

2SC3937

Silicon NPN epitaxial planar type

For UHF band low-noise amplification

■ 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

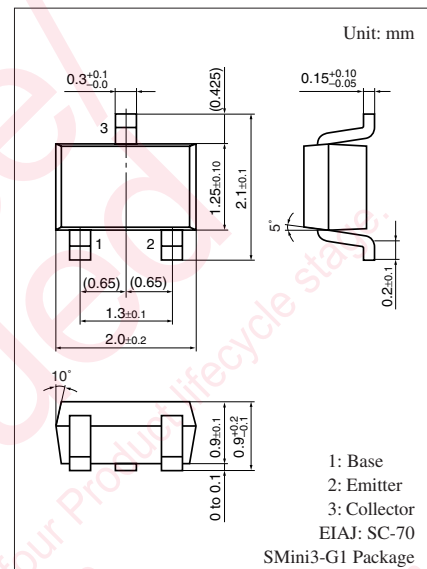
■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

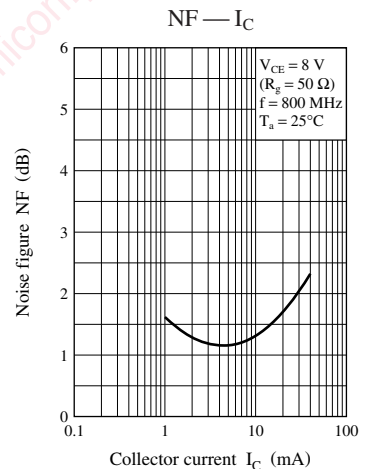
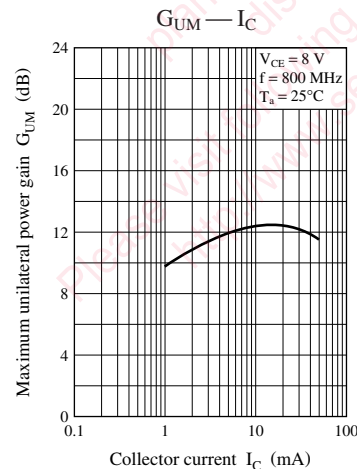
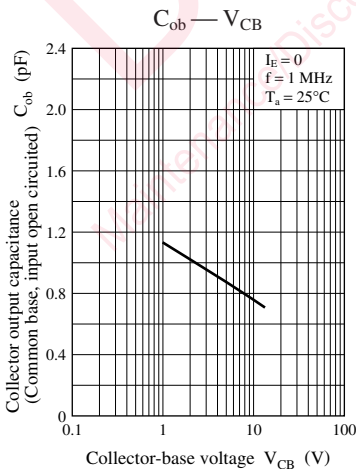
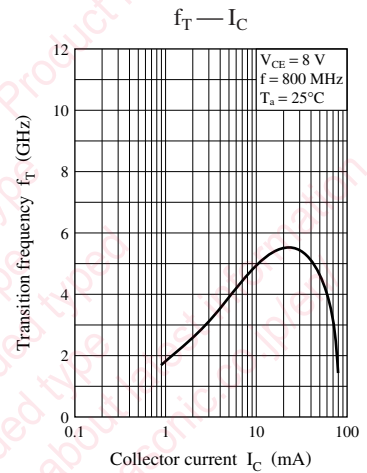
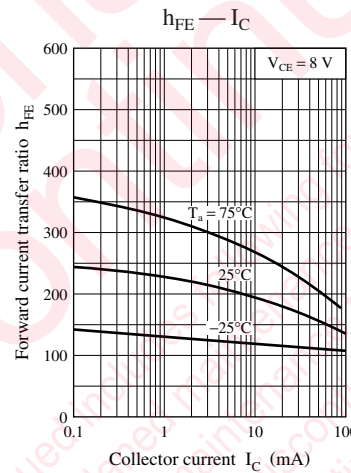
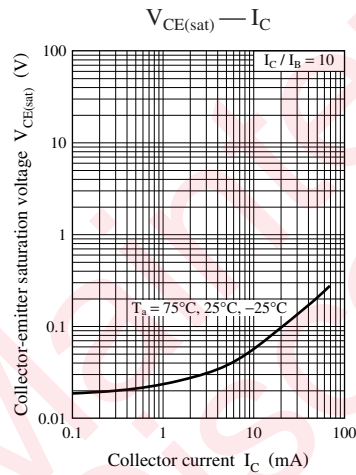
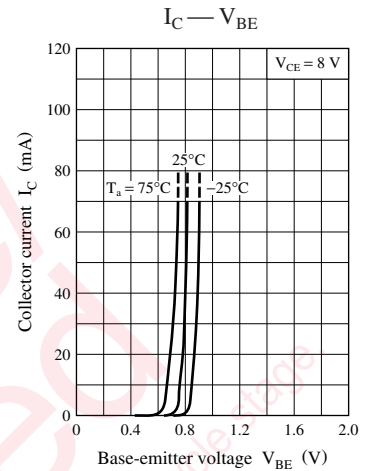
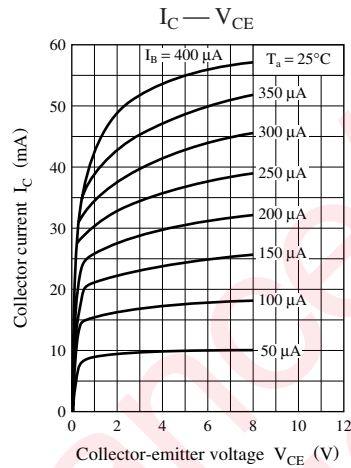
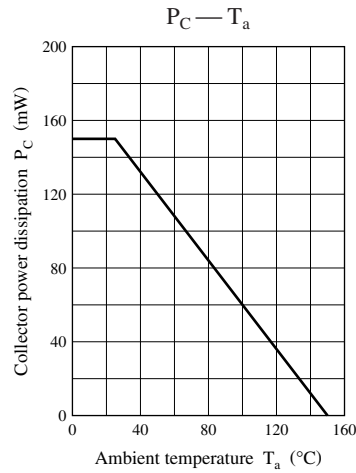
Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	15	V
Collector-emitter voltage (Base open)	V_{CEO}	10	V
Emitter-base voltage (Collector open)	V_{EBO}	2	V
Collector current	I_C	80	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 15\text{ V}, I_E = 0$			1	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 1\text{ V}, I_C = 0$			1	μA
Forward current transfer ratio	h_{FE1}	$V_{CE} = 8\text{ V}, I_C = 20\text{ mA}$	50		300	—
	h_{FE2}	$V_{CE} = 1\text{ V}, I_C = 3\text{ mA}$	80		280	
Transition frequency	f_T	$V_{CE} = 8\text{ V}, I_C = 20\text{ mA}, f = 0.8\text{ GHz}$		6		GHz
Collector output capacitance (Common base, input open circuited)	C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$		0.7	1.2	pF
Forward transfer gain	$ S_{21e} ^2$	$V_{CE} = 8\text{ V}, I_C = 20\text{ mA}, f = 0.8\text{ GHz}$		13		dB
Maximum unilateral power gain	G_{UM}	$V_{CE} = 8\text{ V}, I_C = 20\text{ mA}, f = 0.8\text{ GHz}$		14		dB
Noise figure	NF	$V_{CE} = 8\text{ V}, I_C = 7\text{ mA}, f = 0.8\text{ GHz}$		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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Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

moschip.ru_6

moschip.ru_9