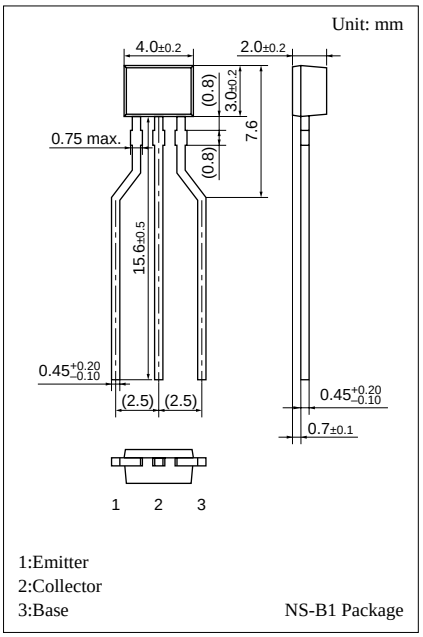
2SC3314

Silicon NPN epitaxial planer type

For high-frequency amplification
Complementary to 2SA1323



Features

- Optimum for high-density mounting.
- Allowing supply with the radial taping.
- Optimum for RF amplification of FM/AM radios.
- High transition frequency f_T.

Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	30	V
Collector to emitter voltage	V_{CEO}	20	V
Emitter to base voltage	V_{EBO}	5	V
Collector current	I_C	30	mA
Collector power dissipation	P_C	300	mW
Junction temperature	T_j	150	˚C
Storage temperature	T_{stg}	–55 ~ +150	˚C

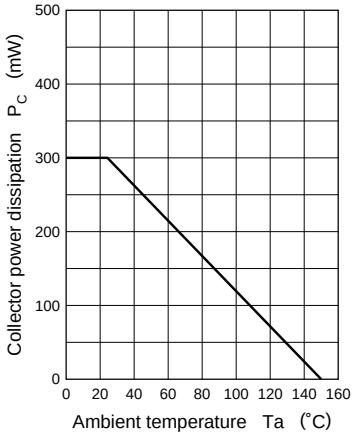
Electrical Characteristics (Ta=25˚C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector to base voltage	V_{CBO}	I_C = 10µA, I_E = 0	30			V
Collector to emitter voltage	V_{CEO}	I_C = 1mA, I_B = 0	20			V
Emitter to base voltage	V_{EBO}	I_E = 10µA, I_C = 0	5			V
Forward current transfer ratio	h_{FE}*	V_{CE} = 10V, I_C = 1mA	70		220	
Collector to emitter saturation voltage	$V_{CE(sat)}$	I_C = 10mA, I_B = 1mA		0.1		V
Base to emitter voltage	V_{BE}	V_{CE} = 10V, I_C = 1mA		0.7		V
Transition frequency	f_T	V_{CB} = 10V, I_E = –1mA, f = 200MHz	150	300		MHz
Noise figure	NF	V_{CB} = 10V, I_E = –1mA, f = 5MHz		2.8	4.0	dB
Common emitter reverse transfer capacitance	C_{re}	V_{CE} = 10V, I_C = 1mA, f = 10.7MHz			1.5	pF
Reverse transfer impedance	Z_{rb}	V_{CB} = 10V, I_E = –1mA, f = 2MHz			50	Ω

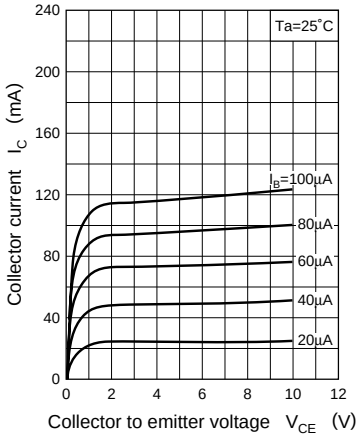
*h_{FE} Rank classification

Rank	B	C
h_{FE}	70 ~ 140	110 ~ 220

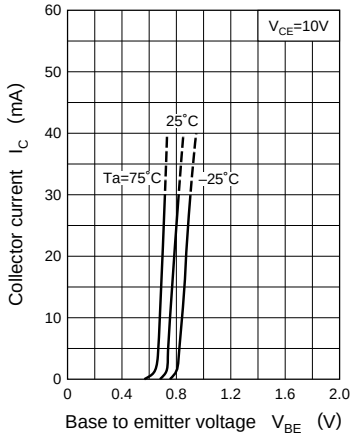
P_C — Ta



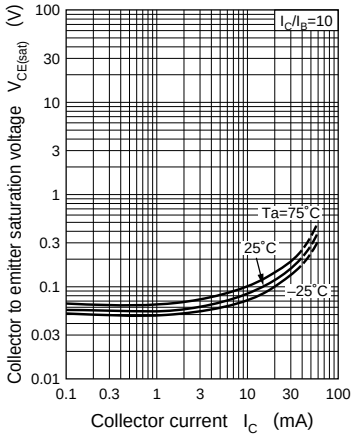
I_C — V_{CE}



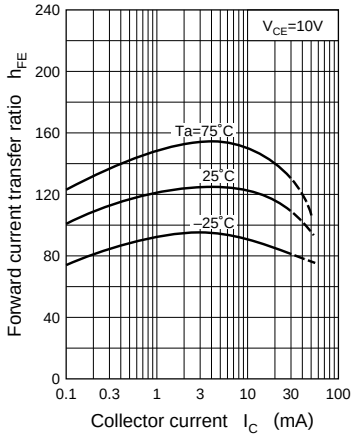
I_C — V_{BE}



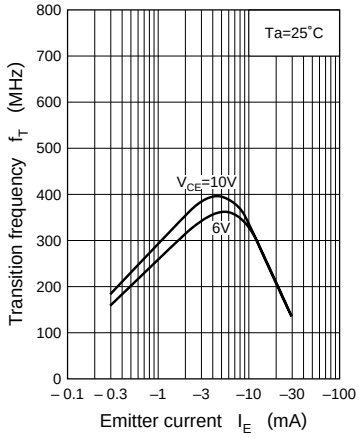
$V_{CE(sat)}$ — I_C



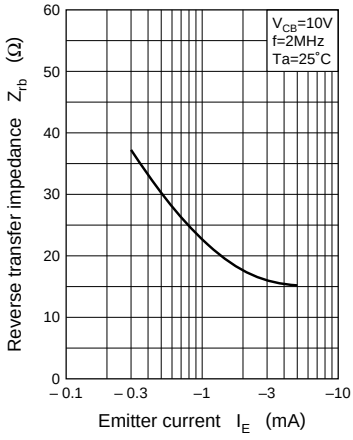
h_{FE} — I_C



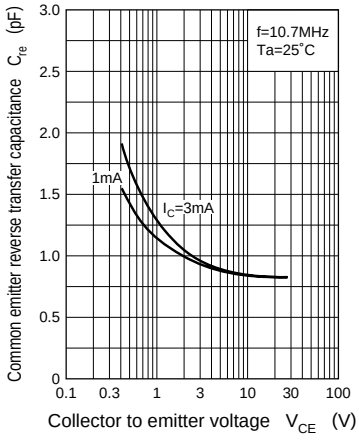
f_T — I_E



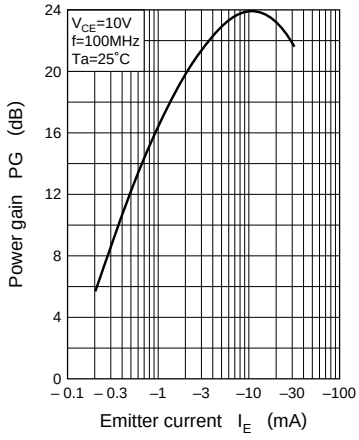
Z_{rb} — I_E



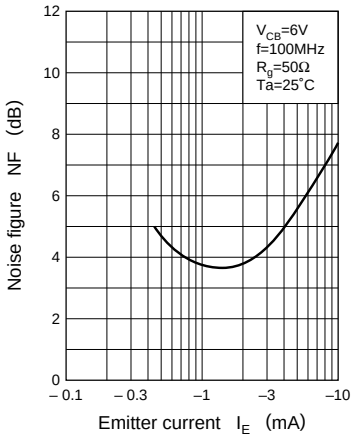
C_{re} — V_{CE}



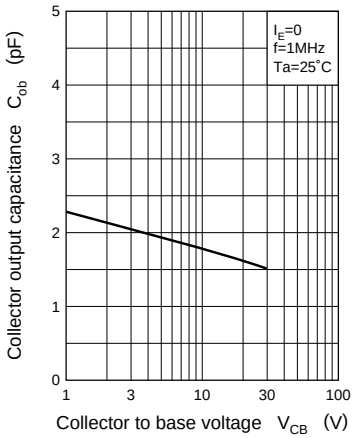
PG — I_E



$NF — I_E$


V_{CB}=6V
f=100MHz
R_g=50Ω
Ta=25˚C
Noise figure NF (dB)
12
10
8
6
4
2
0
– 0.1
– 0.3
–1
–3
–10
Emitter current I_E (mA)

$C_{ob} — V_{CB}$


I_E=0
f=1MHz
Ta=25˚C
Collector output capacitance C_{ob} (pF)
5
4
3
2
1
0
1
3
10
30
100
Collector to base voltage V_{CB} (V)

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