S100 18-Slot Backplane *with Active Termination (REV 1.0)*

Thankyou for you contribution to the 18-Slot S100 Backplane project! An initial run of 30 boards were produced and marked "REV 1.0" this can be found on the underside of the board. This document refers to REV 1.0 of the design, there is currently no further revisions of the board (as at 17th May 2014) however if you have a board that is of higher revision please refer to the documentation applicable for your board.

ATTENTION!!

There is a fix required on REV 1.0 of the board. This involves a 180° rotation of Q1 (2N3006). This was a result of an incorrect footprint in the design software, as one will notice by figure 1, pins 1,2,3 of Q1 are in the opposite orientation to Q2. These items both have the same package and should both use the same footprint (Q2 is the correct footprint). Q2's silkscreen is correct and should be installed as per the silkscreen on the board. Q1's silkscreen is incorrect and should be rotated 180° (installed backwards). Please refer to Figure 3 and 4 for correct installation orientation.

Figure 1 (below) shows the incorrect pin numbering of Q1 with reference to Q2 being correct for the TO-92 package in the design software. Figure 2 shows the actual board silkscreen (Q1 footprint incorrect)

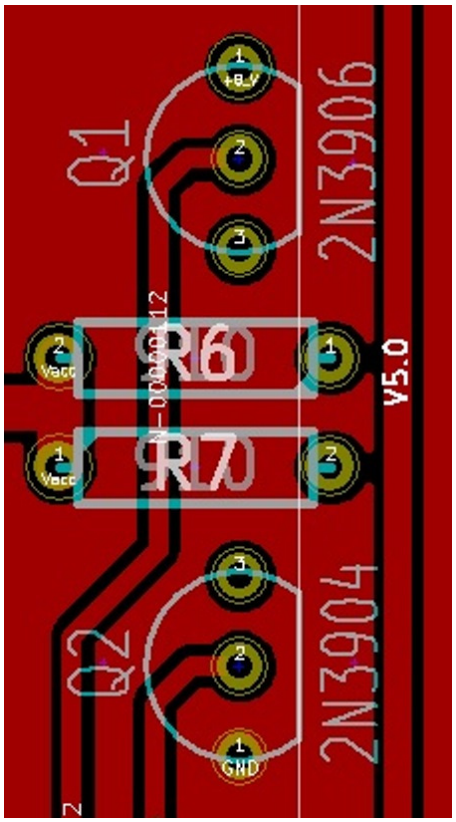


Figure 1

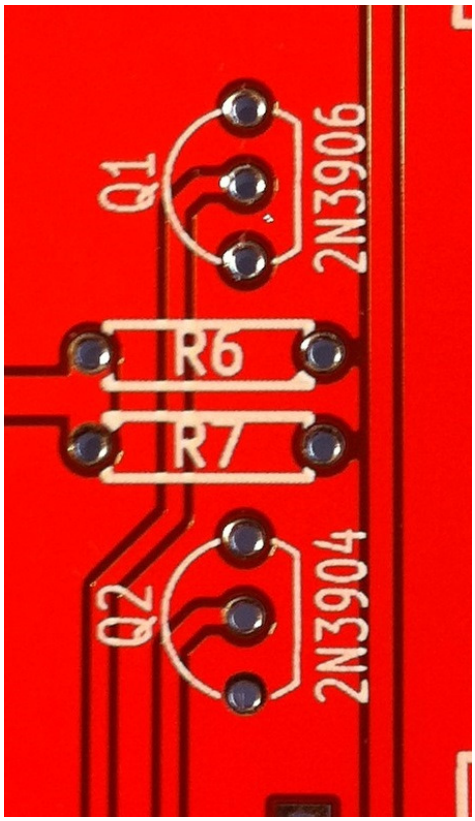


Figure 2

Figure 3 below shows the Correct installation of Q1. Figure 4 shows the incorrect installation of Q1.

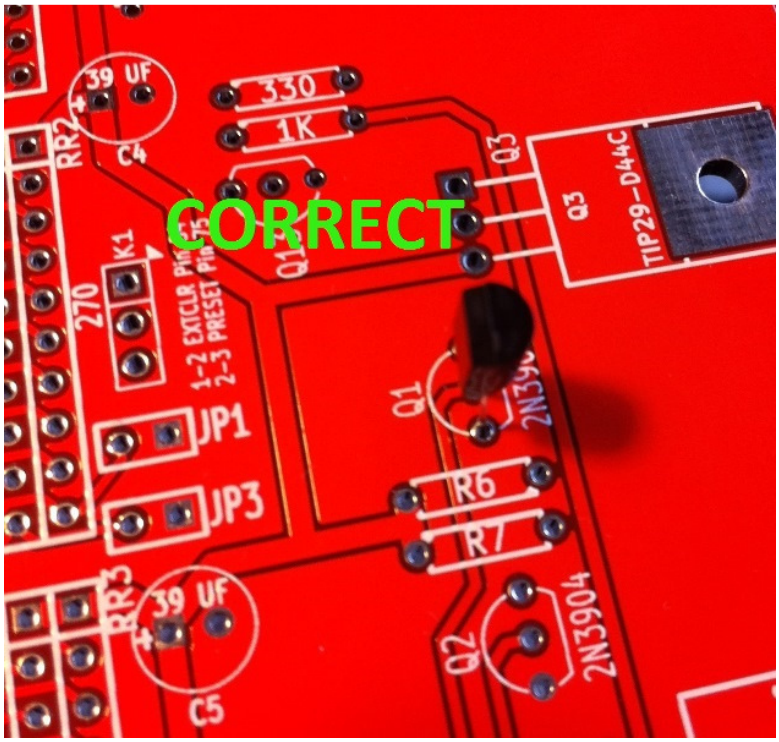
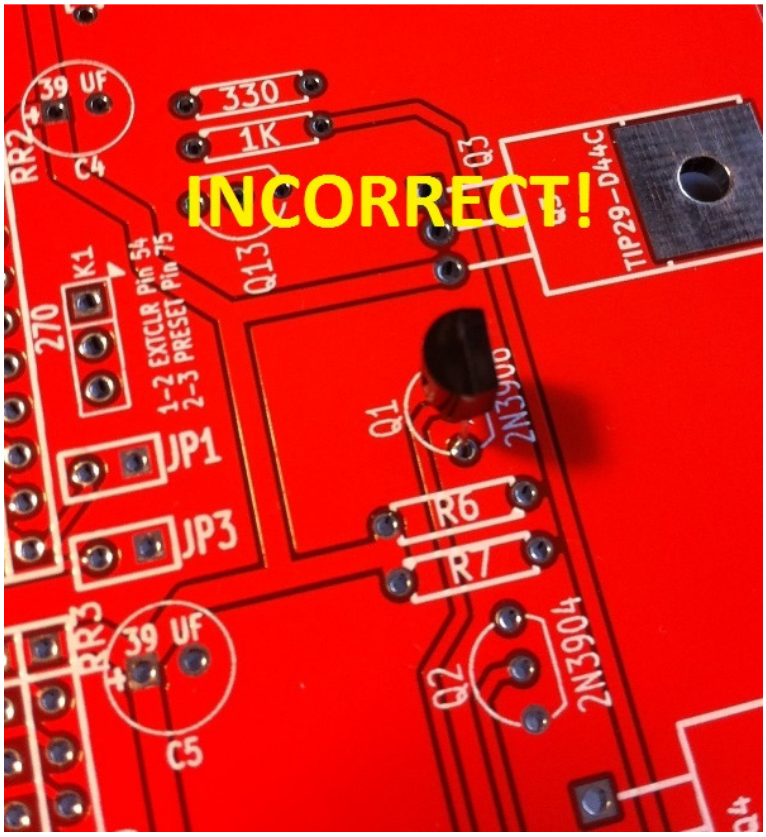


Figure 3 (above)
Figure 4(below)



Please see attached Schematic Sheet and Bill of Materials.

Note:

Some initial testing of the system reset function revealed that K1 should be the only device pulling high or low Pin 54 or Pin 75 on the S-100 bus. If there is any other board present in the system that contributes to this the line, the line should be disabled on that board. Or K1 should be left “open” and no jumper installed. There is still some testing to be done on this circuit. A possible solution could be modify the signal coming from U23 pin 4. K1 pin 2 to be pulled high by a 10K ohm resistor and going to an open-collector input of a suitable transistor being driven by U23 pin 4

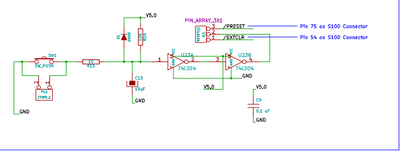
MOUNTING HOLES

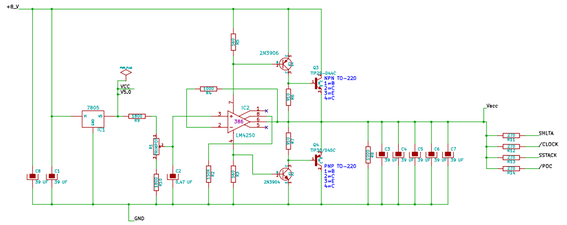
LOGO(s)

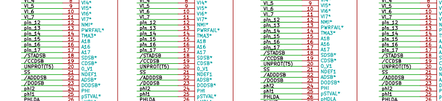
POWER CONNECTOR

POWER ON LED

Reset Circuit







Files: S100-Backplane.sch	
Sheets: /	
Title: S-100 Backplane 18 Slot AT & ATX PSU sub board	
Size: A0 | Date: 19 oct 2013	Rev:
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable	Id: 1/1

Bill of Materials - 18 slot S100 Backplane (REV 1.0)

Board Reference	Value	QTY	Notes / Digikey Part #	Package
C1, C3, C4, C5, C6, C7, C8	39 UF	7	493-1857-ND	
C2	0.47 UF	1	493-5924-1-ND	
C9	0.1 uF	1	493-5955-ND	
C13	10uF	1	P15786CT-ND	
D1	1N4148	1	1N4148FS-ND	
D12	5mm LED	1	1080-1129-ND	
IC1	LM7805	1	BA17805T-ND	TO-220
IC2	LM4250	1	LM4250CN-ND	DIP-8
JP1, JP2, JP3	JUMPER	3	2x1 pin jumper (0.1inch spacing)	
K1	JUMPER	1	3x1 pin jumper (0.1inch spacing)	
P1	POWER	1	A98474-ND	
P25, P26, P27, P28	pin header(s)	4	13x2 (0.1inch spacing)	
P12	reset pin header	1	2x1 (0.1inch spacing)	
U23	74LS04	1	296-1629-5-ND	DIP-14
U1 - U17 & U100-EX	S100 Connector	18		
SW1	push button	1	SW400-ND	
RR1-RR10	270 ohm	10	4610X-1-271LF-ND	
R47	330 ohm	1	330QBK-ND	
R4, R8, R46	1K ohm	3	CF14JT1K00CT-ND	
R16	10K ohm	1	CF14JT10K0CT-ND	
R15	10 ohm	1	CF14JT10R0CT-ND	
R11, R12, R13, R14	270 ohm	4	CF14JT270RCT-ND	
R9, R10	1800 ohm	2	CF14JT1K80CT-ND	
R6, R7	910 ohm	2	CF14JT910RCT-ND	
R3, R5	560 ohm	2	CF14JT560RCT-ND	
R2	150K ohm	1	CF14JT150KCT-ND	
R1	Trimpot 2K	1	D4AA23-ND	

Q2, Q13	2N3904	2	2N3904-APCT-ND
Q1	2N3906	1	2N3906-APCT-ND
Q3	TIP29-D44C	1	497-2580-5-ND
Q4	TIP30/D45	1	TIP30C-ND
HeatSinks(s)		3	HS115-ND