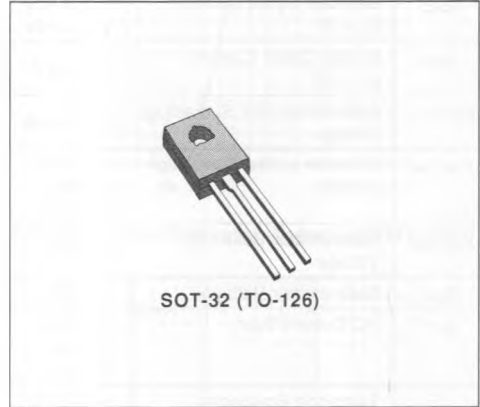




## COMPLEMENTARY POWER TRANSISTORS

### DESCRIPTION

- The MJE200 (NPN type) and MJE210 (PNP type)
- are silicon epitaxial-base transistors in Jedec
- TO-18 plastic package, designed for low voltage,
- low power, high gain audio amplifier applications.



### INTERNAL SCHEMATIC DIAGRAMS



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )	40	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	25	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	8	V
$I_C$	Collector Current	5	A
$I_{CM}$	Collector Peak Current	10	A
$I_B$	Base Current	1	A
$P_{tot}$	Total Power Dissipation at $T_{case} \leq 25^\circ\text{C}$ at $T_{amb} \leq 25^\circ\text{C}$	15	W
		1.5	W
$T_{stg}$	Storage Temperature	- 65 to 150	$^\circ\text{C}$
$T_J$	Junction Temperature	150	$^\circ\text{C}$

For PNP type voltage and current values are negative.

**THERMAL DATA**

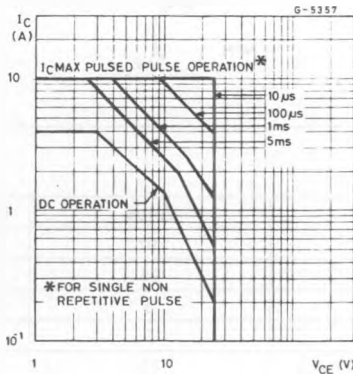
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	83.4	$^{\circ}C/W$
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	8.34	$^{\circ}C/W$

**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^{\circ}C$  unless otherwise specified)

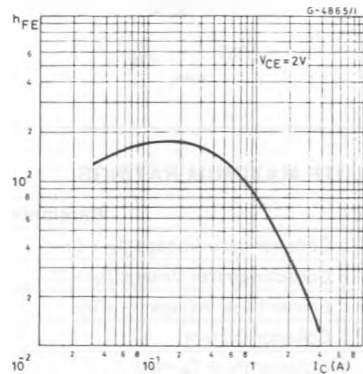
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	$V_{CB} = 40V$ $V_{CB} = 40V$	$T_{case} = 125^{\circ}C$			100 100	nA $\mu A$
$I_{EBO}$	Emitter Cutoff Current ( $I_C = 0$ )	$V_{EB} = 8V$				100	nA
$V_{CE(sus)^*}$	Collector-emitter Sustaining Voltage	$I_C = 10mA$		25			V
$V_{CE(sat)^*}$	Collector-emitter Saturation Voltage	$I_C = 0.5A$ $I_C = 2A$ $I_C = 5A$	$I_B = 50mA$ $I_B = 0.2A$ $I_B = 1A$			0.3 0.75 1.8	V V V
$V_{BE(sat)^*}$	Base-emitter Saturation Voltage	$I_C = 5A$	$I_B = 1A$			2.5	V
$V_{BE}^*$	Base-emitter Voltage	$I_C = 2A$	$V_{CE} = 1V$			1.6	V
$h_{FE}^*$	DC Current Gain	$I_C = 0.5A$ $I_C = 2A$ $I_C = 5A$	$V_{CE} = 1V$ $V_{CE} = 1V$ $V_{CE} = 2V$	70 45 10		180	
$f_T$	Transition Frequency	$I_C = 0.1A$ $f = 10MHz$	$V_{CE} = 10V$	65			MHz
$C_{CBO}$	Collector-base Capacitance	$V_{CB} = 10V ; I_E = 0 ; f = 0.1MHz$ for MJE200 for MJE201				80 120	pF pF

\* Pulsed : pulse duration = 300 $\mu s$ , duty cycle  $\leq 1.5\%$ .  
For PNP type voltage and current values are negative.

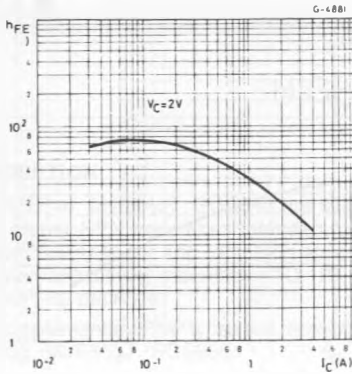
**Safe Operating Areas.**



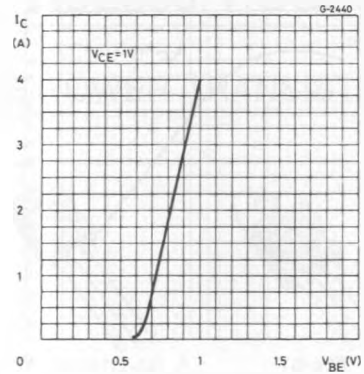
**DC Current Gain (NPN type).**



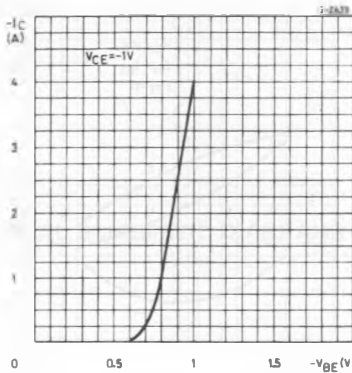
DC Current Gain (PNP type).



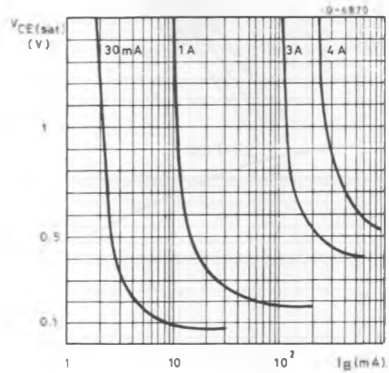
DC Transconductance (NPN type).



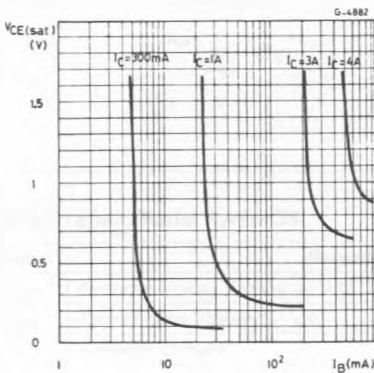
DC Transconductance (PNP type).



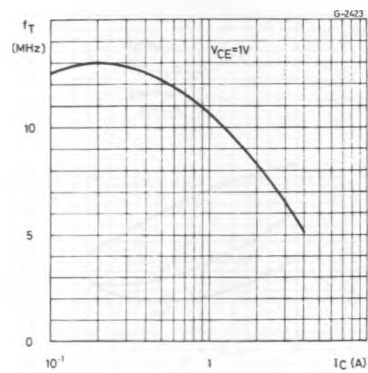
Collector-emitter Saturation Voltage (NPN type)



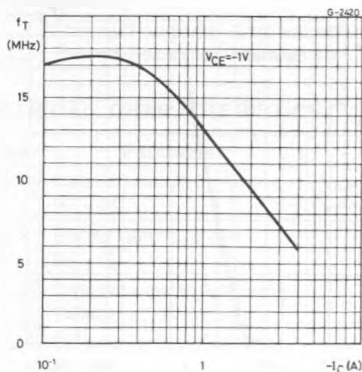
Collector-emitter Saturation Voltage (PNP type).



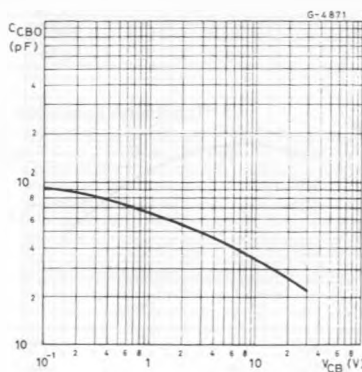
Transition Frequency (NPN type).



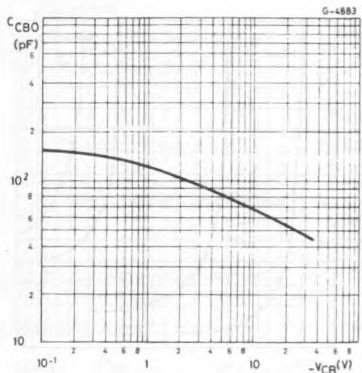
Transition Frequency (PNP type).



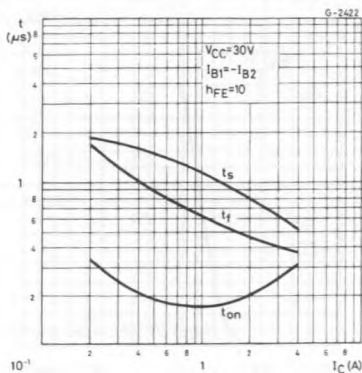
Collector-base Capacitance (NPN type).



Collector-base Capacitance (PNP type).



Saturated Switching Characteristics (NPN type).



Saturated Switching Characteristics (PNP type).

