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NTE289 (NPN) & NTE290 (PNP) Silicon Complementary Transistors Audio Power Amplifier, Switch

Applications:

- 1W Audio Power Amplifier Applications
- Switching Applications

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

| | |
|---|----------------|
| Collector–Base Voltage, V_{CBO} | 35V |
| Collector–Emitter Voltage, V_{CEO} | 30V |
| Emitter–Base Voltage, V_{EBO} | 5V |
| Collector Current, I_C | 800mA |
| Emitter Current, I_E | 800mA |
| Collector Power Dissipation, P_C | 600mW |
| Operating Junction Temperature, T_J | +150°C |
| Storage Temperature Range, T_{stg} | –55° to +150°C |

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--------------------------------------|---------------|---|-----|-----|-----|---------------|
| Collector–Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = 10\text{mA}, I_B = 0$ | 30 | – | – | V |
| Collector Cutoff Current | I_{CBO} | $V_{CB} = 35\text{V}, I_E = 0$ | – | – | 0.1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = 5\text{V}, I_C = 0$ | – | – | 0.1 | μA |
| DC Current Gain | $h_{FE(1)}$ | $V_{CE} = 2\text{V}, I_C = 50\text{mA}, \text{Note 2}$ | 120 | – | 240 | |
| | $h_{FE(2)}$ | $V_{CE} = 2\text{V}, I_C = 500\text{mA}, \text{Note 2}$ | 35 | – | – | |
| Collector–Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 500\text{mA}, I_B = 20\text{mA}, \text{Note 2}$ | – | – | 0.8 | V |
| Base–Emitter Voltage | V_{BE} | $V_{CE} = 2\text{V}, I_C = 500\text{mA}, \text{Note 2}$ | – | – | 1.1 | V |
| Current–Gain Bandwidth Product | f_T | $V_{CE} = 10\text{V}, I_C = 10\text{mA}$ | – | 140 | – | MHz |
| Output Capacitance | C_{ob} | $V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$ | – | 22 | 30 | pF |
| Switching Time | | $V_{CC} = 10\text{V}, V_{BB} = 3\text{V}, \text{Duty Cycle} \leq 2\%$ | | | | |
| Turn–On | t_{on} | | – | 50 | – | ns |
| Storage | t_{stg} | | – | 400 | – | ns |
| Fall | t_f | – | 40 | – | ns | |

Note 1. NTE289MP is a matched pair of NTE289 with their DC Current Gain (h_{FE}) matched to within 10% of each other.

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

