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3	Power Supply, Battery, uSD

Revisions & Change Log			
Rev	Description	Date	Approved
X1	27909 base Initial Draft	03/07/13	J. SCOTT
A	27909 Prototype Release	03/26/13	J. SCOTT
AX1	UD 27982 (BT Version) Under Development	07/16/13	J. SCOTT
AX1	27982 (BT Version) PPL & A070 RELEASE	07/22/13	J. SCOTT
AX2	27982 (BT Version) Block Diagram Update	08/07/13	J. SCOTT
B	27982 (BT Version) Release candidate	08/23/13	J. SCOTT
BX1	27982 (UNDER DEVELOPMENT) I2C swap fix	09/25/13	J. SCOTT
C	27909 Non BT ver. (BOM update per coreid) Release to prod.	10/02/13	J. SCOTT

FRDM-FXS-MULTI



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ICAP Classification: FCP: FLK2: PUB: X

Designer:  
RAFAEL DEL REY

Drawing Title:  
**FRDM-FXS-MULTI**

Drawn by:  
RAFAEL DEL REY

Page Title:  
**TITLE PAGE**

Approved:  
JAMES SCOTT

Size  
C

Document Number  
SCH-27909 | PDF: SPF-27909

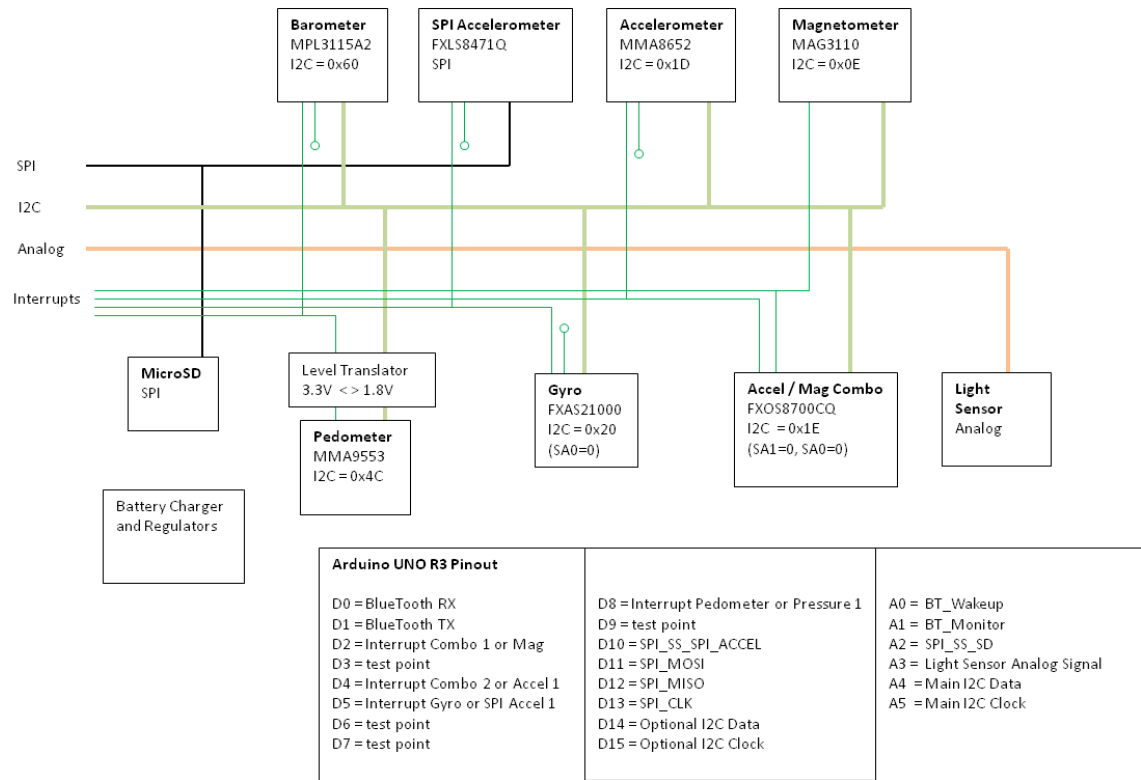
Rev  
C

Date: Wednesday, October 02, 2013

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- 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
- Interrupted lines coded with the same letter or letter combinations are electrically connected.
- Device type number is for reference only. The number varies with the manufacturer.
- Special signal usage:
  - \_B Denotes - Active-Low Signal
  - <> or [] Denotes - Vectored Signals
- Interpret diagram in accordance with American National Standards Institute specifications, current revision, with the exception of logic block symbology.

## FRDM-FXS-MULTI Block Diagram



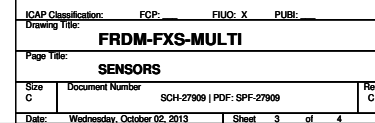
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The schematic diagram illustrates the electrical connections for the MMA9533LV module. Key components and connections include:

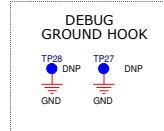
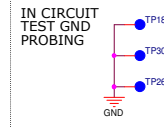
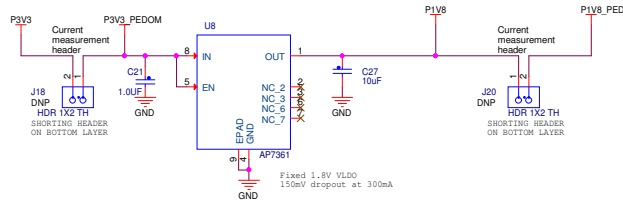
- Power and Grounding:**
  - VDD:** Connected to a 3.3V supply (P1V8) through a 10kΩ resistor (R40) and a 100nF capacitor (C25).
  - VSSA:** Connected to ground through a 100nF capacitor (C26).
  - VSS1:** Connected to ground through a 100nF capacitor (C27).
  - VSS2:** Connected to ground through a 100nF capacitor (C28).
  - IOVDD:** Connected to a 1.8V supply (P1V8) through a 10kΩ resistor (R42) and a 100nF capacitor (C29).
  - IOVSS:** Connected to ground through a 100nF capacitor (C30).
- I2C Interface:**
  - I2C\_SCL:** Connected to the module's SCL pin (pin 6) through a 10kΩ resistor (R49).
  - I2C\_SDA:** Connected to the module's SDA pin (pin 7) through a 10kΩ resistor (R51).
- Level Translation:**
  - U11 (MMA9533LV):** The main module, configured with BKGD/MS/RGPIO9, RESET, SCL0/RGPIO0/SCLK, SDA0/RGPIO1/SDI, RGPIO2/SCL1/SDO, RGPIO3/SDA1/SS, and RGPIO4/INT.
  - U12 (FXLP346X):** A 1.8V-3.3V level translator. Its VCC1 is connected to 1.8V (P1V8) and VCC2 to 3.3V (P3V3\_PEDOM). Its NC pin is connected to ground (C36), and its Y pin is connected to the I2C\_SDA line.
- Other Components:**
  - PCAB0906DCUR:** A component connected to the EN pin (pin 8) of the MMA9533LV.
  - Resistors:** R40 (10kΩ), R42 (10kΩ), R43 (100kΩ), R44 (10kΩ), R45 (10kΩ), R46 (10kΩ), R47 (10kΩ), R48 (10kΩ), R49 (10kΩ), R50 (10kΩ), R51 (10kΩ), R52 (10kΩ), R53 (10kΩ), R54 (10kΩ), R55 (10kΩ), R56 (10kΩ), R57 (10kΩ), R58 (10kΩ), R59 (10kΩ), R60 (10kΩ), R61 (10kΩ), R62 (10kΩ), R63 (10kΩ), R64 (10kΩ), R65 (10kΩ), R66 (10kΩ), R67 (10kΩ), R68 (10kΩ), R69 (10kΩ), R70 (10kΩ), R71 (10kΩ), R72 (10kΩ), R73 (10kΩ), R74 (10kΩ), R75 (10kΩ), R76 (10kΩ), R77 (10kΩ), R78 (10kΩ), R79 (10kΩ), R80 (10kΩ), R81 (10kΩ), R82 (10kΩ), R83 (10kΩ), R84 (10kΩ), R85 (10kΩ), R86 (10kΩ), R87 (10kΩ), R88 (10kΩ), R89 (10kΩ), R90 (10kΩ), R91 (10kΩ), R92 (10kΩ), R93 (10kΩ), R94 (10kΩ), R95 (10kΩ), R96 (10kΩ), R97 (10kΩ), R98 (10kΩ), R99 (10kΩ), R100 (10kΩ).
  - Capacitors:** C25 (100nF), C26 (100nF), C27 (100nF), C28 (100nF), C29 (100nF), C30 (100nF), C31 (100nF), C32 (100nF), C33 (100nF), C34 (100nF), C35 (100nF), C36 (100nF), C37 (100nF), C38 (100nF), C39 (100nF), C40 (100nF), C41 (100nF), C42 (100nF), C43 (100nF), C44 (100nF), C45 (100nF), C46 (100nF), C47 (100nF), C48 (100nF), C49 (100nF), C50 (100nF), C51 (100nF), C52 (100nF), C53 (100nF), C54 (100nF), C55 (100nF), C56 (100nF), C57 (100nF), C58 (100nF), C59 (100nF), C60 (100nF), C61 (100nF), C62 (100nF), C63 (100nF), C64 (100nF), C65 (100nF), C66 (100nF), C67 (100nF), C68 (100nF), C69 (100nF), C70 (100nF), C71 (100nF), C72 (100nF), C73 (100nF), C74 (100nF), C75 (100nF), C76 (100nF), C77 (100nF), C78 (100nF), C79 (100nF), C80 (100nF), C81 (100nF), C82 (100nF), C83 (100nF), C84 (100nF), C85 (100nF), C86 (100nF), C87 (100nF), C88 (100nF), C89 (100nF), C90 (100nF), C91 (100nF), C92 (100nF), C93 (100nF), C94 (100nF), C95 (100nF), C96 (100nF), C97 (100nF), C98 (100nF), C99 (100nF), C100 (100nF).

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Diagram illustrating the connection for the RST\_TGTMCU pin. The circuit includes an open drain inverter (NL7S206DF) connected to the RST\_TGTMCU pin. The inverter's NC pin is connected to VCC, its IN pin is connected to RST\_TGTMCU, and its OUT pin is connected to RST\_TGTMCU. A 10K resistor (R35) is connected between the OUT pin and VCC. A 1.0UF capacitor (C44) is connected between the IN pin and GND.



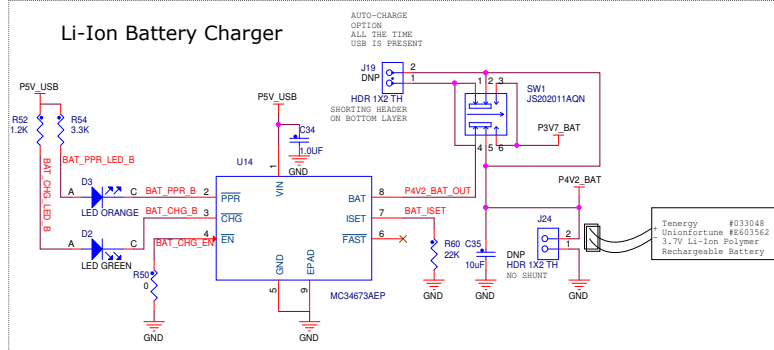
## VOLTAGE REGULATION



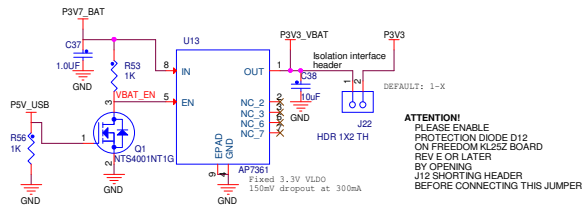
## Prototyping Area Heading Signals

pg(3) I2C_SCL0	<<>	I2C_SCL0	D15	TP9
pg(3) I2C_SDA0	<<>	I2C_SDA0	D14	DNP
pg(3,4) SPL_CLK	<<>	SPL_CLK	D13	DNP
pg(3,4) SPL_MISO	<<>	SPL_MISO	D12	TP13
pg(3,4) SPL_MOSI	<<>	SPL_MOSI	D11	TP14
pg(3) SPI_SS_SPI_ACCEL	<<>	SPI_SS_SPI_ACCEL	D10	DNP
pg(3) TP_FRODM_DIG09	<<>	TP_FRODM_DIG09	D9	TP15
pg(3) INT_PED	<<>	INT_PED	D8	DNP
pg(3) TP_FRODM_DIG07	<<>	TP_FRODM_DIG07	D7	TP17
pg(3) TP_FRODM_DIG06	<<>	TP_FRODM_DIG06	D6	DNP
pg(3) INT_GYRO	<<>	INT_GYRO	D5	TP3
pg(3) INT_ACCEL	<<>	INT_ACCEL	D4	TP4
pg(3) TP_FRODM_DIG03	<<>	TP_FRODM_DIG03	D3	DNP
pg(3) INT_MAG	<<>	INT_MAG	D2	TP5
pg(3) BT_TX0	<<>	BT_TX0	D1	TP6
pg(3) BT_RX0	<<>	BT_RX0	D0	TP7
pg(3) I2C_SCL1	<<>	I2C_SCL1	A5	DNP
pg(3) I2C_SDA1	<<>	I2C_SDA1	A4	DNP
pg(3) SNS_LIGHT	<<>	SNS_LIGHT	A3	TP29
pg(3,4) SPI_SS_SD	<<>	SPI_SS_SD	A2	DNP
pg(3) BT_MONITOR	<<>	BT_MONITOR	A1	TP36
pg(3) BT_WAKEUP	<<>	BT_WAKEUP	A0	TP37
				TP11
				DNP

## Li-Ion Battery Charger



## Battery Regulation



## microSD Card Connector, SPI Mode

