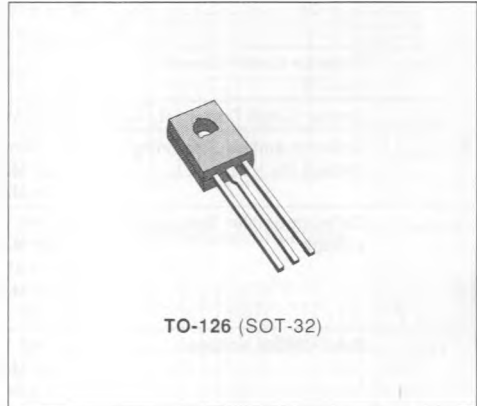


## MEDIUM POWER DARLINGTONS

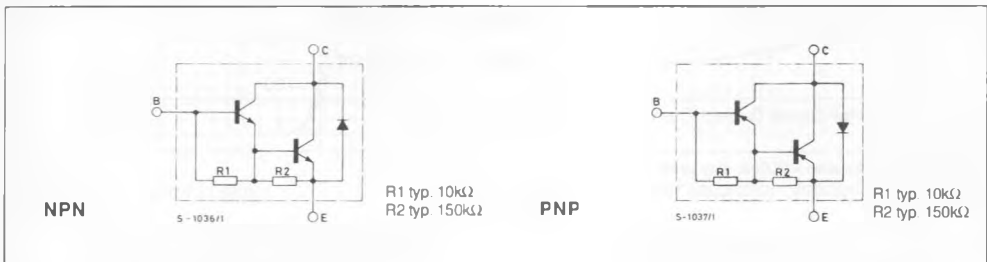
### DESCRIPTION

The MJE800, MJE801, MJE802 and MJE803 are silicon epitaxial-base NPN power transistors in monolithic Darlington configuration and are mounted in Jedec TO-126 plastic package. They are intended for use in medium power linear and switching applications.

The complementary PNP types are the MJE700, MJE701, MJE702 and MJE703 respectively.



### INTERNAL SCHEMATIC DIAGRAMS



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		MJE800/1 MJE700/1	MJE802/3 MJE702/3	
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )	60	80	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	60	80	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	5		V
$I_C$	Collector Current	4		A
$I_B$	Base Current	0.1		A
$P_{101}$	Total Power Dissipation at $T_{case} \leq 25^\circ\text{C}$	40		W
$T_{stg}$	Storage Temperature	- 65 to 150		$^\circ\text{C}$
$T_j$	Junction Temperature	150		$^\circ\text{C}$

For PNP types voltage and current values are negative.

**THERMAL DATA**

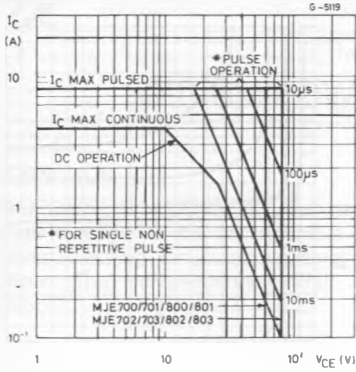
$R_{th(j-case)}$	Thermal Resistance Junction-case	Max	3.13	°C/W
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**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^{\circ}C$  unless otherwise specified)

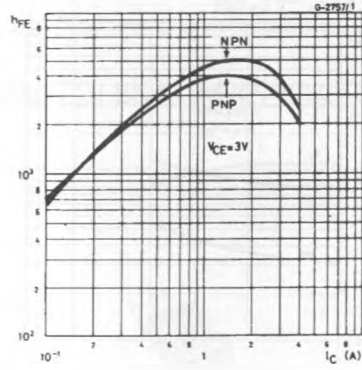
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	$V_{CB} = \text{rated } V_{CB0}$ $V_{CB} = \text{rated } V_{CB0}$ $T_{case} = 100^{\circ}C$			100 500	$\mu A$ $\mu A$
$I_{CEO}$	Collector Cutoff Current ( $I_B = 0$ )	$V_{CE} = \text{rated } V_{CEO}$			100	$\mu A$
$I_{EBO}$	Emitter Cutoff Current ( $I_C = 0$ )	$V_{EB} = 5V$			2	mA
$V_{CEO(sus)}$ *	Collector-emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = 50mA$ for <b>MJE800/1, MJE700/1</b> for <b>MJE802/3, MJE702/3</b>	60 80			V V
$V_{CE(sat)}$ *	Collector-emitter Saturation Voltage	$I_C = 4A$ $I_B = 40mA$ for <b>MJE800/2, MJE700/2</b> $I_C = 1.5A$ $I_B = 30mA$ for <b>MJE801/3, MJE701/3</b> $I_C = 2A$ $I_B = 40mA$			3 2.5 2.8	V V V
$V_{BE}$ *	Base-emitter Voltage	$I_C = 4A$ $V_{CE} = 3V$ for <b>MJE800/1, MJE700/1</b> $I_C = 1.5A$ $V_{CE} = 3V$ for <b>MJE801/3, MJE701/3</b> $I_C = 2A$ $V_{CE} = 3V$			3 2.5 2.5	V V V
$h_{FE}$ *	DC Current Gain	$I_C = 4A$ $V_{CE} = 3V$ for <b>MJE800/2, MJE700/2</b> $I_C = 1.5A$ $V_{CE} = 3V$ for <b>MJE801/3, MJE701/3</b> $I_C = 2A$ $V_{CE} = 3V$	100 750 750			
$h_{fe}$	Small Signal Current Gain	$I_C = 1.5A$ $V_{CE} = 3V$ $f = 1MHz$	1			

\* Pulsed . pulse duration = 300 $\mu s$ . duty cycle = 1.5%.

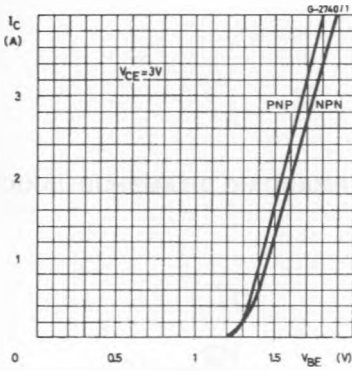
Safe Operating Areas.



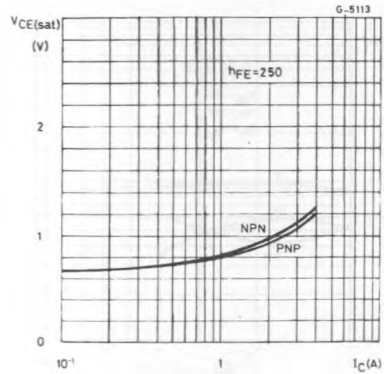
DCCurrent Gain.



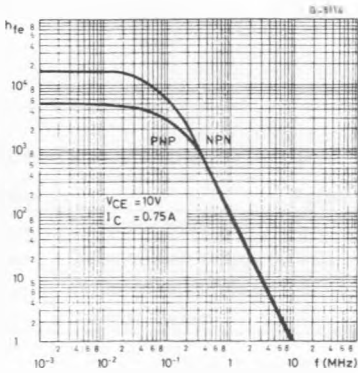
DC Transconductance.



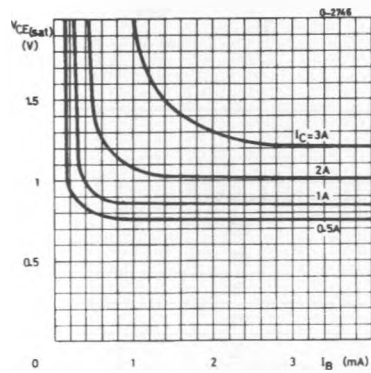
Collector-emitter Saturation Voltage.



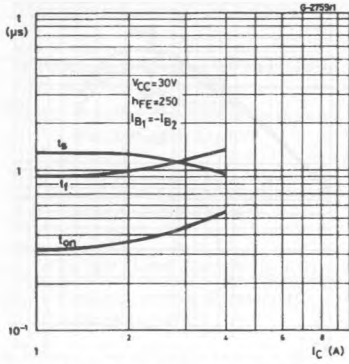
Small Signal Current Gain.



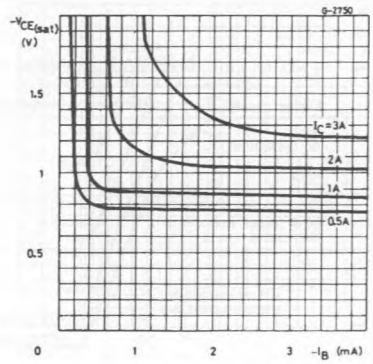
Collector-emitter Saturation Voltage (NPN).



Saturated Switching Characteristics (NPN).



Collector-emitter Saturation Voltage (PNP).



Collector-emitter Saturation Voltage (PNP).

