

# New Jersey Semi-Conductor Products, Inc.

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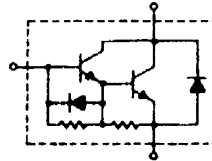
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## FAST SWITCHING DARLINGTON TRANSISTOR

They are high voltage, high current devices for fast switching applications.

### FEATURES:

- \* Collector-Emitter Sustaining Voltage -  
 $V_{CE(sus)}$  = 150 V (Min.) - BU807  
= 200 V (Min.) - BU806
- \* Low Collector-Emitter Saturation Voltage -  
 $V_{CE(sat)}$  = 1.5V (Max.) @  $I_C = 5.0$  A,  $I_B = 50$  mA

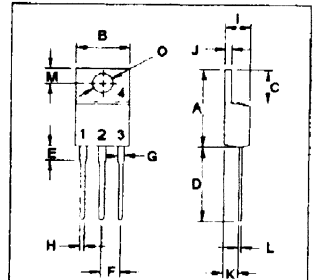
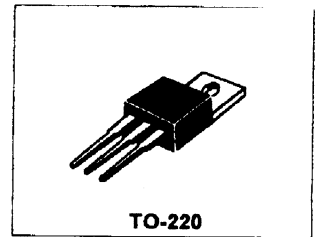


**NPN**  
**BU806**  
**BU807**

**8.0 AMPERE**  
**DARLINGTON**  
**POWER TRANSISTORS**  
**150-200 VOLTS**  
**60 WATTS**

### MAXIMUM RATINGS

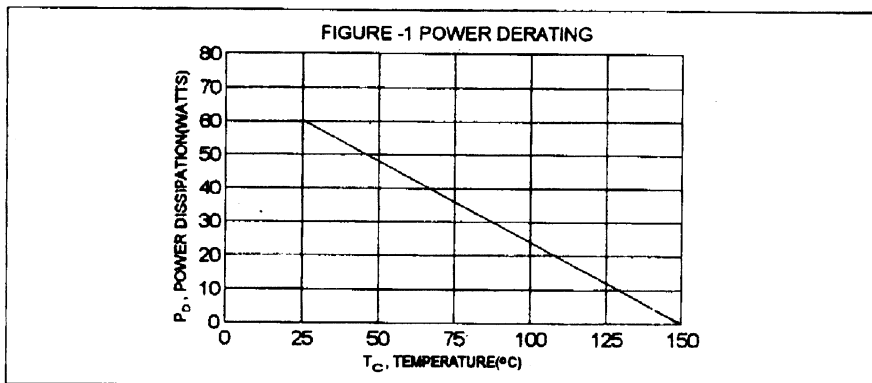
| Characteristic  | Symbol         | BU806        | BU807 | Unit                     |
|---|----------------|--------------|-------|--------------------------|
| Collector-Emitter Voltage   | $V_{CEO}$      | 200          | 150   | V                        |
| Collector-Base Voltage  | $V_{CBO}$      | 400          | 330   | V                        |
| Emitter-Base Voltage  | $V_{EBO}$      | 6.0          |       | V                        |
| Collector Current - Continuous<br>- Peak  | $I_C$          | 8.0<br>15    |       | A                        |
| Base Current - Continuous   | $I_B$          | 2.0          |       | A                        |
| Total Power Dissipation @ $T_C = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$          | 60<br>0.48   |       | W<br>W/ $^\circ\text{C}$ |
| Operating and Storage Junction<br>Temperature Range                                   | $T_J, T_{STG}$ | - 65 to +150 |       | $^\circ\text{C}$         |



PIN 1. BASE  
2. COLLECTOR  
3. EMITTER  
4. COLLECTOR(CASE)

### THERMAL CHARACTERISTICS

| Characteristic                      | Symbol          | Max  | Unit               |
|-------------------------------------|-----------------|------|--------------------|
| Thermal Resistance Junction to Case | $R_{\theta jc}$ | 2.08 | $^\circ\text{C/W}$ |



| DIM | MILLIMETERS |       |
|-----|-------------|-------|
|     | MIN         | MAX   |
| A   | 14.68       | 15.31 |
| B   | 9.78        | 10.42 |
| C   | 5.01        | 6.52  |
| D   | 13.06       | 14.62 |
| E   | 3.57        | 4.07  |
| F   | 2.42        | 3.66  |
| G   | 1.12        | 1.36  |
| H   | 0.72        | 0.96  |
| I   | 4.22        | 4.98  |
| J   | 1.14        | 1.38  |
| K   | 2.20        | 2.97  |
| L   | 0.33        | 0.55  |
| M   | 2.48        | 2.98  |
| O   | 3.70        | 3.90  |



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

**Quality Semi-Conductors**

**ELECTRICAL CHARACTERISTICS** (  $T_c = 25^\circ\text{C}$  unless otherwise noted )

| Characteristic | Symbol | Min | Max | Unit |
|----------------|--------|-----|-----|------|
|----------------|--------|-----|-----|------|

**OFF CHARACTERISTICS**

|  |                |               |            |    |
|--|----------------|---------------|------------|----|
| Collector - Emitter Sustaining Voltage (1)<br>( $I_c = 100\text{ mA}$ , $I_B = 0$ )                                  | BU807<br>BU806 | $V_{CE(sus)}$ | 150<br>200 | V  |
| Collector Cutoff Current<br>( $V_{CE} = 330\text{ V}$ , $V_{BE} = 0$ )<br>( $V_{CE} = 400\text{ V}$ , $V_{BE} = 0$ ) | BU807<br>BU806 | $I_{CES}$     | 0.1<br>0.1 | mA |
| Emitter Cutoff Current<br>( $V_{EB} = 8.0\text{ V}$ , $I_c = 0$ )  |                | $I_{EBO}$     | 3.0        | mA |

**ON CHARACTERISTICS (1)**

|   |  |               |     |   |
|---|--|---------------|-----|---|
| Collector - Emitter Saturation Voltage<br>( $I_c = 5.0\text{ A}$ , $I_B = 50\text{ mA}$ ) |  | $V_{CE(sat)}$ | 1.5 | V |
| Base - Emitter Saturation Voltage<br>( $I_c = 5.0\text{ A}$ , $I_B = 50\text{ mA}$ )      |  | $V_{BE(sat)}$ | 2.4 | V |
| Diode Forward Voltage<br>( $I_F = 4.0\text{ A}$ )   |  | $V_F$         | 2.0 | V |

**SWITCHING CHARACTERISTICS**

|              |   |          |           |    |
|--------------|---|----------|-----------|----|
| Turn On Time | $V_{CC} = 100\text{V}$ , $I_c = 5.0\text{A}$<br>$I_{B1} = 50\text{mA}$ , $I_{B2} = -500\text{mA}$<br>$V_{CC} = 100\text{V}$ | $t_{on}$ | 0.35(typ) | us |
| Storage Time |   | $t_s$    | 0.55(typ) | us |
| Fall Time    |   | $t_f$    | 0.20(typ) | us |

(1) Pulse Test: Pulse width  $\leq 300\text{ us}$ , Duty Cycle  $\leq 2.0\%$