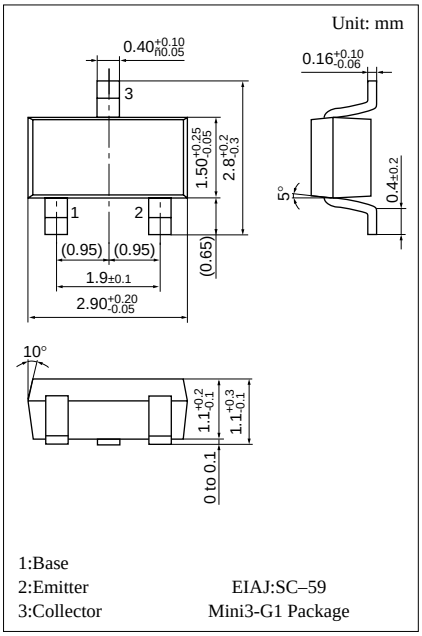
2SC3904

Silicon NPN epitaxial planer type

For 2GHz band low-noise amplification



Marking symbol : 3S

Features

- High transition frequency f_T.
- Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing.

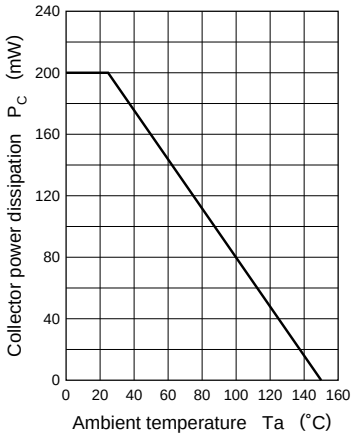
Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	15	V
Collector to emitter voltage	V_{CEO}	10	V
Emitter to base voltage	V_{EBO}	2	V
Collector current	I_C	65	mA
Collector power dissipation	P_C	200	mW
Junction temperature	T_j	150	˚C
Storage temperature	T_{stg}	–55 ~ +150	˚C

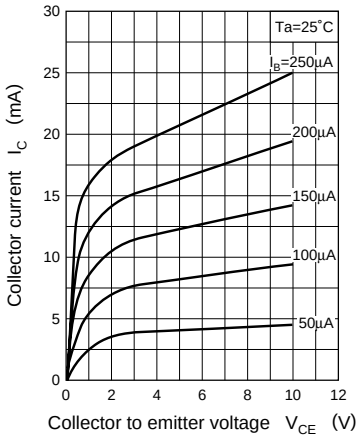
Electrical Characteristics (Ta=25˚C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	V_{CB} = 10V, I_E = 0			1	μA
Emitter cutoff current	I_{EBO}	V_{EB} = 1V, I_C = 0			1	μA
Forward current transfer ratio	h_{FE}	V_{CE} = 8V, I_C = 20mA	50	120	300	
Transition frequency	f_T	V_{CE} = 8V, I_C = 20mA, f = 0.8GHz	7.0	8.5		GHz
Collector output capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz		0.6	1	pF
Foward transfer gain	$\|S_{21e}\|^2$	V_{CE} = 8V, I_C = 20mA, f = 1.5GHz	7	9		dB
Maximum unilateral power gain	GUM	V_{CE} = 8V, I_C = 20mA, f = 1.5GHz		10		dB
Noise figure	NF	V_{CE} = 8V, I_C = 7mA, f = 1.5GHz		2.2	3	dB

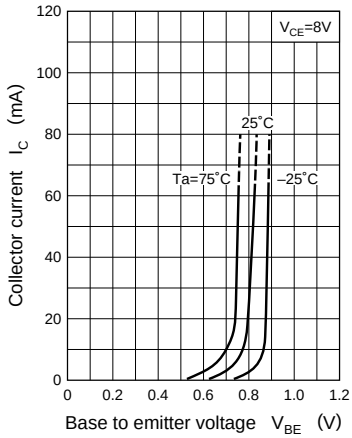
P_C — Ta



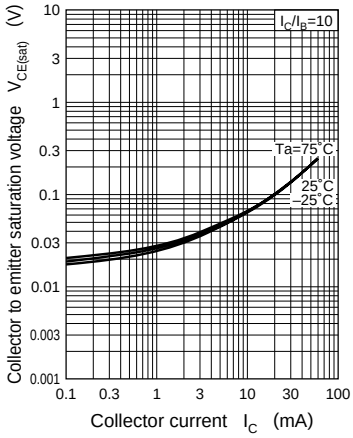
I_C — V_{CE}



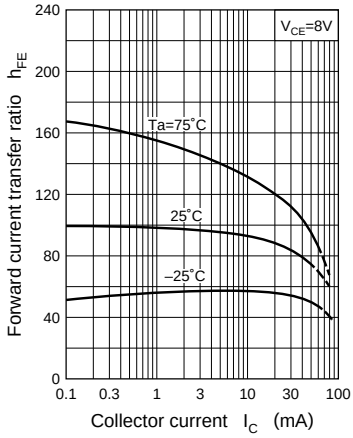
I_C — V_{BE}



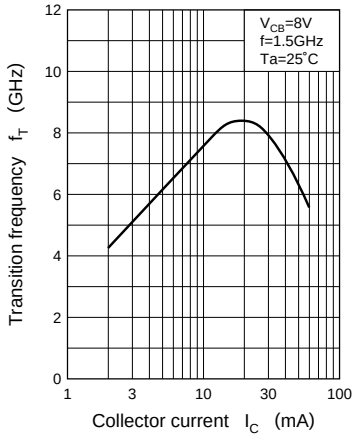
$V_{CE(sat)}$ — I_C



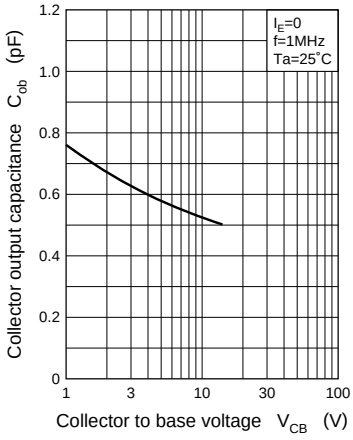
h_{FE} — I_C



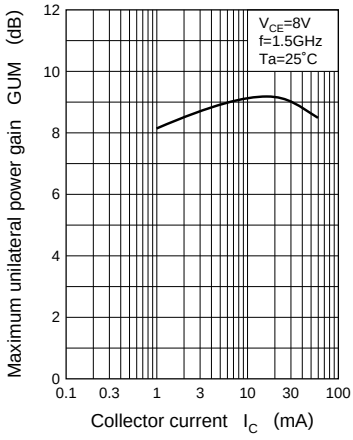
f_T — I_C



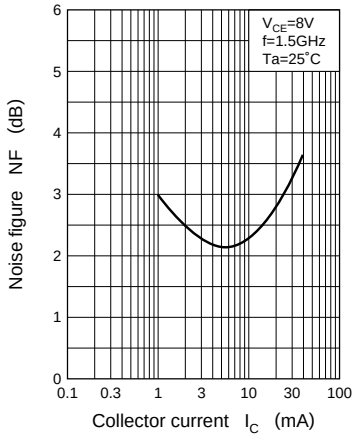
C_{ob} — V_{CB}



GUM — I_C



NF — I_C



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