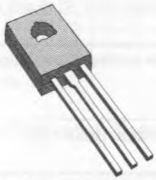
SGS-THOMSON
MICROELECTRONICS

MJE200
MJE210

COMPLEMENTARY POWER TRANSISTORS

DESCRIPTION

The MJE200 (NPN type) and MJE210 (PNP type) are silicon epitaxial-base transistors in Jedec TO-126 plastic package, designed for low voltage, low power, high gain audio amplifier applications.



SOT-32 (TO-126)

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 $T_{case} \leq 25°C$ at $T_{amb} \leq 25°C$	15 1.5	W W
T_{stg}	Storage Temperature	– 65 to 150	°C
T_j	Junction Temperature	150	°C

For PNP type voltage and current values are negative.

THERMAL DATA

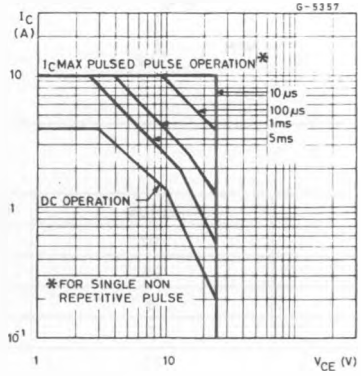
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	83.4	°C/W
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	8.34	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise specified)

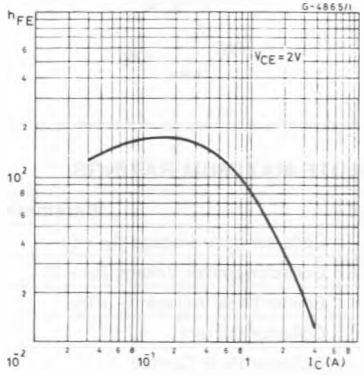
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current (I_E = 0)	V_{CB} = 40V V_{CB} = 40V	 T_{case} = 125°C			100 100	nA µA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	V_{EB} = 8V				100	nA
$V_{CEO\ (sus)}$*	Collector-emitter Sustaining Voltage	I_C = 10mA		25			V
$V_{CE\ (sat)}$*	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 = 300µs, duty cycle ≤ 1.5%.
For PNP type voltage and current values are negative.

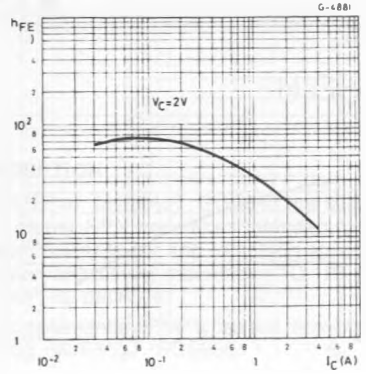
Safe Operating Areas.



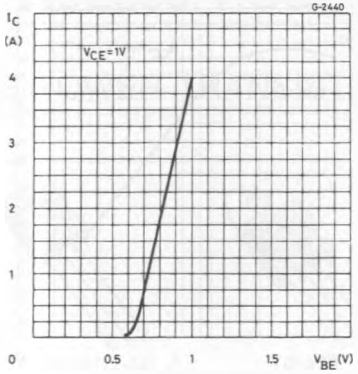
DC Current Gain (NPN type).



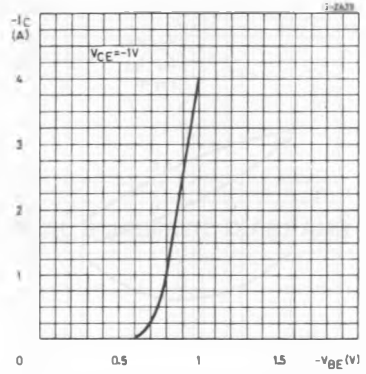
DC Current Gain (PNP type).



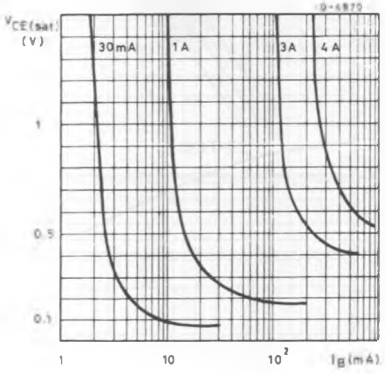
DC Transconductance (NPN type).



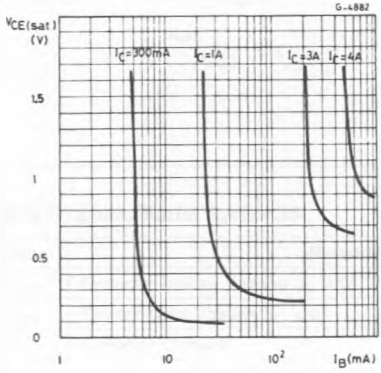
DC Transconductance (PNP type).



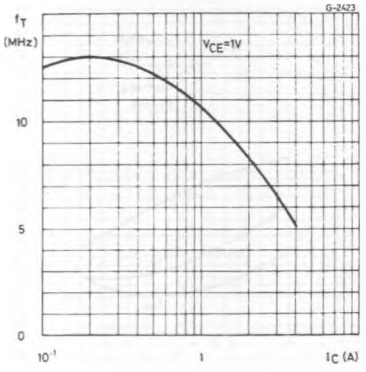
Collector-emitter Saturation Voltage (NPN type)



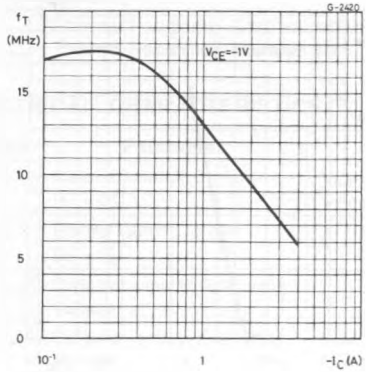
Collector-emitter Saturation Voltage (PNP type).



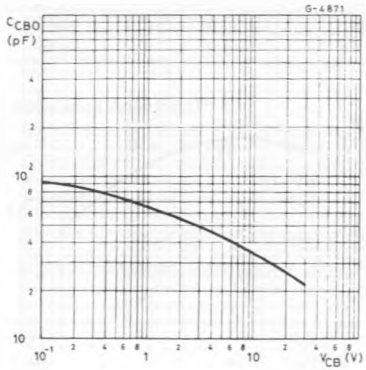
Transition Frequency (NPN type).



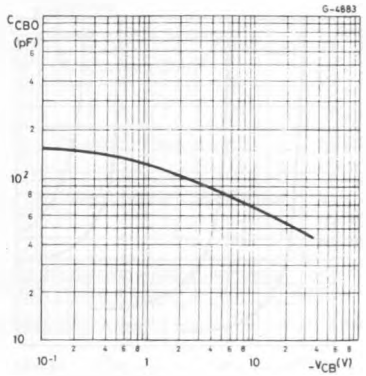
Transition Frequency (PNP type).



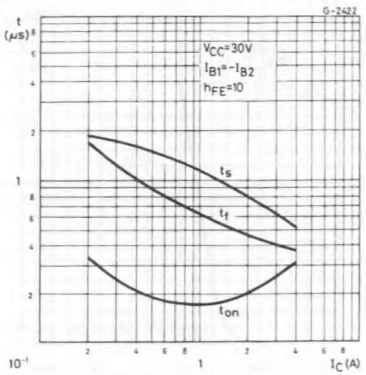
Collector-base Capacitance (NPN type).



Collector-base Capacitance (PNP type).



Saturated Switching Characteristics (NPN type)



Saturated Switching Characteristics (PNP type).