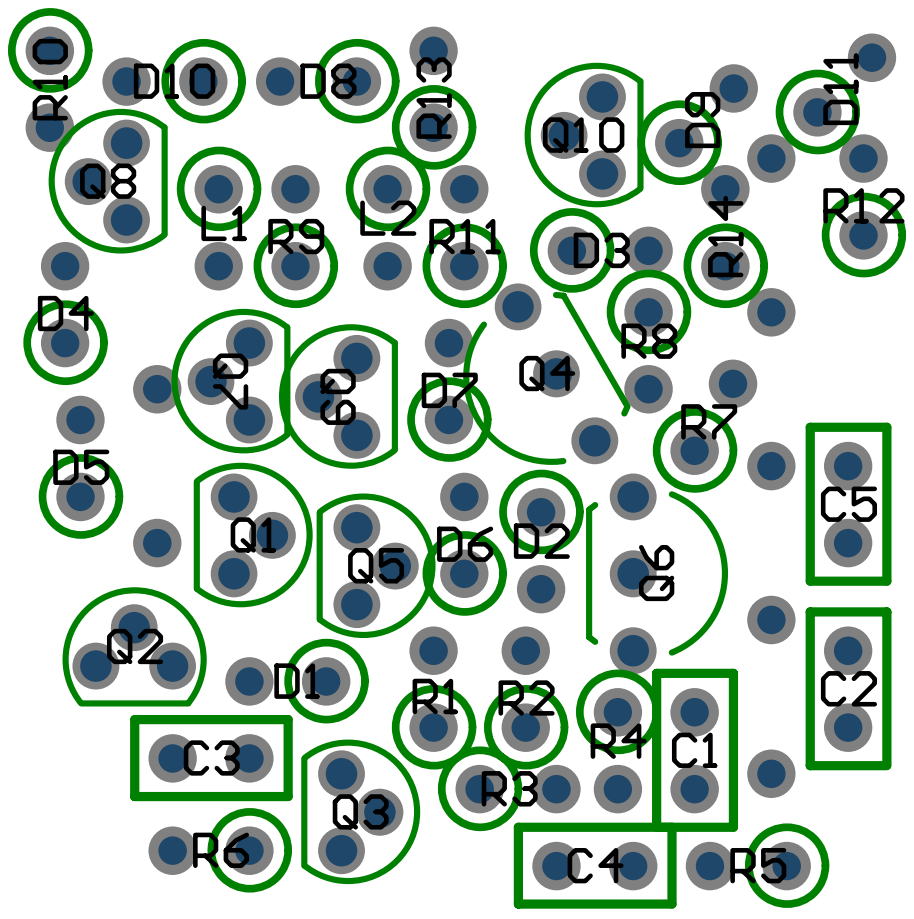


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|-------|---|----------|
| Title | | |
| Size | Number | Revision |
| B | | |
| Date: | 3-Aug-2004 | Sheet of |
| File: | C:\Documents and Settings\Hardware Design\Bumps\Jensen\E990.dtb | |



Dale's JE990 in an API skin

This is a pretty straightforward design. I used BC550C and BC560C transistors everywhere except for the outputs, which are 2SA1534 and 2SC3940 Toshiba transistors. You can substitute any reasonable transistor with the B-C-E pinout, but watch the direction. One other bit of artistic license I did was to substitute a BC560 transistor in place of one of the diodes. I did this because I assumed the silicon match would be better between the two BC560 – since I'm not using the original transistors either.

The amplifier should assemble and power up without any significant difficulty, however, you may want to test its square wave response to ensure there is no ringing or other bad things. The capacitors are standard ceramic NPO (or X7R for the decoupling caps) – their frequency of interest is much higher than audio so they should not contribute any audible artifacts to the sound.

If you are printing out this to make a film for PC board etching, this printout is in the correct direction – ensure you place the film toner side towards the board. To print this out make sure you tell the Acrobat reader to **NOT** rescale to fit the page – this will mess up the print. The outside edges should be 1.200" in each direction.

Good luck!

Here is the bill of material report from the schematic program.

| Part Type | Designator | Footprint | Description |
|-----------|------------|-----------|-------------|
| 0.1uF | C2 | RAD0.1 | Capacitor |
| 0.1uF | C5 | RAD0.1 | Capacitor |
| 1N4148 | D3 | DIODEUP | Diode |
| 1N4148 | D9 | DIODEUP | Diode |
| 1N4148 | D1 | DIODEUP | Diode |
| 1N4148 | D6 | DIODEUP | Diode |
| 1N4148 | D7 | DIODEUP | Diode |
| 1N4148 | D2 | DIODEUP | Diode |
| 1N4148 | D11 | DIODEUP | Diode |
| 1N4148 | D10 | DIODEUP | Diode |
| 1N4148 | D8 | DIODEUP | Diode |
| 1N4148 | D5 | DIODEUP | Diode |
| 1N4148 | D4 | DIODEUP | Diode |
| 2SA1534 | Q4 | TO92C | PNP |
| 2SC3940 | Q6 | TO92C | NPN |
| 2k0 | R3 | RESUP | RESISTOR |
| 3R9 | R7 | RESUP | RESISTOR |
| 3R9 | R8 | RESUP | RESISTOR |
| 22uH | L1 | RESUP | |
| 22uH | L2 | RESUP | |

| | | | |
|--------|-----|--------|-----------|
| 30R | R9 | RESUP | RESISTOR |
| 30R | R11 | RESUP | RESISTOR |
| 61k8 | R14 | RESUP | RESISTOR |
| 61k8 | R12 | RESUP | RESISTOR |
| 62pF | C1 | RAD0.1 | Capacitor |
| 91pF | C4 | RAD0.1 | Capacitor |
| 110R | R13 | RESUP | RESISTOR |
| 130R | R6 | RESUP | RESISTOR |
| 150pF | C3 | RAD0.1 | Capacitor |
| 160R | R10 | RESUP | RESISTOR |
| 180R | R4 | RESUP | RESISTOR |
| 300R | R1 | RESUP | RESISTOR |
| 300R | R5 | RESUP | RESISTOR |
| 300R | R2 | RESUP | RESISTOR |
| BC550C | Q8 | TO92A | NPN |
| BC550C | Q7 | TO92A | NPN |
| BC550C | Q9 | TO92A | NPN |
| BC550C | Q10 | TO92A | NPN |
| BC560C | Q2 | TO92A | PNP |
| BC560C | Q5 | TO92A | PNP |
| BC560C | Q3 | TO92A | PNP |
| BC560C | Q1 | TO92A | PNP |