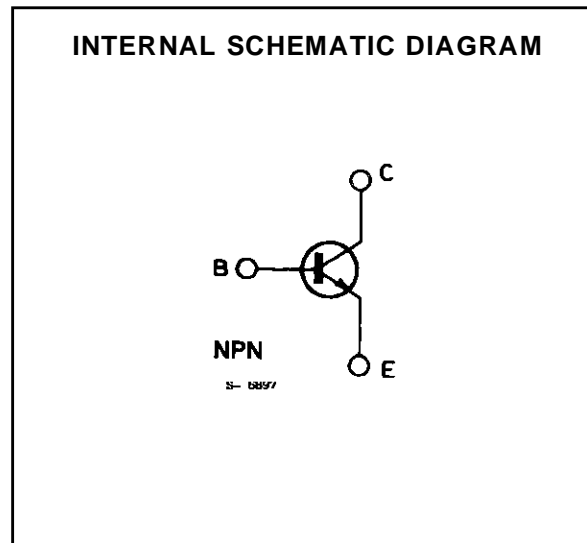
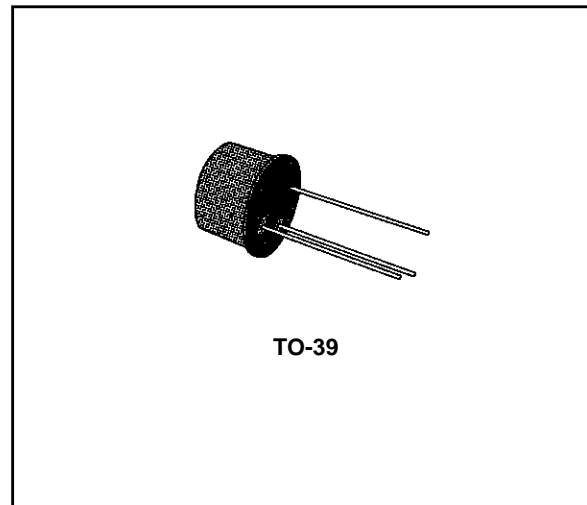


**RF AMPLIFIER**

**DESCRIPTION**

The 2N3137 is a silicon planar epitaxial NPN transistor in a TO-39 metal case. It is primarily designed for application as a Class-C, RF power amplifier. In addition to the large signal capabilities, the low noise and high transition frequency of the 2N3137 provide excellent performance in a variety of linear amplifier for telecommunication applications.



**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )	40	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	20	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	4	V
$P_{tot}$	Total Power Dissipation at $T_{amb} \leq 25\text{ }^\circ\text{C}$ at $T_{case} \leq 25\text{ }^\circ\text{C}$	0.6	W
		1	W
$T_{stg}, T_j$	Storage and Junction Temperature	- 65 to 200	$^\circ\text{C}$

## THERMAL DATA

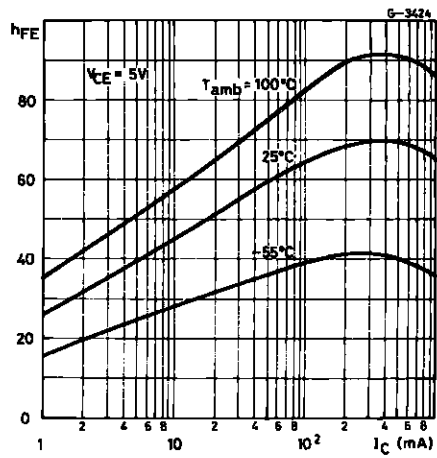
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	175	$^{\circ}C/W$
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	292	$^{\circ}C/W$

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

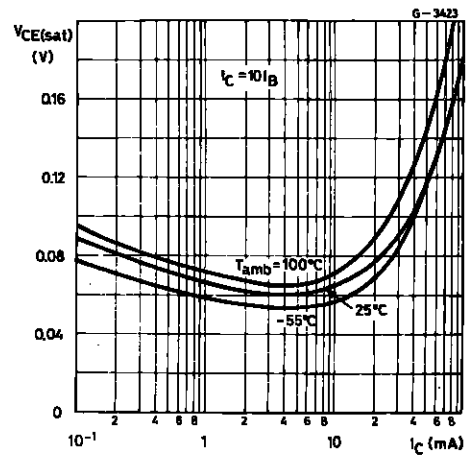
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	$V_{CB} = 20\ V$ $V_{CB} = 20\ V$ $T_{amb} = 150\ ^{\circ}C$		0.12 0.1	50 50	nA $\mu A$
$V_{(BR)CBO}$	Collector-base Breakdown Voltage ( $I_E = 0$ )	$I_C = 100\ \mu A$	40			V
$V_{CEO(sus)}^*$	Collector-emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = 15\ mA$	20			V
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage ( $I_C = 0$ )	$I_E = 100\ \mu A$	4			V
$V_{CE(sat)}$	Collector-emitter Saturation Voltage	$I_C = 50\ mA$ $I_B = 5\ mA$		0.12	0.3	V
$h_{FE}^*$	DC Current Gain	$I_C = 50\ mA$ $V_{CE} = 5\ V$	20	70	120	
$G_{pe}$	Power Gain (class-C)	$V_{CE} = 20\ V$ $f = 250\ MHz$ $P_i = 100\ mW$	6	7		dB
NF	Noise Figure	$V_{CE} = 10\ V$ $f = 200\ MHz$ $I_C = 30\ mA$ $R_g = 50\ \Omega$		4		dB
$C_{CBO}$	Collector-base Capacitance	$V_{CB} = 10\ V$ $f = 1\ MHz$		2.8	3.5	pF
$f_T$	Transition Frequency	$I_C = 50\ mA$ $V_{CE} = 10\ V$	500	750		MHz
$\eta$	Collector Efficiency	$V_{CE} = 20\ V$ $f = 250\ MHz$ $P_i = 100\ mW$	40	60		%

\* Pulsed : pulse duration = 300  $\mu s$ , duty cycle = 1 %.

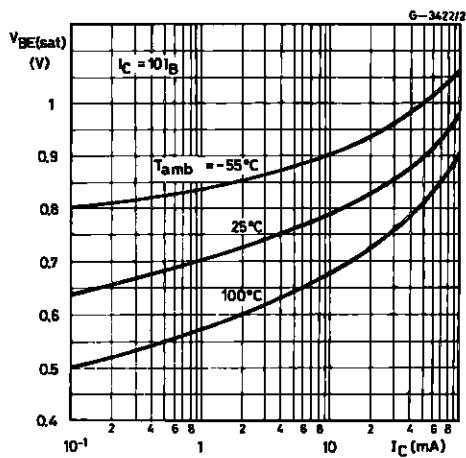
DC Current Gain.



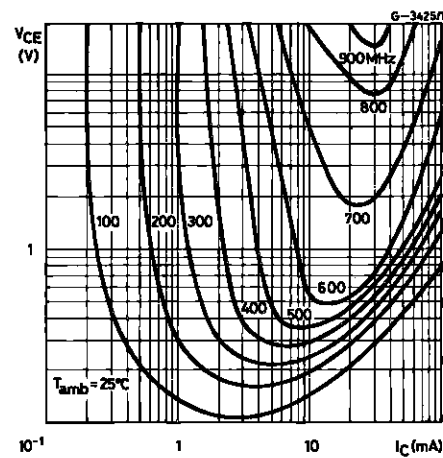
Collector-emitter Saturation Voltage.



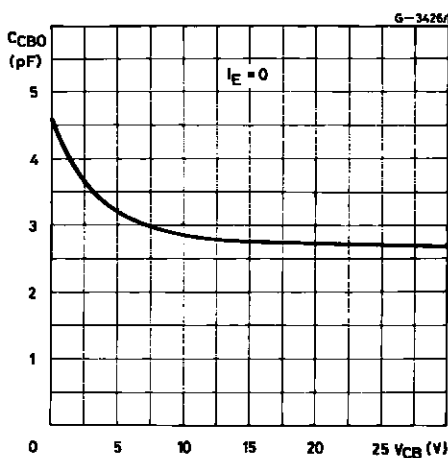
Base-emitter Saturation Voltage.



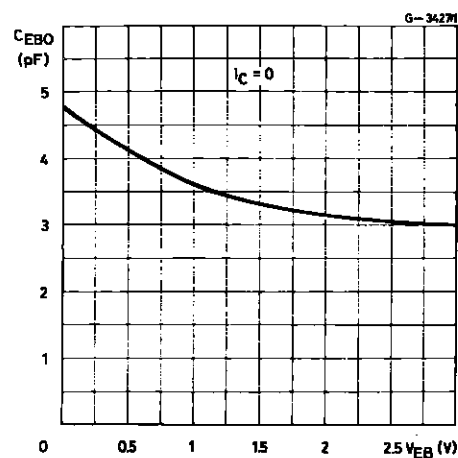
Contours of Constant Transition Frequency.



Collector-base capacitance.

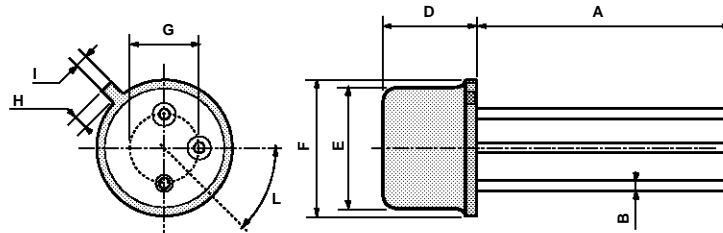


Emitter-base capacitance.



## TO39 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	12.7			0.500		
B			0.49			0.019
D			6.6			0.260
E			8.5			0.334
F			9.4			0.370
G	5.08			0.200		
H			1.2			0.047
I			0.9			0.035
L	45° (typ.)					



P008B

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