

Constructing and Operating:



Memdoub-2

A memory doubling kit for
keyer

the Super CMOS III

General notes about building:

The pads and traces on the circuit board are small and delicate - a small tipped, low power (25 watts or less) soldering iron should be used.

I used machined pin SIP sockets (not supplied) to provide the connection points to the switch, I then was able to plug the wires from the switch into the SIP sockets which simplifies moving the unit in and out of the enclosure. The machined pin sockets are available in snappable strips from most of the mail order surplus electronics parts suppliers.

Finally, **U1** and **U2** (the two DIP (Dual Inline Package) EEPROM (Electrically Erasable Programmable Read Only Memory) integrated circuits (ICs)) are both CMOS devices. This means that they should be handled as little as possible to prevent static damage. The builder should use a grounding strap and anti-static mat if available or at the very least, work on a grounded metal surface and be sure to touch ground prior to touching the ICs.

Step 1: Get the parts together

All of the essential board mounted components have been supplied. Inventory the parts using the stocklist. You will still have to provide offboard items from the stocklist to fully implement Memdoub-2 including the SPDT switch, wire, solder and mounting hardware.

Step 2: Mount and solder the components on the circuit board

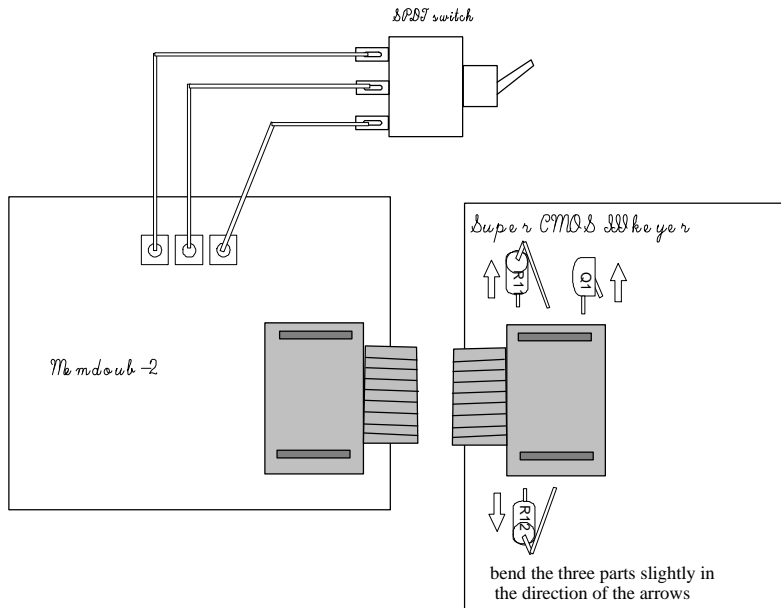
Use the parts placement diagram to determine the placement and orientation of the parts.

Start by inserting and soldering the 3 IC sockets onto the board at the places marked **U1**, **U2** and **ribbon cable**. The sockets should be oriented with the end with the small notch towards the top of the board. This notch signifies the pin 1 end of the IC.

Next, form the leads on **R1** and **R2** (100 k ohms, brown, black, yellow) for .4" lead spacing, then insert and solder them at the spots shown on the diagram just above **U1** and **ribbon cable**.

Step 3: Connect Memdoub-2 to the switch and keyer

Connect the switch using 3 wires from the 3 holes at the top of the board labeled **switch** per the following connection diagram:



Connection diagram - Memdoub-2 to Super CMOS III keyer

Note that the diagram displays a toggle type switch - a push-button SPDT switch may have a different terminal layout for the common connection and the two throws. Also note that the length of the wires should be as short as possible, 6 inches or less.

Step 4: Check your work

Before proceeding, take the time to check the bottom of the board for solder bridges. Use the bottom view of circuit board diagram as a guide to visually check for these shorts. It may help to clean the flux from the board and then use a strong light in conjunction with a magnifying glass too see these problems. After you are convinced that the board is OK, form the leads of the EEPROM included with the Memdoub-1 to fit in the socket, insert this IC into one of the sockets, being sure to follow the parts placement diagram for proper orientation.

Power down the Super CMOS III keyer. Then remove the EEPROM and insert it into the socket for **U1** or **U2** with pin 1 toward the top of the board.

Insert the ribbon cable into the remaining sockets on the Memdoub-2 and the Super CMOS III keyer. Note that you will need to bend R11, Q1 and R12 slightly to create enough clearance for the 8 pin ribbon cable connector.

You are now ready to power up the Super CMOS III keyer and try out Memdoub-2. Your previously recorded messages will still be retained in the EEPROM from your Super CMOS III keyer. You will have to record new messages in the new EEPROM included with the kit. The memory capacity is now doubled, in two separate banks which are selected by the position of the switch. Take the time to record which switch position corresponds to the "old" EEPROM.

Gotchas:

If you routinely power your Super CMOS III keyer up and down between keying sessions, you may notice that your programmed preferences may be reset to default- they need to be stored in the new EEPROM. With the SPDT switch set to select the new EEPROM, reprogram the keyer for your preferred settings - they will be stored in the new EEPROM for any future power up/down cycles. Alternatively, two users of the same keyer can store their own preferences in each EEPROM and simply switch preference sets back and forth by powering the keyer down and back up.

Although no circuit damage should result, I would resist the temptation to flip the memory select switch during memory playback and especially during memory record. While the parts shouldn't be damaged, the previously recorded messages may be corrupted.

Due to the length of the interconnection cable and switch wires, strong RF (especially at higher frequencies) may cause unusual keying problems. The builder is strongly encouraged to house Memdoub-2 along with the Super CMOS III keyer in a grounded, metal enclosure to prevent these problems.

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Memdoub-2 Stocklist

| <u>Qty</u> | <u>Ref.</u> | <u>Part Name</u> | <u>Description</u> |
|------------|-------------|------------------|--|
| 1 | U1 | 24LC16B | 16k serial EEPROM |
| 2 | R1,2 | R1/4W | 100 k ohm 1/4 watt carbon film resistor (brown, black yellow) |
| 1 | - | | Ribbon cable assembly with 2 8 pin DIP plugs |
| 3 | - | | 8 pin DIP sockets |
| 1 | - | | Memdoub-2 circuit board |

The following items are not included in the kit:

| | | | |
|---|-----|---------|--|
| 1 | U2 | 24LC16B | 16k serial EEPROM (from your Super CMOS III) |
| 1 | SW1 | SPDT | SPDT switch |

4-40 mounting hardware (star washers, threaded standoffs, machine screws)