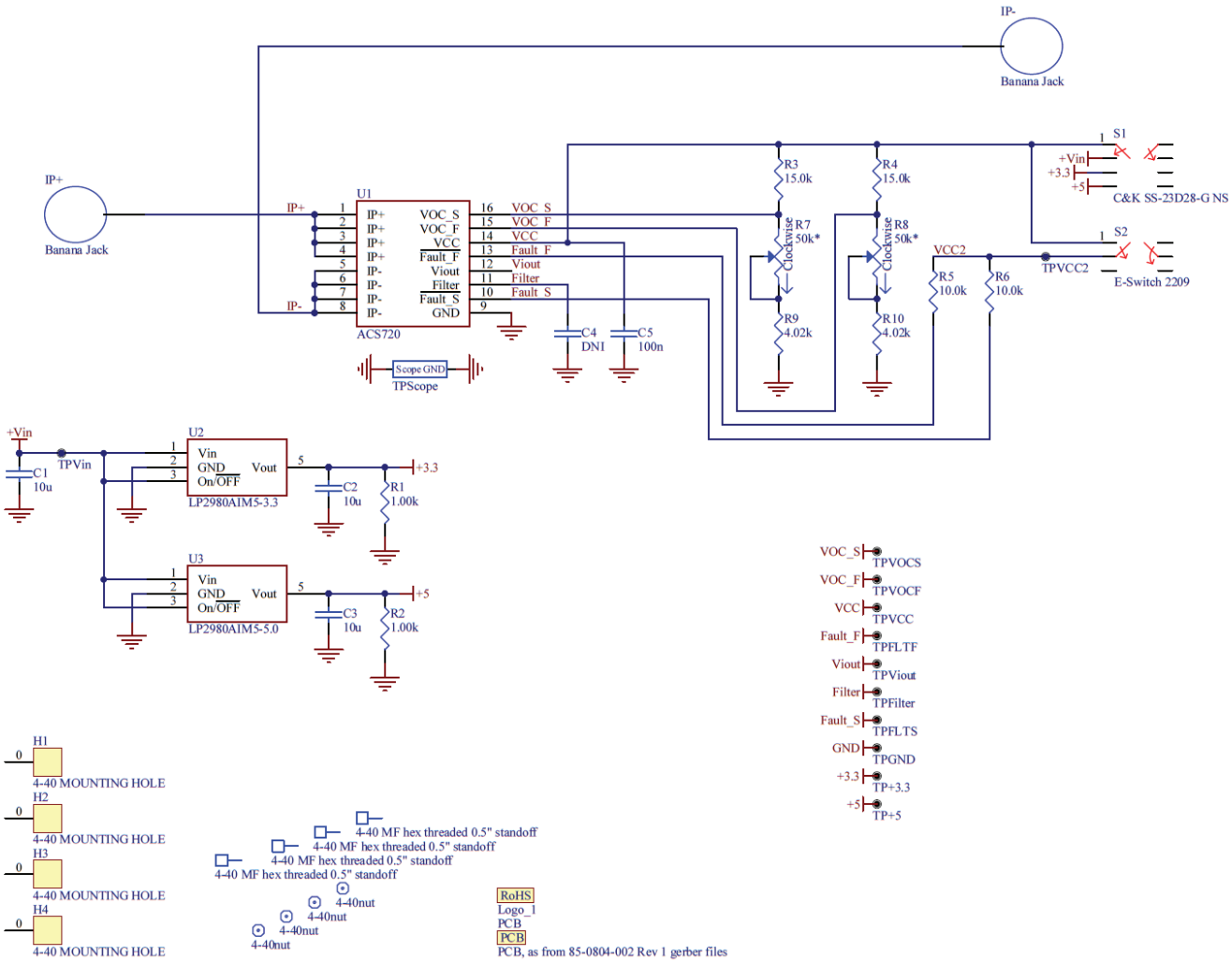
ASEK720 Evaluation Board

QUICK START AND BASIC SETUP

1. Power the board by applying 6 to 7 V to ‘TPVin’ and switching S1 to ‘+5V’. The on-board regulator will provide 5 V to the sensor.
2. Set S2 to ‘VCC’ to set the pull-up voltage on the fault outputs to 5 V.
3. Run the current being measured through IP+ to IP-.
4. Measure the output of the sensor on TPViout.
5. Monitor the slow and fast fault outputs on TPFLTS and TPFLTF, respectively.
6. The slow and fast fault trip points can be adjusted using the trim pots R7 and R8, respectively, while monitoring TPVOCS and TPVOCF

EVALUATION BOARD SCHEMATIC

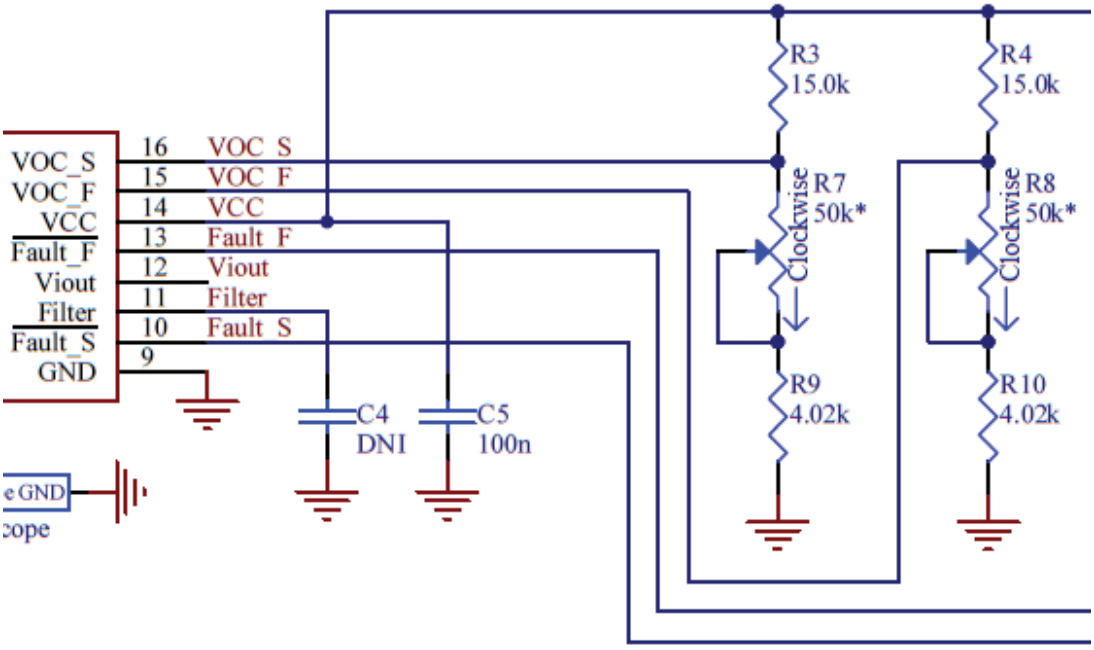


TEST POINTS

Test Point Number	Test Point Function / Connection
TPVin	Input of the voltage regulators (U2, U3). Supply with 6 to 7 V. Alternatively, supply with 5 V and set S1 to Vin to power the sensor directly from Vin.
TP+5	Connected to the output of the 5 V regulator (U2)
TP+3.3	Connected to the output of the 3.3 V regulator (U3). Not included on this demo board.
TPVOCS	Connected to VOCS pin of the sensor. This pin is used to control the slow fault over current threshold.
TPVOCF	Connected to VOCF pin of the sensor. This pin is used to control the fast fault over current threshold.
TPVCC	Connected to VCC pin of the sensor.
TPFilter	Connected to Filter pin of the sensor. This pin is used to filter the analog output of the sensor by adding a capacitor (C4) to ground.
TPViout	Connected to Viout pin of the sensor. This pin is the analog output of the sensor.
TPFLTF	Connected to FLTF pin of the sensor. This pin is the open drain output for the fast over current fault, which is active low.
TPFLFS	Connected to FLTS pin of the sensor. This pin is the open drain output for the slow over current fault, which is active low.
TPGND	Connected to GND pin of the sensor (and demo board).
TPVCC2	Connected to voltage the two open drain fault pins are being pulled up to. If S2 is set to 'VCC,' this pin is shorted to Vcc of the sensor. If S2 is set to 'FLOAT,' this pin is floating, such that one can connect it to whatever pull-up voltage is desired for the fault output pins.
TPScope	Connected to GND. Meant for easily connecting scope ground clips.

Setting Fault Thresholds

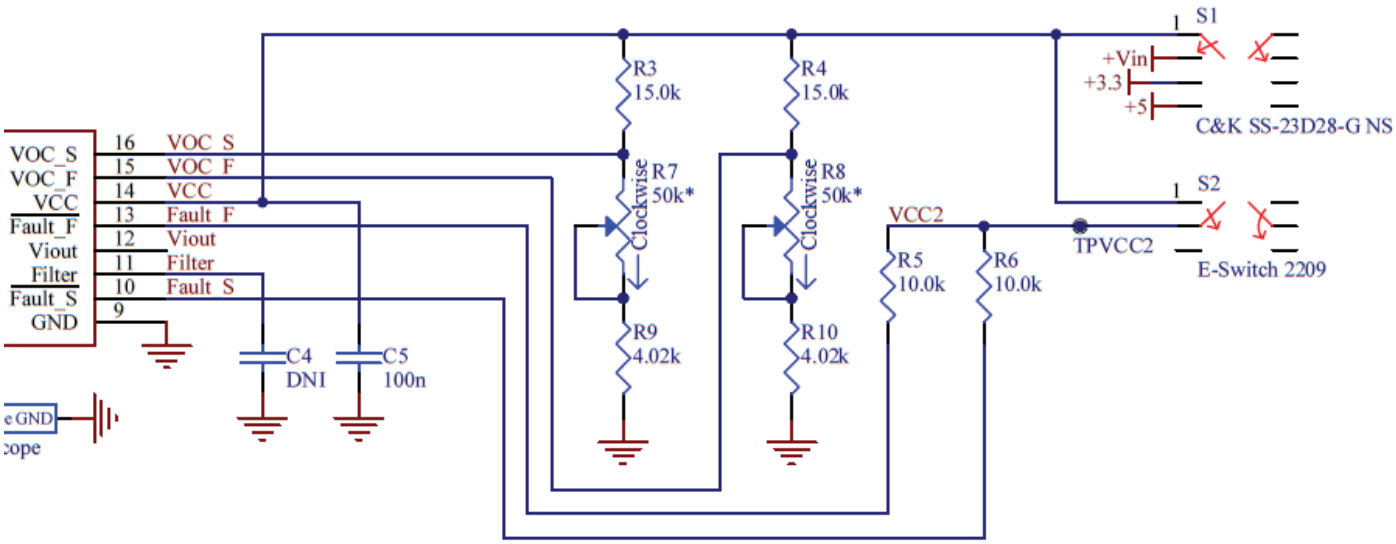
The fault thresholds are set by using resistor dividers from Vcc to generate voltages on the VOCS and VOCF pins of the sensor. On this demo board, these resistor dividers include potentiometers (R7 and R8) to allow the user to set this voltage. One should adjust the potentiometer while monitoring the corresponding VOC pin (R7 with VOCS and R8 with VOCF) to dial the voltage in to the desired level. The relationship between the voltage on the VOCS/VOCF pins and the fast and slow fault trip points is given in the ACS720 datasheet.



Pulling up the Fault Outputs

The fault outputs on the ACS720 are open drain, so they can be pulled up to any voltage at or below V_{CC}. For example, while V_{CC} is 5 V, one can pull the fault outputs up to 3.3 V to interface with a 3.3 V supplied microcontroller.

To pull the fault outputs of the ACS720 to Vcc, set switch ‘S2’ to ‘VCC.’ To pull the fault outputs of the ACS720 to a different voltage, set switch ‘S2’ to ‘FLOAT,’ and supply the desired pull up voltage on ‘TPVCC2.’



Revision History

Number	Date	Description
–	July 5, 2017	Initial Release

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