

# 2SC3904

## Silicon NPN epitaxial planer type

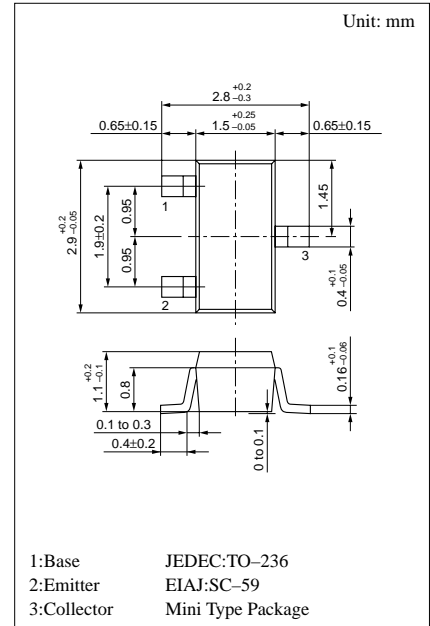
For 2GHz band low-noise amplification

### 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	Rated	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

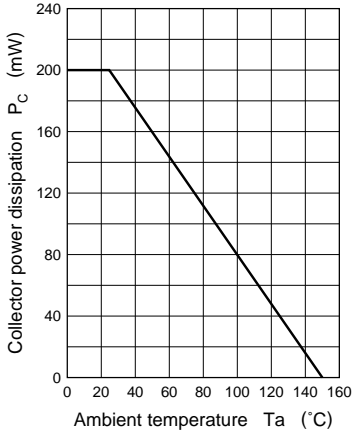


Marking symbol : 3S

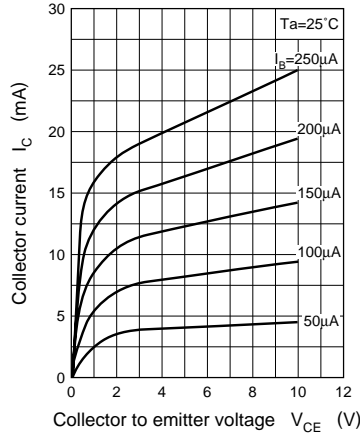
### Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 10V, I_E = 0$			1	$\mu A$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 1V, I_C = 0$			1	$\mu A$
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
Forward 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

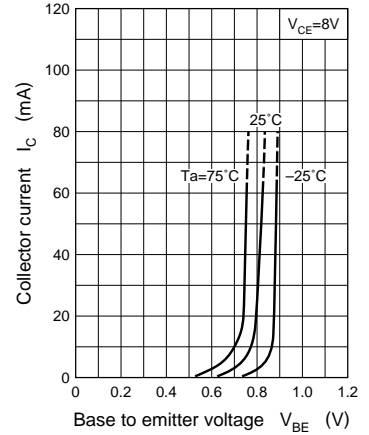
$P_C - T_a$



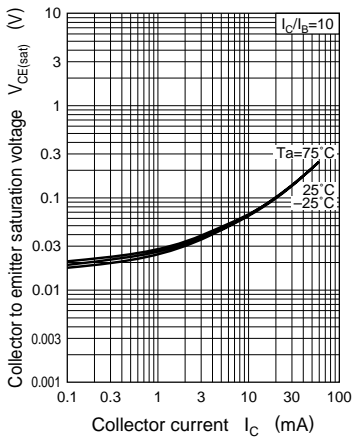
$I_C - V_{CE}$



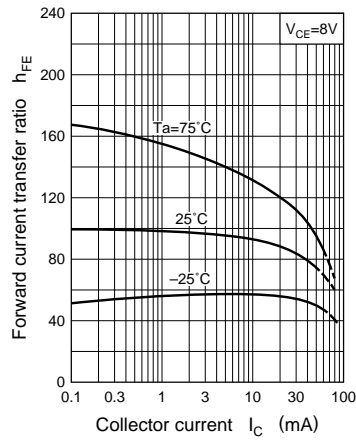
$I_C - V_{BE}$



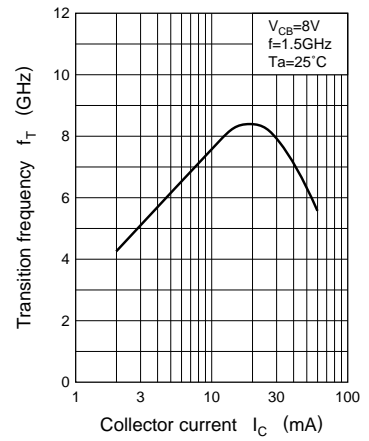
$V_{CE(sat)} - I_C$



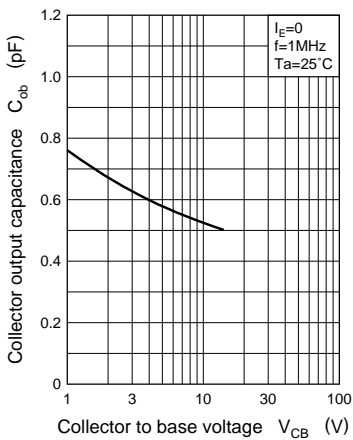
$h_{FE} - I_C$



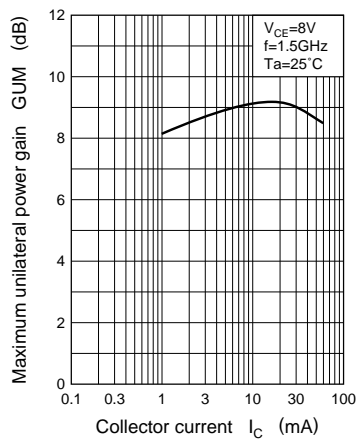
$f_T - I_C$



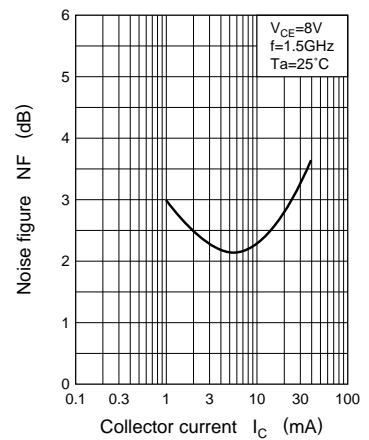
$C_{ob} - V_{CB}$



GUM -  $I_C$



NF -  $I_C$



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