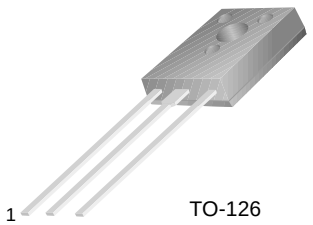
FAIRCHILD SEMICONDUCTOR™

# MJE700/701/702/703

## 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 MJE800/801/802/803




TO-126

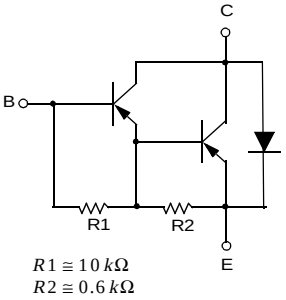
1. Emitter 2.Collector 3.Base

## PNP Epitaxial Silicon Darlington Transistor

### Absolute Maximum Ratings $T_C$=25°C unless otherwise noted

| Sym-bol | Parameter | Value | Units |
|---|---|---|---|
| $V_{CBO}$ | Collector- Base Voltage : MJE700/701 | - 60 | V |
| | : MJE702/703 | - 80 | V |
| $V_{CEO}$ | Collector-Emitter Voltage : MJE700/701 | - 60 | V |
| | : MJE702/703 | - 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°C) | 40 | W |
| $T_J$ | Junction Temperature | 150 | °C |
| $T_{STG}$ | Storage Temperature | - 55 ~ 150 | °C |

Equivalent Circuit




$R1 \cong 10\,k\Omega$
$R2 \cong 0.6\,k\Omega$

### Electrical Characteristics $T_C$=25°C unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Max. | Units |
|---|---|---|---|---|---|
| $BV_{CEO}$ | Collector-Emitter Breakdown Voltage | | | | |
| | : MJE700/701 | $I_C$ = - 10mA, $I_B$ = 0 | -60 | | V |
| | : MJE702/703 | | -80 | | V |
| $I_{CEO}$ | Collector Cut-off Current | | | | |
| | : MJE700/701 | $V_{CE}$ = - 60V, $I_B$ = 0 | | -100 | μA |
| | : MJE702/703 | $V_{CE}$ = - 80V, $I_B$ = 0 | | -100 | μA |
| $I_{CBO}$ | Collector Cut-off Current | $V_{CB}$ = Rated $BV_{CEO}$, $I_E$ = 0 | | -100 | μA |
| | | $V_{CB}$ = Rated $BV_{CEO}$, $I_E$ = 0 $T_C$ = 100°C | | -500 | μA |
| $I_{EBO}$ | Emitter Cut-off Current | $V_{BE}$ = - 5V, $I_C$ = 0 | | -2 | mA |
| $h_{FE}$ | DC Current Gain | | | | |
| | : MJE700/702 | $V_{CE}$ = - 3V, $I_C$ = - 1.5A | 750 | | |
| | : MJE701/703 | $V_{CE}$ = - 3V, $I_C$ = - 2A | 750 | | |
| | : ALL DEVICES | $V_{CE}$ = - 3V, $I_C$ = - 4A | 100 | | |
| $V_{CE}$(sat) | Collector-Emitter Saturation Voltage | | | | |
| | : MJE700/702 | $I_C$ = - 1.5A, $I_B$ = - 30mA | | -2.5 | V |
| | : MJE701/703 | $I_C$ = - 2A, $I_B$ = - 40mA | | -2.8 | V |
| | : ALL DEVICES | $I_C$ = - 4A, $I_B$ = - 40mA | | -3 | V |
| $V_{BE}$(on) | Base-Emitter On Voltage | | | | |
| | : MJE700/702 | $V_{CE}$ = - 3V, $I_C$ = - 1.5A | | -1.2 | V |
| | : MJE701/703 | $V_{CE}$ = - 3V, $I_C$ = - 2A | | -2.5 | V |
| | : ALL DEVICES | $V_{CE}$ = - 3V, $I_C$ = - 4A | | -3 | V |

# Typical Characteristics

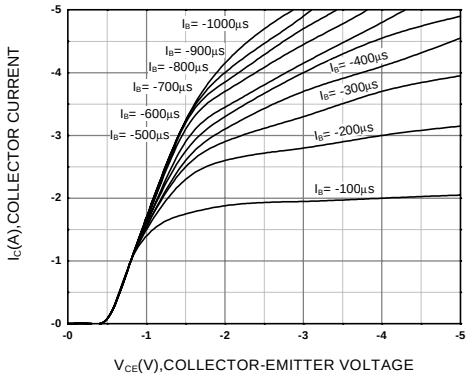



**Figure 1. Static Characteristic**

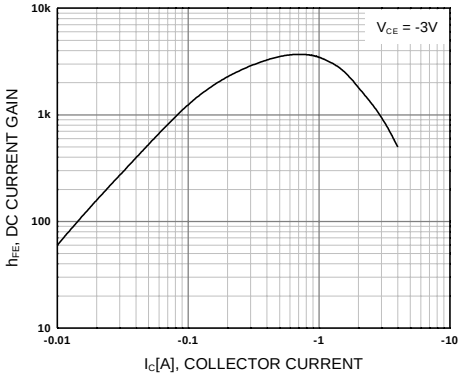



**Figure 2. DC current Gain**

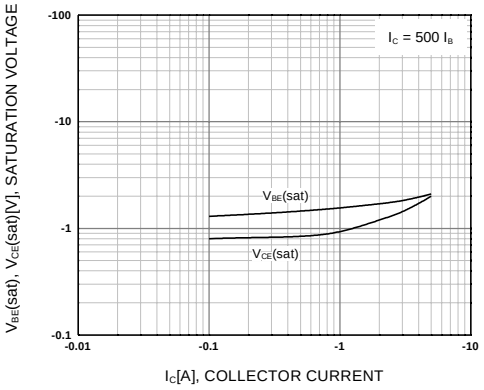



**Figure 3. Collector-Emitter Saturation Voltage Base-Emitter Saturation Voltage**

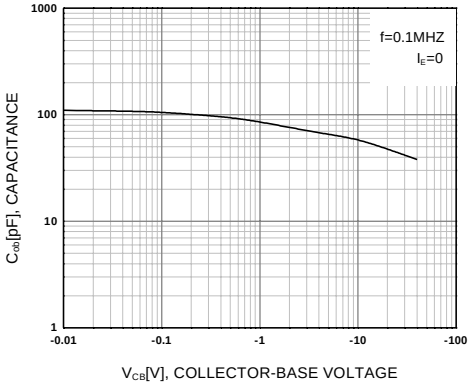



**Figure 4. Collector Output Capacitance**

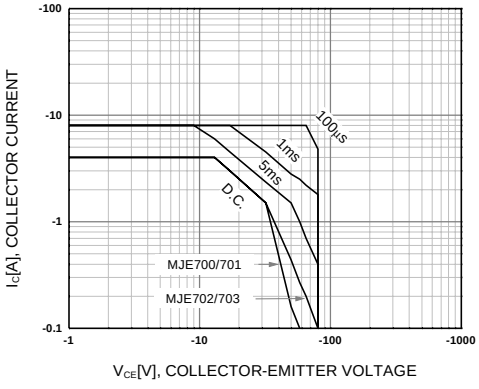



**Figure 5. Safe Operating Area**

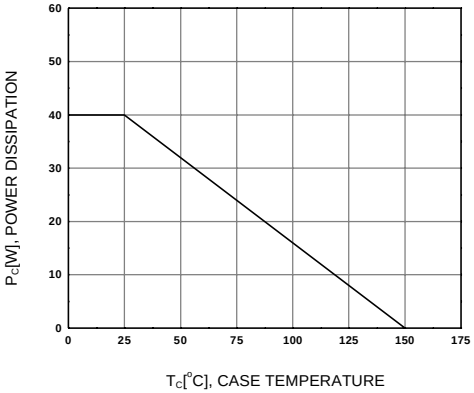
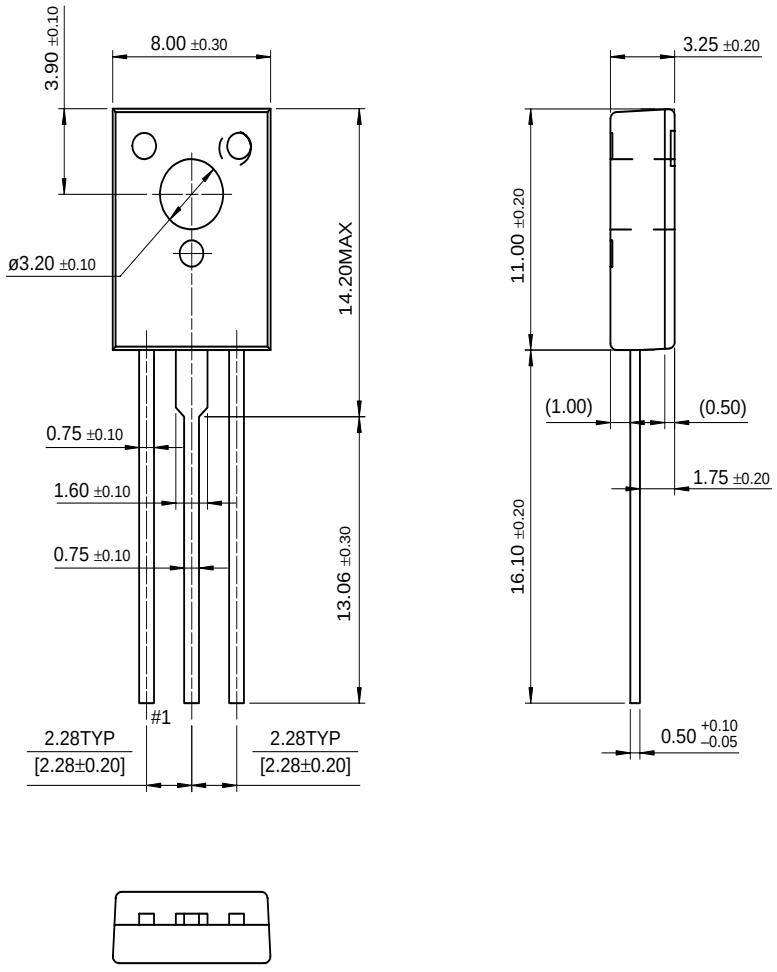



**Figure 6. Power Derating**

## Package Demensions

TO-126




Dimensions in Millimeters

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