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# NTE2407
# Silicon PNP Transistor
# General Purpose Amp, Surface Mount
# (Compl to NTE2406)

**Absolute Maximum Ratings:** ($T_A$ = +25°C unless otherwise specified)

Collector–Base Voltage, $V_{CBO}$ . . . . . 60V
Collector–Emitter Voltage, $V_{CEO}$ . . . . . 60V
Emitter–Base Voltage, $V_{EBO}$ . . . . . 5V
Continuous Collector Current, $I_C$ . . . . . 600mA
Total Device Dissipation (FR–5 Board, Note 1), $P_D$ . . . . . 225mW
Derate above +25°C . . . . . 1.8mW/°C
Thermal Resistance, Junction–to–Ambient (FR–5 Board, Note 1), $R_{thJA}$ . . . . . 556°C/W
Total Device Dissipation (Alumina Substrate, Note 2), $P_D$ . . . . . 300mW
Derate above +25°C . . . . . 2.4mW/°C
Thermal Resistance, Junction–to–Ambient (Alumina Substrate, Note 2), $R_{thJA}$ . . . . . 417°C/W
Operating Junction Temperature Range, $T_J$ . . . . . –55 ° to +150°C
Storage Temperature Range, $T_{stg}$ . . . . . –55 ° to +150°C

Note 1. FR–5 = 1.000 (25.4mm) x .750 (19.05mm) x .062 (1.57mm).

Note 2. Alumina = .400 (10.2mm) x .300 (7.62mm) x .024 (.609mm), 99.5% alumina.

**Electrical Characteristics:** ($T_A$ = +25°C unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **OFF Characteristics** | | | | | | |
| Collector–Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C$ = 10μA, $I_E$ = 0 | 60 | – | – | V |
| Collector–Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$ = 10mA, $I_B$ = 0, Note 3 | 60 | – | – | V |
| Emitter–Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E$ = 10μA, $I_C$ = 0 | 5 | – | – | V |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}$ = 50V, $I_E$ = 0 | – | – | 0.01 | μA |
| | | $V_{CB}$ = 50V, $I_E$ = 0, $T_A$ = +125°C | – | – | 10 | μA |
| | $I_{CEX}$ | $V_{CE}$ = 30V, $V_{EB(off)}$ = 0.5V | – | – | 50 | nA |
| Base Current | $I_B$ | $V_{CE}$ = 30V, $V_{EB(off)}$ = 0.5V | – | – | 50 | nA |

Note 3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

**Electrical Characteristics (Cont'd):** ($T_A$ = +25°C unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **ON Characteristics** (Note 3) | | | | | | |
| DC Current Gain | $h_{FE}$ | $V_{CE}$ = 10V, $I_C$ = 0.1mA | 35 | – | – | |
| | | $V_{CE}$ = 10V, $I_C$ = 1mA | 50 | – | – | |
| | | $V_{CE}$ = 10V, $I_C$ = 10mA | 100 | – | – | |
| | | $V_{CE}$ = 10V, $I_C$ = 150mA | 100 | – | 300 | |
| | | $V_{CE}$ = 10V, $I_C$ = 500mA | 50 | – | – | |
| Collector–Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C$ = 150mA, $I_B$ = 15mA | – | – | 0.4 | V |
| | | $I_C$ = 500mA, $I_B$ = 50mA | – | – | 1.6 | V |
| Base–Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C$ = 150mA, $I_B$ = 15mA | – | – | 1.3 | V |
| | | $I_C$ = 500mA, $I_B$ = 50mA | – | – | 2.6 | V |
| **Small–Signal Characteristics** | | | | | | |
| Current Gain–Bandwidth Product | $f_T$ | $I_C$ = 50mA, $V_{CE}$ = 20V, f = 100MHz, Note 3 | 300 | – | – | MHz |
| Output Capacitance | $C_{obo}$ | $V_{CB}$ = 10V, $I_E$ = 0, f = 1MHz | – | – | 8 | pF |
| Input Capacitance | $C_{ibo}$ | $V_{EB}$ = 2V, $I_C$ = 0, f = 1MHz | – | – | 30 | pF |
| **Switching Characteristics** | | | | | | |
| Turn–On Time | $t_{on}$ | $V_{CC}$ = 30V, $I_C$ = 150mA, $I_{B1}$ = 15mA | – | – | 45 | ns |
| Delay Time | $t_d$ | | – | – | 10 | ns |
| Rise Time | $t_r$ | | – | – | 40 | ns |
| Turn–On Time | $t_{off}$ | $V_{CC}$ = 6V, $I_C$ = 150mA, $I_{B1}$ = $I_{B2}$ = 15mA | – | – | 100 | ns |
| Delay Time | $t_s$ | | – | – | 80 | ns |
| Rise Time | $t_f$ | | – | – | 30 | ns |

Note 3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.