

## Replacement HP 8601A Output Amplifier Module Service Manual

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### Disassembly for Service:

Unlike the original module, which is a sealed unit, this replacement can be repaired if trouble ever arises. However, proper procedure and care must be taken when disassembling the unit to avoid damage. A vacuum desoldering system is highly recommended.

- 1) Remove the output amplifier module from the 8601A by pulling it straight up out of its socket. Note that the pins are easily broken if bent.
- 2) Using a vacuum desoldering system (Hakko 472 or equivalent recommended) remove the solder from each of the points indicated in Figure 1. Take extra care to thoroughly heat pin 8 (indicated with a blue arrow) as it is connected to the ground plane and thus will require extra heat.
- 3) Carefully pry the lid from the mainboard with a small screwdriver. If they do not separate easily DO NOT FORCE THEM APART. Rather, repeat the desoldering procedure (adding fresh solder before using the desoldering system again often helps) and then try to pry them apart again.

Once the lid is removed, the unit is easily serviced. A schematic, board layout diagram, and parts list are provided on the following pages. Note also that the module will perform correctly with the lid removed, so the lid should only be reinstalled after it has been verified that the module is operating correctly.

### Reassembly:

- 1) Using the desoldering station, remove all excess solder from the tops of the pins and the bottom of the lid. When put in place, the lid should rest firmly on the tops of the transistors.
- 2) Apply a small amount of thermal grease to the top of each transistor.
- 3) Use a small c-clamp to firmly clamp the lid onto the module.
- 4) Solder each of the points indicated in Figure 1.
- 5) Reinstall the module into the 8601A by pressing it firmly into place.

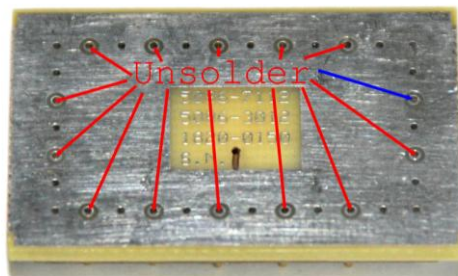
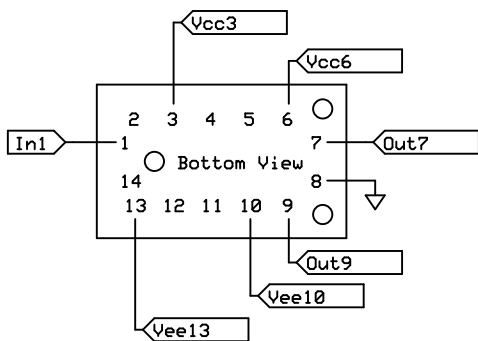
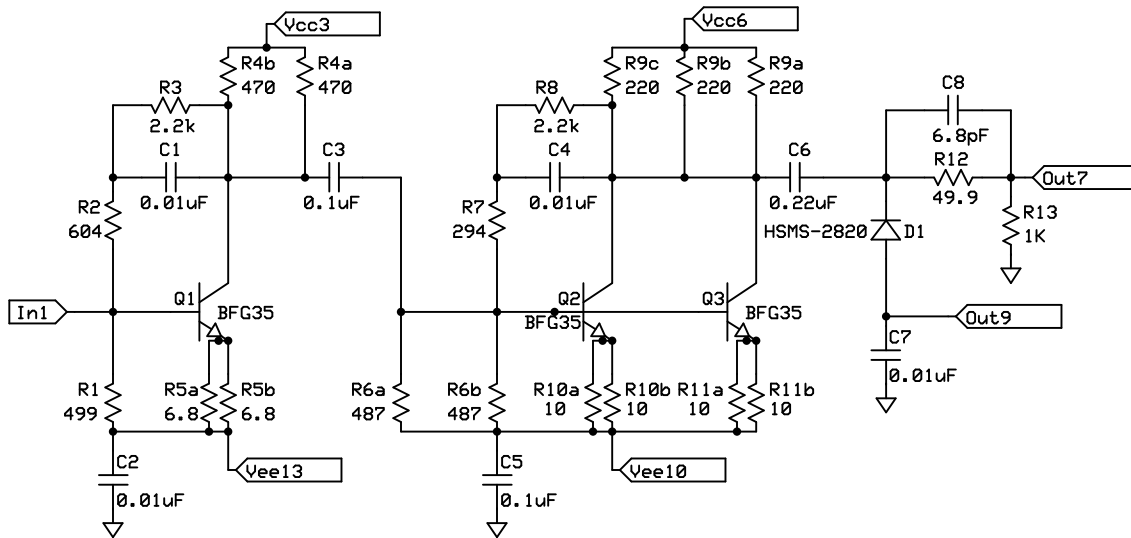
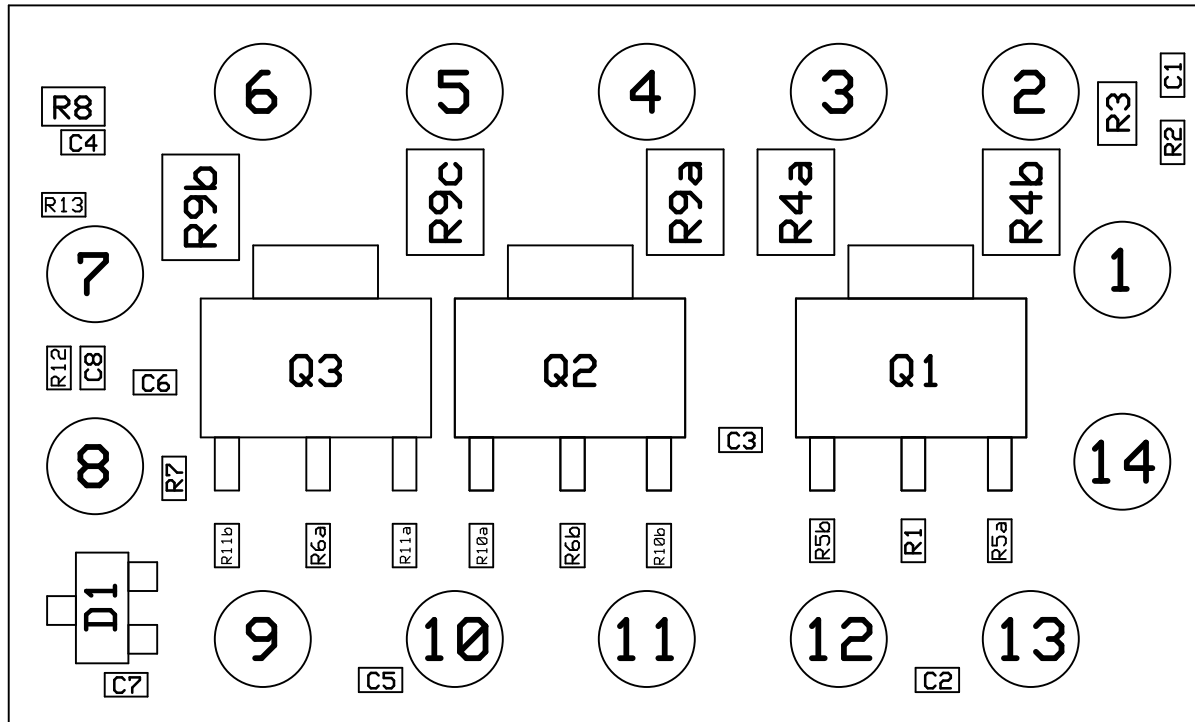


Figure 1: Solder joints holding the lid of the module in place.



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5086-7112 Replaceable Parts List - Page 1

Reference Designation	Mfg.	Mfg. P/N	Mouser P/N	DigiKey P/N	Description / Notes
C1, C2, C4, C7	Kemet	C0603C103J5RACTU	80-C0603C103J5R	399-1092-1-ND	0.01uF, 0603, 50V, X7R, 5%
C3, C5	Kemet	C0603C104J5RACTU	80-C0603C104J5R	N/A (OBD)	0.1uF, 0603, 50V, X7R, 5%
C6	Kemet	C0603C224K3RACTU	80-C0603C224K3R	N/A (OBD)	0.22uF, 0603, 25V, X7R, 5%
C8	TDK	C1608C0G1H6R8D	810-C1608C0G1H6R8D	445-5039-1-ND	6.8pF, 0603, 50V, C0G, 0.5pF tolerance
D1	Avago	HSMS-2820-TR1G	630-HSMS-2820-TR1G	516-1817-1-ND	1pF RF Schottky Diode
Q1-Q3	NXP	BFG35,115	771-BFG35-T/R	568-6187-1-ND	NPN, 150mA, 4GHz, SOT223
R1	Vishay	CRCW0603499RFKEA	71-CRCW0603-499-E3	541-499HCT-ND	499 Ohms, 0603, 0.1W, 1%, 100ppm
R2	Vishay	CRCW0603604RFKEA	71-CRCW0603-604-E3	CRCW0603604RFKEA	604 Ohms, 0603, 0.1W, 1%, 100ppm
R3, R8	Vishay	CRCW08052K20FKEA	71-CRCW0805-2.2K-E3	541-2.20KCCT-ND	2.2k Ohms, 0805, 0.125W, 1%, 100ppm
R4a, R4b	Vishay	CRCW1210470RJNEAHP	71-CRCW1210470RJNEAH	541-470NCT-ND	470 Ohms, 1210, 0.75W, 5%, 100ppm (Do not use 0.5W part)
R5a, R5b	Vishay	CRCW04026R80FKED	71-CRCW04026R80FKED	541-6.80LLCT-ND	6.8 Ohms, 0603, 0.1W, 1%, 100ppm
R6a, R6b	Vishay	CRCW0603487RFKEA	71-CRCW0603-487-E3	CRCW0603487RFKEA	487 Ohms, 0603, 0.1W, 1%, 100ppm
R7	Vishay	CRCW0603294RFKEA	71-CRCW0603-294-E3	541-294HCT-ND	294 Ohms, 0603, 0.1W, 1%, 100ppm
R9a, R9b, R9c	Vishay	CRCW1210220RJNEAHP	71-CRCW1210220RJNEAH	541-220NCT-ND	220 Ohms, 1210, 0.75W, 5%, 100ppm (Do not use 0.5W part)

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Reference Designation	Mfg.	Mfg. P/N	Mouser P/N	DigiKey P/N	Description / Notes
R10a, R10b, R11a, R11b	Vishay	CRCW060310R0FKEA	71-CRCW0603-10-E3	541-10.0HCT-ND	10 Ohms, 0603, 0.1W, 1%, 100ppm
R12	Vishay	CRCW060349R9FKEA	71-CRCW0603-49.9-E3	541-49.9HCT-ND	49.9 Ohms, 0603, 0.1W, 1%, 100ppm
R13	Vishay	CRCW06031K00FKEA	71-CRCW0603-1.0K-E3	541-1.00KHCT-ND	1k Ohms, 0603, 0.1W, 1%, 100ppm
Pins	Mill-Max	3169-0-00-15-00-00-03-0	N/A	N/A	Order directly from Mill-Max. Make no substitute.