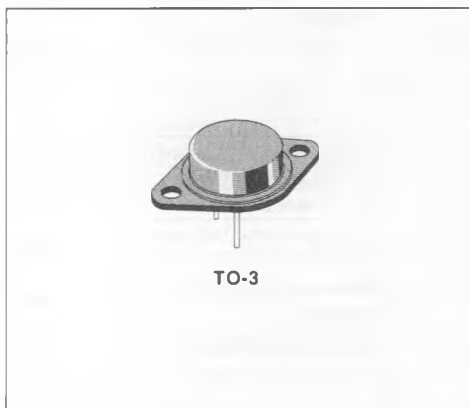


## COMPLEMENTARY HIGH POWER TRANSISTORS

### DESCRIPTION

The MJ802 (NPN) and MJ4502 (PNP) are silicon epitaxial-base complementary power transistors in TO-3 metal case, intended for general purpose power amplifier and switching applications.



### INTERNAL SCHEMATIC DIAGRAMS



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CE0}$	Collector-emitter Voltage ( $I_B = 0$ )	90	V
$V_{CB0}$	Collector-base Voltage ( $I_E = 0$ )	100	V
$V_{EB0}$	Emitter-base Voltage ( $I_C = 0$ )	4	V
$I_C$	Collector Current	30	A
$I_B$	Base Current	7.5	A
$P_{tot}$	Total Power Dissipation at $T_{case} \leq 25^\circ\text{C}$	200	W
$T_{stg}$	Storage Temperature	- 65 to 200	$^\circ\text{C}$
$T_j$	Junction Temperature	200	$^\circ\text{C}$

**THERMAL DATA**

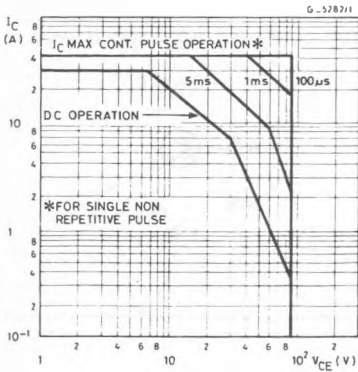
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	0.875	°C/W
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**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25\text{ °C}$  unless otherwise specified)

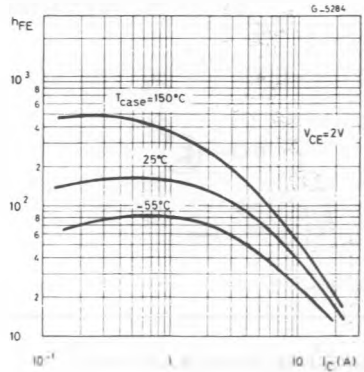
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{CE0(sus)}^*$	Collector-emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = 200\text{ mA}$	90			V
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	$V_{CB} = 100V$ $T_{case} = 150\text{ °C}$			1 5	mA mA
$I_{EBO}$	Emitter Cutoff Current ( $I_C = 0$ )	$V_{EB} = 4V$			1	mA
$V_{CER(sus)}^*$	Collector-emitter Sustaining Voltage ( $R_{BE} = 100\Omega$ )	$I_C = 200mA$	100			V
$h_{FE}^*$	DC Current Gain	$I_C = 7.5A$ $V_{CE} = 2V$	25		100	
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 7.5A$ $I_B = 0.75A$			0.8	V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 7.5A$ $I_B = 0.75A$			1.3	V
$V_{BE}^*$	Base-emitter Voltage	$I_C = 7.5A$ $V_{CE} = 2V$			1.3	V
$f_T$	Transition Frequency	$I_C = 1A$ $f = 1MHz$ $V_{CE} = 10V$	2			MHz

\* Pulsed : pulse duration = 300  $\mu s$ , duty cycle  $\leq 2\%$ .  
For PNP type voltage and current values are negative.

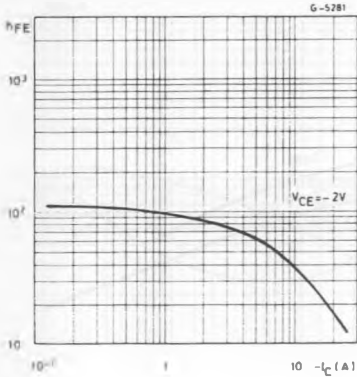
**Safe Operating Areas.**



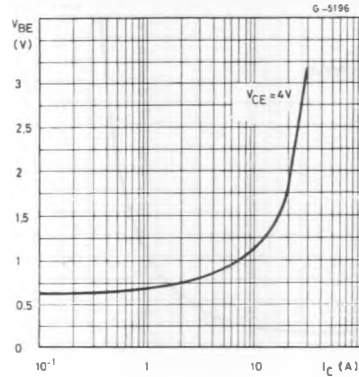
**DC Current Gain (NPN type).**



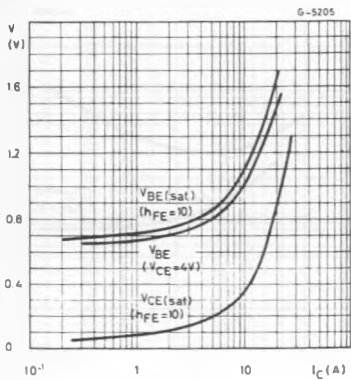
DC Current Gain (PNP type).



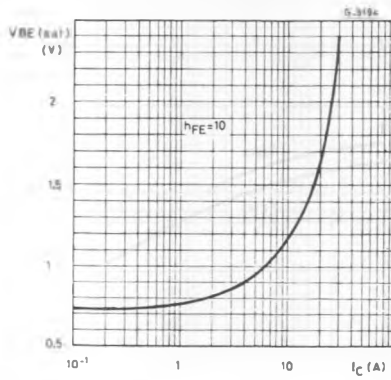
Base-emitter Voltage (PNP type).



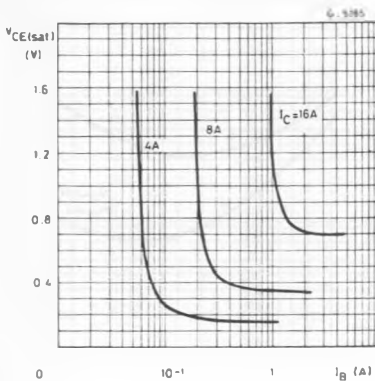
Saturation Voltage (NPN type).



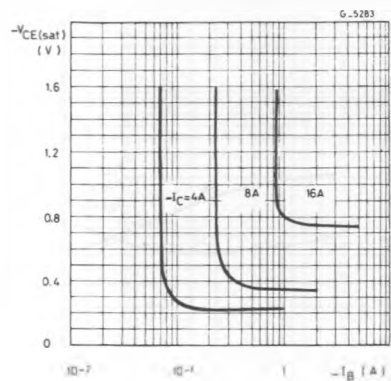
Base-emitter Saturation Voltage (PNP type).



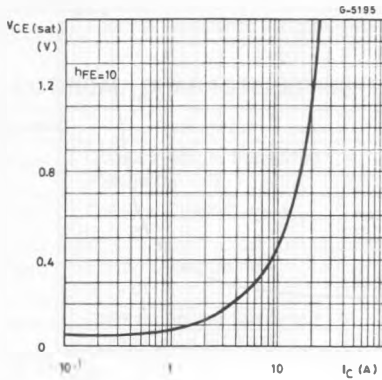
Collector-emitter Saturation Voltage (NPN type).



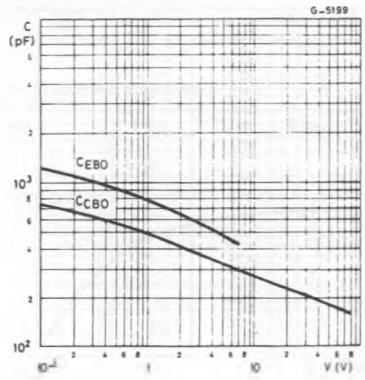
Collector-emitter Saturation Voltage (PNP type).



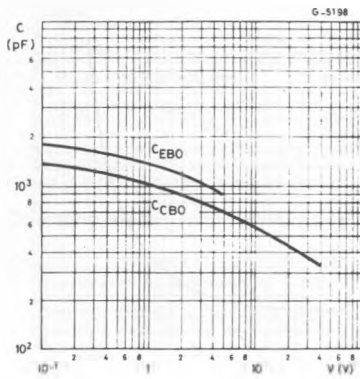
Collector-emitter Saturation Voltage (PNP type).



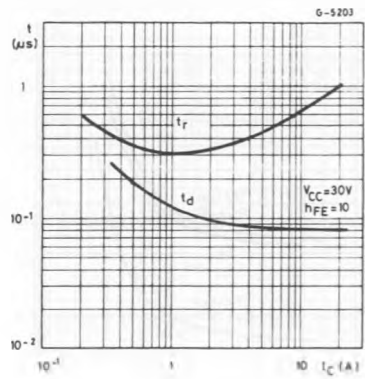
Capacitances (NPN type)



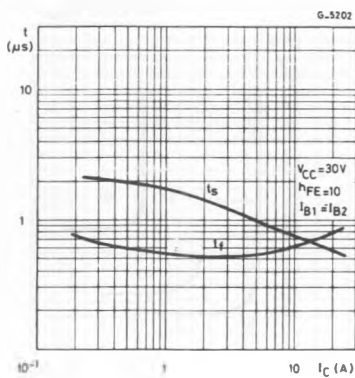
Capacitances (PNP type).



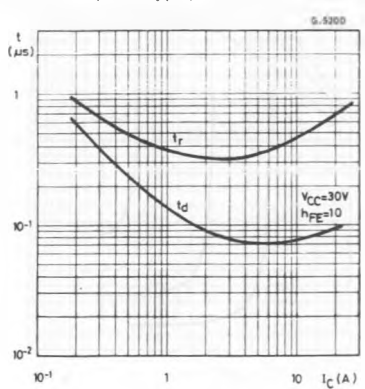
Turn-on Time (NPN type).



Turn-off Time (NPN type).



Turn-on Time (PNP type).



Turn-off Time (PNP type).

