

## NTE2351 (NPN) & NTE2352 (PNP) Silicon Complementary Transistors Darlington Power Amp, Switch

### Features:

- High DC Current Gain:  $h_{FE(1)} = 2000$  Min @  $V_{CE} = 2V, I_C = 1A$
- Low Saturation Voltage:  $V_{CE(sat)} = 1.5V$  Max @  $I_C = 3A$

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

|   |                |
|---|----------------|
| Collector–Base Voltage, $V_{CBO}$ .....     | 100V           |
| Collector–Emitter Voltage, $V_{CEO}$ .....  | 80V            |
| Emitter–Base Voltage, $V_{EBO}$ .....       | 5V             |
| Collector Current, $I_C$ .....              | 4A             |
| Base Current, $I_B$ .....                   | 400mA          |
| Collector Power Dissipation, $P_C$          |                |
| $T_A = +25^\circ C$ .....                   | 1W             |
| $T_C = +25^\circ C$ .....                   | 15W            |
| Operating Junction Temperature, $T_J$ ..... | +150°C         |
| Storage Temperature Range, $T_{stg}$ .....  | –55° to +150°C |

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

| Parameter                            | Symbol        | Test Conditions  | Min  | Typ | Max | Unit    |
|--------------------------------------|---------------|--|------|-----|-----|---------|
| Collector Cut–Off Current            | $I_{CBO}$     | $V_{CB} = 100V, I_E = 0$   | –    | –   | 20  | $\mu A$ |
| Emitter Cut–Off Current              | $I_{EBO}$     | $V_{EB} = 5V, I_C = 0$   | –    | –   | 2.5 | mA      |
| Collector–Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C = 10mA, I_B = 0$  | 80   | –   | –   | V       |
| DC Current Gain                      | $h_{FE(1)}$   | $V_{CE} = 2V, I_C = 1A$  | 2000 | –   | –   |         |
|                                      | $h_{FE(2)}$   | $V_{CE} = 2V, I_C = 3A$  | 1000 | –   | –   |         |
| Collector–Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 3A, I_B = 6mA$  | –    | –   | 1.5 | V       |
| Base–Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C = 3A, I_B = 6mA$  | –    | –   | 2.0 | V       |
| <b>Switching Characteristics</b>     |               |  |      |     |     |         |
| Turn–On Time                         | $t_{on}$      | $V_{CC} = 30V, I_{B1} = -I_{B2} = 6mA,$<br>Duty Cycle $\leq 1\%$ | –    | 0.2 | –   | $\mu s$ |
| Storage Time                         | $t_{stg}$     |  | –    | 1.5 | –   | $\mu s$ |
| Fall Time                            | $t_f$         |  | –    | 0.6 | –   | $\mu s$ |

