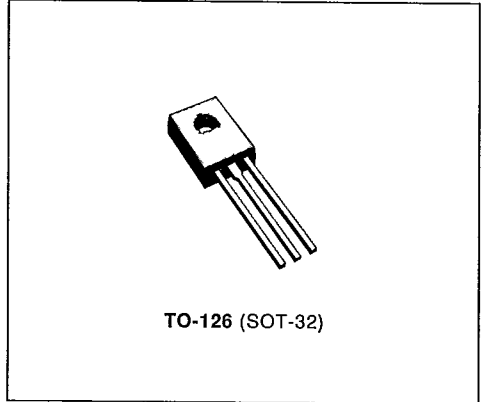


**MEDIUM POWER DARLINGTONS**

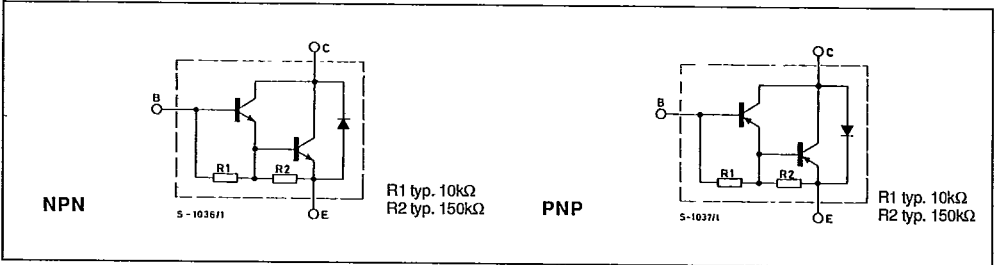
**DESCRIPTION**

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 <sub>CBO</sub>	Collector-base Voltage (I <sub>E</sub> = 0)	60	80	V
V <sub>CEO</sub>	Collector-emitter Voltage (I <sub>B</sub> = 0)	60	80	V
V <sub>EBO</sub>	Emitter-base Voltage (I <sub>C</sub> = 0)	5		V
I <sub>C</sub>	Collector Current	4		A
I <sub>B</sub>	Base Current	0.1		A
P <sub>tot</sub>	Total Power Dissipation at T <sub>case</sub> ≤ 25°C	40		W
T <sub>stg</sub>	Storage Temperature	- 65 to 150		°C
T <sub>j</sub>	Junction Temperature	150		°C

For PNP types voltage and current values are negative.

## THERMAL DATA

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R <sub>th j-case</sub>	Thermal Resistance Junction-case	Max	3.13	°C/W
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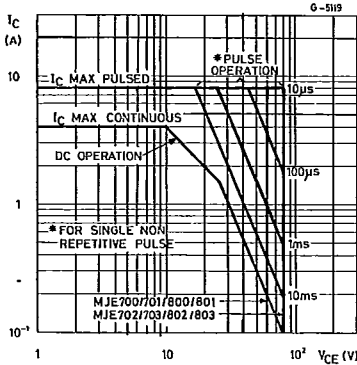
ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25°C unless otherwise specified)

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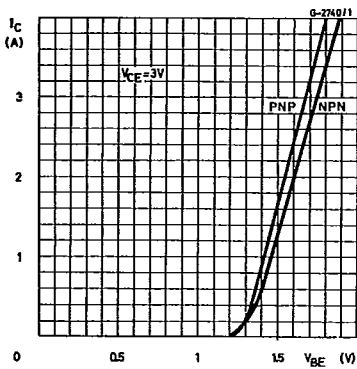
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CB0</sub>	Collector Cutoff Current (I <sub>E</sub> = 0)	V <sub>CB</sub> = rated V <sub>CB0</sub> V <sub>CB</sub> = rated V <sub>CB0</sub> T <sub>case</sub> = 100°C			100 500	μA μA
I <sub>CE0</sub>	Collector Cutoff Current (I <sub>B</sub> = 0)	V <sub>CE</sub> = rated V <sub>CE0</sub>			100	μA
I <sub>EBO</sub>	Emitter Cutoff Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5V			2	mA
V <sub>CE0(sus)</sub> *	Collector-emitter Sustaining Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 50mA for MJE800/1, MJE700/1 for MJE802/3, MJE702/3	60 80			V V
V <sub>CE(sat)</sub> *	Collector-emitter Saturation Voltage	I <sub>C</sub> = 4A    I <sub>B</sub> = 40mA for MJE800/2, MJE700/2 I <sub>C</sub> = 1.5A    I <sub>B</sub> = 30mA for MJE801/3, MJE701/3 I <sub>C</sub> = 2A    I <sub>B</sub> = 40mA			3 2.5 2.8	V V V
V <sub>BE</sub> *	Base-emitter Voltage	I <sub>C</sub> = 4A    V <sub>CE</sub> = 3V for MJE800/1, MJE700/1 I <sub>C</sub> = 1.5A    V <sub>CE</sub> = 3V for MJE801/3, MJE701/3 I <sub>C</sub> = 2A    V <sub>CE</sub> = 3V			3 2.5 2.5	V V V
h <sub>FE</sub> *	DC Current Gain	I <sub>C</sub> = 4A    V <sub>CE</sub> = 3V for MJE800/2, MJE700/2 I <sub>C</sub> = 1.5A    V <sub>CE</sub> = 3V for MJE801/3, MJE701/3 I <sub>C</sub> = 2A    V <sub>CE</sub> = 3V	100 750 750			
h <sub>fe</sub>	Small Signal Current Gain	I <sub>C</sub> = 1.5A    V <sub>CE</sub> = 3V f = 1MHz	1			

\* Pulsed : pulse duration = 300μs, duty cycle = 1.5%.

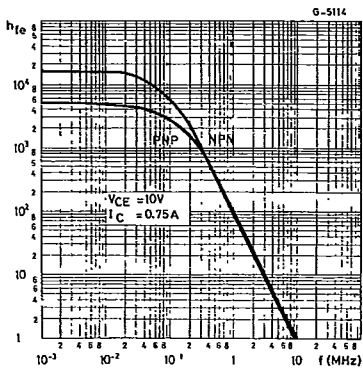
Safe Operating Areas.



DC Transconductance.

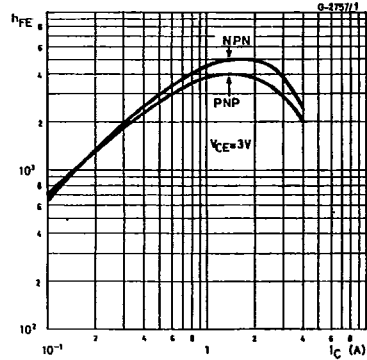


Small Signal Current Gain.

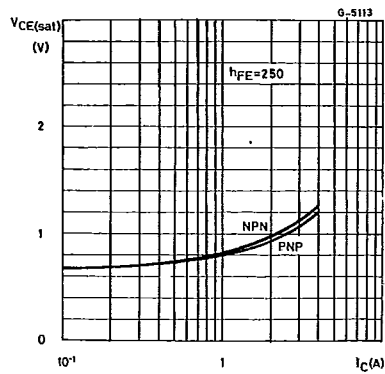


DCCurrent Gain.

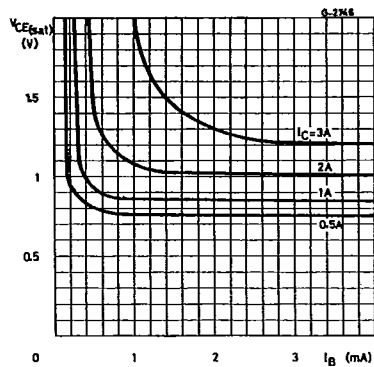
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Collector-emitter Saturation Voltage.



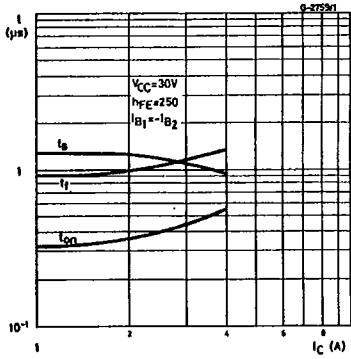
Collector-emitter Saturation Voltage (NPN).



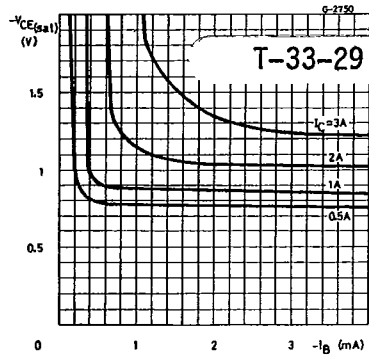
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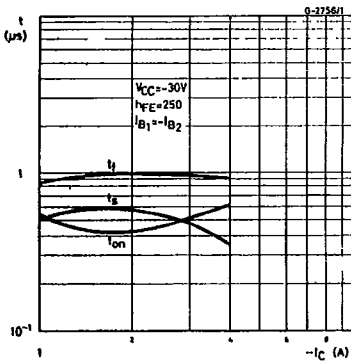
Saturated Switching Characteristics (NPN).



Collector-emitter Saturation Voltage (PNP).



Collector-emitter Saturation Voltage (PNP).



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