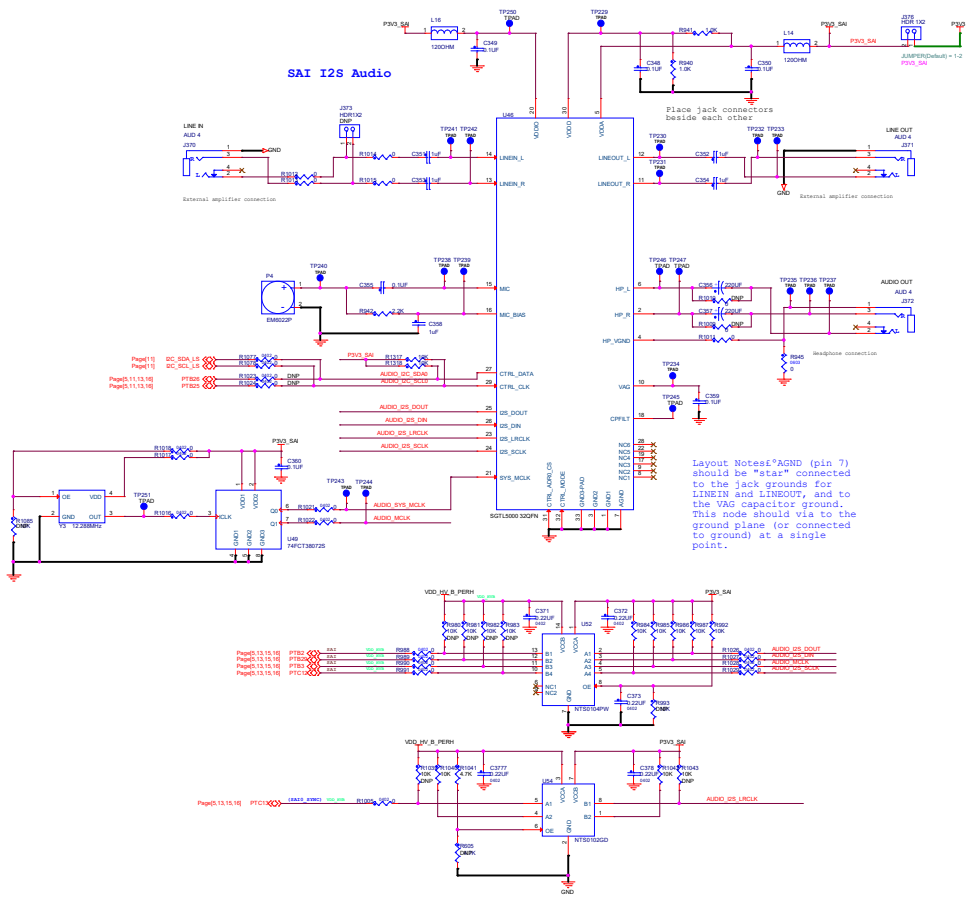
Designer: Jesús Sanchez	Drawing Title: S32K3X4EVB-Q257
Drawn by: Jesús Sanchez	Page Title: Ethernet Connector
Approved: Jesús Sanchez	Size: D; Document Number: SCH-47827 PDF: SPF-47827; Rev: A1
	Date: Wednesday, June 02, 2021; Sheet 11 of 16

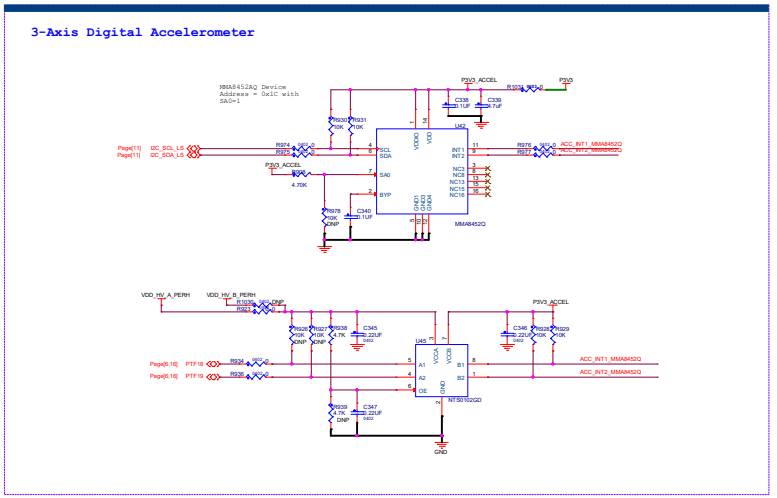


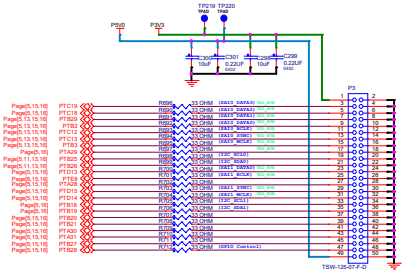
Automotive Product Group
6501 William Cannon Drive West
Austin, TX 78735-8598

Classification: <FCP> X

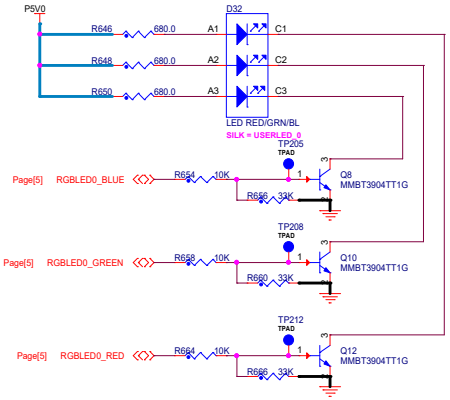
Designer: Jesús Sanchéz	Drawing Title: S32K3X4EVB-Q257		
Drawn by: Jesús Sanchéz	Page Title: QSPI A Memory		
Approved: Jesús Sanchéz	Size C	Document Number SCH-47827 PDF: SPF-47827	Rev A1
	Date: Tuesday, April 13, 2021	Sheet 12 of 16	

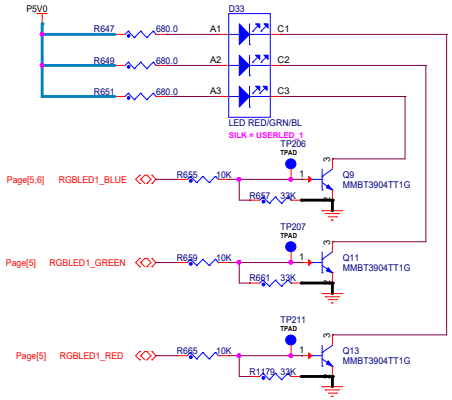




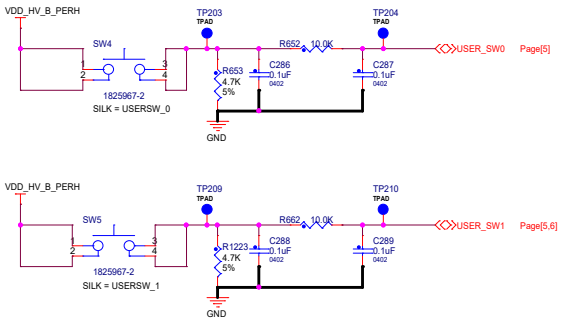


NXP SEMICONDUCTORS	Automotive Product Group 6501 William Cannon Drive West Austin, TX 78735-8598
This document contains information proprietary to NXP and shall not be used for engineering design, procurement or manufacture in whole or in part without the express written permission of NXP Semiconductors.	
© NXP SEMICONDUCTORS	Classification: <FCP> X
Designer: Jesús Sanchéz	Drawing Title: S32K3X4EVB-Q257
Drawn by: Jesús Sanchéz	Page Title: SAI Connector
Approved: Jesús Sanchéz	Size: D; Document Number: SCH-47827 PDF: SPF-47827; Rev: A1
	Date: Friday, November 20, 2020; Sheet 13 of 16

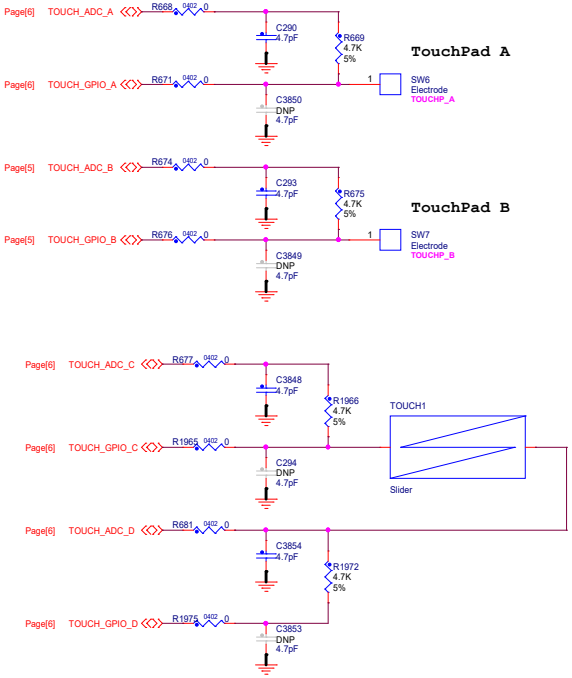




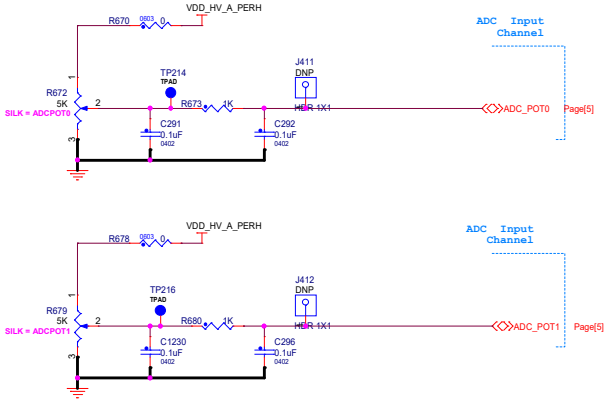
User Push Button - Active to HIGH/LOW



Touch Sensing Interface



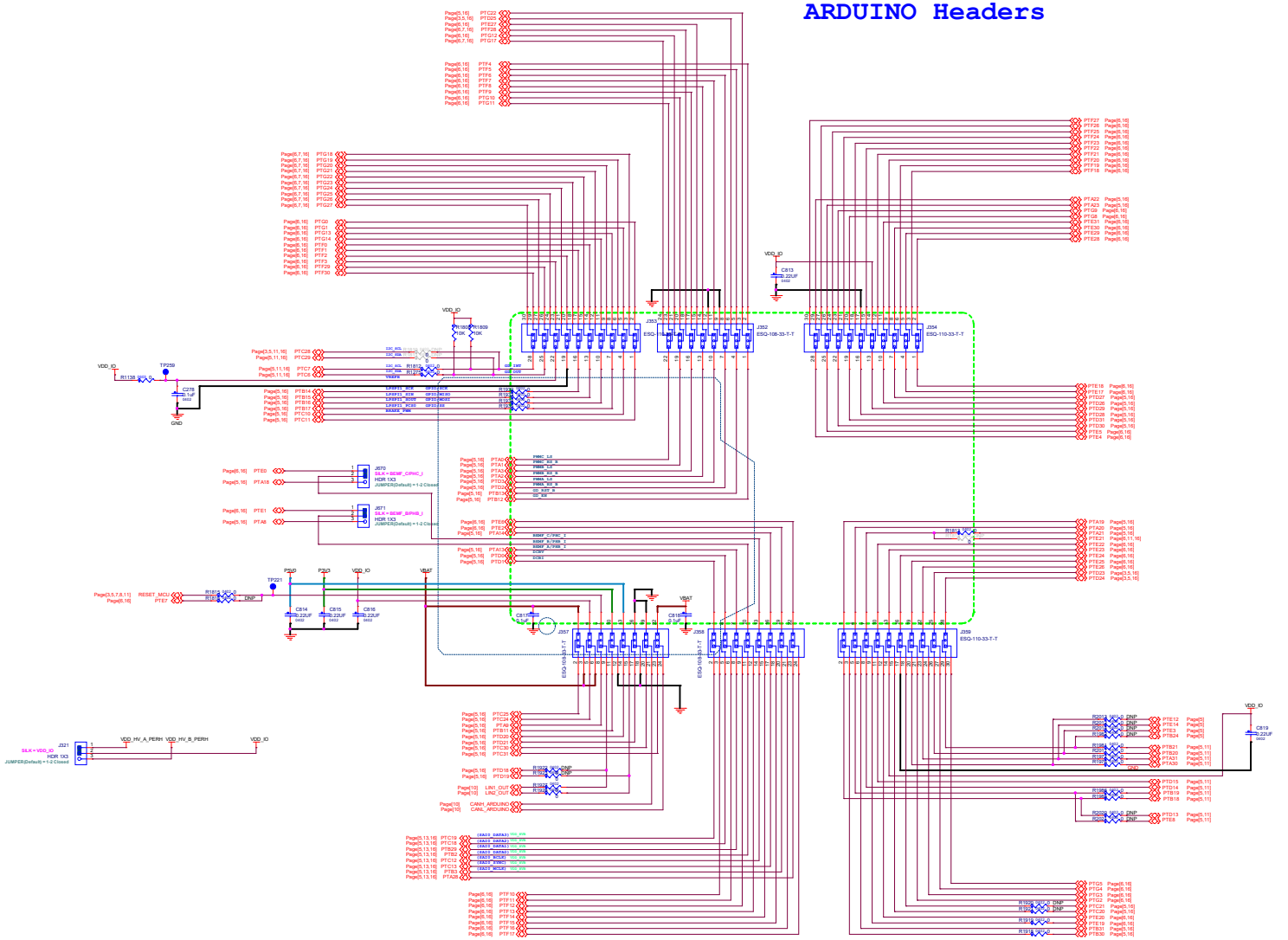
ADC Potentiometer



Automotive Product Group
6501 William Cannon Drive West
Austin, TX 78735-8598

Classification:	<FCP>	X
Designer: Jesús Sanchéz	Drawing Title: S32K3X4EVB-Q257	
Drawn by: Jesús Sanchéz	Page Title: Use Peripherals	
Approved: Jesús Sanchéz	Size: C / Document Number: SCH-47827 PDF: SPF-47827	Rev: A1
	Date: Friday, November 20, 2020	Sheet 14 of 16

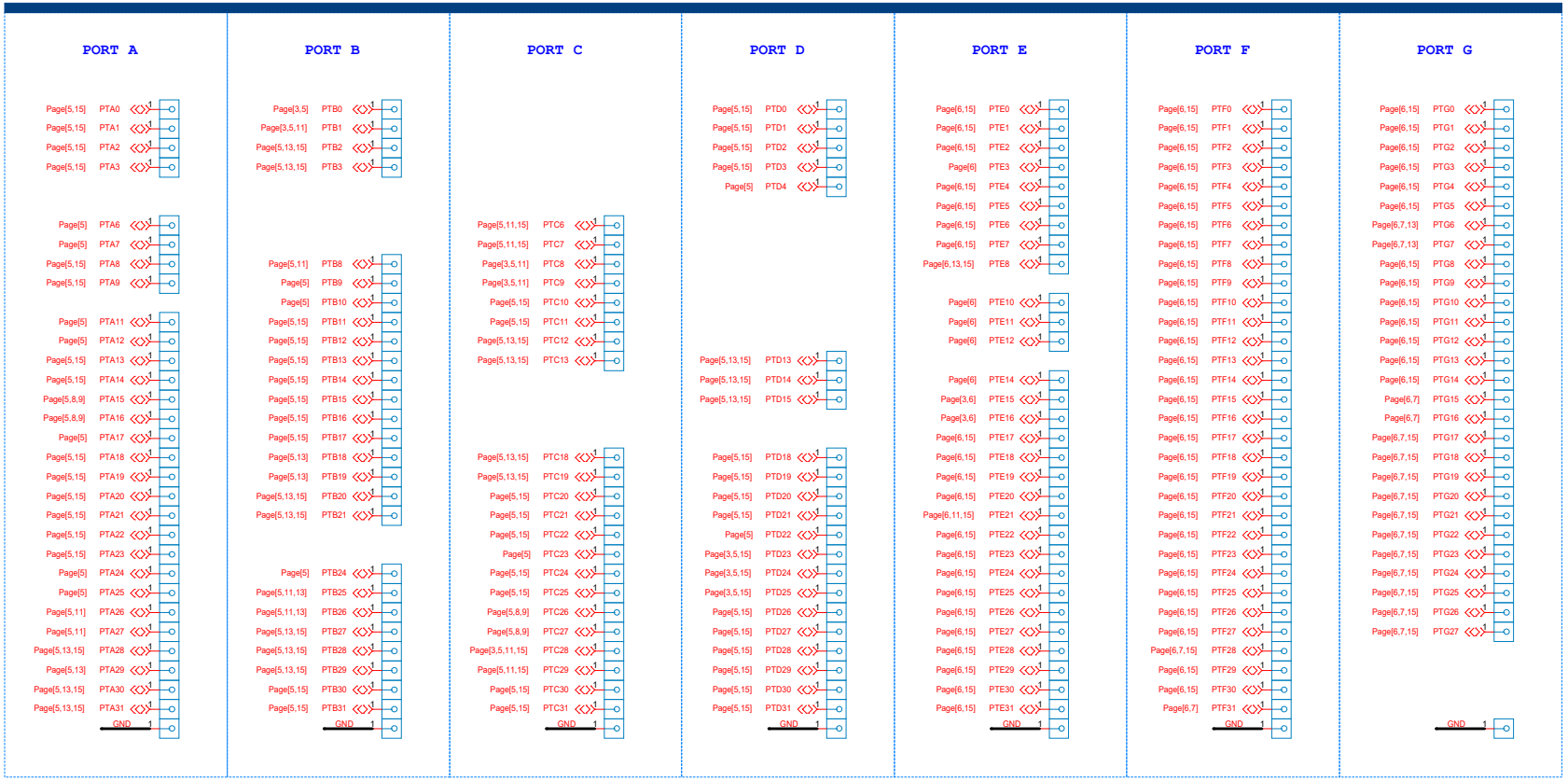
ARDUINO Headers



Automotive Product Group	6501 William Cannon Drive West, Austin, TX 78735-8598
Designer: Jesús Sanchez	Drawing Title: S32K3X4EVB-Q257
Drawn by: Jesús Sanchez	Page Title: ARDUINO Shield
Approved: Jesús Sanchez	Size: D; Document Number: SCH-47827 PDF: SPF-47827; Rev: A1
	Date: Thursday, July 01, 2021; Sheet 15 of 16

GPIO Pin Matrix

- All pads are DNP (Do Not Populate) 0.1" pitch headers placed on a 0.1" grid
- GND pad at bottom of each colum
- After production, pads should be through hole (not solder filled)



Automotive Product Group
6501 William Cannon Drive West
Austin, TX 78735-8598

Classification: <FCP> X

Designer: Jesús Sanchéz	Drawing Title: S32K3X4EVB-Q257	
Drawn by: Jesús Sanchéz	Page Title: IOs Matrix	
Approved: Jesús Sanchéz	Size C / Document Number SCH-47827 PDF: SPF-47827	Rev A1
	Date: Tuesday, April 13, 2021	Sheet 16 of 16