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## 2N6287

### Silicon PNP Darlington Transistor Power Amplifier

**Description:**

The 2N6287 is silicon PNP Darlington transistor in a TO3 type case designed for general-purpose amplifier and low-frequency switching applications.

**Features:**

- High DC Current Gain @  $I_C = 10A$ :  $h_{FE} = 4000$  Typ (NTE252)
- Collector-Emitter Sustaining Voltage:  $V_{CEO(sus)} = 100V$  Min
- Monolithic Construction with Built-In Base-Emitter Shunt Resistors

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

|  |                               |
|--|-------------------------------|
| Collector-Emitter Voltage, $V_{CEO}$ .....                   | 100V                          |
| Collector-Base Voltage, $V_{CB}$ .....                       | 100V                          |
| Emitter-Base Voltage, $V_{EB}$ .....                         | 5V                            |
| Collector Current, $I_C$                                     |                               |
| Continuous .....   | 20A                           |
| Peak .....   | 40A                           |
| Base Current, $I_B$ .....                                    | 500mA                         |
| Total Power Dissipation ( $T_C = +25^\circ C$ ), $P_D$ ..... | 160W                          |
| Derate Above $25^\circ C$ .....                              | 0.915W/ $^\circ C$            |
| Operating Junction Temperature Range, $T_J$ .....            | $-65^\circ$ to $+200^\circ C$ |
| Storage Temperature Range, $T_{stg}$ .....                   | $-65^\circ$ to $+200^\circ C$ |
| Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....       | 1.09 $^\circ C/W$             |

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

| Parameter                            | Symbol  | Test Conditions                     | Min | Typ | Max | Unit |
|--------------------------------------|---|-------------------------------------|-----|-----|-----|------|
| <b>OFF Characteristics</b>           |   |                                     |     |     |     |      |
| Collector-Emitter Sustaining Voltage | $V_{CEO(sus)}$  | $I_C = 100mA, I_B = 0$              | 100 | -   | -   | V    |
| Collector Cutoff Current             | $I_{CEO}$   | $V_{CE} = 50V, I_E = 0$             | -   | -   | 1.0 | mA   |
|                                      |   | $V_{CE} = 100V, V_{BE(off)} = 1.5V$ | -   | -   | 0.5 | mA   |
|                                      | $V_{CE} = 100V, V_{BE(off)} = 1.5V, T_A = +150^\circ C$ | -                                   | -   | 5.0 | mA  |      |
| Emitter Cutoff Current               | $I_{EBO}$   | $V_{BE} = 5V, I_C = 0$              | -   | -   | 2.0 | mA   |

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

| Parameter   | Symbol        | Test Conditions   | Min | Typ | Max   | Unit |
|---|---------------|---|-----|-----|-------|------|
| <b>ON Characteristics</b> (Note 1)  |               |   |     |     |       |      |
| DC Current Gain   | $h_{FE}$      | $V_{CE} = 3\text{V}, I_C = 10\text{A}$                  | 750 | -   | 18000 |      |
|   |               | $V_{CE} = 3\text{V}, I_C = 20\text{A}$                  | 100 | -   | -     |      |
| Collector-Emitter Saturation Voltage  | $V_{CE(sat)}$ | $I_C = 10\text{A}, I_B = 40\text{mA}$                   | -   | -   | 2.0   | V    |
|   |               | $I_C = 20\text{A}, I_B = 200\text{mA}$                  | -   | -   | 3.0   | V    |
| Base-Emitter Saturation Voltage   | $V_{BE(sat)}$ | $I_C = 20\text{A}, I_B = 200\text{mA}$                  | -   | -   | 4.0   | V    |
| Base-Emitter ON Voltage   | $V_{BE(on)}$  | $V_{CE} = 3\text{V}, I_C = 10\text{A}$                  | -   | -   | 2.8   | V    |
| <b>Dynamic Characteristics</b>  |               |   |     |     |       |      |
| Small-Signal Current Gain   | $h_{fe}$      | $V_{CE} = 3\text{V}, I_C = 10\text{A}, f = 1\text{kHz}$ | 300 | -   | -     |      |
| Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio | $ h_{fe} $    | $V_{CE} = 3\text{V}, I_C = 10\text{A}, f = 1\text{MHz}$ | 4.0 | -   | -     | MHz  |
| Output Capacitance  | $C_{ob}$      | $V_{CB} = 10\text{V}, I_E = 0, f = 0.1\text{MHz}$       | -   | -   | 600   | pF   |

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

