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MJ4502 Silicon PNP Transistor High Power Audio Amplifier TO-3 Type Package

Description:

The MJ4502 is a silicon PNP transistor in a TO3 type case designed for use as an output device in audio amplifiers to 100 watts music power per channel.

Features:

- High DC Current Gain: $h_{FE} = 25 - 100 @ I_C = 7.5A$
- Excellent Safe Operating Area
- Complement to the NPN MJ802

Absolute Maximum Ratings:

| | |
|---|-------------------------------|
| Collector–Emitter Voltage, V_{CER} | 100V |
| Collector–Base Voltage, V_{CB} | 100V |
| Collector–Emitter Voltage, V_{CEO} | 90V |
| Emitter–Base Voltage, V_{EB} | 4V |
| Collector Current, I_C | 30A |
| Base Current, I_B | 7.5A |
| Total Device Dissipation ($T_C = +25^\circ C$), P_D | 200W |
| Derate Above $25^\circ C$ | 1.14W/ $^\circ C$ |
| Operating Junction Temperature Range, T_J | -65° to $+200^\circ C$ |
| Storage Temperature Range, T_{stg} | -65° to $+200^\circ C$ |
| Thermal Resistance, Junction–to–Case, R_{thJC} | 0.875 $^\circ C/W$ |

Electrical Characteristics: ($T_C = +25^\circ C$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--------------------------------------|----------------|--|-----|-----|-----|------|
| OFF Characteristics | | | | | | |
| Collector–Emitter Breakdown Voltage | $V_{(BR)CER}$ | $I_C = 200mA, R_{BE} = 100\Omega$, Note 1 | 100 | – | – | V |
| Collector–Emitter Sustaining Voltage | $V_{CEO(sus)}$ | $I_C = 200mA$, Note 1 | 90 | – | – | V |
| Collector–Base Cutoff Current | I_{CBO} | $V_{CB} = 100V, I_E = 0$ | – | – | 1.0 | mA |
| | | $V_{CB} = 100V, I_E = 0, T_C = +150^\circ C$ | – | – | 5.0 | mA |
| Emitter–Base Cutoff Current | I_{EBO} | $V_{BE} = 4V, I_C = 0$ | – | – | 1.0 | mA |

Note 1. Pulse Test: Pulse Width $\leq 300\mu s$. Duty Cycle $\leq 2\%$.

Electrical Characteristics (Cont'd): ($T_C = +25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--------------------------------------|---------------|---|-----|-----|-----|------|
| ON Characteristics (Note 1) | | | | | | |
| DC Current Gain | h_{FE} | $I_C = 7.5\text{A}, V_{CE} = 2\text{V}$ | 25 | - | 100 | |
| Base-Emitter ON Voltage | $V_{BE(on)}$ | $I_C = 7.5\text{A}, V_{CE} = 2\text{V}$ | - | - | 1.3 | V |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 7.5\text{A}, I_B = 750\text{mA}$ | - | - | 0.8 | V |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C = 7.5\text{A}, I_B = 750\text{mA}$ | - | - | 1.3 | V |
| Dynamic Characteristics | | | | | | |
| Current Gain-Bandwidth Product | f_T | $I_C = 1\text{A}, V_{CE} = 10\text{V}, f = 1\text{MHz}$ | 2.0 | - | - | MHz |

Note 1. Pulse Test: Pulse Width $\leq 300\mu\text{s}$. Duty Cycle $\leq 2\%$.

