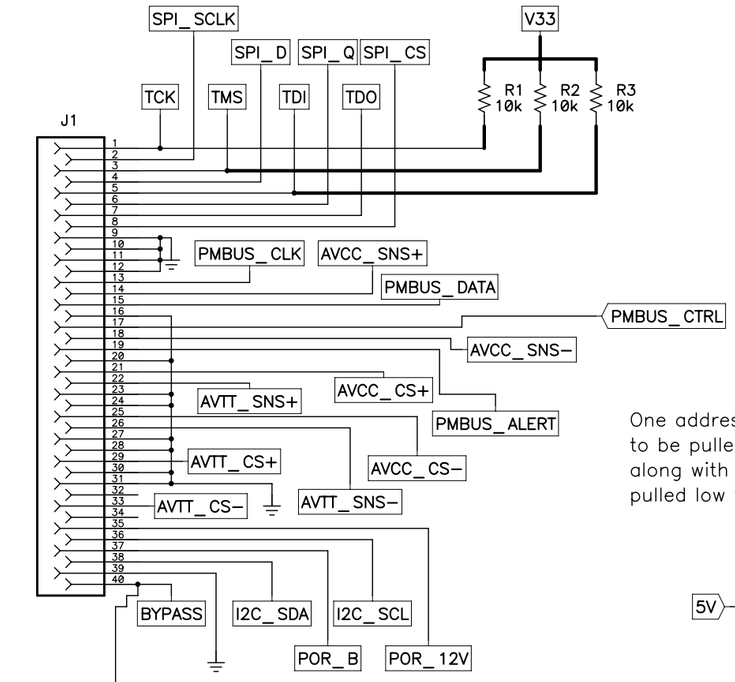
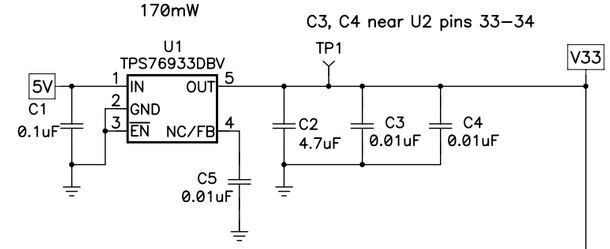
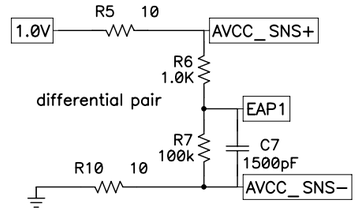
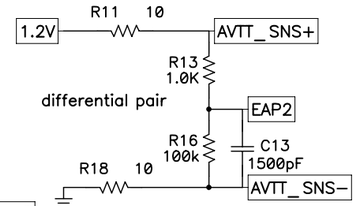
SPI bus not supported

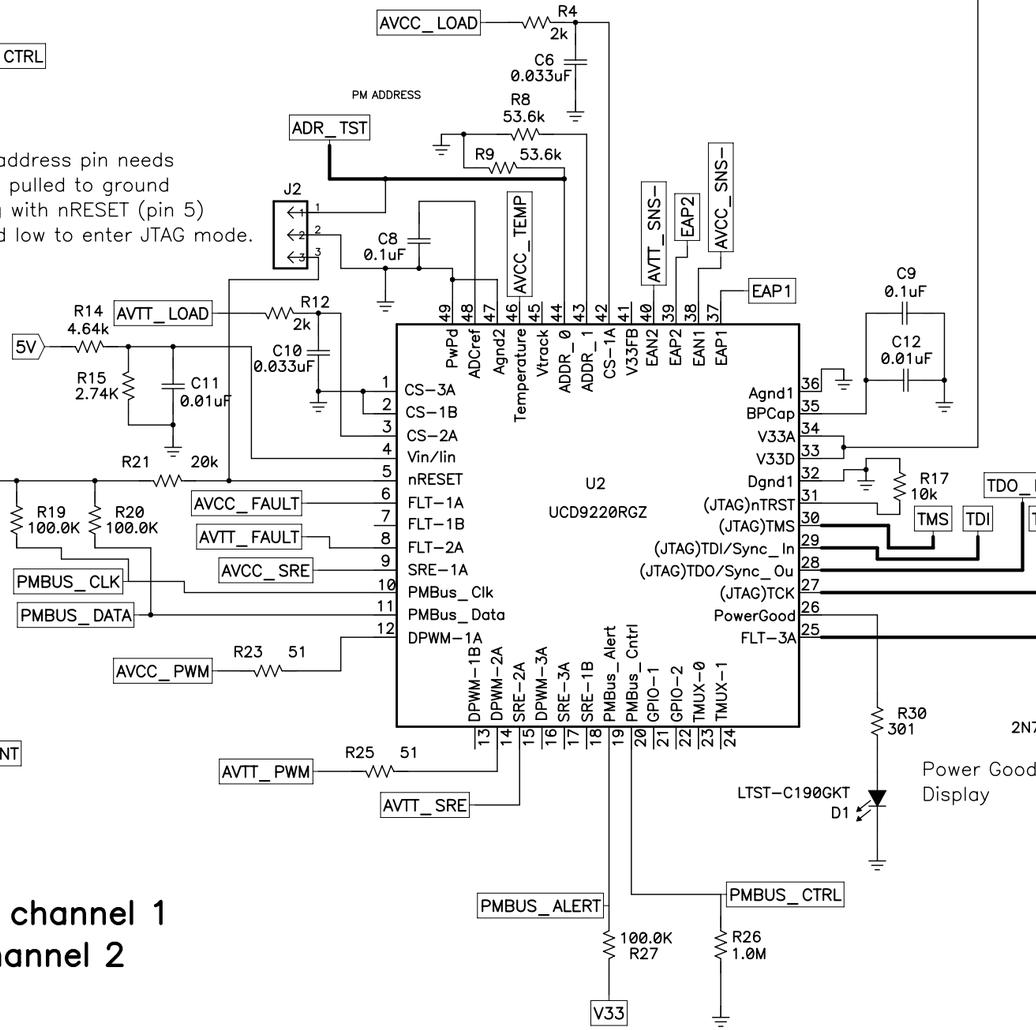


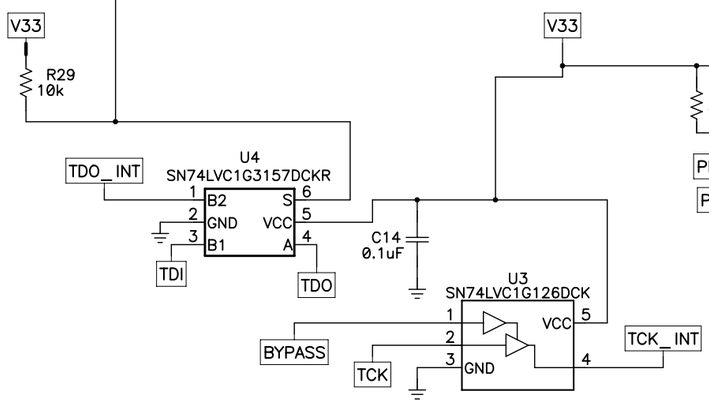






One address pin needs to be pulled to ground along with nRESET (pin 5) pulled low to enter JTAG mode.





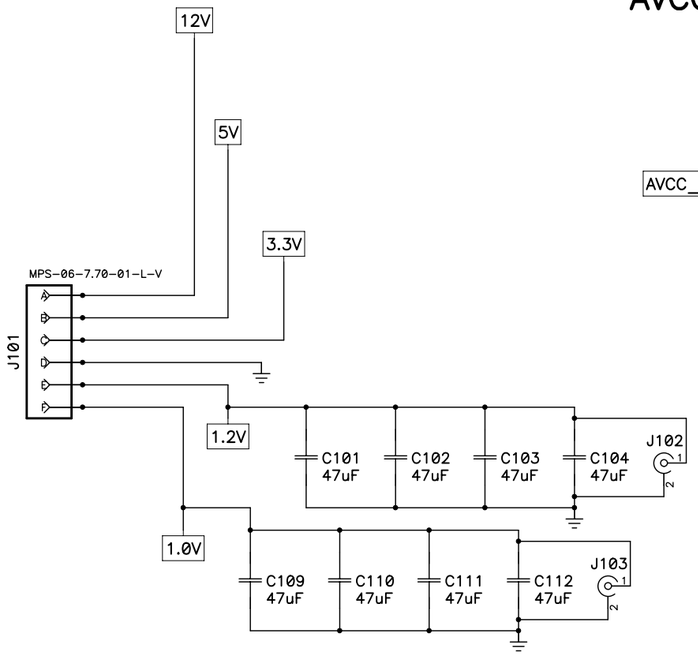
AVCC is 1.0V @ 10 A and controller channel 1
AVTT is 1.2V @ 6A and controller channel 2

Control

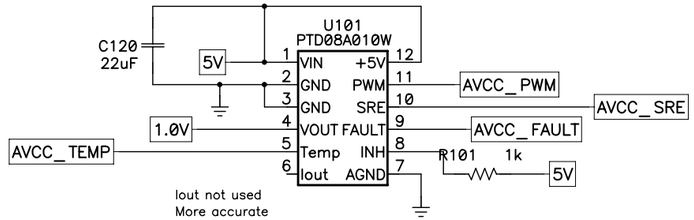
Control

Title	UCD9220 & 2x PTD08A010W	
Size C	Number PMP4186	Rev B
Date March 9, 2008	Drawn by Josh Mandelcorn	
Filename PMP4186_revB.SCH	Sheet 1 of 2	

Main power connector



AVCC 1.0V 10A Power Train Module

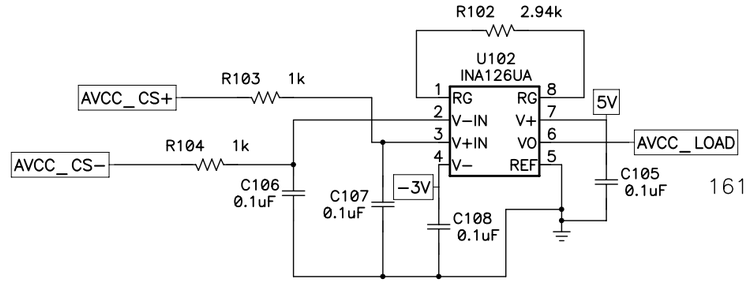


Iout not used
More accurate
load sense
used instead
See INA126
below

AVCC is 1.0V @ 10 A
AVTT is 1.2V @ 6A

INA126 gain = 5 + (80k/Rg)

AVCC Load Current Amplifier

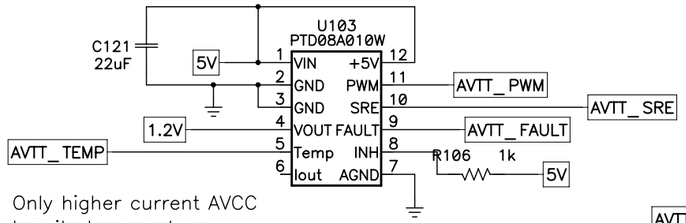


161.1mV/A

For AVCC load sense:
Current sense resistor is 5 mOhms,
the R102 shall be 2.94k for
amplifier gain of 32.2 and overall
current sense of 161.1 mV/A

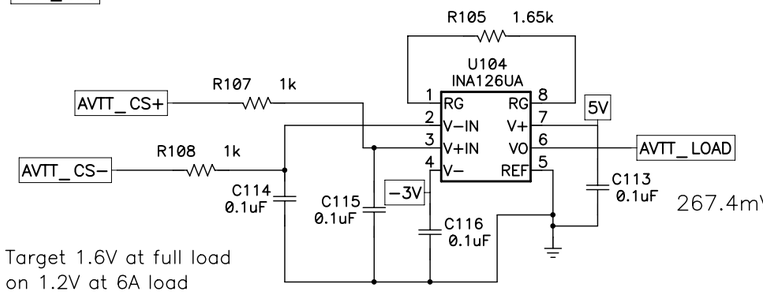
Added filter caps on both AVCC and AVTT to meet 5mV ripple spec

AVTT 1.2V 6A Power Train Module



Only higher current AVCC
has its temperature
monitored by UCD9220

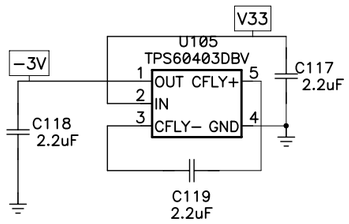
AVTT Load Current Amplifier



267.4mV/A

Target 1.6V at full load
on 1.2V at 6A load
Gain of amp is 53.48
Current sense resistor
on mother board is
5mOhms for AVTT

-3.3V Bias for instrumentation grade current sense op-amps (INA126 to measure rail currents)



Power

Title	UCD9220 & 2x PTD08A010W	
Size: C	Number: PMP4186	Rev: B
Date: March 9, 2008	Drawn by: Josh Mandelcorn	
Filename: PMP4186 revB.SCH	Sheet 2 of 2	

PMP4186_REVB BOM

COUNT	RefDes	Value	Description	Size	Part Number	MFR	AREA
2	C1, C9	0.1uF	Capacitor, Ceramic, 25V, X7R, 10%	0603	std	std	5650
8	C101, C102, C103, C104, C109, C110, C111, C112	47uF	Capacitor, Ceramic, 6.3V, X5R, 20%	1210	std	std	83,600
3	C117, C118, C119	2.2uF	Capacitor, Ceramic, 6.3V, X5R, 10%	0603	std	std	
2	C120, C121	22uF	Capacitor, Ceramic, 16V, X7R, 20%	1210	std	std	83,600
1	C2	4.7uF	Capacitor, Ceramic, 25V, X5R, 20%	0805	std	std	10560
5	C3, C4, C5, C11, C12	0.01uF	Capacitor, Ceramic, 50V, X7R, 10%	0603	std	std	5650
2	C6, C10	0.033uF	Capacitor, Ceramic, 25V, X7R, 10%	0603	std	std	5650
2	C7, C13	1500pF	Capacitor, Ceramic, 25V, X7R, 10%	0603	std	std	5650
10	C8, C14, C105, C106, C107, C108, C113, C114, C115, C116	0.1uF	Capacitor, Ceramic, 16V, X7R, 10%	0603	std	std	5650
1	D1	LTST-C190GKT	Diode, LED, Green, 2.1-V, 20-mA, 6-mcd	0603	LTST-C190GKT	Lite On	9451
1	J1*	BSE-020-01-L-D-A	Connector, F, 40 pin, SMT, Vertical Header, 0.0315 pitch	0.285 x 0.478 inch	BSE-020-01-L-D-A	Samtec	297500
1	J101*	MPS-06-7.70-01-L-V	Connector, Powerstrip F, 6 pin	0.400 x 1.286 inch	MPS-06-7.70-01-L-V	Samtec	645000
1	J2	PTC36SAAN	Header, Male 3-pin, 100mil spacing, (36-pin strip)	0.100 inch x 3	PTC36SAAN	Sullins	0.043 inch
1	Q1	2N7002DICT	MOSFET, N-ch, 60-V, 115-mA, 1.2-Ohms	SOT23	2N7002DICT	Vishay-Liteon	14105
8	R1, R2, R3, R17, R22, R24, R28, R29	10k	Resistor, Chip, 1/16W, 1%	0603	std	std	9100
6	R101, R103, R104, R106, R107, R108	1k	Resistor, Chip, 1/16W, 1%	0603	std	std	9100
1	**R102**	**2.94k**	**Resistor, Chip, 1/16W, 1%**	**0603**	**std**	**std**	**9100**
1	R105	1.65k	Resistor, Chip, 1/16W, 1%	0603	std	std	9100
1	R14	4.64k	Resistor, Chip, 1/16W, 1%	0603	std	std	9100
1	R15	2.74K	Resistor, Chip, 1/16W, 1%	0603	std	std	9100
3	R19, R20, R27	100.0K	Resistor, Chip, 1/16W, 1%	0603	std	std	9100
1	R21	20k	Resistor, Chip, 1/16W, 1%	0603	std	std	9100
2	R23, R25	51	Resistor, Chip, 1/16W, 5%	0603	std	std	9100
1	R26	1.0M	Resistor, Chip, 1/16W, 1%	0603	std	std	9100
1	R30	301	Resistor, Chip, 1/16W, 1%	0603	std	std	9100
2	R4, R12	2k	Resistor, Chip, 1/16W, 1%	0603	std	std	5,650
4	R5, R10, R11, R18	10	Resistor, Chip, 1/16W, 5%	0603	std	std	9100
2	R6, R13	1.0K	Resistor, Chip, 1/16W, 1%	0603	std	std	9100
2	R7, R16	100k	Resistor, Chip, 1/16W, 1%	0603	std	std	9100
2	R8, R9	53.6k	Resistor, Chip, 1/16W, 1%	0603	std	std	9100
1	TP1	5015	Test Point, SMT	0.105 x 0.040 inch	5015	Keystone	
1	U1*	TPS76933DBV	IC, Ultralow-Power 100 mA LDO Regulator	SOT23-5	TPS76933DBV	TI	23200
2	U101*, U103*	PTD08A010W	Module, Non-Isolated Power, DC-DC Converter, 4.5V-15.5Vin, 5Vo	0.500 x 0.745 inch	PTD08A010W	TI	507000
2	U102*, U104*	INA126UA	IC, Power Instrumentation Amp.	SO-8	INA126UA	TI (Burr Brown)	75900
1	U105*	TPS60403DBV	IC, Unregulated 60 mA Charge Pump Voltage Inverter	SOT23	TPS60403DBV	TI	

1	U2*	UCD9220RGZ	IC, Digital PWM System Controller	QFN-48	UCD9220RGZ	TI	116964
1	U3*	SN74LVC1G126DCK	IC, Single Bus Buffer Gate With 3-States Outputs, OE Active High	DCK	SN74LVC1G126DCK	TI	19,500
1	U4*	SN74LVC1G3157DCKI	IC, SPDT Analog Switch	SC-70	SN74LVC1G3157DCKR	TI	18600
1	PCB	PMP4186 rev B	2.8" by 1.6" by 0.063" must be rev B				

Notes:
1. These assemblies are ESD sensitive, ESD precautions shall be observed.
2. These assemblies must be clean and free from flux and all contaminants.
   Use of no clean flux is not acceptable.
3. These assemblies must comply with workmanship standards IPC-A-610 Class 2.
4. Ref designators marked with an asterisk ('**') cannot be substituted.
   All other components can be substituted with equivalent MFG's components.
5. J102 & J103 are only inserted in select units by hand afterwards. They are too costly to insert in all units.

DNP	J102, J103	**73251-1851**	CONN, RF Coax 50 Ohms,	0.223 x 0.625 inch	**73251-1851**	Molex	162500

6. U101 & U103 must have a red dot marked on its choke indicating that 2 resistors have been added to it
7. U2 must be preprogrammed for this specific PMP4186 rev B application. Marking TBD.
8. **March 20, 2009: R102 needs to be corrected from 1.65k to be 2.94k**

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