

ASSEMBLY INSTRUCTIONS FOR RMS-PB-00842 MODULE

Modified: - 13-02-2012 coding table link added

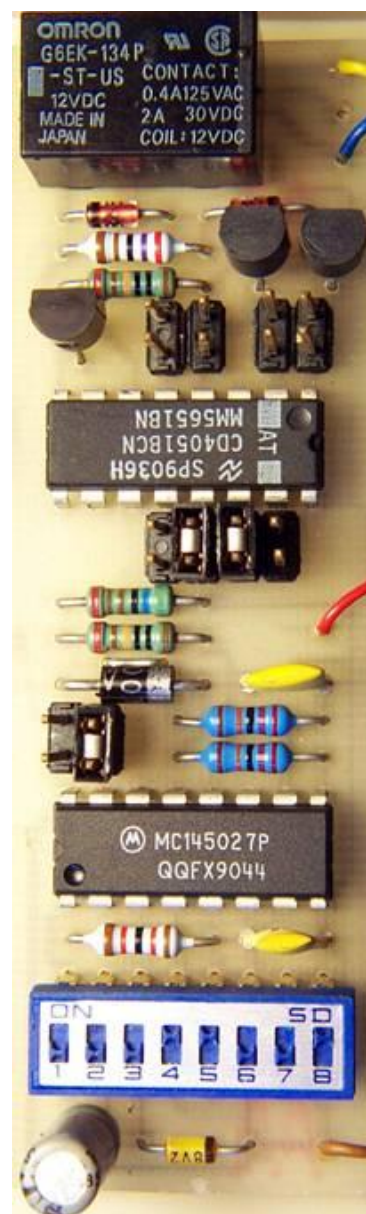
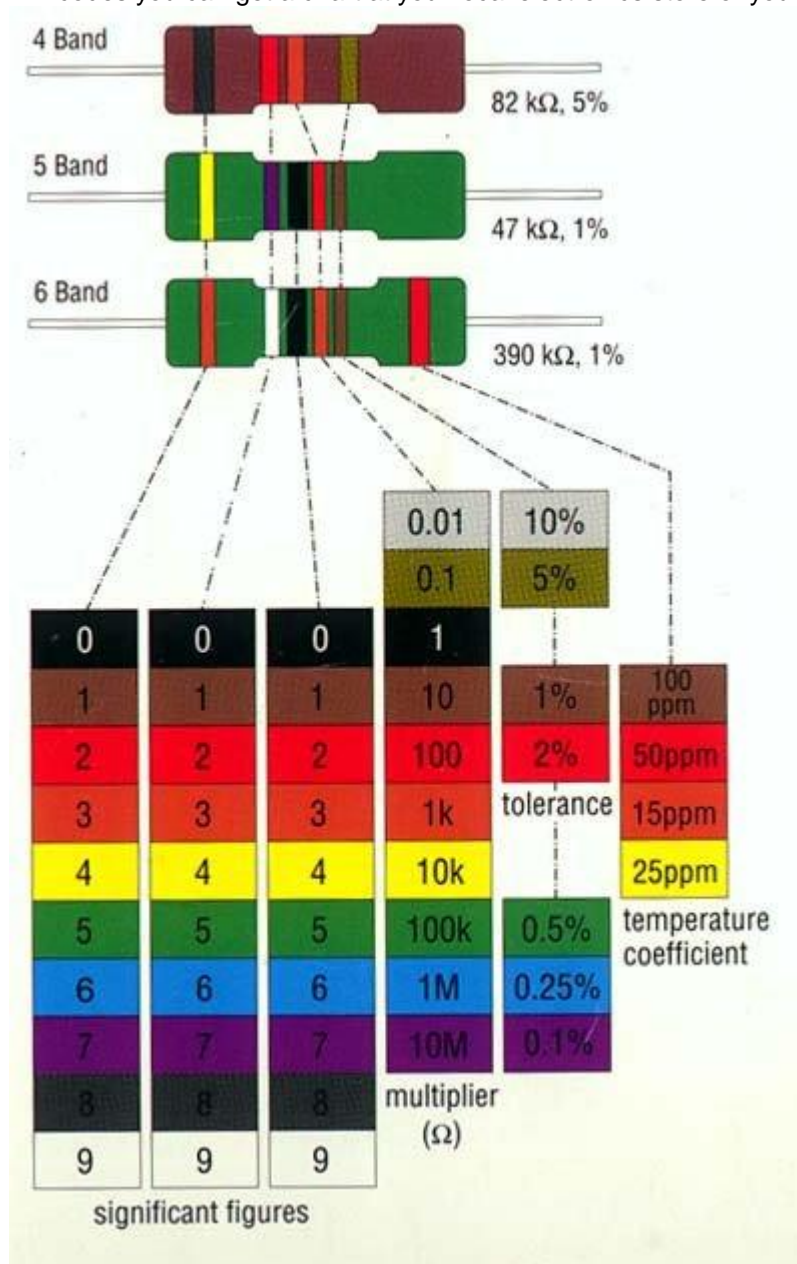
Revised 05-02-2008 Photo and parts list added

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.) 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 multimeter.



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- 6.) Solder resistors and trim leads.
- 7.) Next place D1, C3 and C4. Solder components and trim leads.
- 8.) Place C2 make sure you get the +/- as shown on the overlay with the component. Solder components and trim leads.
- 9.) 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.
- 10.) 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.
- 11.) **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.**
- 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 approx 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.

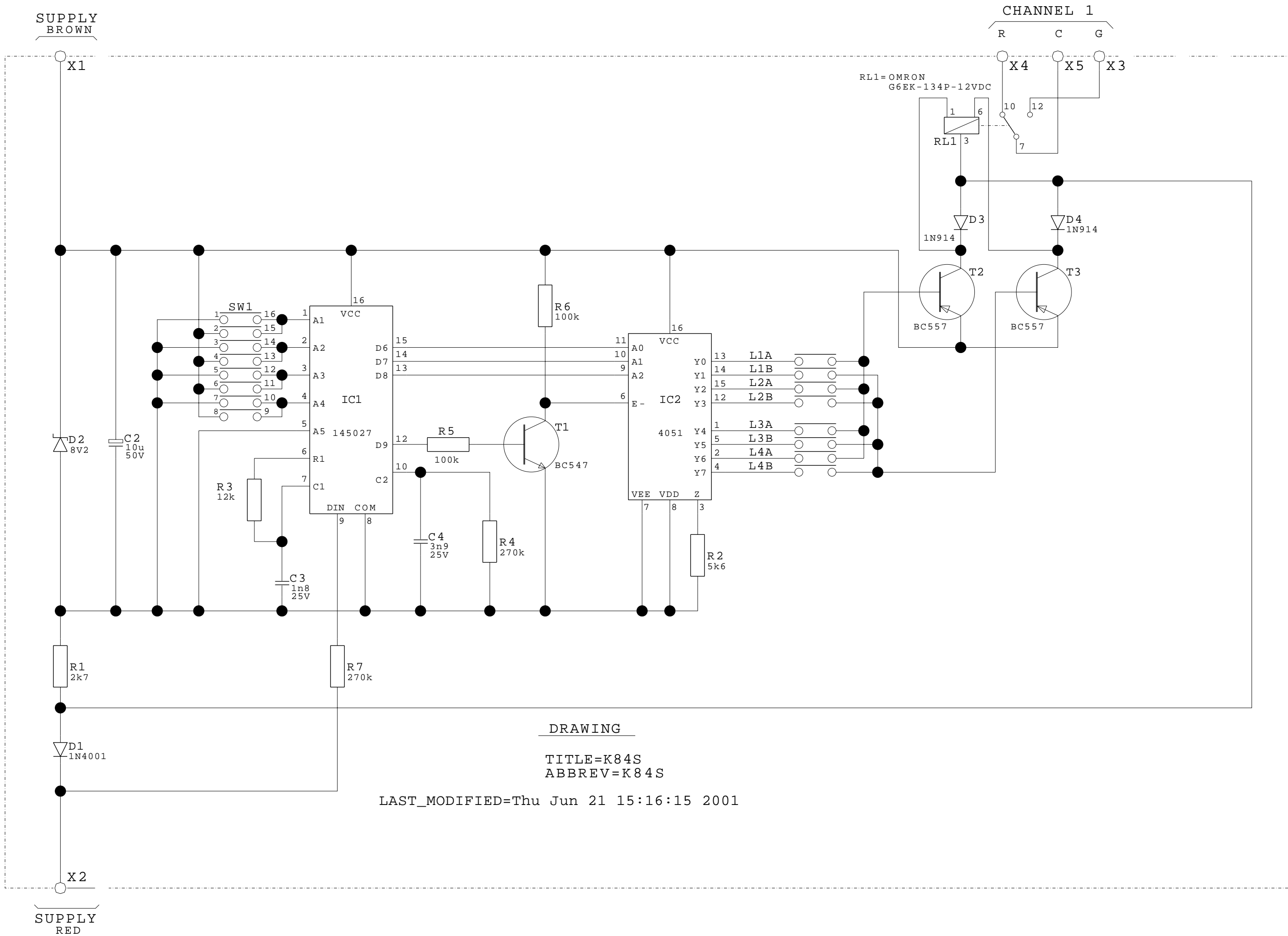
Happy building

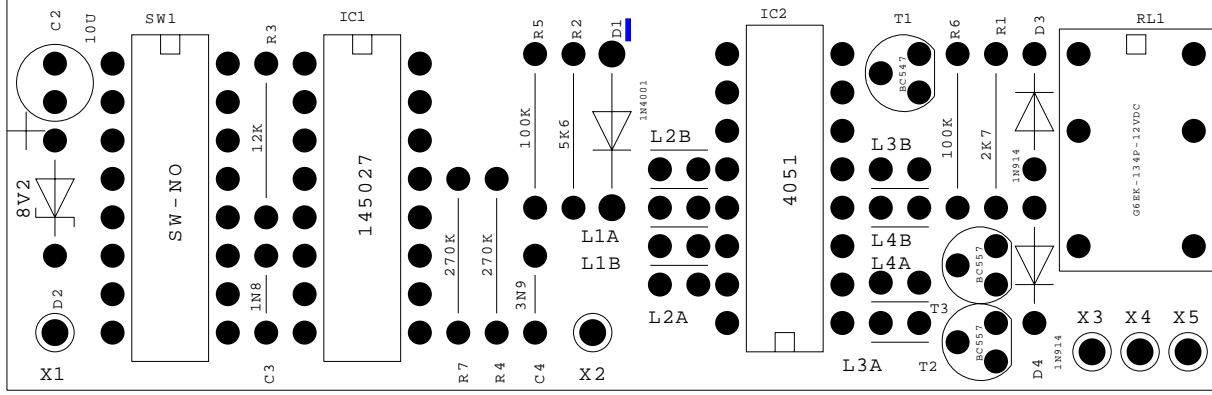
Regards

Ross Stewart

As always you can contact me by email at

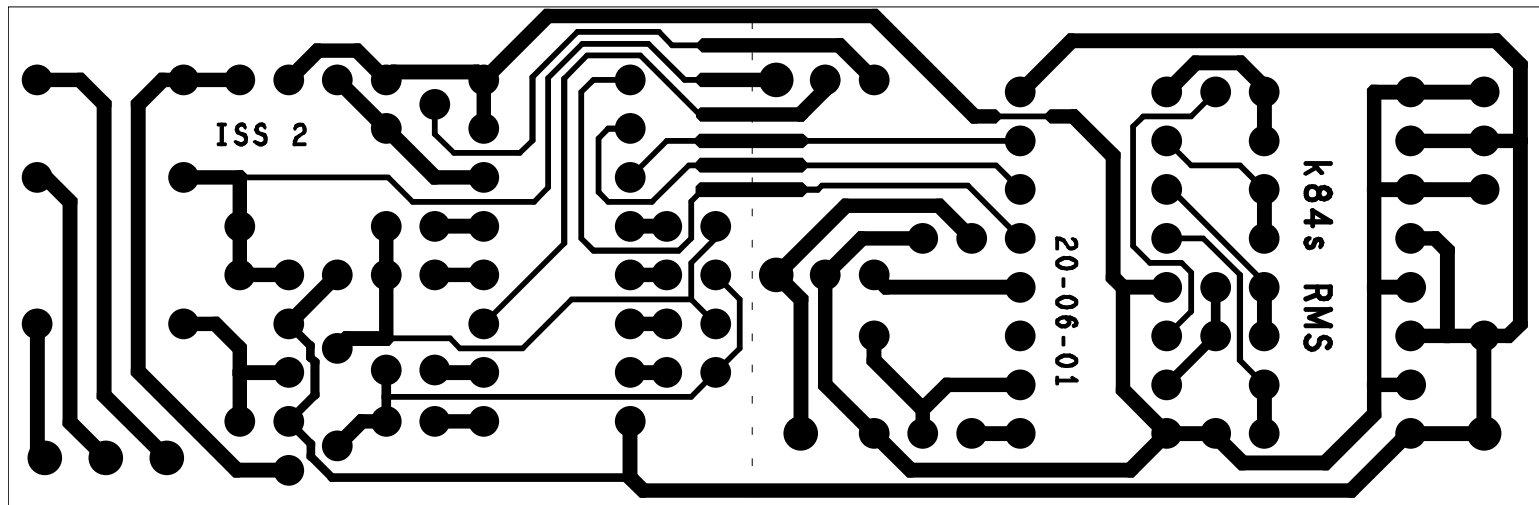
rossstew@ozemail.com.au







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