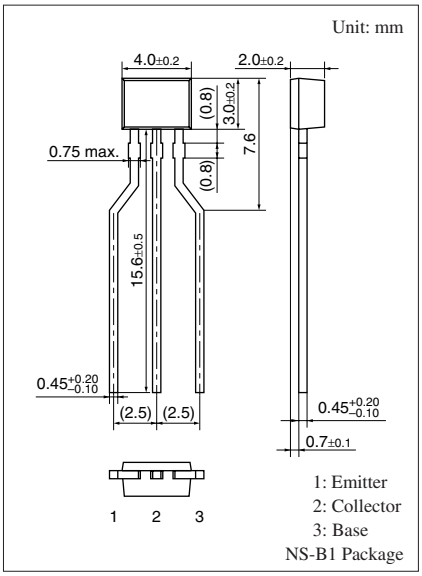
2SC3315

Silicon NPN epitaxial planar type

For high-frequency amplification



■ 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 $T_a = 25°C$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	30	V
Collector-emitter voltage (Base open)	V_{CEO}	20	V
Emitter-base voltage (Collector open)	V_{EBO}	3	V
Collector current	I_C	15	mA
Collector power dissipation	P_C	300	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

■ Electrical Characteristics $T_a = 25°C \pm 3°C$

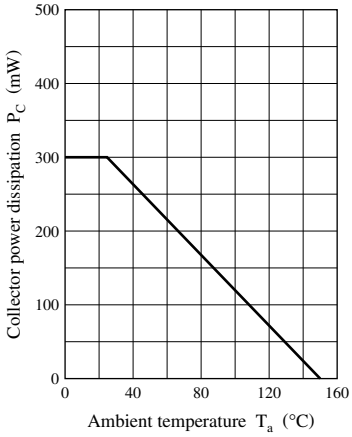
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	I_C = 10 µA, I_E = 0	30			V
Emitter-base voltage (Collector open)	V_{EBO}	I_E = 10 µA, I_C = 0	3			V
Base-emitter voltage	V_{BE}	V_{CB} = 6 V, I_E = −1 mA		720		mV
Forward current transfer ratio *	h_{FE}	V_{CB} = 6 V, I_E = −1 mA	65		260	—
Transition frequency	f_T	V_{CB} = 6 V, I_E = −1 mA, f = 200 MHz	450	650		MHz
Reverse transfer capacitance (Common emitter)	C_{re}	V_{CB} = 6 V, I_E = −1 mA, f = 10.7 MHz		0.8	1.0	pF
Power gain	G_P	V_{CB} = 6 V, I_E = −1 mA, f = 100 MHz	20	24		dB
Noise figure	NF	V_{CB} = 6 V, I_E = −1 mA, f = 100 MHz		3.3	5.0	dB

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

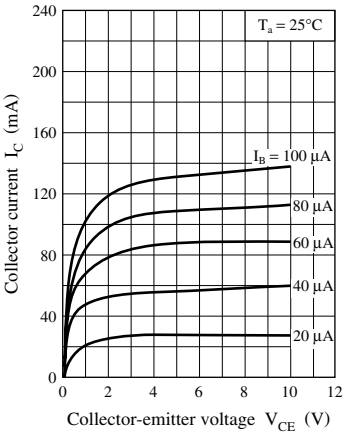
2. *: Rank classification

Rank	C	D
h_{FE}	65 to 160	100 to 260

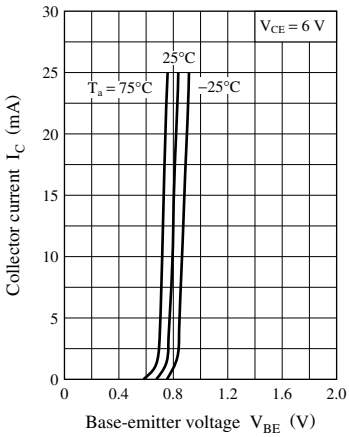
P_C — T_a



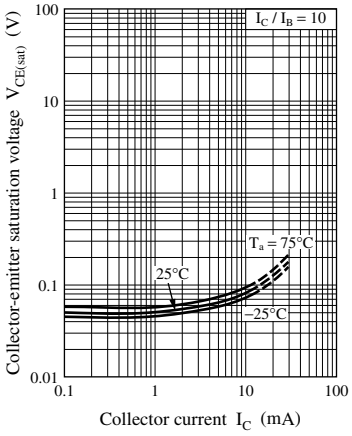
I_C — V_{CE}



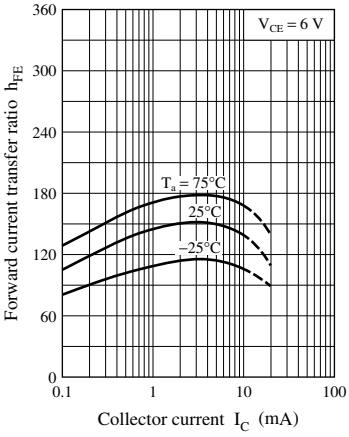
I_C — V_{BE}



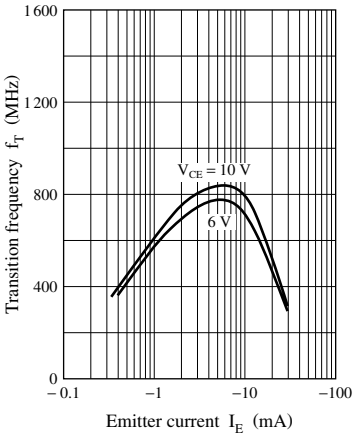
$V_{CE(sat)}$ — I_C



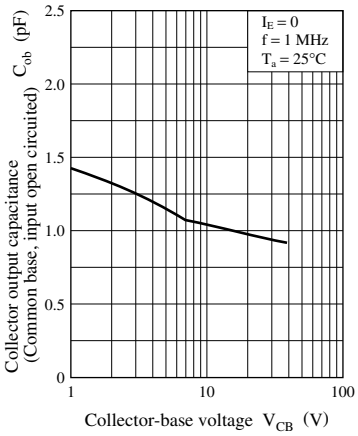
h_{FE} — I_C



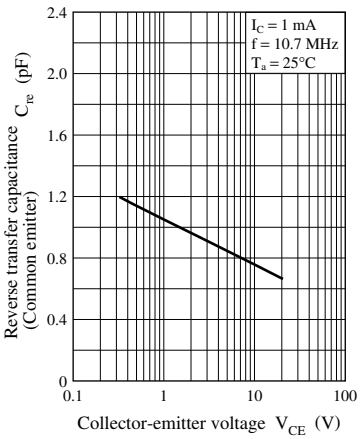
f_T — I_E



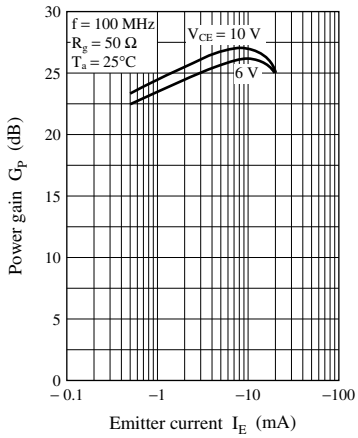
C_{ob} — V_{CB}



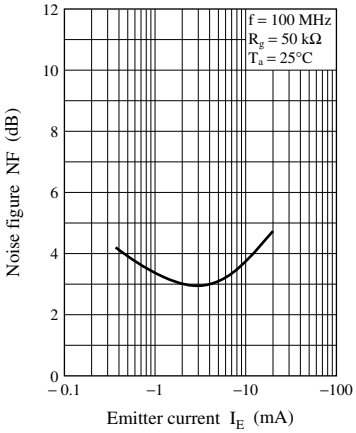
C_{re} — V_{CE}



G_P — I_E



NF — I_E


f = 100 MHz
R_g = 50 kΩ
T_a = 25°C
Noise figure NF (dB)
12
10
8
6
4
2
0
−0.1
−1
−10
−100
Emitter current I_E (mA)

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