

## 7 TO 35 WATT AMPLIFIERS

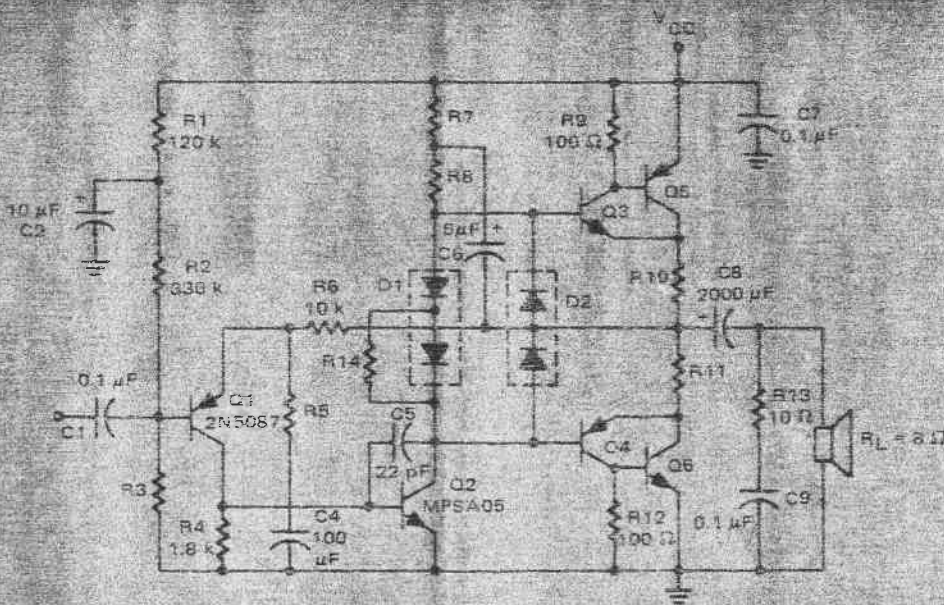


FIGURE B-3(a) – 7 to 35 Watt Amplifiers

| Components | 7 W      | 10 W    | 15 W    | 20 W    | 25 W    | 35 W   |
|------------|----------|---------|---------|---------|---------|--------|
| VCC        | 26 V     | 30 V    | 36 V    | 43 V    | 48 V    | 54 V   |
| R3         | 50 k     | 50 k    | 50 k    | 50 k    | 50 k    | 50 k   |
| R6         | 180 Ω    | 180 Ω   | 120 Ω   | 120 Ω   | 120 Ω   | 120 Ω  |
| R7 & R8    | 3.9 k    | 3.9 k   | 3.9 k   | 3.9 k   | 3.9 k   | 3.9 k  |
| R10 & R11  | 0.47     | 0.47    | 0.47    | 0.47    | 0.47    | 0.33   |
| R14        | —        | —       | —       | —       | —       | 470 Ω  |
| Q3         | MPSA05   | MPSA05  | MPSA05  | MPSA05  | MPSA05  | MPSA05 |
| Q4         | MPSA05   | MPSA05  | MPSA05  | MPSA05  | MPSA05  | MPSA05 |
| Q5         | MJE230   | MJE230  | MJE105  | MJE105  | MJE230  | MJE230 |
| Q6         | MJE220   | MJE220  | MJE205  | MJE205  | MJE230  | MJE230 |
| Q1 & Q2    | MPSA05   | MPSA05  | MPSA05  | MPSA05  | MPSA05  | MPSA05 |
| Heat sink  | 15.8°C/W | 9.8°C/W | 6.2°C/W | 4.2°C/W | 3.4°C/W | 3°C/W  |

\*Heat sink size calculation is based on a maximum ambient temperature of 50°C and a load phase angle of 50 degrees (see text for methods of calculation). The heat sink is for both devices on one sink.

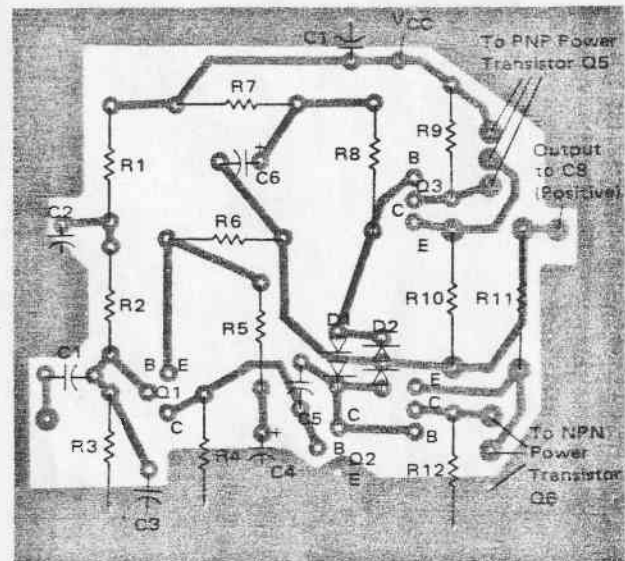


FIGURE B-3(b) – P.C. Board for 7 to 35 Watt Amplifier (NPN Pre-driver) Copper Side

TABLE B-3 – Amplifier Performance Characteristics

| Reference Figure 3   | 7 W<br>26 Vdc | 10 W<br>30 Vdc | 15 W<br>36 Vdc | 20 W<br>43 Vdc | 25 W<br>48 Vdc | 35 W<br>54 Vdc |
|--|---------------|----------------|----------------|----------------|----------------|----------------|
| 1. Idle Current (nominal no-signal)                          | 1.6 mA        | 20 mA          | 28 mA          | 65 mA          | 68 mA          | 32 mA          |
| 2. Current Drain at Rated Power                              | 425 mA        | 510 mA         | 610 mA         | 720 mA         | 320 mA         | 940 mA         |
| 3. Typical Input Impedance                                   | 230 kohms     | 320 kohms      | 230 kohms      | 230 kohms      | 230 kohms      | 220 kohms      |
| 4. THD at Rated Output Power 20 kHz or 1 kHz to 20 kHz       | < 0.5%        | < 0.5%         | < 0.5%         | < 0.5%         | < 0.5%         | < 0.5%         |
| 5. IM Distortion at 60 and 7000 Hz 4:1 ratio at Rated Power  | < 1%          | < 1%           | < 1%           | < 1%           | < 1%           | < 1%           |
| 6. -3 dB Bandwidth   | 16 Hz-300 kHz | 15 Hz-380 kHz  | 16 Hz-250 kHz  | 16 Hz-250 kHz  | 16 Hz-275 kHz  | 16 Hz-230 kHz  |
| 7. Typical input sensitivity for rated output power          | 210 mV        | 260 mV         | 200 mV         | 220 mV         | 250 mV         | 280 mV         |
| 8. Maximum output power at 5% THD without current limiting   | 8.8 Watts     | 12.5 Watts     | 18 Watts       | 27.38 Watts    | 33.6 Watts     | 45.4 Watts     |
| 9. Maximum output power at 5% THD with current limiting      | 8.85 Watts    | 12.5 Watts     | 18 Watts       | 26.3 Watts     | 30 Watts       | 45 Watts       |
| 10. Power Supply Ripple Rejection                            | 44.4 dB       | 42 dB          | 40 dB          | 30 dB          | 36 dB          | 34 dB          |
| 11. Short Circuit Power Supply Current with Current Limiting | 1.32 Amps     | 1.45 Amps      | 1.5 Amps       | 1.5 Amps       | 1.62 Amps      | 2.2 Amps       |