

NTE2503 Silicon NPN Transistor High Gain Switch

Features:

- High DC Current Gain
- High Current Capacity
- Low Collector–Emitter Saturation Voltage
- High Emitter–Base Voltage

Applications:

- AF Amplifier
- Various Driver

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

| | |
|---|----------------|
| Collector–Emitter Voltage, V_{CEO} | 25V |
| Collector–Base Voltage, V_{CBO} | 30V |
| Emitter–Base Voltage, V_{EBO} | 15V |
| Collector Current, I_C | |
| Continuous | 700mA |
| Pulse | 1.5A |
| Collector 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 Cutoff Current | I_{CBO} | $V_{CB} = 20V, I_E = 0$ | – | – | 0.1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = 10V, I_C = 0$ | – | – | 0.1 | μA |
| DC Current Gain | h_{FE} | $I_C = 50\text{mA}, V_{CE} = 5V$ | 800 | 1500 | 3200 | |
| | | $I_C = 500\text{mA}, V_{CE} = 5V$ | 600 | – | – | |
| Current Gain–Bandwidth Product | f_T | $I_C = 50\text{mA}, V_{CE} = 10V$ | – | 270 | – | MHz |
| Output Capacitance | C_{ob} | $V_{CB} = 10V, f = 1\text{MHz}$ | – | 9 | – | pF |

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

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|-------------------------------------|---------------|---|-----|------|------|---------------|
| Collector Saturation Voltage | $V_{CE(sat)}$ | $I_C = 500\text{mA}, I_B = 10\text{mA}$ | – | 0.15 | 0.50 | V |
| Base Saturation Voltage | $V_{BE(sat)}$ | $I_C = 500\text{mA}, I_B = 10\text{mA}$ | – | 0.9 | 1.2 | V |
| Collector–Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = 10\mu\text{A}, I_E = 0$ | 30 | – | – | V |
| Collector–Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = 1\text{mA}, R_{BE} = \infty$ | 25 | – | – | V |
| Emitter–Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E = 10\mu\text{A}, I_C = 0$ | 15 | – | – | V |
| Turn–On Time | t_{on} | $I_{B1} = 100\text{mA},$ $I_{B2} = I_C = 300\text{mA},$ Pulse Width = $20\mu\text{s},$ Duty Cycle $\leq 1\%$ | – | 0.1 | – | μs |
| Storage Time | t_{stg} | | – | 0.6 | – | μs |
| Fall Time | t_f | | – | 0.06 | – | μs |

