ASSEMBLY INSTRUCTIONS FOR RMS-PB-000842 MODULE

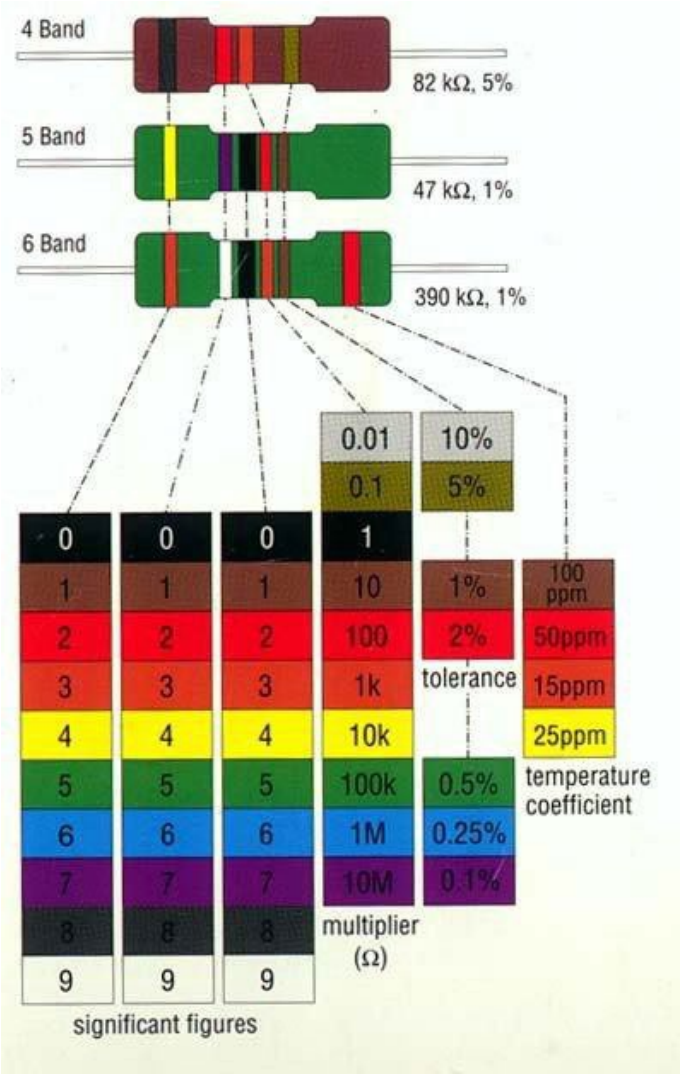
Date: 05-02-2008, 13-02-2012, New 16-01-2024

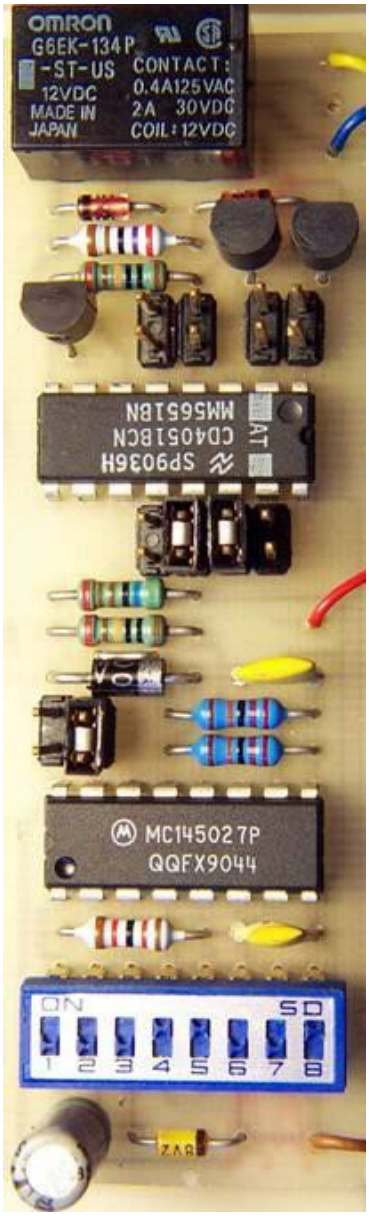
This is a single channel k84 known as "k84s"

HINT 1. on using PDF files. If you wish to find a component while using Adobe Acrobat, just go to Edit Find on the menu or type (Ctrl+F). Type the component reference designator ie. "D1" Acrobat will highlight the first instance it finds you can then find the next instance by typing (Ctrl+G). Acrobat will take you to each instance across all pages.

HINT 2. Any text which has a coloured rectangle around it is a quick link to the item or place it refers to ie. D1

1. Start with the low-profile components first. Take D2 the 8V2 Zener diode and place the end with the black band towards the pointed end (cathode) of the component overlay.
2. Next place diodes D3-D4 (IN914) in positions shown by the component overlay. The black band is the (cathode) end and is shown as the pointed end on the overlay.
3. Solder these components and trim the excess leads off. Make sure you have made neat solder joints and haven't made any short circuits to any other tracks or pads.
4. Next place the resistors at the correct locations as shown on the overlay. If you are unable to read the colour codes you can get a chart at your local electronics store or you should measure each value with a multi-meter. Solder resistors and trim leads.





5. Next place D1, C3 and C4. Solder components and trim leads.
6. Place C2 make sure you get the +/- as shown on the overlay with the component also place T1. Solder components and trim leads.
7. Place T1-T3, the component overlay indicates the orientation of the transistor ie. Make sure you have the flat side of the transistor matching the overlay. Solder components and trim leads
8. Place the 8-way dip switch. Pin 1 should be positioned at the end where the square mark is shown on the overlay. The off position of the switch is closest to the edge of the PCB.
9. **CAUTION: - use an anti-static mat and wrist strap to handle the IC's as they can be damaged by static.**

These can be obtained from most electronic supply stores.

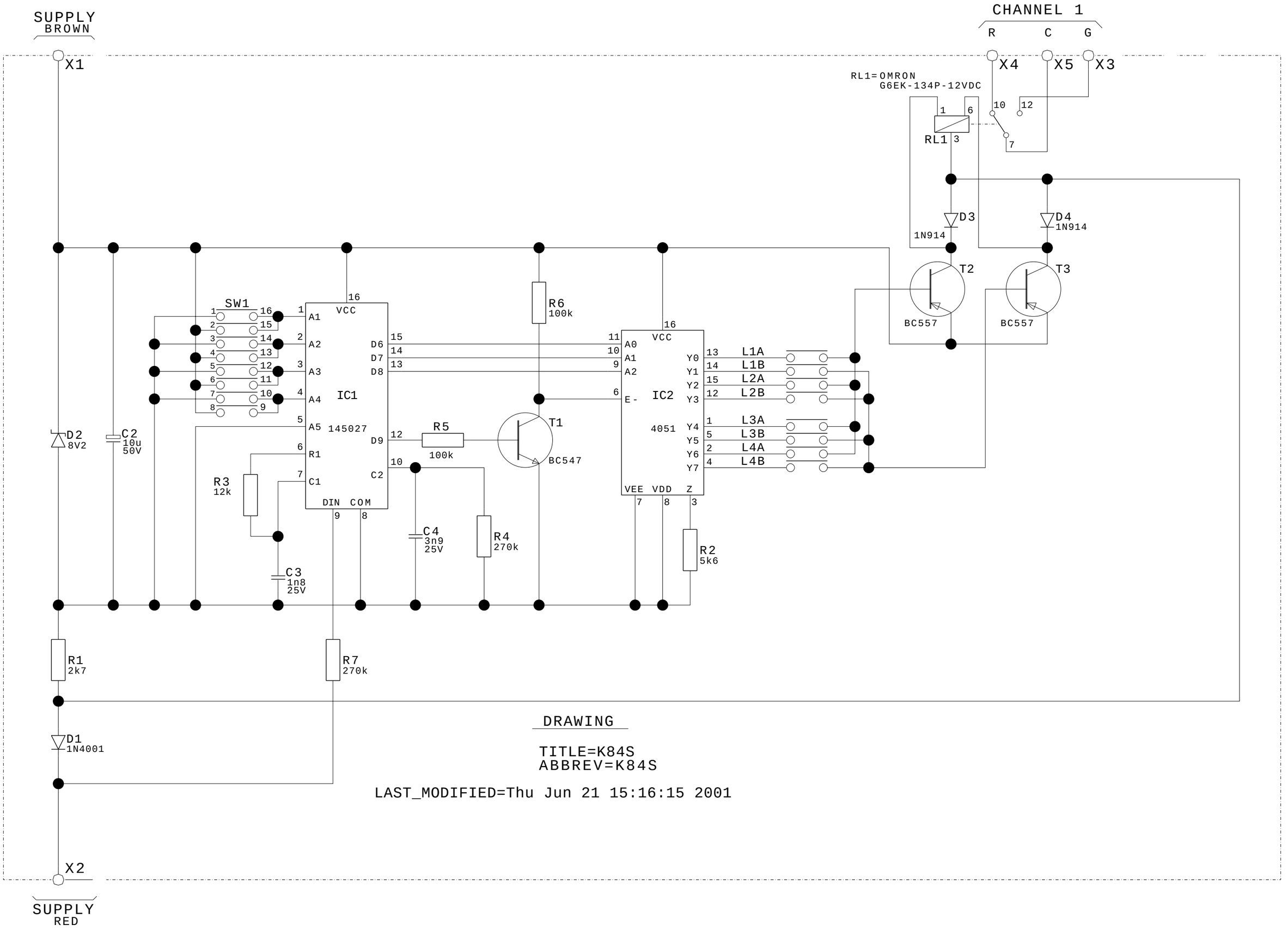
10. Now place the IC's, a dot or indent indicates pin 1 which is to the left of this mark and the rest of the pin numbers follow in a CCW rotation. ie pin 16 is opposite pin 1 on a 16-pin dip. Pin 1 is indicated on the overlay by a small square.
11. Hold the IC by the end between your fore finger and thumb and bend the legs of the IC in towards each row of pins so they IC will fit into the holes on the PCB.
12. Now place the IC's, a dot or indent indicates pin 1 which is to the left of this mark and the rest of the pin numbers follow in a CCW rotation. ie pin 16 is opposite pin 1 on a 16 pin dip. Pin 1 is indicated on the overlay by a small square.
13. Hold the IC by the end between your fore finger and thumb and bend the legs of the IC in towards each row of pins so they IC will fit into the holes on the PCB.
14. Solder pin 8 then pin 16 of each IC, then solder the rest of the pins in any order.
15. Insert the relay it will only fit one way.
16. Take time now to inspect your solder joints and make sure you haven't made any solder bridges to tracks or pads which shouldn't be connected. when you are satisfied there are no short circuits and you have placed all the components in their correct position move to the next step.
17. Using the coding table provided (see Wiring Diagrams and Other Bits on web page) switch the required switches "ON". Under no circumstances change these switch settings while you have power on as you will destroy IC1.
18. Connect the red wire to X2 and the brown wire to X1.
19. Now you need to decide **which channel you wish to use**, a choice of 4 is available. Around IC2 you will notice a total of 8 jumper links. On the left of IC2 (refer to overlay) from top to bottom you have L2B, L1A, L1B and L2A. On the right of IC2 (refer to overlay) from top to bottom you have L3B, L4B, L4A and L3A. As an example, if you want to use channel 1, you will solder a wire link for 2 jumpers only, in this example L1A and L1B. **Don't** solder any of the other jumpers.
20. As an alternative you may wish to use pin headers (Farnell # 535-126) and Mini-jump sockets 0.1" pitch (Farnell # 528-456) this will allow for easy changing of the channel required (see photo page 1).
21. Now connect the red and brown wires to your Marklin central unit, turn the power on and test the red/green button from the switch board, you should hear the relay click. The physical layout of the connectors for each channel is clearly shown on the circuit diagram and is the same as a true Marklin K84. ie Green, no colour for the common, Red.
22. If the PCB is too long to fit in the place you require, carefully cut the PCB were indicated (see dotted line) with a fine hack saw. Solder flexible wires approximate 25mm long to the tracks (total 8), this will allow you to fold the board back on itself. Make sure you insulate between the 2 PCBs to avoid short circuits. Please note the wire which connects to the anode of D1 should be soldered to the component pad.
23. If your module doesn't work and you have no electronic knowledge, seek help from an electronics expert. Most problems arise from poor solder joints, components in the wrong location, or too much solder which causes short circuits. To date, no one has failed to get this module working.

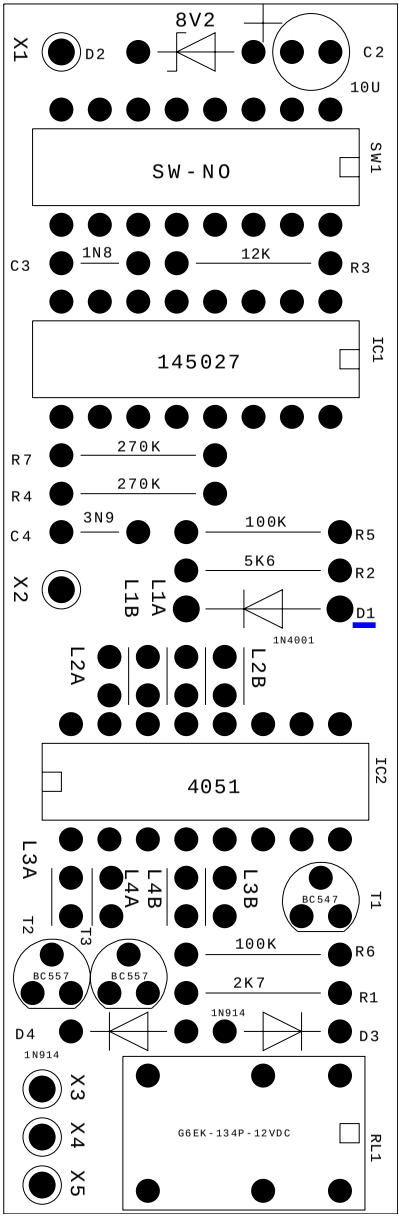
Happy building

Regards

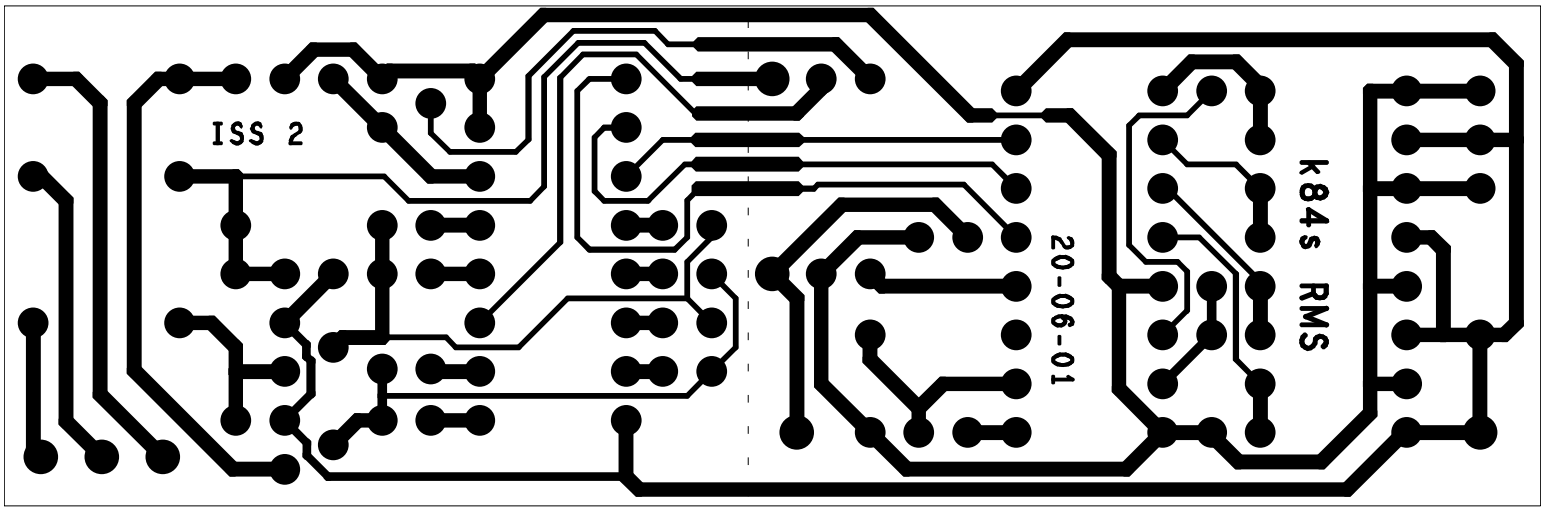
Ross Stewart

As always you can contact me by email.


SUPPLY
BROWN
X1
CHANNEL 1
R
C
G
X4
X5
X3
RL1=OMRON
G6EK-134P-12VDC
RL1
D3
1N914
D4
1N914
T2
T3
BC557
BC557
SW1
IC1
VCC
A1
A2
A3
A4
A5
R1
C1
DIN
COM
D6
D7
D8
D9
C2
145027
R6
100k
R5
100k
T1
BC547
R3
12k
C3
1n8
25V
C4
3n9
25V
R4
270k
IC2
4051
A0
A1
A2
E-
Y0
Y1
Y2
Y3
Y4
Y5
Y6
Y7
VEE
VDD
Z
L1A
L1B
L2A
L2B
L3A
L3B
L4A
L4B
R2
5k6
D2
8V2
C2
10u
50V
R1
2k7
R7
270k
D1
1N4001
X2
SUPPLY
RED
DRAWING
TITLE=K84S
ABBREV=K84S
LAST_MODIFIED=Thu Jun 21 15:16:15 2001


8V2
X1
D2
C2
10U
SW-NO
SW1
C3
1N8
12K
R3
145027
IC1
R7
270K
R4
270K
C4
3N9
100K
R5
5K6
R2
X2
L1A
L1B
D1
1N4001
L2A
L2B
4051
IC2
L3A
L4A
L4B
L3B
BC547
T1
T2
T3
100K
R6
BC557
BC557
2K7
R1
1N914
D4
D3
1N914
X3
X4
X5
G6EK-134P-12VDC
RL1

CUT HERE IF SMALLER LENGTH REQUIRED
SOLDER WIRES TO ALL CUT TRACKS (TOTAL 8)



Parts List k84s

04-02-2008 Revised

rms-pl-00084s

Farnell Part #	Symbol	Description	Value	Volt.	Ref Designator	Qty.
920-502	ECAP100PC	Electrolytic Radial lead	10u	25V	C2	1
303-689	CAP200	Ceramic Cap	1n8		C3	1
303-720	CAP200	Ceramic Cap	3n9		C4	1
365-117	DIODE400	Power Diode	1N4001		D1	1
369-457	DIODE300	Zener Diode 250mW	8V2		D2	1
885-060 368-118	DIODE300	Signal Diode	1N914 or 1N4148		D3-D4	2
	DIP16	IC Decoder	MC145027 P		IC1	1
385-323 700-393	DIP16	IC Single 8 Channel Multiplexer	CD4051 BCN or MC14051 BCP		IC2	1
285-973	DIP16	Dipswitch 8 Way Top Actuated	SW-NO		SW1	1
	RELAY1	OMRON SPDT Latching Relay	G6EK-134P 12VDC	12V	RL1	1
543-482	RES400	RESISTOR MF25 1%	2k7		R1	1
543-561	RES400	RESISTOR MF25 1%	5k6		R2	1
543-640	RES400	RESISTOR MF25 1%	12k		R3	1
543-860	RES400	RESISTOR MF25 1%	100k		R5-R6	2
543-962	RES400	RESISTOR MF25 1%	270k		R4,R7	2
357-054	TO92	Transistor NPN	BC547		T1	1
357-157	TO92	Transistor PNP	BC557		T2-T3	2
535-126	CON1	Pin Header ‘Bergstik’ cut to suit	CON1		L1A-L4B	1
528-456		Mini-jump sockets			Select channel	2