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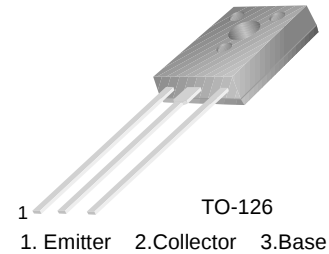
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## MJE800/801/802/803

### Monolithic Construction With Built-in Base-Emitter Resistors

- High DC Current Gain :  $h_{FE} = 750$  (Min.) @  $I_C = 1.5$  and 2.0A DC
- Complement to MJE700/701/702/703

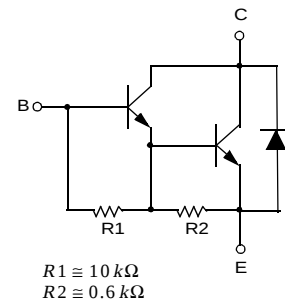


### NPN Epitaxial Silicon Darlington Transistor

#### Absolute Maximum Ratings $T_C = 25^\circ\text{C}$ unless otherwise noted

| Symbol    | Parameter                                          | Value        | Units            |
|-----------|----------------------------------------------------|--------------|------------------|
| $V_{CBO}$ | Collector- Base Voltage                            | : MJE800/801 | 60 V             |
|           |                                                    | : MJE802/803 | 80 V             |
| $V_{CEO}$ | Collector-Emitter Voltage                          | : MJE800/801 | 60 V             |
|           |                                                    | : MJE802/803 | 80 V             |
| $V_{EBO}$ | Emitter-Base Voltage                               | 5            | V                |
| $I_C$     | Collector Current                                  | 4            | A                |
| $I_B$     | Base Current                                       | 0.1          | A                |
| $P_C$     | Collector Dissipation ( $T_C = 25^\circ\text{C}$ ) | 40           | W                |
| $T_J$     | Junction Temperature                               | 150          | $^\circ\text{C}$ |
| $T_{STG}$ | Storage Temperature                                | - 55 ~ 150   | $^\circ\text{C}$ |

Equivalent Circuit



#### Electrical Characteristics $T_C = 25^\circ\text{C}$ unless otherwise noted

| Symbol        | Parameter                            | Test Condition                                                                                                              | Min. | Max. | Units         |
|---------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|------|------|---------------|
| $BV_{CEO}$    | Collector-Emitter Breakdown Voltage  | $I_C = 50\text{mA}$ , $I_B = 0$                                                                                             | 60   |      | V             |
|               |                                      |                                                                                                                             | 80   |      | V             |
| $I_{CEO}$     | Collector Cut-off Current            | $V_{CE} = 60\text{V}$ , $I_B = 0$<br>$V_{CE} = 80\text{V}$ , $I_B = 0$                                                      |      | 100  | $\mu\text{A}$ |
|               |                                      |                                                                                                                             |      | 100  | $\mu\text{A}$ |
| $I_{CBO}$     | Collector Cut-off Current            | $V_{CB} = \text{Rated } BV_{CEO}$ , $I_E = 0$<br>$V_{CB} = \text{Rated } BV_{CEO}$ , $I_E = 0$<br>$T_C = 100^\circ\text{C}$ |      | 100  | $\mu\text{A}$ |
|               |                                      |                                                                                                                             |      | 500  | $\mu\text{A}$ |
| $I_{EBO}$     | Emitter Cut-off Current              | $V_{BE} = 5\text{V}$ , $I_C = 0$                                                                                            |      | 2    | mA            |
| $h_{FE}$      | DC Current Gain                      | $V_{CE} = 3\text{V}$ , $I_C = 1.5\text{A}$                                                                                  | 750  |      |               |
|               |                                      | $V_{CE} = 3\text{V}$ , $I_C = 2\text{A}$                                                                                    | 750  |      |               |
|               |                                      | $V_{CE} = 3\text{V}$ , $I_C = 4\text{A}$                                                                                    | 100  |      |               |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 1.5\text{A}$ , $I_B = 30\text{mA}$                                                                                   |      | 2.5  | V             |
|               |                                      | $I_C = 2\text{A}$ , $I_B = 40\text{mA}$                                                                                     |      | 2.8  | V             |
|               |                                      | $I_C = 4\text{A}$ , $I_B = 40\text{mA}$                                                                                     |      | 3    | V             |
|               |                                      |                                                                                                                             |      |      |               |
| $V_{BE(on)}$  | Base-Emitter ON Voltage              | $V_{CE} = 3\text{V}$ , $I_C = 1.5\text{A}$                                                                                  |      | 2.5  | V             |
|               |                                      | $V_{CE} = 3\text{V}$ , $I_C = 2\text{A}$                                                                                    |      | 2.5  | V             |
|               |                                      | $V_{CE} = 3\text{V}$ , $I_C = 4\text{A}$                                                                                    |      | 3    | V             |
|               |                                      |                                                                                                                             |      |      |               |

## Typical Characteristics

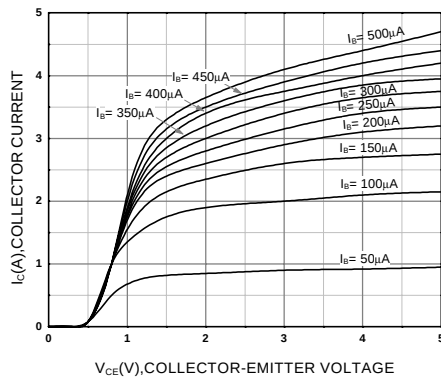


Figure 1. Static Characteristic

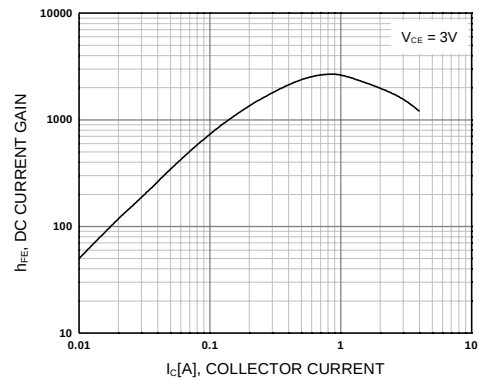


Figure 2. DC current Gain

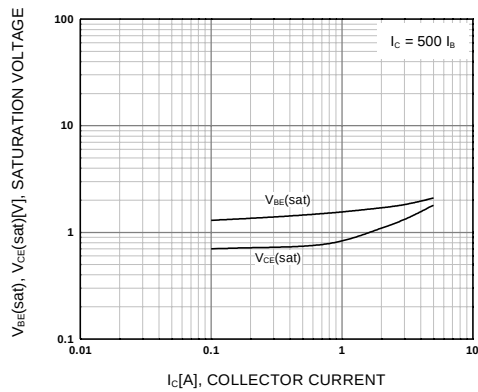


Figure 3. Collector-Emitter Saturation Voltage  
Base-Emitter Saturation Voltage

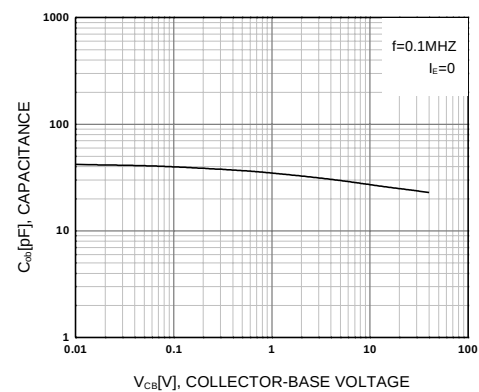


Figure 4. Collector Output Capacitance

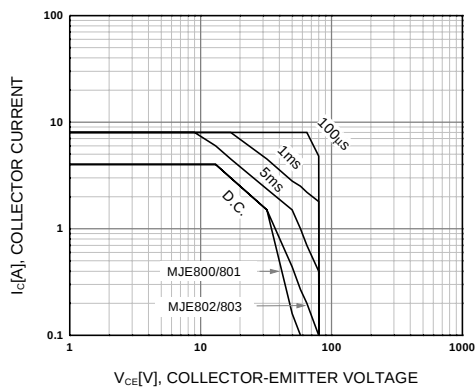


Figure 5. Safe Operating Area

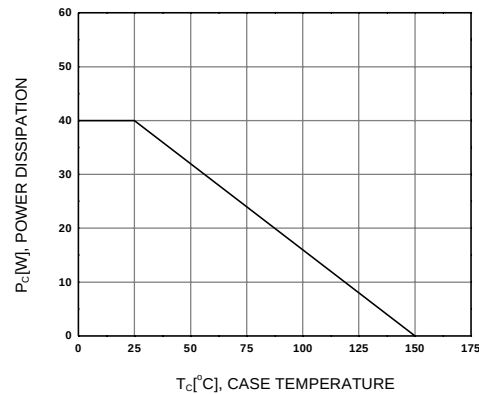
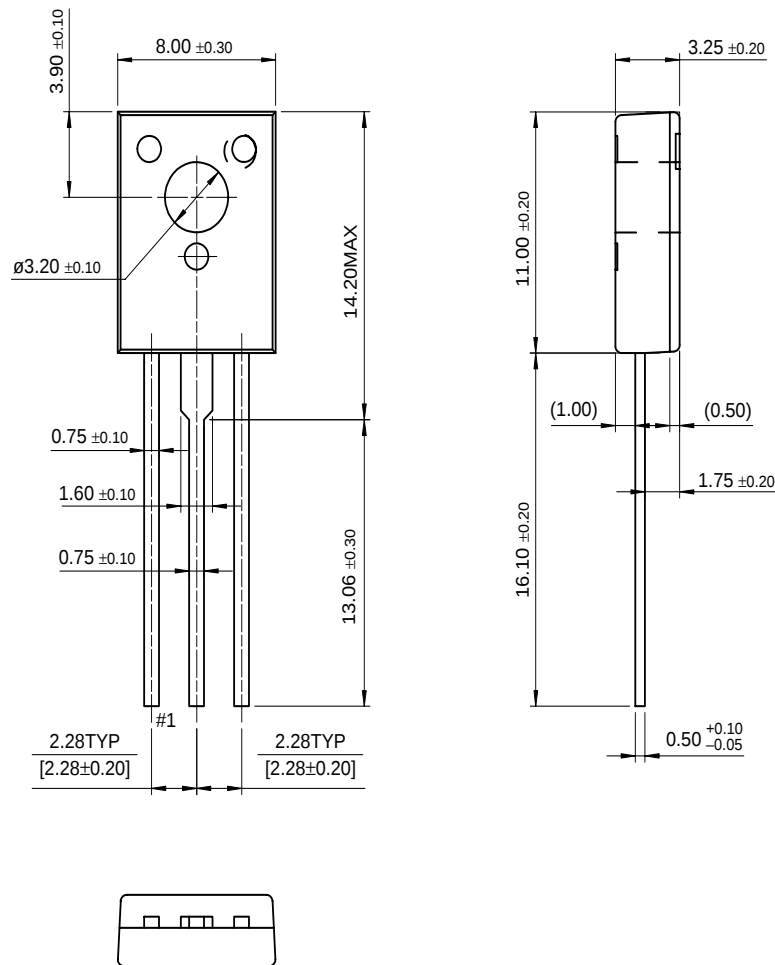


Figure 6. Power Derating

# Package Dimensions

## TO-126



Dimensions in Millimeters

MJE800/801/802/803

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