

## NTE267

### Silicon NPN Transistor

### High Gain Darlington Power Amp, Switch

#### Features:

- Forward Current Transfer Ratio:  $h_{FE} = 90,000$  min.
- Free-Air Power Dissipation: 1.33W @  $T_A = +50^\circ\text{C}$
- Hard Solder Mountdown

#### Applications:

- |                                                                                                                                                             |                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>● Driver</li> <li>● Regulator</li> <li>● Audio Output</li> <li>● Relay Substitute</li> <li>● Touch Switch</li> </ul> | <ul style="list-style-type: none"> <li>● Oscillator</li> <li>● IC Driver</li> <li>● Servo Amplifier</li> <li>● Capacitor Multiplier</li> </ul> |
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#### Absolute Maximum Ratings: ( $T_A = +25^\circ\text{C}$ , unless otherwise specified)

|                                                                                          |                                     |
|------------------------------------------------------------------------------------------|-------------------------------------|
| Collector to Emitter, $V_{CEO}$ .....                                                    | 30V                                 |
| Emitter to Base, $V_{EBO}$ .....                                                         | 13V                                 |
| Collector to Emitter, $V_{CES}$ .....                                                    | 30V                                 |
| Collector Current, $I_C$                                                                 |                                     |
| Continuous .....                                                                         | 500mA                               |
| Peak .....                                                                               | 1A                                  |
| Power Dissipation, $P_T$                                                                 |                                     |
| Tab at $+25^\circ\text{C}$ .....                                                         | 6.25W                               |
| Free Air at $+50^\circ\text{C}$ <sup>w</sup> /Tab .....                                  | 1.33W                               |
| Thermal Resistance, Junction to Case (Note 1), $R_{thJC}$ .....                          | $20^\circ\text{C/W}$                |
| Thermal Resistance, Junction to Ambient (Note 1), $R_{thJA}$ .....                       | $75^\circ\text{C/W}$                |
| Operating Junction Temperature Range, $T_J$ .....                                        | $-55^\circ$ to $+150^\circ\text{C}$ |
| Storage Temperature Range, $T_{stg}$ .....                                               | $-55^\circ$ to $+150^\circ\text{C}$ |
| Lead Temperature (During Soldering, 1/16" $\pm$ 1/32" from case, 10sec max), $T_L$ ..... | $+260^\circ\text{C}$                |

Note 1. Tab temperature is measured on center of tab, 1/16" from plastic body.

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

| Parameter                            | Symbol                | Test Conditions                                                 | Min | Typ | Max | Unit          |
|--------------------------------------|-----------------------|-----------------------------------------------------------------|-----|-----|-----|---------------|
| Forward Current Transfer Ratio       | $h_{FE}$              | $V_{CE} = 5\text{V}$ , $f = 1\text{kHz}$ , $I_C = 200\text{mA}$ | 90k | —   | —   |               |
|                                      |                       | $I_C = 20\text{mA}$                                             | 90k | —   | —   |               |
| Collector Emitter Saturation Voltage | $V_{CE(sat)}$         | $I_C = 500\text{mA}$ , $I_B = 0.5\text{mA}$ , Note 2            | —   | —   | 1.5 | V             |
| Base Emitter Saturation Voltage      | $V_{BE(sat)}$         | $I_C = 500\text{mA}$ , $I_B = 0.5\text{mA}$                     | —   | —   | 2.0 | V             |
| Collector Cutoff Current             | $I_{CES}$             | $V_{CE} = \text{Rated } V_{CES}$ , $T_J = +25^\circ\text{C}$    | —   | —   | 0.5 | $\mu\text{A}$ |
|                                      | $I_{CBO}$             | $V_{CE} = \text{Rated } V_{CES}$ , $T_J = +150^\circ\text{C}$   | —   | —   | 20  | $\mu\text{A}$ |
| Emitter Cutoff Current               | $I_{EBO}$             | $V_{EB} = 13\text{V}$                                           | —   | —   | 0.1 | $\mu\text{A}$ |
| Collector Capacitance                | $C_{cbo}$             | $V_{CB} = 10\text{V}$ , $f = 1\text{MHz}$                       | —   | 5   | 10  | pF            |
| Gain Bandwidth Product               | $f_T$                 | $V_{CE} = 5\text{V}$ , $I_C = 20\text{mA}$                      | —   | 75  | —   | MHz           |
| <b>Switching Times</b>               |                       |                                                                 |     |     |     |               |
| Delay Time and Rise Time             | $t_d \text{ \& } t_r$ | $I_C = 1\text{A}$ , $I_{B1} = 1\text{mA}$                       | —   | 100 | —   | ns            |
| Storage Time                         | $t_s$                 | $I_C = 1\text{A}$ , $I_{B1} = I_{B2} = 1\text{mA}$              | —   | 350 | —   | ns            |
| Fall Time                            | $t_f$                 | $I_C = 1\text{A}$ , $I_{B1} = I_{B2} = 1\text{mA}$              | —   | 800 | —   | ns            |

Note 2. Pulsed measurement, 300 $\mu\text{sec}$  pulse width, duty cycle  $\leq 2\%$ .

