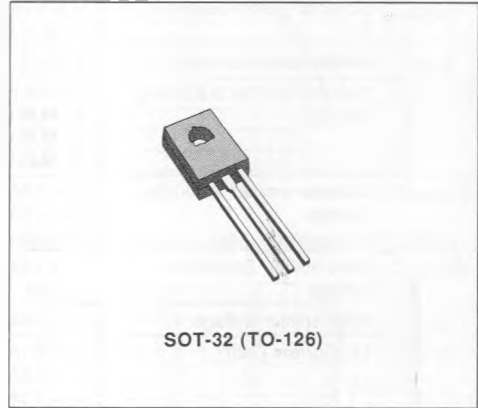


COMPLEMENTARY POWER TRANSISTORS

DESCRIPTION

The MJE 170, MJE171, MJE172 (PNP types) and MJE180, MJE181, MJE182 (NPN types) are silicon epitaxial planar, complementary transistors in Jedec TO-126 plastic package. they are designed for low power audio amplifier and low current, high speed switching applications.



INTERNAL SCHEMATIC DIAGRAMS



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	PNP NPN	Value			Unit
			MJE170 MJE180	MJE171 MJE181	MJE172 MJE182	
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)		40	60	80	V
V_{CBO}	Collector-base Voltage ($I_E = 0$)		60	80	100	V
V_{EBO}	Base-emitter Voltage ($I_C = 0$)		7			V
I_C	Collector Current		3			A
I_{CM}	Collector Peak Current		6			A
I_B	Base Current		1			A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^\circ C$		12.5			W
T_{stg}	Storage Temperature		- 65 to 150			$^\circ C$
T_J	Junction Temperature		150			$^\circ C$

For PNP types voltage and current values are negative.

THERMAL DATA

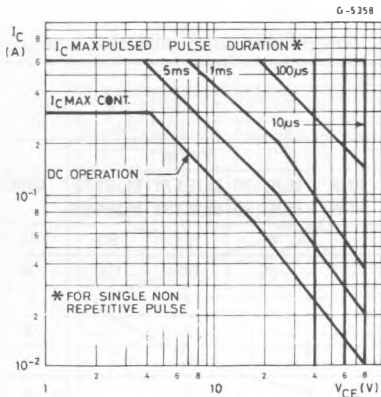
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	83.4	$^{\circ}C/W$
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	10	$^{\circ}C/W$

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

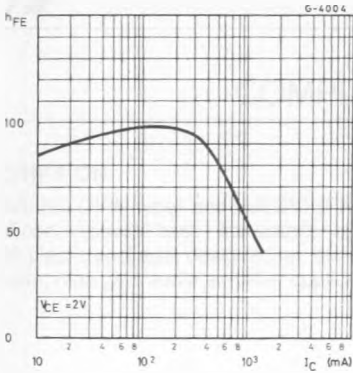
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current ($I_E = 0$)	$V_{CB} = \text{rated } V_{CBO}$ $T_{case} = 150^{\circ}C$			0.1 0.1	μA mA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 7\ V$			0.1	μA
$V_{CE(sus)}^*$	Collector-emitter Sustaining Voltage	$I_C = 10\ mA$ for MJE170, MJE180 for MJE171, MJE181 for MJE172, MJE182	40 60 80			V V V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 0.5A$ $I_B = 50mA$ $I_C = 1.5A$ $I_B = 0.15A$ $I_C = 3A$ $I_B = 0.6A$			0.3 0.9 1.7	V V V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 1.5A$ $I_B = 0.15A$ $I_C = 3A$ $I_B = 0.6A$			1.5 2	V V
V_{BE}^*	Base-emitter Voltage	$I_C = 0.5A$ $V_{CE} = 1V$			1.2	V
h_{FE}^*	DC Current Gain	$I_C = 0.1A$ $V_{CE} = 1V$ $I_C = 0.5A$ $V_{CE} = 1V$ $I_C = 1.5A$ $V_{CE} = 1V$	50 30 12		250	
f_T	Transition Frequency	$I_C = 0.1A$ $V_{CE} = 10V$ $f = 10MHz$	50			MHz
C_{CBO}	Collector-base Capacitance	$V_{CB} = 10V ; I_E = 0 ; f = 0.1MHz$ for MJE170, MJE172 for MJE180, MJE182			60 40	pF pF

* Pulsed : pulse duration = 300 μs , duty cycle < 1.5 %.
For PNP types voltage and current values are negative.

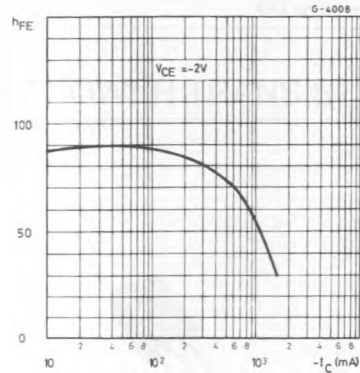
Safe Operating Areas.



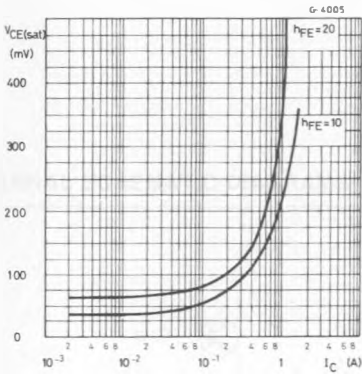
DC Current Gain (NPN types)



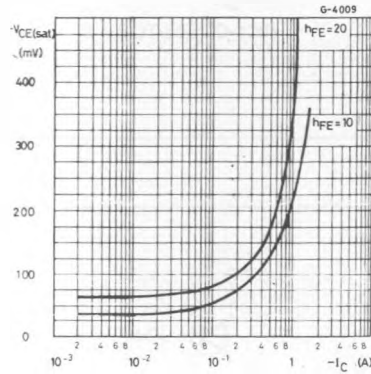
DC Current Gain (PNP types)



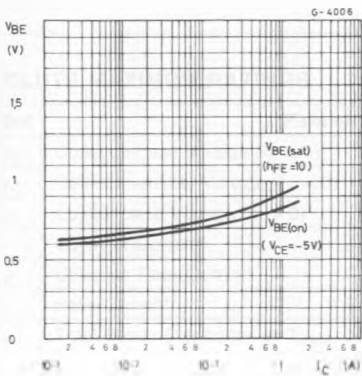
Collector-emitter saturation voltage (NPN types).



Collector-emitter Saturation Voltage (PNP types).



Base-emitter Voltage (NPN types).



Base-emitter Voltage (PNP types).

