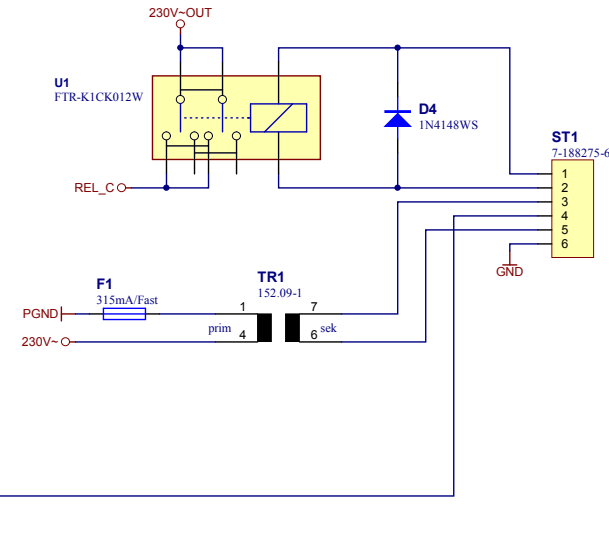
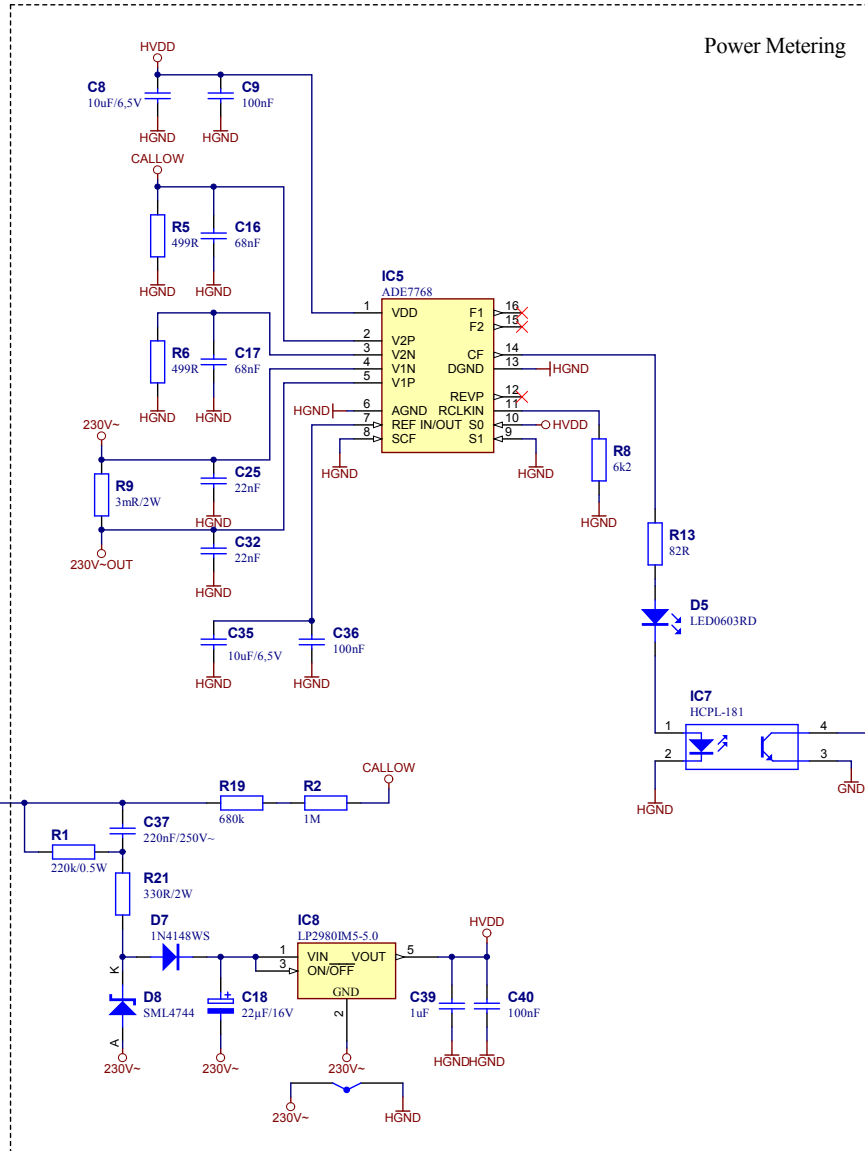


HIGH VOLTAGE !!!

Power Metering

HIGH VOLTAGE !!!



- 1 - Relais +12V
- 2 - Relais GND
- 3 - Supply 12V (1)
- 4 - Metering Pulse
- 5 - Supply 12V (2)
- 6 - GND




solder 2.5mm2 flexibel wire



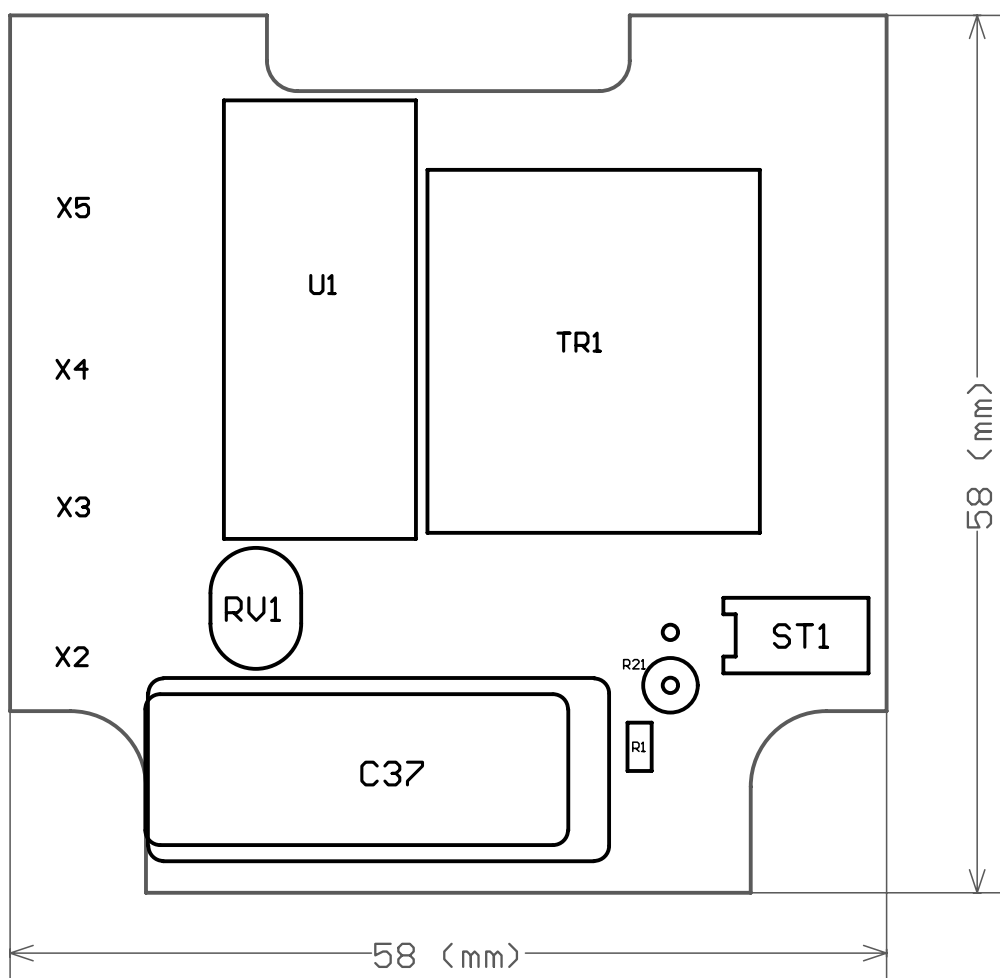
Attention CAD-Drawing
Do not change manually !

HIGH VOLTAGE !!!

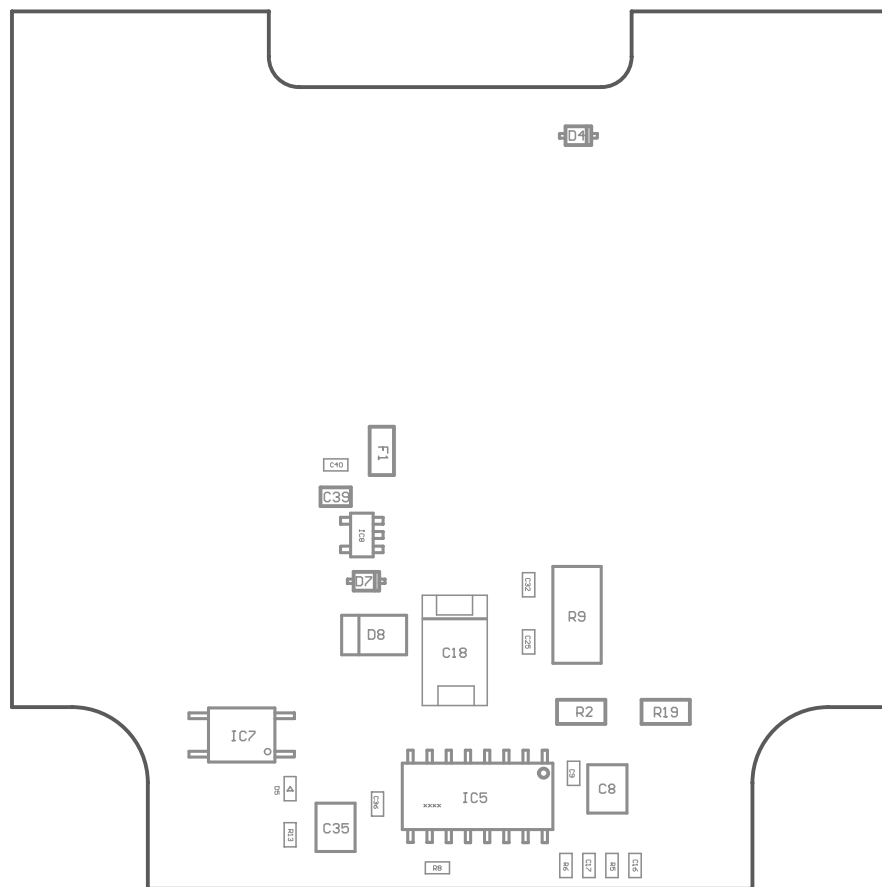
HIGH VOLTAGE !!!

2nd Revision	12.07.2011	M. Hammer			
1st Revision	15.04.2011	M. Hammer			
1st Release	01.03.2011	M. Hammer			
List of Change			Date	Dwn	Chk
+	+	Project	Hexabus		Rev. E3.0
		Name	Power Plug High Voltage plus		
				Sheet	1/1
					

Top



Bottom



Bill of Material

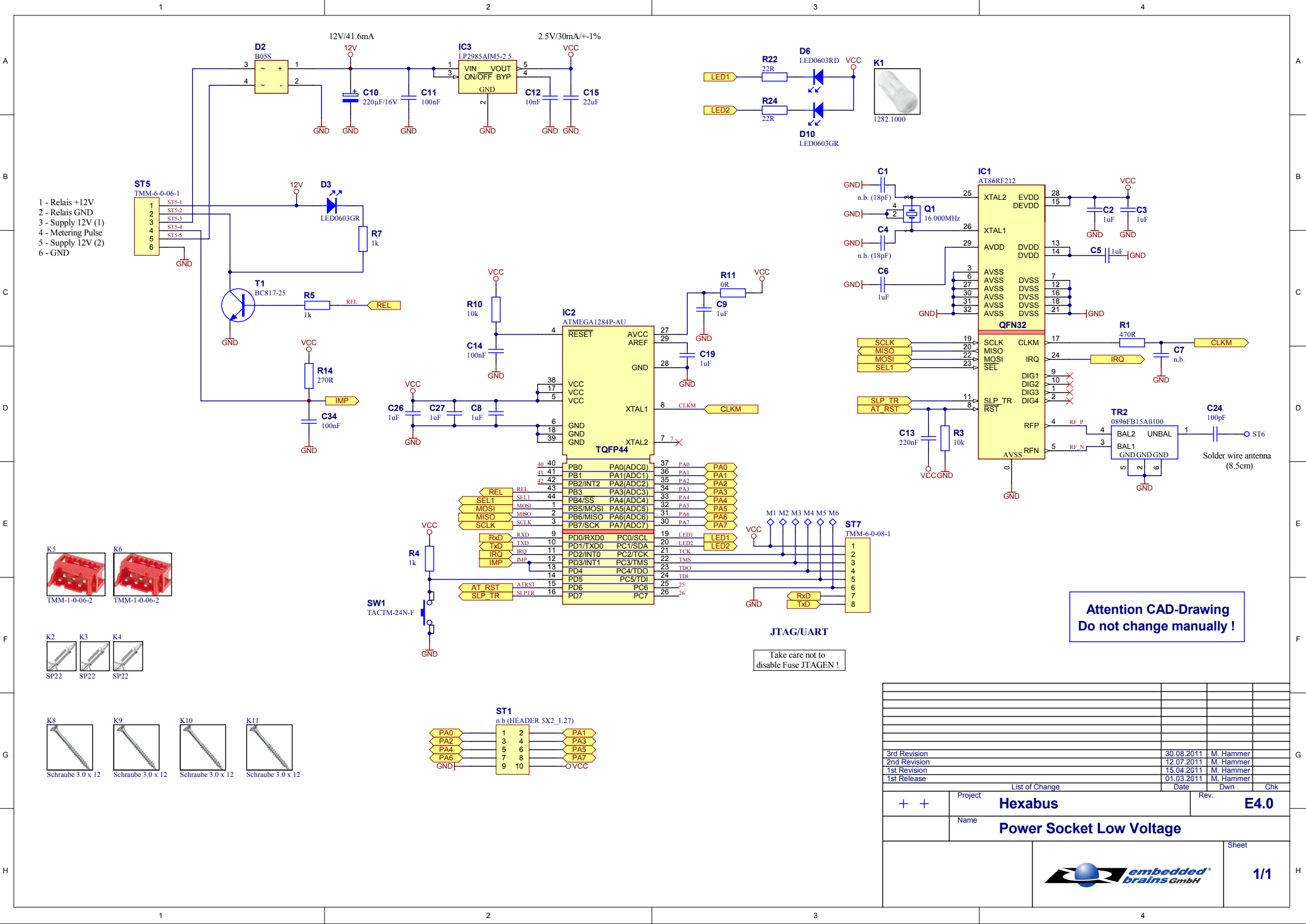
Project : HexaBus
 Name : Steckdose High Voltage plus
 Release : E3.0
 Author : Markus Hammer
 Date : 30.08.11



Commentary :

Pos.	Num.	Components	Size	Description	Case	Manufacturer	Temperature Range	Characteristics	Distributor	Ordering Number	€	Commentary
1	2	C8, C35	10uF/6,5V	Keramikkondensator	1210	Open Source	-55°C - +85°C	25V/+10%-20%	Open Source	---	0,24	
2	3	C9, C36, C40	100nF	Keramikvielschichtkondensator X7R	0603	AVX	-55°C - +125°C	16V/+10%	Farnell	132-7679	0,04	
3	2	C16, C17	68nF	Keramikvielschichtkondensator Y5V	0603	Multicomp	-30°C - +85°C	50V	Farnell	175-9120	0,01	
4	1	C18	22µF/16V	Tantal Kondensator TAJ Series	Size D	AVX	-55°C - +85°C	22µF/16V/+20%	Reichelt	SMD TAN.22/20 (TAJD226)	0,17	
5	2	C25, C32	22nF	Keramikvielschichtkondensator Y5V	0603	Multicomp	-30°C - +85°C	50V	Farnell	175-9110	0,01	
6	1	C37	220nF/250V~	Metallized Paper Capacity Class X2	22.5mm	Wima	< 110°C	220nF/275V~	Arrow Central Europe	MPX20W3220F100		
7	1	C39	1uF	Keramikkondensator X7R	0805	Yageo	-55°C - +125°C	25V/+10%	Farnell	145-8903	0,10	
8	2	D4, D7	1N4148WS	200mW Small Fast Switching Diode	SOD-323F	Taiwan Semiconductor	-65°C - +150°C	150mA/75V	Reichelt	1N 4148 WS	0,03	
9	1	D5	LED0603RD	SMT LED red	0603	Dialight Corporation	-30°C - +85°C	2,0V/20mA	Farnell	146-5988	0,11	
10	1	D8	SML4744	Zener Diode	DO-214AC	Vishay Semiconductor	-65°C - +150°C	15V/1W	Farnell	165-1604	0,18	
11	1	F1	315mA/Fast	Chip Fuse	3.2x1.6	Cooper Bussmann	-55°C - +125°C	375mA/63VDC	Farnell	112-3251	0,75	
12	1	IC5	ADE7768	Energy Metering IC	SOIC16	Analog Devices	-40°C - +85°C	5.0V+-5%/4mA	Digikey	ADE7768ARZ-ND	2,02	

Pos.	Num.	Components	Size	Description	Case	Manufacturer	Temperature Range	Characteristics	Distributor	Ordering Number	€	Commentary
13	1	IC7	HCPL-181	Phototransistor Optocoupler	Miniflat SMD	Avago Technologies	-55°C - +100°C	3,75kV	Farnell	124-4527	0,22	
14	1	IC8	LP2980IM5-5.0	Micropower Ultra-Low Dropout Voltage Regulator	SOT23-5	National Semiconductor	-40°C - +125°C	5.0V/50mA	Farnell	9779-329	0,66	
15	1	R1	220k/0.5W	SMD-Widerstand	1206	Multicomp	-55°C - +155°C	0,5W/1%	Farnell	157-6662	0,04	
16	1	R2	1M	SMD-Widerstand	1206	Multicomp	-55°C - +155°C	0,5W/1%	Farnell	157-6679	0,04	
17	2	R5, R6	499R	SMD-Widerstand	0603	Vishay Draloric	-55°C - +155°C	0,063W/1%	Farnell	146-9818	0,02	
18	1	R8	6k2	SMD-Widerstand	0603	Multicomp	-55°C - +125°C	1%/0,063W	Farnell	933-1409	0,03	
19	1	R9	3mR/2W	Current Sensing Chip	2512	KOA	-65°C - +155°C	2W/1%	Farnell	1400-838	0,60	
20	1	R13	82R	SMD-Widerstand	0603	Multicomp	-55°C - +125°C	0,063W	Farnell	933-2308	0,03	
21	1	R19	680k	SMD-Widerstand	1206	Multicomp	-55°C - +155°C	0,5W/1%	Farnell	157-6676	0,04	
22	1	R21	330R/2W	Flameproof Power Wirewound Resistor	9.0 x 3.6	Welwyn	-55°C - +155°C	2W/5%	Farnell	121-9231	0,33	
23	1	RV1	JVR7N431K	Zinc Oxide Varistor	9mm x 6mm	Diverse	-40°C - +125°C	275VAC/0.25W	Reichelt	VDR-0,25 270	0,08	
24	1	ST1	7-188275-6	Micromatch gerade 6-polig	1,27 SMD	Tyco Electronics / AMP	-40°C - +105°C	1,5A/100VDC	Farnell/Reichelt	105-6234/MM FL 6S	0,73/0,63	
25	1	TR1	152.09-1	Printtransformator 0.5VA	24x22x19	Gerth Transformatoren	0°C - +70°C	9V/55.5mA	Reichelt	152.09-1	2,15	
26	1	U1	FTR-K1CK012W	Miniatur-Leistungsrelais	29x12.7	Fujitsu-Takamisawa	-40°C - +85°C	14V/1k44/250VAC /16A	Reichelt	FTR K1CK012W	1,15	

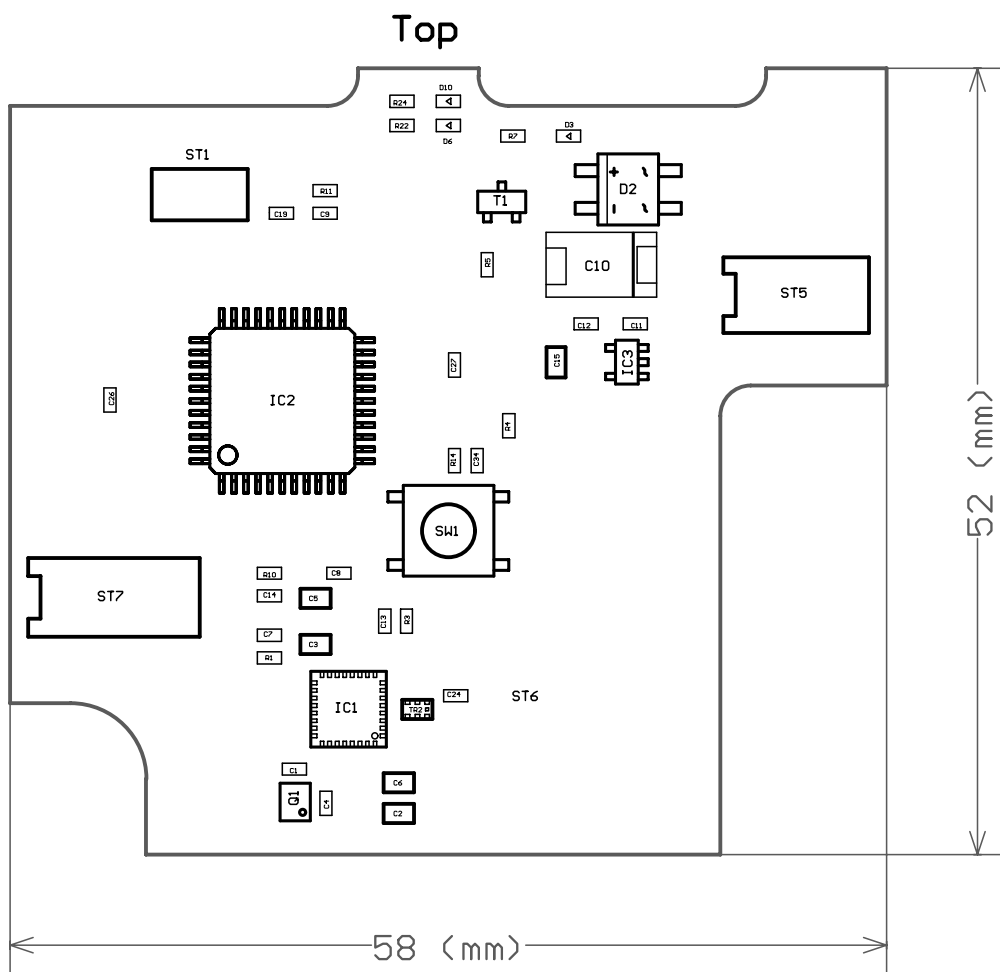


- 1 - Relais +12V
- 2 - Relais GND
- 3 - Supply 12V (1)
- 4 - Metering Pulse
- 5 - Supply 12V (2)
- 6 - GND

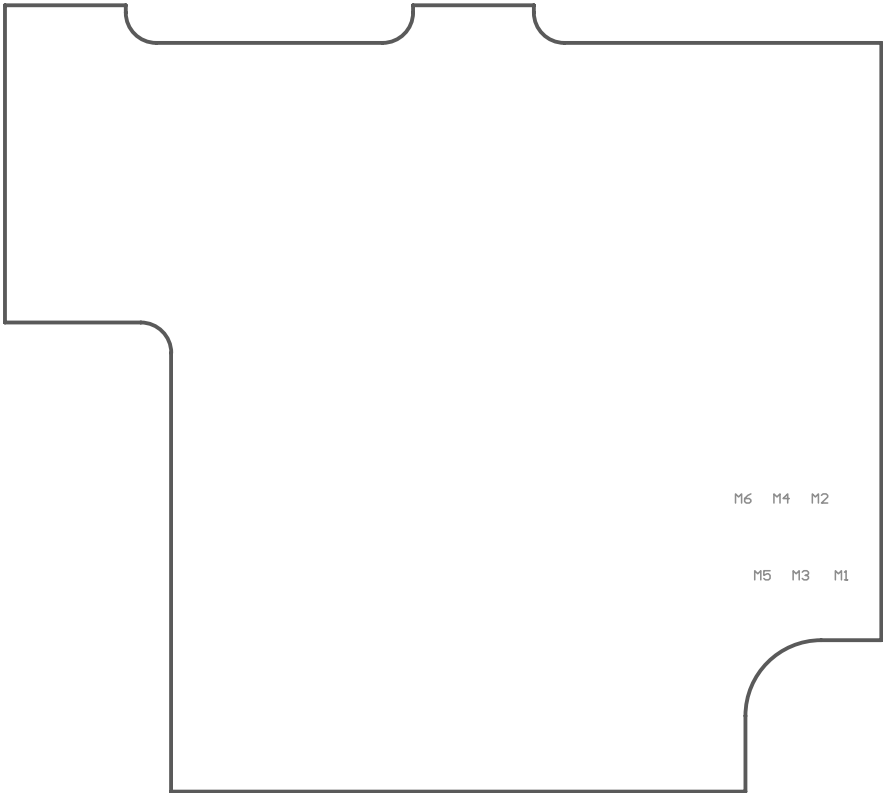
Attention CAD-Drawing
Do not change manually !

JTAG/UART
Take care not to
disable Fuse JTAGEN !

3rd Revision		30.08.2011	M. Hammer	
2nd Revision		12.07.2011	M. Hammer	
1st Revision		15.04.2011	M. Hammer	
1st Release		01.03.2011	M. Hammer	
List of Change		Date	Dwn	Chk
+ +		Project	Hexabus	Rev. E4.0
		Name	Power Socket Low Voltage	
		Sheet		1/1



Bottom



Bill of Material

Project : HexaBus
 Name : Steckdose Low Voltage
 Release : E4.0
 Author : Markus Hammer
 Date : 30.08.11



Commentary :

Pos.	Num.	Components	Size	Description	Case	Manufacturer	Temperature Range	Characteristics	Distributo	Ordering Number	€	Commentary
1	2	C1, C4	n.b. (18pF)	Keramikvielschichtkondensator C0G	0603	AVX	-55°C - +125°C	25V/+5%	Farnell	139-6426	0,01	
2	4	C2, C3, C5, C6	1uF	Keramikkondensator X7R	0805	Yageo	-55°C - +125°C	25V/+10%	Farnell	145-8903	0,10	
3	1	C7	n.b.	Keramikvielschichtkondensator C0G	0603		-55°C - +125°C	50V/+5%	Farnell			
4	5	C8, C9, C19, C26, C27	1uF	Keramikvielschichtkondensator X5R	0603	AVX	-55°C - +85°C	6,3V/+10%	Farnell	132-7676	0,09	
5	1	C10	220µF/16V	Solid Tantalum Surface Mount Capacitor	7.3 x 4.3	Vishay	-55°C - +125°C	+10%	Farnell	175-4097 (TR3E227K016C0100)	1,15	
6	3	C11, C14, C34	100nF	Keramikvielschichtkondensator X7R	0603	AVX	-55°C - +125°C	16V/+10%	Farnell	132-7679	0,04	
7	1	C12	10nF	Keramikvielschichtkondensator X7R	0603	AVX	-55°C - +125°C	50V/+10%	Farnell	132-7675	0,04	
8	1	C13	220nF	Keramikvielschichtkondensator X7R	0603	AVX	-55°C - +125°C	16V/+10%	Farnell	132-7683	0,09	
9	1	C15	22uF	Keramikkondensator X5R	0805	Multicomp	-55°C - +85°C	6.5V/+10%	Farnell	175-9415	0,13	
10	1	C24	100pF	Keramikvielschichtkondensator C0G	0603	AVX	-55°C - +125°C	50V/+5%	Farnell	499-122	0,04	
11	1	D2	B05S	SMD Bridge Rectifier	DB1-MS	DC Components	-55°C - +150°C	50V/0,5A	TME	B05S	0,11	
12	2	D3, D10	LED0603GR	SMT LED green	0603	Dialight Corporation	-30°C - +85°C	2,0V/20mA	Farnell	146-5991	0,11	

Pos.	Num.	Components	Size	Description	Case	Manufacturer	Temperature Range	Characteristics	Distributor	Ordering Number	€	Commentary
13	1	D6	LED0603RD	SMT LED red	0603	Dialight Corporation	-30°C - +85°C	2,0V/20mA	Farnell	146-5988	0,11	
14	1	IC1	AT86RF212	IEEE 802.15.4 Transceiver	QFN32	Atmel	-40°C - +85°C	1.8V-3.6V/25mA	Farnell	174-8492	5,55	
15	1	IC2	ATMEGA1284P-AU	8-bit Microcontroller 128KB Flash	TQFP44	Atmel	-40°C - +85°C	1.8 - 5.5V	CSD Electronics	301909	7,95	
16	1	IC3	LP2985AIM5-2.5	Micropower Ultra-Low Dropout Voltage Regulator	SOT23-5	National Semiconductor	-40°C - +125°C	2.5V/150mA	Farnell	1691-630	0,74	
17	1	K1	1282.1000	Lightguide for front panels	8.5mm x 3.2mm	Mentor	-40°C - +85°C	2.8mm Hole	Farnell	432-7767	0,79	
18	3	K2, K3, K4	SP22	Spacer 22.2mm	22.2mm	Skiffy	---	4mm/4.3mm	Skiffy	100 0372 000 02	0,17	
19	2	K5, K6	TMM-1-0-06-2	Micromatch Plug 6pin	1.27mm	Amphenol	-40°C - +105°C	1.5A/230VAC	TME	TMM-1-0-06-2	0,25	
20	4	K8, K9, K10, K11	Schraube 3.0 x 12	Senkkopf Kreuzschlitz	3.0 x 12	Open Source	---	---	Open Source	---	0,05	
21	1	Q1	16.000MHz	Quarz 16.000MHz	2.5x2.0	Euroquartz	-40°C - +85°C	+/-15ppm	Reichelt	16,000000-X22	1,05	
22	1	R1	470R	SMD-Widerstand	0603	Multicomp	-55°C - +125°C	0,063W	Farnell	933-2146	0,03	
23	2	R3, R10	10k	SMD-Widerstand	0603	Multicomp	-55°C - +125°C	0,063W	Farnell	933-1700	0,03	
24	3	R4, R5, R7	1k	SMD-Widerstand	0603	Multicomp	-55°C - +125°C	0,063W	Farnell	933-1697	0,03	
25	1	R11	0R	SMD-Widerstand	0603	Multicomp	-55°C - +125°C	0,063W	Farnell	933-1662	0,03	
26	1	R14	270R	SMD-Widerstand	0603	Multicomp	-55°C - +125°C	0,063W	Farnell	933-1964	0,03	
27	2	R22, R24	22R	SMD-Widerstand	0603	Multicomp	-55°C - +125°C	1%/0,063W	Farnell	933-0844	0,03	
28	1	ST1	n.b (HEADER 5X2_1.27)	Steckverbinder 10-polig	1.27mm	MPE Garry	-40°C - +105°C	1,0A	Reichelt	SL 2X10G 1,27	0,54	
29	1	ST5	TMM-6-0-06-1	Micromatch gerade 6-polig	1,27 SMD	Amphenol	-40°C - +105°C	1,5A/100VDC	TME	TMM-6-0-06-1	0,44	
30	1	ST7	TMM-6-0-08-1	Micromatch gerade 8-polig	1,27 SMD	Amphenol	-40°C - +105°C	1,5A/100VDC	TME	TMM-6-0-08-1	0,25	
31	1	SW1	TACTM-24N-F	Mikroschalter monostabil	6x6	Ninigi/Schurter	n.d.	0.5A/12V/1.6N	TME/Reichelt	TACTM-613N-F/FASTER 9320	0,05/0,28	
32	1	T1	BC817-25	NPN General Purpose Transistor	SOT23	Fairchild Semiconductor	-55°C - +150°C	1,5A/45V	Farnell	122-8216	0,07	
33	1	TR2	0896FB15A0100	896 MHz Balun/Filter Combination	2mm x 1.25mm	Johanson Technology	-40°C - +85°C	863-928 MHz/1W	Digikey/BF I Optilas	712-1473-1-ND/0896FB15A0100	0,53/0,31	