2SC3934G

Silicon NPN epitaxial planar type

For high-frequency wide-band low-noise amplification

■ Features

- 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

■ Package

- Code
  SMini3-F2
- Marking Symbol: 1U
- Pin Name
  1. Base
  2. Emitter
  3. Collector

■ Absolute Maximum Ratings $T_a = 25°C$

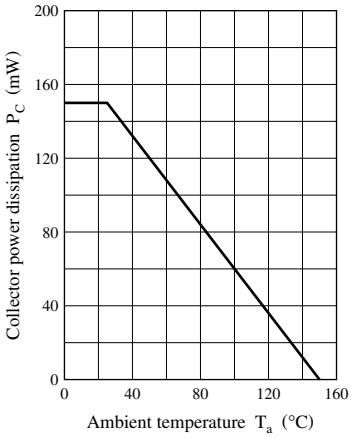
Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	15	V
Collector-emitter voltage (Base open)	V_{CEO}	12	V
Emitter-base voltage (Collector open)	V_{EBO}	2.5	V
Collector current	I_C	30	mA
Peak collector current	I_{CP}	50	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

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

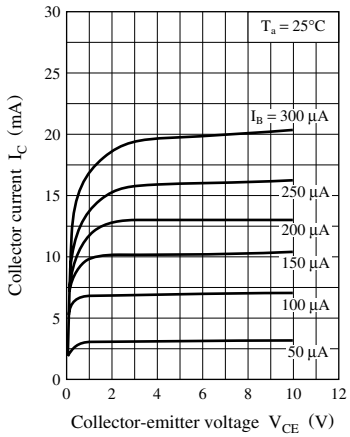
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base cutoff current (Emitter open)	I_{CBO}	V_{CB} = 10 V, I_E = 0			100	nA
Emitter-base cutoff current (Collector open)	I_{EBO}	V_{EB} = 2 V, I_C = 0			1	µA
Forward current transfer ratio	h_{FE}	V_{CE} = 10 V, I_C = 10 mA	40			—
Transition frequency	f_T	V_{CE} = 10 V, I_C = 10 mA, f = 0.8 GHz		4.5		GHz
Collector output capacitance (Common-base, input open circuited)	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz			1.2	pF
Forward transfer gain	$\|S_{21e}\|^2$	V_{CE} = 10 V, I_C = 20 mA, f = 0.8 GHz	9	12		dB
Maximum unilateral power gain	G_{UM}	V_{CE} = 10 V, I_C = 20 mA, f = 0.8 GHz	12	14		dB
Noise figure	NF	V_{CE} = 10 V, I_C = 5 mA, f = 0.8 GHz		1.3	2.5	dB

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

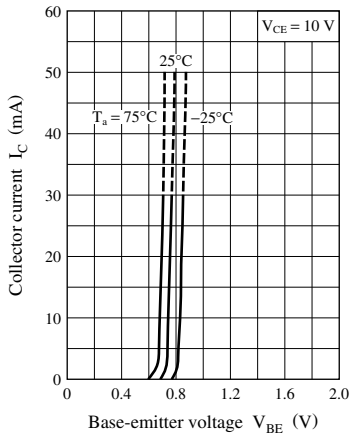
P_C — T_a



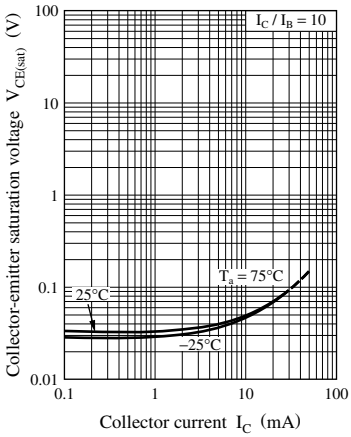
I_C — V_{CE}



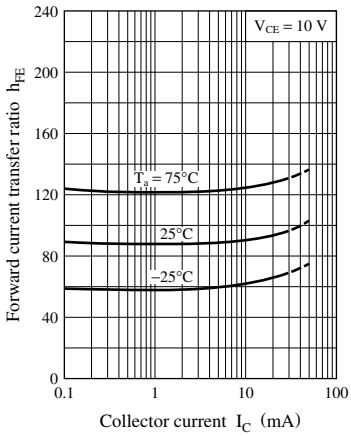
I_C — V_{BE}



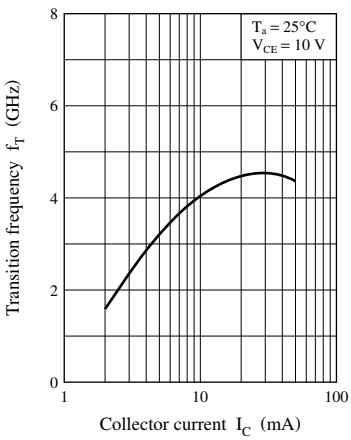
$V_{CE(sat)}$ — I_C



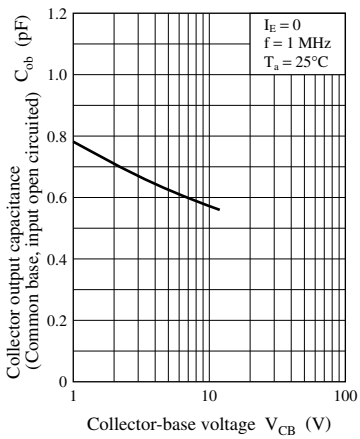
h_{FE} — I_C



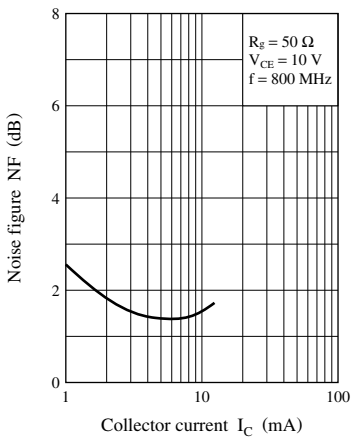
f_T — I_C



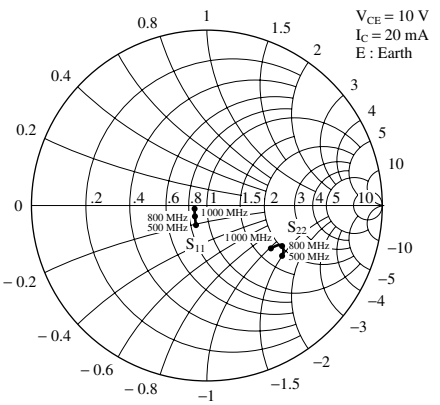
C_{ob} — V_{CB}



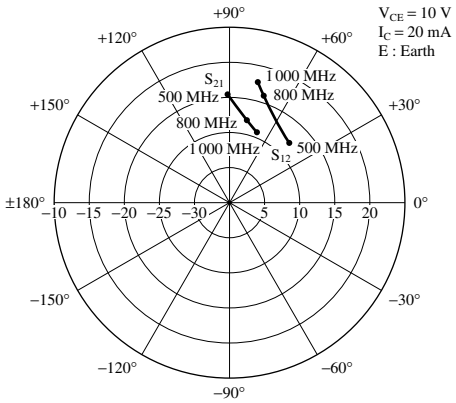
NF — I_C



S_{11} , S_{22}

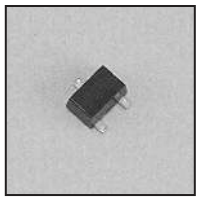


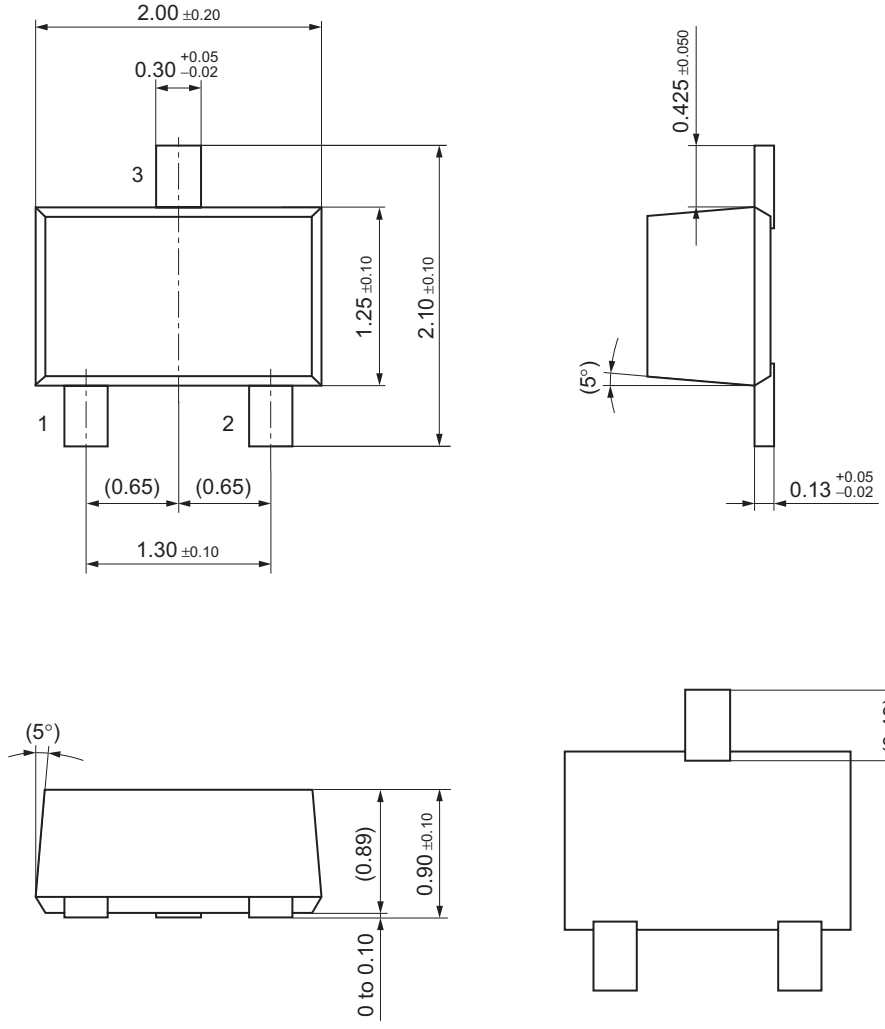
S_{11} , S_{22}


+90°
+120°
+60°
+150°
+30°
±180°
0°
−150°
−30°
−120°
−60°
−90°
−10 −15 −20 −25 −30
5 10 15 20
V_{CE} = 10 V
I_C = 20 mA
E : Earth
S_{21}
500 MHz
800 MHz
1 000 MHz
1 000 MHz
800 MHz
500 MHz
S_{12}

SMini3-F2

Unit: mm





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