

1

2

3

4

D

D

C

C

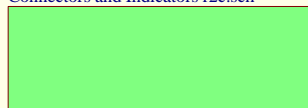
B

B

A

A

Connectors and Indicators r2c  
Connectors and Indicators r2c.sch



PWM Controller r2c  
PWM Controller r2c.sch



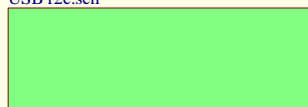
Power r2c  
Power r2c.sch



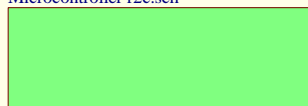
Surge Protection r2c  
Surge Protection r2c.sch



USB r2c  
USB r2c.sch



Microcontroller r2c  
Microcontroller r2c.sch



ODB2 Interface r2c  
ODB2 Interface r2c.sch



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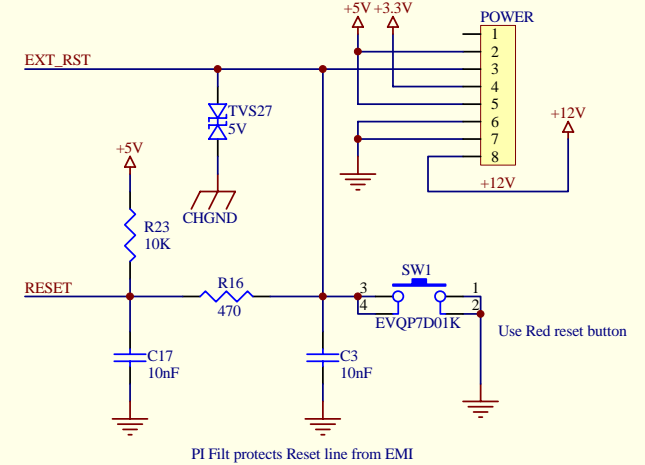
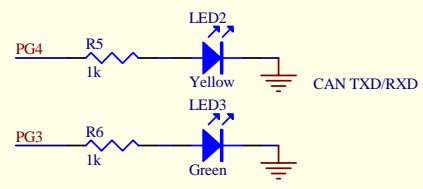
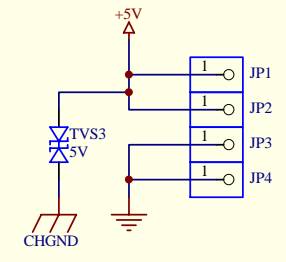
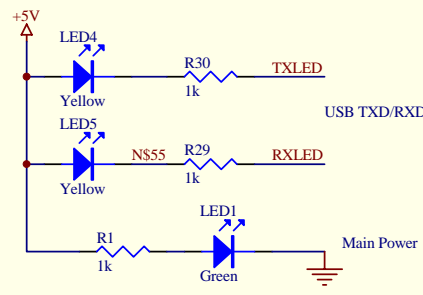
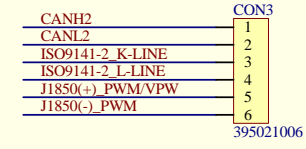
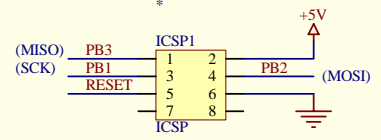
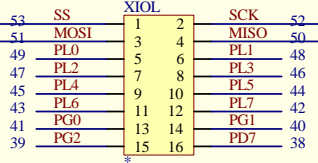
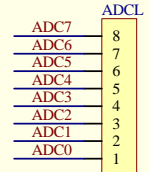
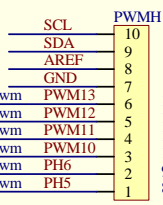
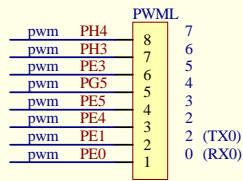
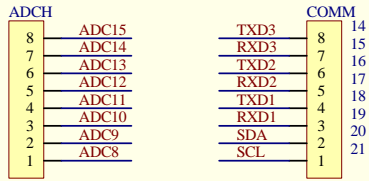
Macchina Reference Design	
TITLE:	Macchina (Arduino compatible)
Sheet Name:	Overall
REV:	2
Date:	11/15/2011 9:21:02 PM
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1

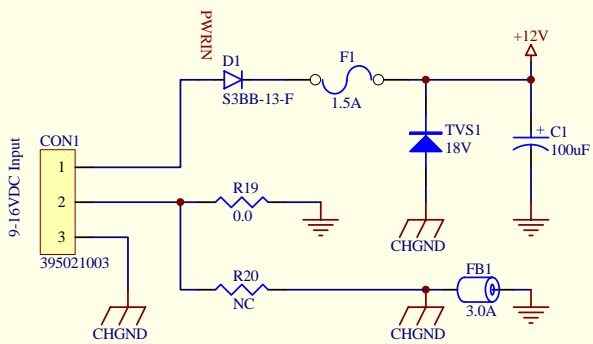
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3

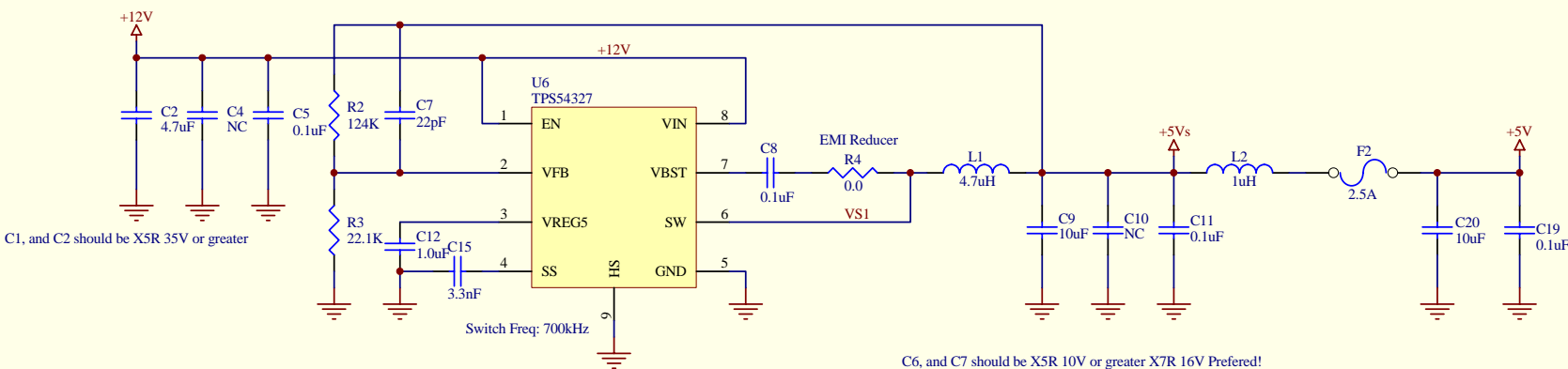
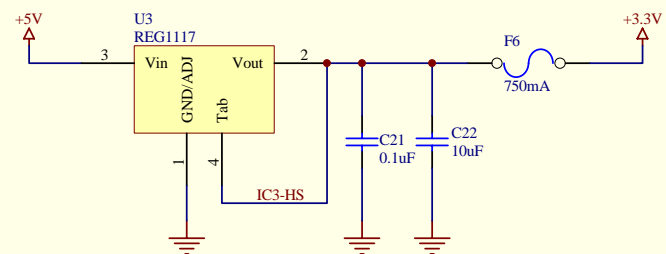
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Macchina Reference Design	
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Sheet Name: Connectors and Indicators	REV: 2
Date: 11/15/2011 9:21:02 PM	Sheet: 2 of 8



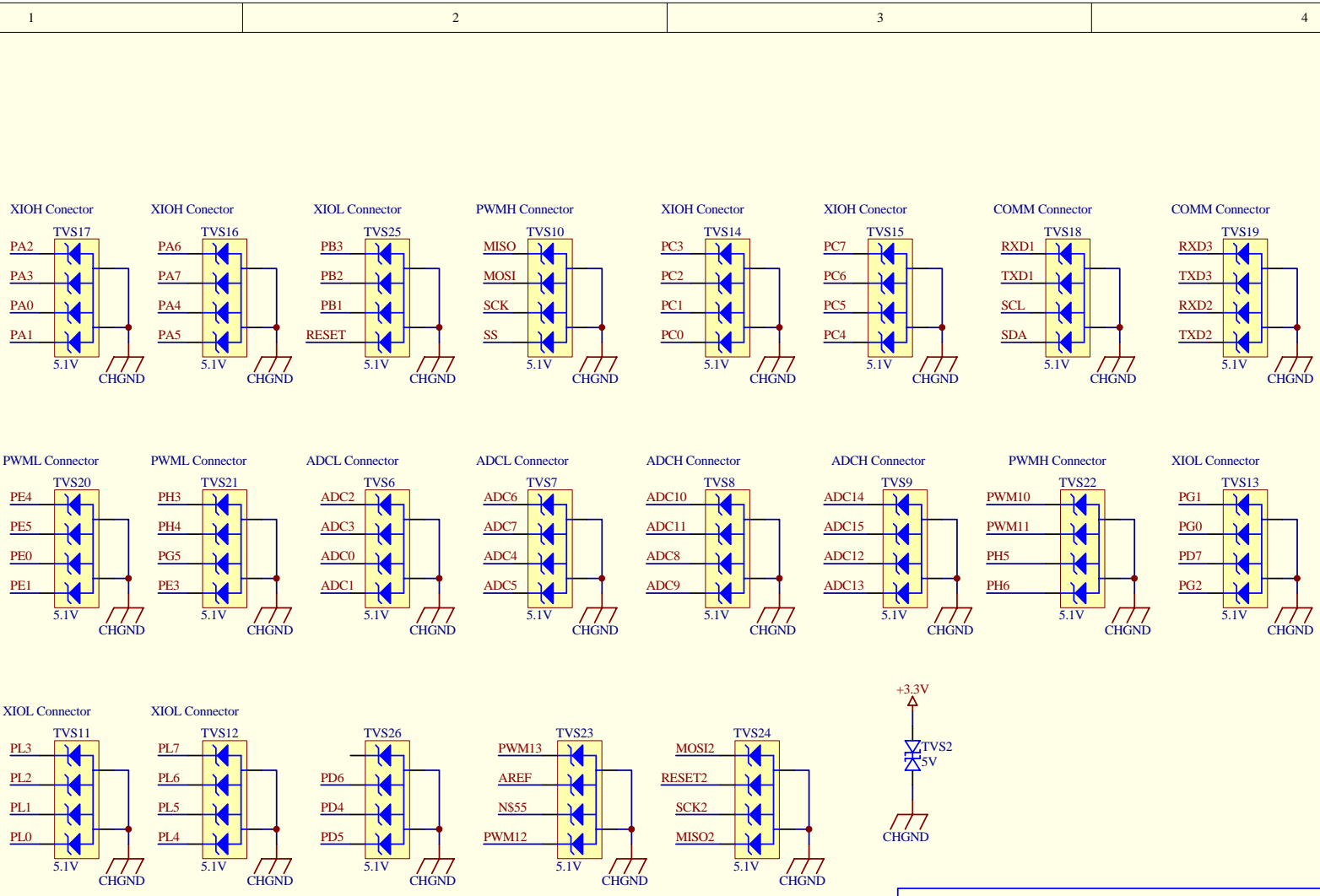
Single point connection from Chassis GND to Digital GND at power inlet for ESD protection.



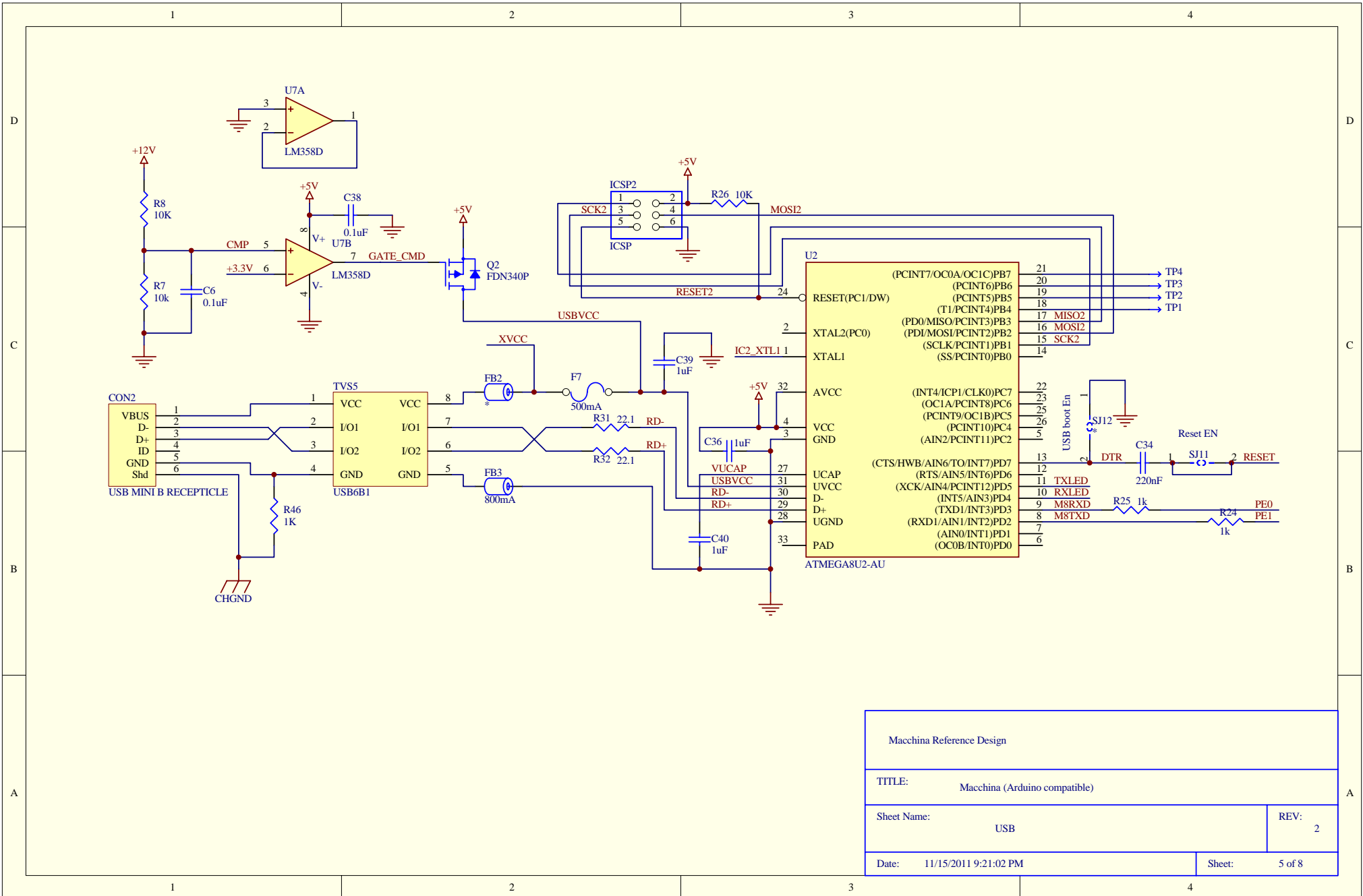
C1, and C2 should be X5R 35V or greater

C6, and C7 should be X5R 10V or greater X7R 16V Preferred!

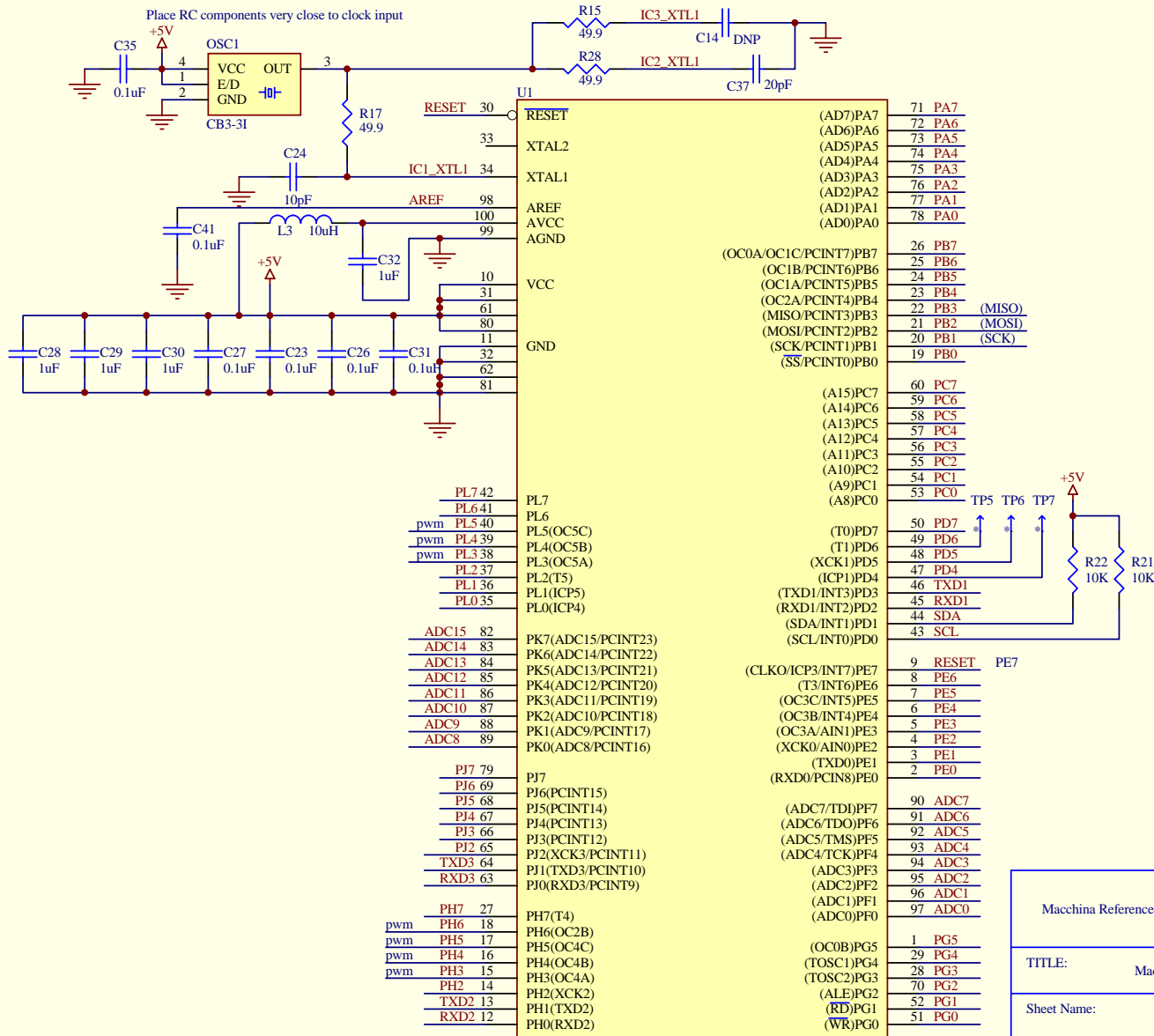
Macchina Reference Design	
TITLE:	Macchina (Arduino compatible)
Sheet Name:	Power
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Macchina Reference Design	
TITLE: Macchina (Arduino compatible)	
Sheet Name: Surge Protection	REV: 2
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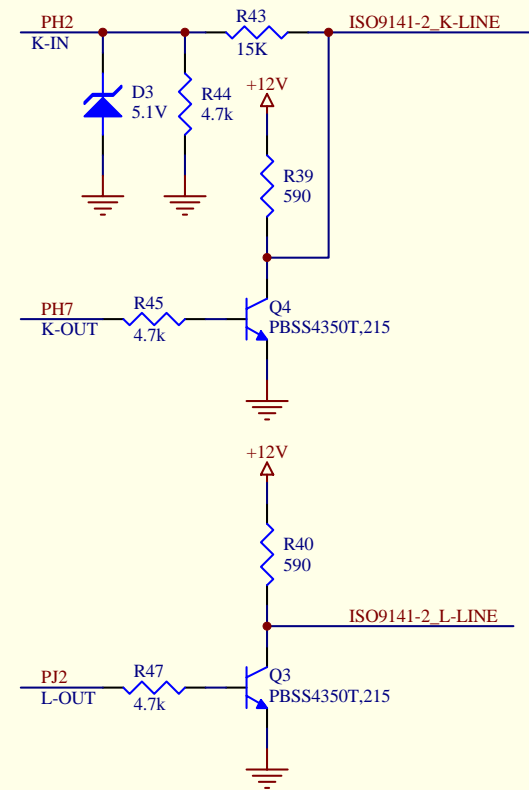
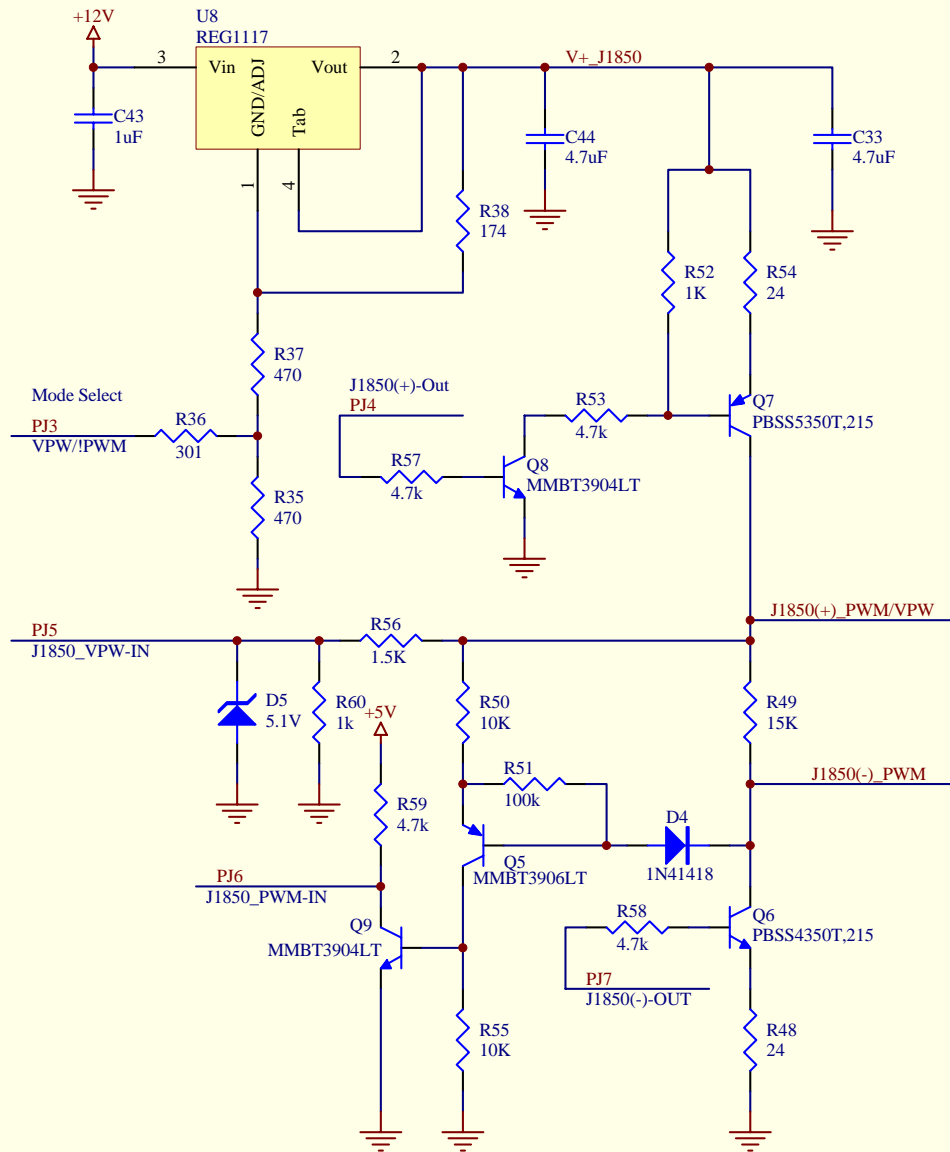
Macchina Reference Design	
TITLE: Macchina (Arduino compatible)	
Sheet Name: USB	REV: 2
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RESET	30	(AD7)PA7	71	PA7
RESET	33	(AD6)PA6	72	PA6
XTAL2	34	(AD5)PA5	73	PA5
XTAL1	98	(AD4)PA4	74	PA4
AREF	100	(AD3)PA3	75	PA3
AVCC	99	(AD2)PA2	76	PA2
AGND	10	(AD1)PA1	77	PA1
VCC	31	(AD0)PA0	78	PA0
GND	61	(OC0A/OC1C/PCINT7)PB7	26	PB7
	80	(OC1B/PCINT6)PB6	25	PB6
	11	(OC1A/PCINT5)PB5	24	PB5
	32	(OC2A/PCINT4)PB4	23	PB4
	62	(MISO/PCINT3)PB3	22	PB3 (MISO)
	81	(MOSI/PCINT2)PB2	21	PB2 (MOSI)
		(SCK/PCINT1)PB1	20	PB1 (SCK)
		(SS/PCINT0)PB0	19	PB0
		(A15)PC7	60	PC7
		(A14)PC6	59	PC6
		(A13)PC5	58	PC5
		(A12)PC4	57	PC4
		(A11)PC3	56	PC3
		(A10)PC2	55	PC2
		(A9)PC1	54	PC1
		(A8)PC0	53	PC0
		(T0)PD7	50	PD7
		(T1)PD6	49	PD6
		(XCK1)PD5	48	PD5
		(ICP1)PD4	47	PD4
		(TXD1/INT3)PD3	46	TXD1
		(RXD1/INT2)PD2	45	RXD1
		(SDA/INT1)PD1	44	SDA
		(SCL/INT0)PD0	43	SCL
		(CLKO/ICP3/INT7)PE7	9	RESET PE7
		(T3/INT6)PE6	8	PE6
		(OC3C/INT5)PE5	7	PE5
		(OC3B/INT4)PE4	6	PE4
		(OC3A/AIN1)PE3	5	PE3
		(XCX0/AIN0)PE2	4	PE2
		(TXD0)PE1	3	PE1
		(RXD0/PCIN8)PE0	2	PE0
		(ADC7/TD0)PF7	90	ADC7
		(ADC6/TD0)PF6	91	ADC6
		(ADC5/TMS)PF5	92	ADC5
		(ADC4/TCK)PF4	93	ADC4
		(ADC3)PF3	94	ADC3
		(ADC2)PF2	95	ADC2
		(ADC1)PF1	96	ADC1
		(ADC0)PF0	97	ADC0
		(OC0B)PG5	1	PG5
		(TOSC1)PG4	29	PG4
		(TOSC2)PG3	28	PG3
		(ALE)PG2	70	PG2
		(RD)PG1	52	PG1
		(WR)PG0	51	PG0

Macchina Reference Design	
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Sheet Name:	Microcontroller
REV:	2
Date:	11/15/2011 9:21:02 PM
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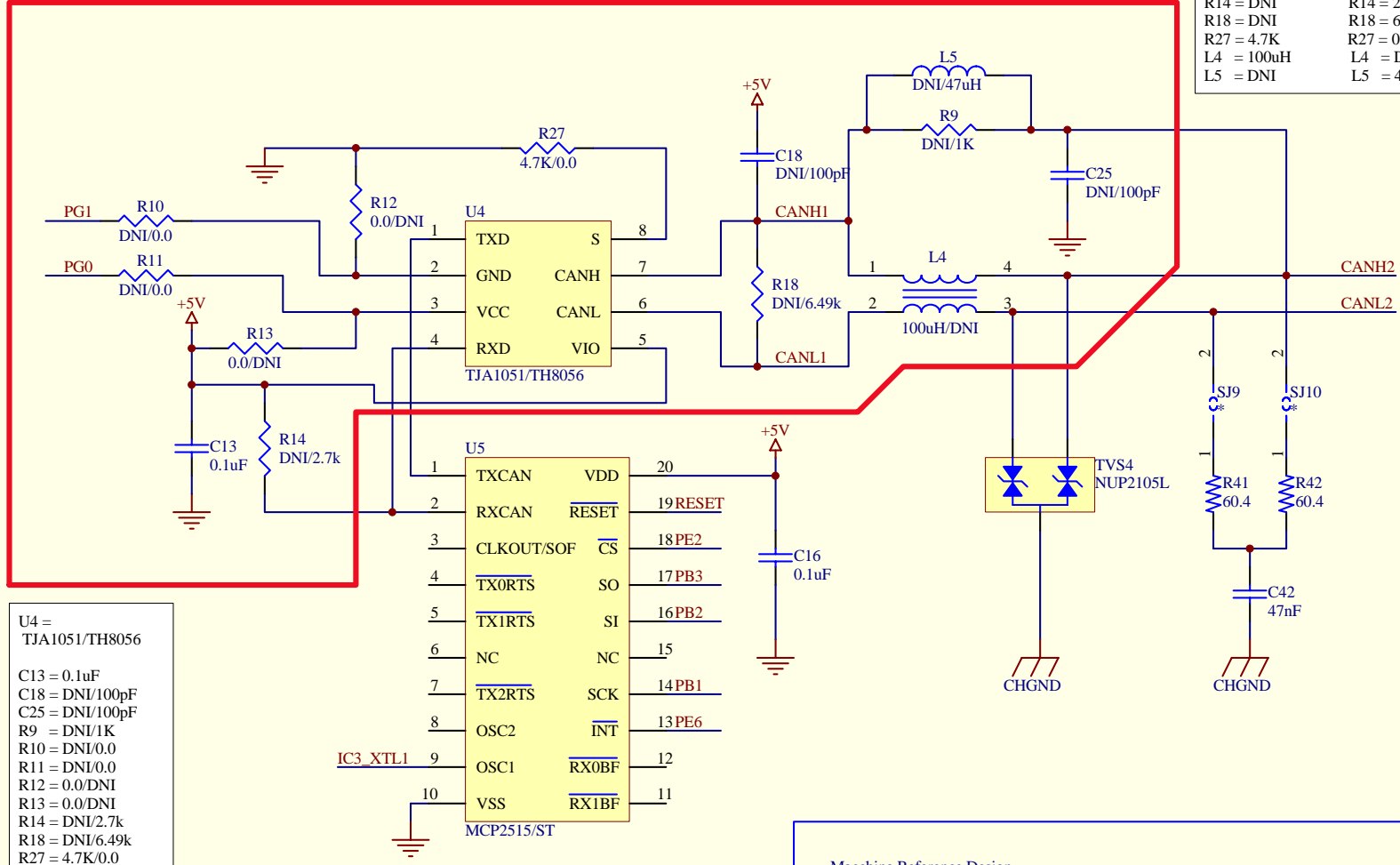
ATMEL-2005\_ATMEGA2560-16AU



Macchina Reference Design	
TITLE: Macchina (Arduino compatible)	
Sheet Name: ODB2 Interface	REV: 2
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## Dual Circuit: TJA1051 uses Left Side Values, TH8056 uses Right Side Values!!!

U4 = TJA1051	U4 = TH8056
C13 = 0.1uF	C13 = 0.1uF
C18 = DNI	C18 = 100pF
C25 = DNI	C25 = 100pF
R9 = DNI	R9 = 1K
R10 = DNI	R10 = 0.0
R11 = DNI	R11 = 0.0
R12 = 0.0	R12 = DNI
R13 = 0.0	R13 = DNI
R14 = DNI	R14 = 2.7K
R18 = DNI	R18 = 6.49K
R27 = 4.7K	R27 = 0.0
L4 = 100uH	L4 = DNI
L5 = DNI	L5 = 47uH



U4 =	TJA1051/TH8056
C13 = 0.1uF	
C18 = DNI/100pF	
C25 = DNI/100pF	
R9 = DNI/1K	
R10 = DNI/0.0	
R11 = DNI/0.0	
R12 = 0.0/DNI	
R13 = 0.0/DNI	
R14 = DNI/2.7k	
R18 = DNI/6.49k	
R27 = 4.7K/0.0	
L4 = 100uH/DNI	

Macchina Reference Design	
TITLE: Macchina (Arduino compatible)	
Sheet Name: PWM Controller	REV: 2
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