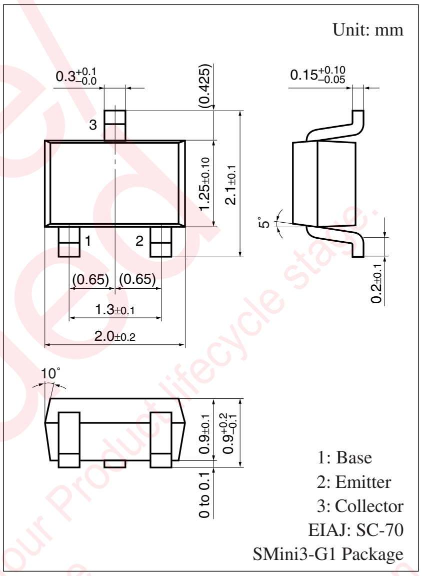
2SC3937

Silicon NPN epitaxial planar type

For UHF band low-noise amplification



Marking Symbol: 2W

■ Features

- Low noise figure NF
- High forward transfer gain $|S_{21e}|^2$
- High transition frequency f_T
- S-Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing

■ Absolute Maximum Ratings $T_a = 25°C$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	15	V
Collector-emitter voltage (Base open)	V_{CEO}	10	V
Emitter-base voltage (Collector open)	V_{EBO}	2	V
Collector current	I_C	80	mA
Collector power dissipation	P_C	150	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 cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 15$ V, $I_E = 0$			1	µA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 1$ V, $I_C = 0$			1	µA
Forward current transfer ratio	h_{FE1}	$V_{CE} = 8$ V, $I_C = 20$ mA	50		300	—
	h_{FE2}	$V_{CE} = 1$ V, $I_C = 3$ mA	80		280	
Transition frequency	f_T	$V_{CE} = 8$ V, $I_C = 20$ mA, f = 0.8 GHz		6		GHz
Collector output capacitance (Common base, input open circuited)	C_{ob}	$V_{CB} = 10$ V, $I_E = 0$, f = 1 MHz		0.7	1.2	pF
Forward transfer gain	$\lvert S_{21e}\rvert^2$	$V_{CE} = 8$ V, $I_C = 20$ mA, f = 0.8 GHz		13		dB
Maximum unilateral power gain	G_{UM}	$V_{CE} = 8$ V, $I_C = 20$ mA, f = 0.8 GHz		14		dB
Noise figure	NF	$V_{CE} = 8$ V, $I_C = 7$ mA, f = 0.8 GHz		1.0	1.7	dB

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

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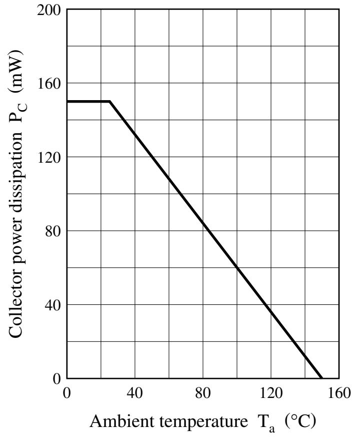
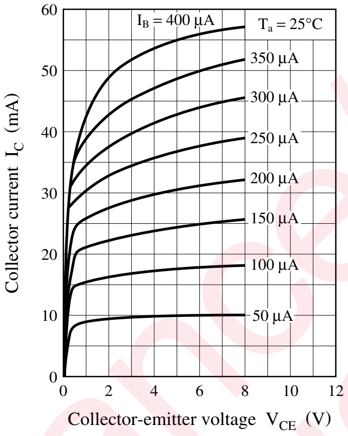
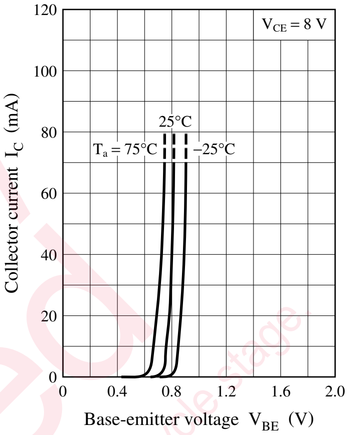
P_C — T_a



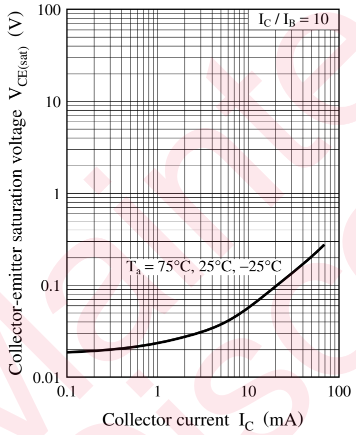
I_C — V_{CE}



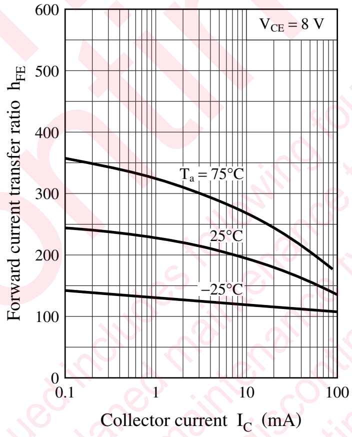
I_C — V_{BE}



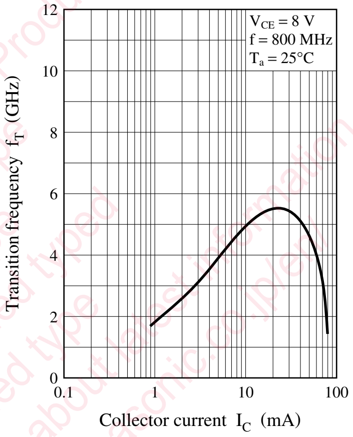
$V_{CE(sat)}$ — I_C



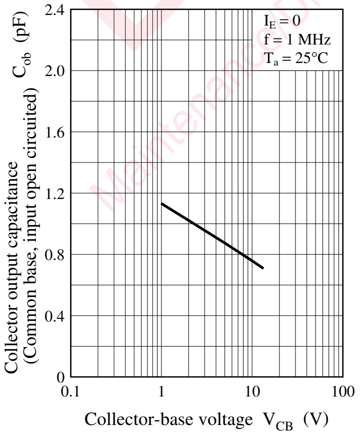
h_{FE} — I_C



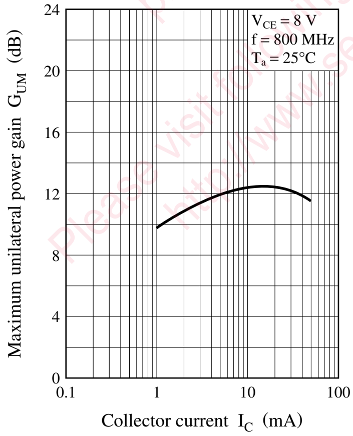
f_T — I_C



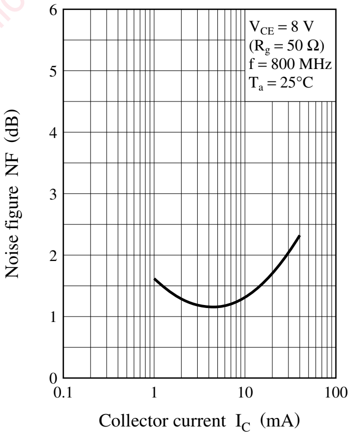
C_{ob} — V_{CB}



G_{UM} — I_C



NF — I_C



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