

NTE350 Silicon NPN Transistor RF Power Amp, Driver

Description:

The NTE350 is a silicon NPN transistor in a T72H type package designed primarily for use in 12.5V VHF large-signal power amplifier applications required in commercial and industrial equipment to 300MHz.

Features:

- Specified 12.5V, 175MHz Characteristics:
 Output Power = 15W
 Minimum Gain = 6.3dB
 Efficiency = 60%

Absolute Maximum Ratings:

| | |
|--|-------------------------------------|
| Collector-Emitter Voltage, V_{CEO} | 18V |
| Collector-Emitter Voltage, V_{CES} | 36V |
| Emitter-Base Voltage, V_{EBO} | 4V |
| Continuous Collector Current, I_C | 2.5A |
| Total Device Dissipation (Note 1, $T_C = +25^\circ\text{C}$), P_D | 31W |
| Derate Above 25°C | 177mW/ $^\circ\text{C}$ |
| Storage Temperature Range, T_{stg} | -65° to $+200^\circ\text{C}$ |

Note 1. This device is designed for RF operation. The total device dissipation rating applies only when the device is operated as an RF amplifier.

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

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|-------------------------------------|---------------|--|-----|-----|-----|------|
| OFF Characteristics | | | | | | |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = 20\text{mA}, I_B = 0$ | 18 | – | – | V |
| | $V_{(BR)CES}$ | $I_C = 10\text{mA}, V_{BE} = 0$ | 36 | – | – | V |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E = 1\text{mA}, I_C = 0$ | 4 | – | – | V |
| Collector Cutoff Current | I_{CBO} | $V_{CB} = 15\text{V}, I_E = 0$ | – | – | 0.5 | mA |
| | I_{CES} | $V_{CE} = 15\text{V}, V_{BE} = 0, T_C = +55^\circ\text{C}$ | – | – | 8 | mA |
| ON Characteristics | | | | | | |
| DC Current Gain | h_{FE} | $I_C = 500\text{mA}, V_{CE} = 5\text{V}$ | 5 | – | – | |

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

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|----------|---|-----|-----|-----|------|
| Dynamic Characteristics | | | | | | |
| Output Capacitance | C_{ob} | $V_{CB} = 15\text{V}, I_E = 0, f = 0.1\text{MHz}$ | – | 70 | 85 | pF |
| Functional Tests ($V_{CC} = 12.5\text{V}$ unless otherwise specified) | | | | | | |
| Common–Emitter Amplifier Power Gain | G_{PE} | $P_{out} = 15\text{W}, f = 175\text{MHz}$ | 6.3 | – | – | dB |
| Collector Efficiency | η | $P_{out} = 15\text{W}, f = 175\text{MHz}$ | 60 | – | – | % |

