Freescale TRK-S12ZVL

C U S T O M E R E V B

Table of Contents

Revisions

Rev	Description	Designer	Date
AX1	Initial Draft A070 Release	Carlos Aceff	04/23/14
B	Prototype Release	Carlos Aceff	05/05/14
C,D	Prototype Release	Carlos Aceff	10/07/14
E	Fixes and Components consolidation	J.Sanchez	11/26/14

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

C A U T I O N :

This schematic is provided for reference purposes only. As such, Freescale 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 Freescale HALO 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:

TPV?

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

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Automotive Product Group
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Austin, TX 78735-8598

ICAP Classification: FCP: ___ FIUO: X PUBI: ___

Designer: Carlos Aceff	Drawing Title: TRK-S12ZVL	
Drawn by: Velmurugan	Page Title: TITLE PAGE	
Approved: Carlos Aceff	Size B / Document Number SCH-28001: SPF-28001	Rev E
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1. Unless Otherwise Specified:
   All resistors are in ohms, 5%, 1/8 Watt
   All capacitors are in uF, 20%, 50V
   All voltages are DC
   All polarized capacitors are aluminum electrolytic

2. Interrupted lines coded with the same letter or letter combinations are electrically connected.

3. Device type number is for reference only. The number varies with the manufacturer.

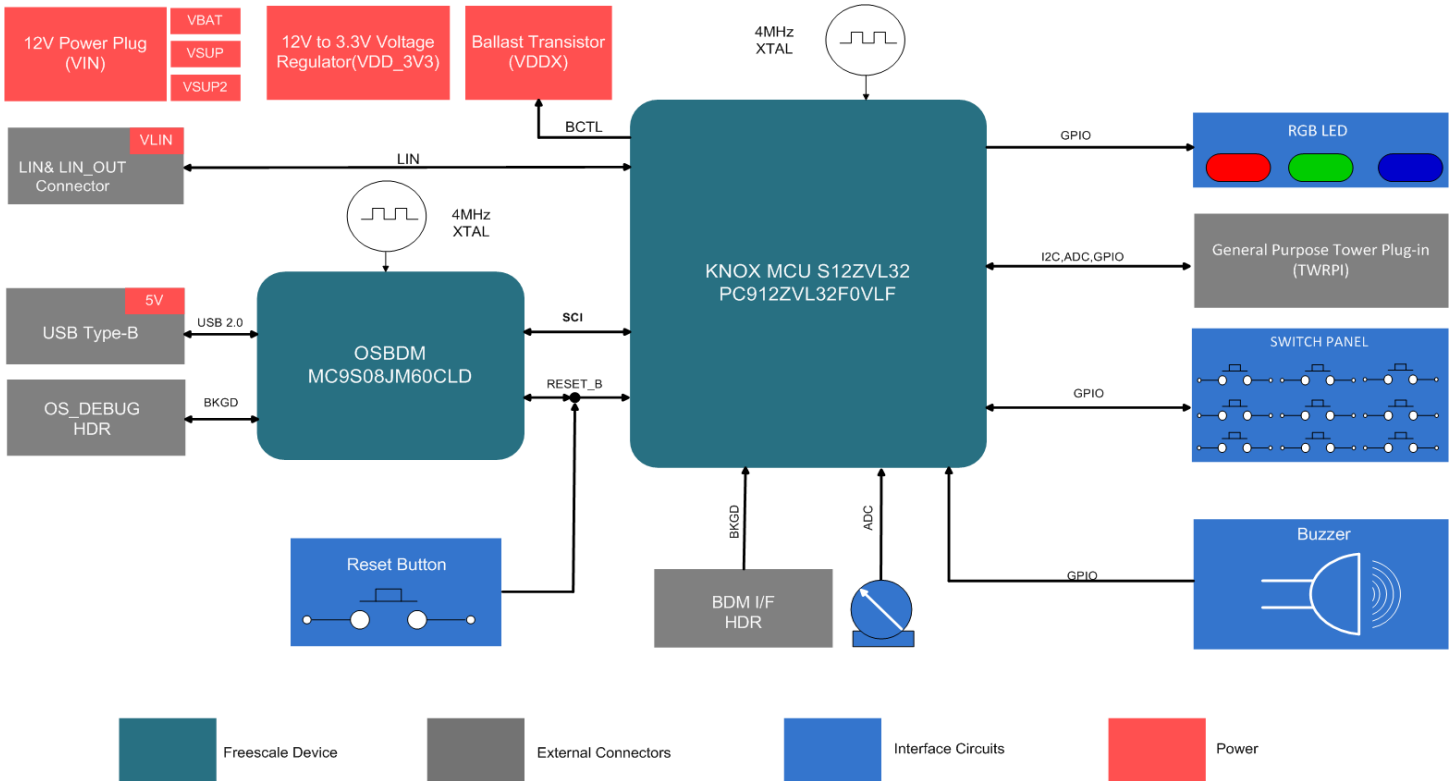
4. Special signal usage:
   _B Denotes - Active-Low Signal
   <> or [] Denotes - Vectored Signals

5. Interpret diagram in accordance with American National Standards Institute specifications, current revision, with the exception of logic block symbology.

Power & Ground Nets

NET	VOLTAGE	DESCRIPTION
VBAT	12V	Main Supply input or supply from LIN Connector.
VSUP	12V	Jumpered output of VBAT
VDDA	5V	MCU's analog voltage reference input
VDDX	5V	Output of Internal Volatge Regulator.
VDD_3V3	3.3V	3.3V to TWRPI
+5VU	5V	5V Input from USB Type-B Connector.
+5V_SW	5V	Controlled ouput 5V from USB.
GND	0V	Digital Ground
VSSA	0V	Analog Ground(Connected to Ground through Zero Ohm Cut trace)

BLOCK DIAGRAM



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Page Title: NOTES/BLOCK DIAGRAM

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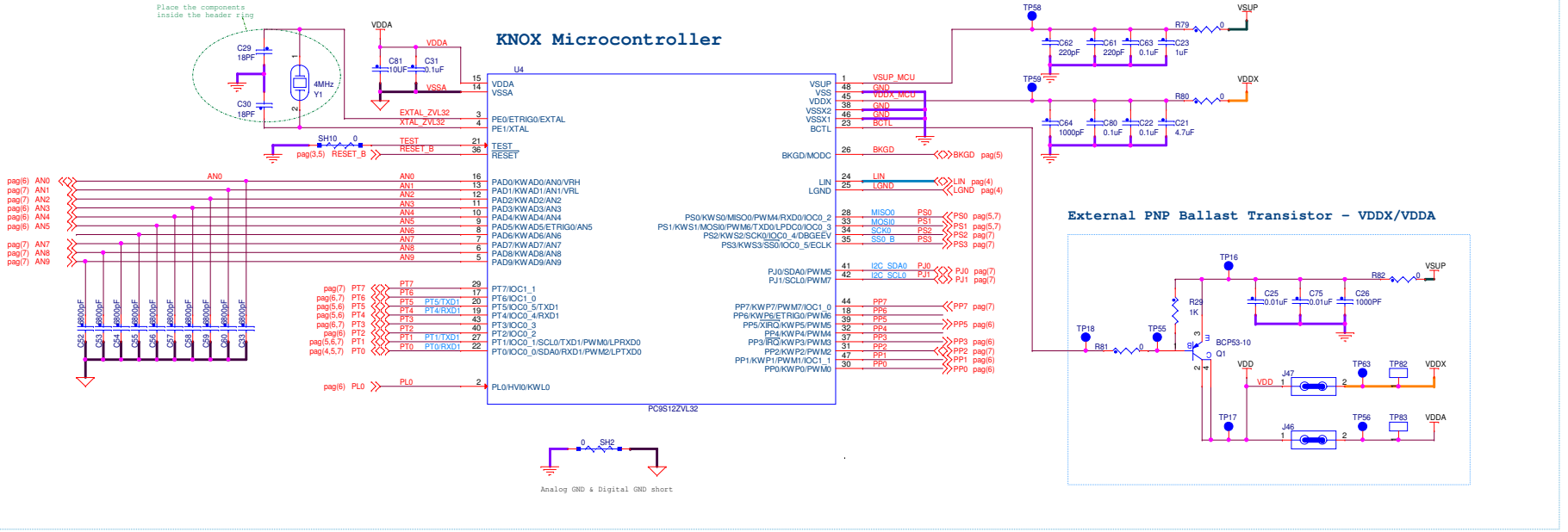
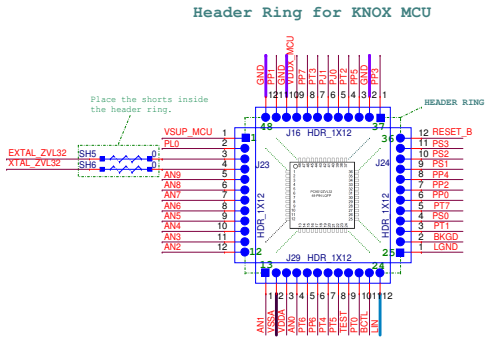
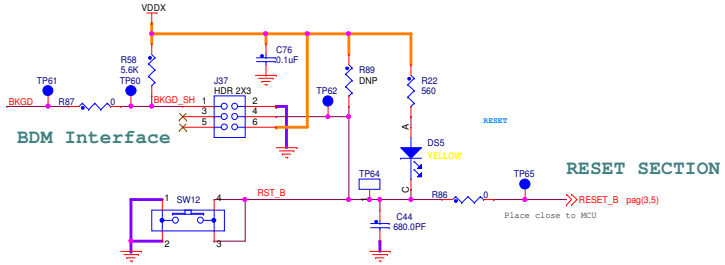
TRK-S12ZVL – MCU Interface







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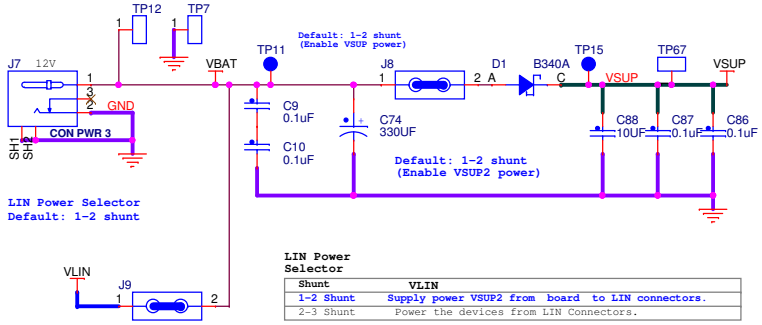
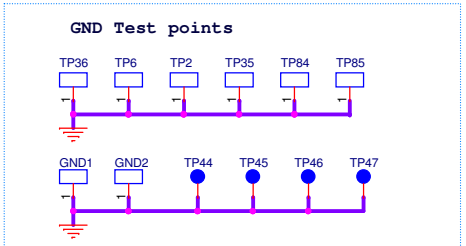
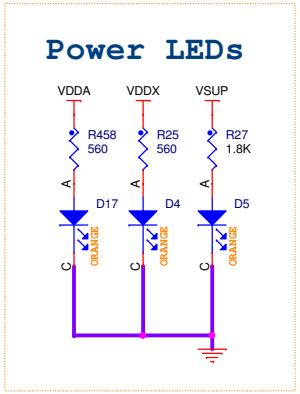
TRK-S12ZVL – Power Supply and LIN Switch Interface

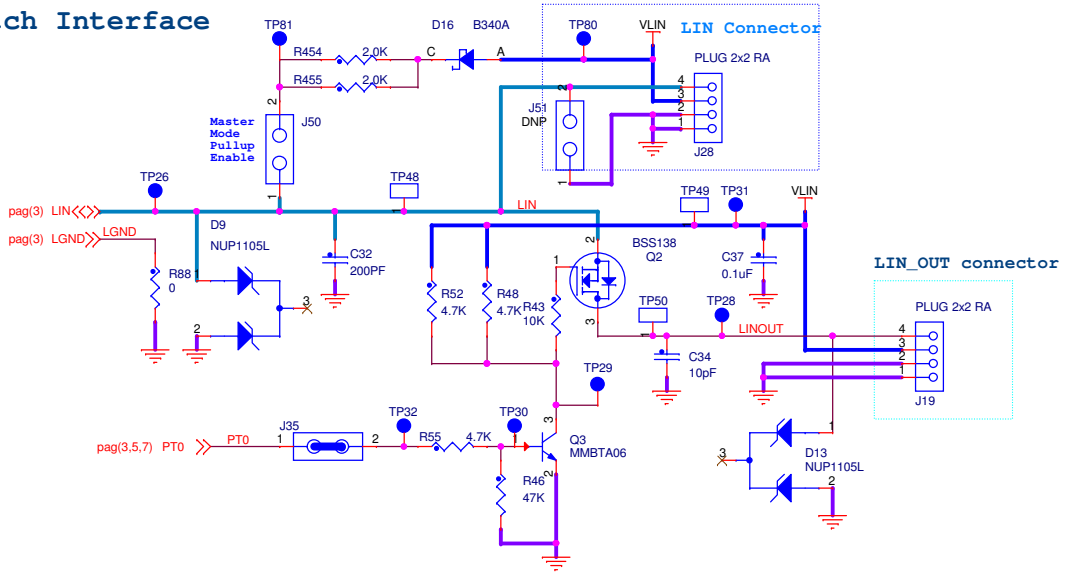
Power Supply Input and Filter







LIN Switch Interface



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TRK-S12ZVL – OSBDM Interface

BOARD ID RESISTANCE SELECTION TABLE

#	Pull-Up	Pull-Down
0	10K	0
1	10K	1.3K
2	10K	3.3K
3	10K	5.6K
4	10K	10K
5	10K	18K
6	10K	30K
7	10K	62K
8	**10K**	**(NC)**

Board Rev — OSBDM_REV 001

Board ID — ID0 0, ID1 8

Don't populate R65. Provision for future use.

MIC2026-1YM

TX / RX [R456 and R457]

POKA-YOKE: Place both jumpers with the same orientation and provide same airgap between their terminals in a square fashion.

KNOX MCU–OSBDM VOLTAGE TRANSLATORS

74LVC1T45

Place one 0.1uF cap near Pin16(VDD1) & another 0.1uF cap near Pin31(VDDAD/VREFH)

MC9S08JM60CLD

Default: No shunt
Bootloader Enable

OS_DEBUG

Place the componenets as close as possible to the OSBDM MCU pins.

KNOX_MCU SCI Source Selector

Shunt	KNOX MCU SCI SOURCE
1-2 Shunt	Knox MCU SCI TXD0(PS1) & RXD0(PS0)
3-4 Shunt	Knox MCU SCI TXD1(PT1) & RXD1(PT0)
5-6 Shunt	Knox MCU SCI TXD1(PT5) & RXD1(PT4)

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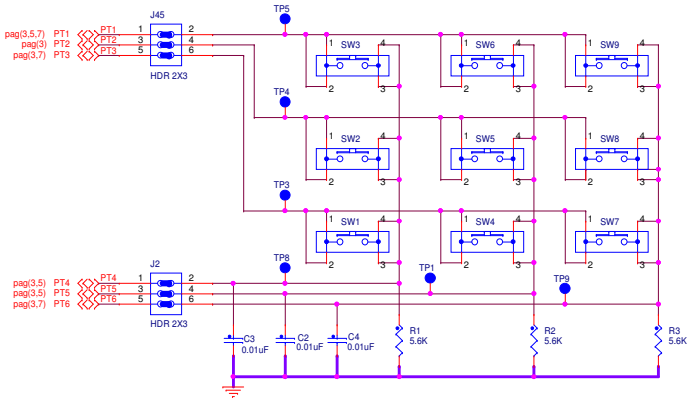
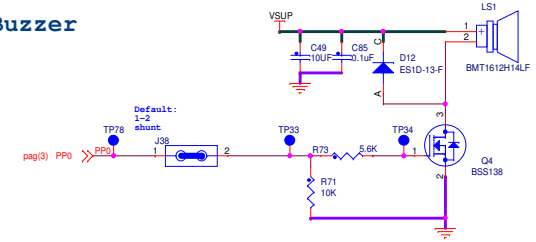
TRK-S12ZVL - User Peripherals

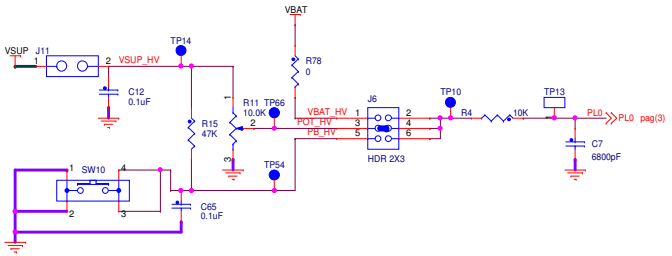
Switch Panel



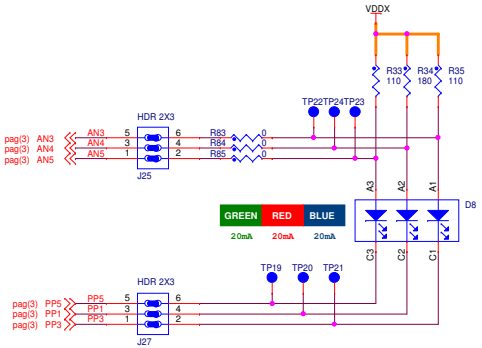
Buzzer



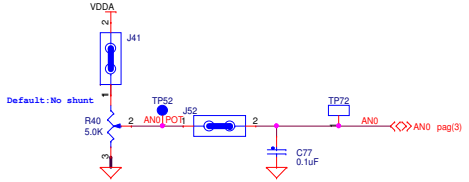
High Voltage Input (HVI)



RGB LED



ADC Potentiometer



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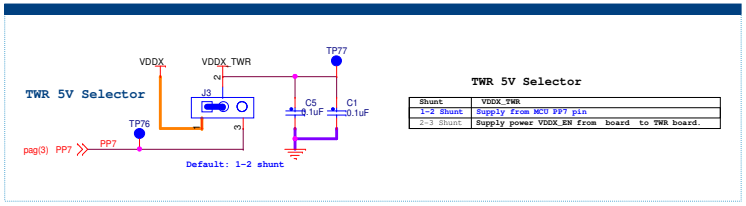
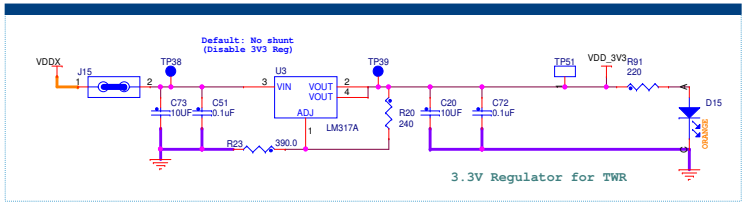
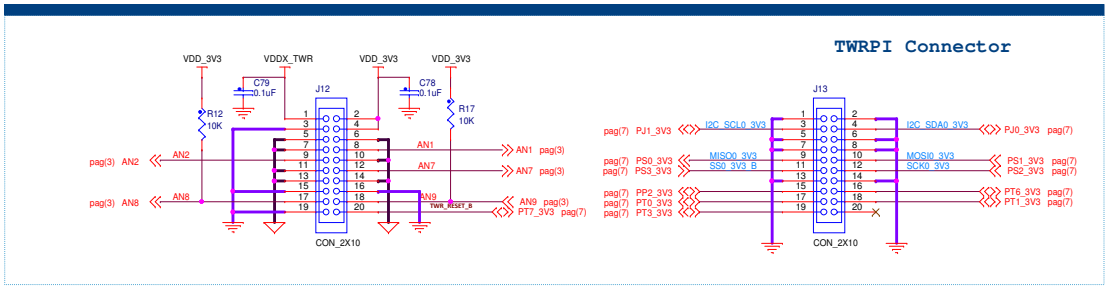
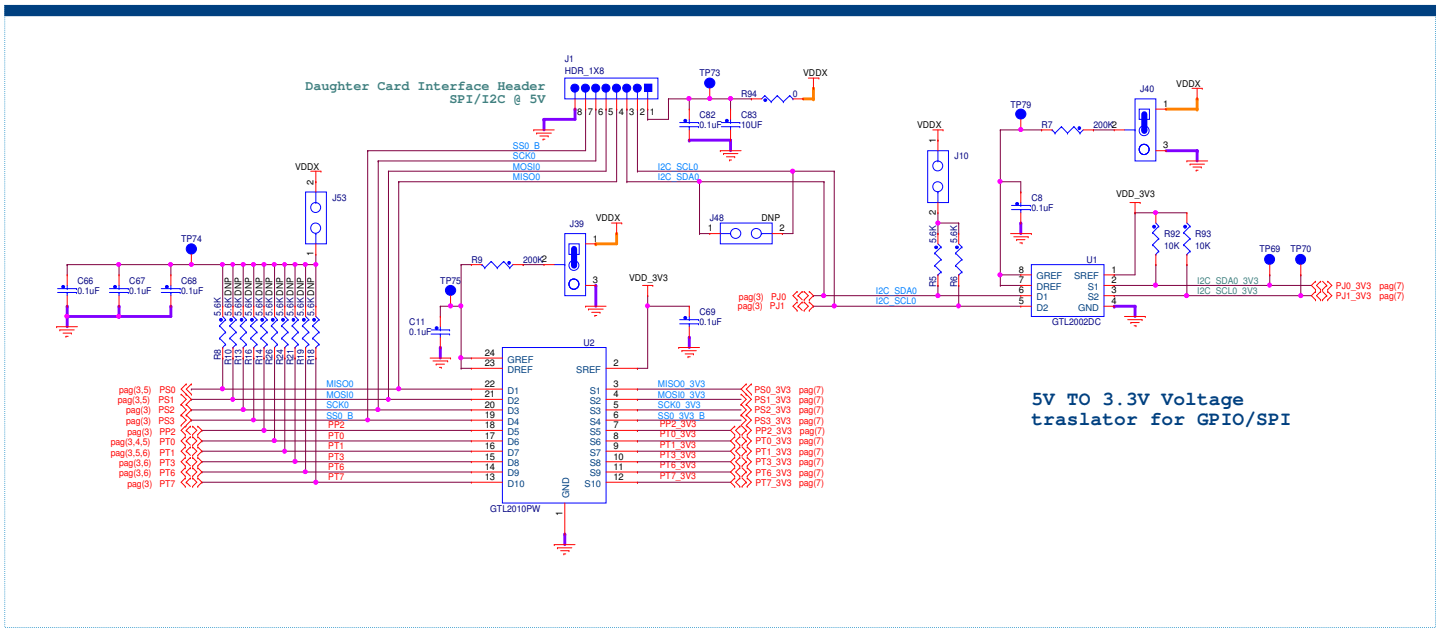
TRK-S12ZVL - TWRPI Interface









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