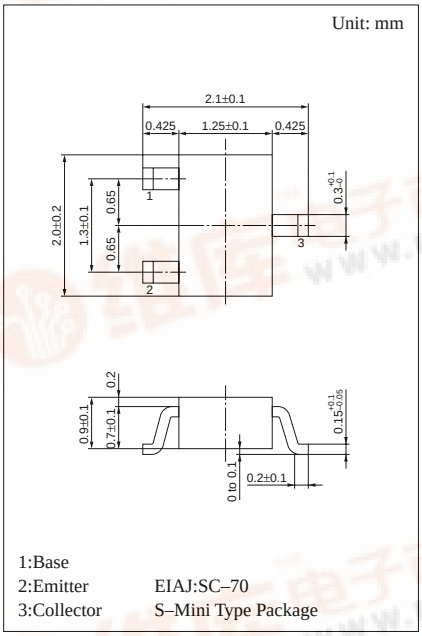
2SC3934

Silicon NPN epitaxial planer type

For high-frequency wide-band low-noise amplification



Marking symbol : 1U

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.

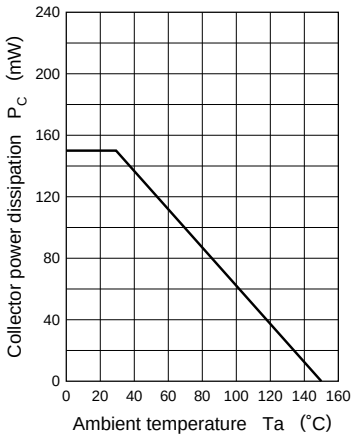
Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	15	V
Collector to emitter voltage	V_{CEO}	12	V
Emitter to base voltage	V_{EBO}	2.5	V
Peak collector current	I_{CP}	50	mA
Collector current	I_C	30	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	150	˚C
Storage temperature	T_{stg}	–55 ~ +150	˚C

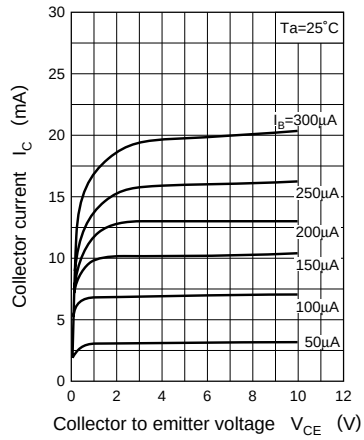
Electrical Characteristics (Ta=25˚C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	V_{CB} = 10V, I_E = 0			100	µA
Emitter cutoff current	I_{EBO}	V_{EB} = 2V, I_C = 0			1	µA
Forward current transfer ratio	h_{FE}	V_{CE} = 10V, I_C = 10mA	40			
Transition frequency	f_T	V_{CE} = 10V, I_C = 10mA, f = 800MHz		4.5		GHz
Collector output capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz			1.2	pF
Foward transfer gain	$\|S_{21e}\|^2$	V_{CE} = 10V, I_C = 20mA, f = 800MHz	9	12		dB
Maximum unilateral power gain	GUM	V_{CE} = 10V, I_C = 20mA, f = 800MHz	12	14		dB
Noise figure	NF	V_{CE} = 10V, I_C = 5mA, f = 800MHz		1.3	2.5	dB

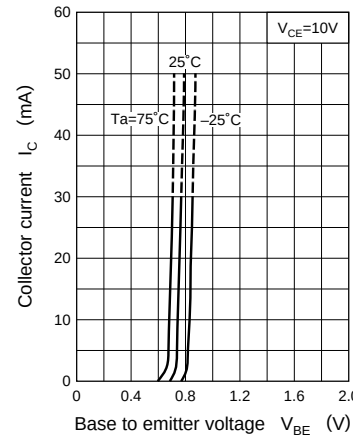
P_C — Ta



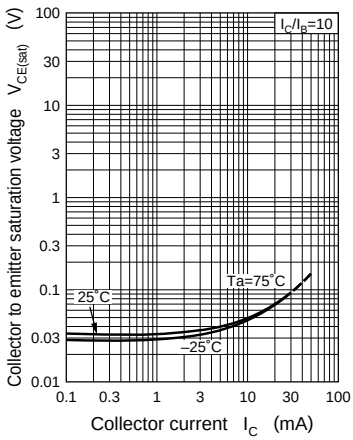
I_C — V_{CE}



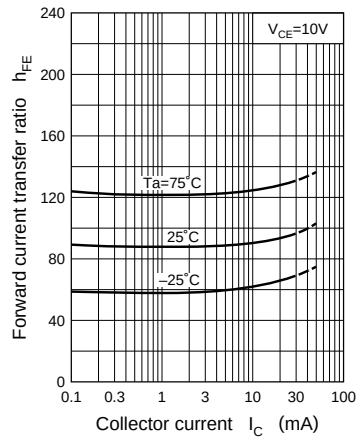
I_C — V_{BE}



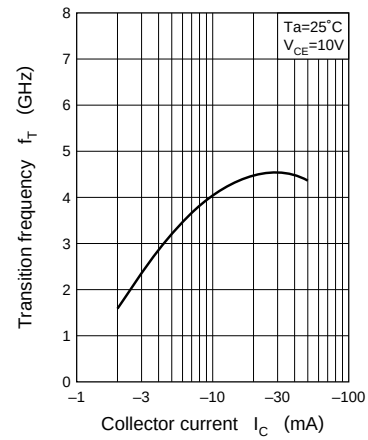
$V_{CE(sat)}$ — I_C



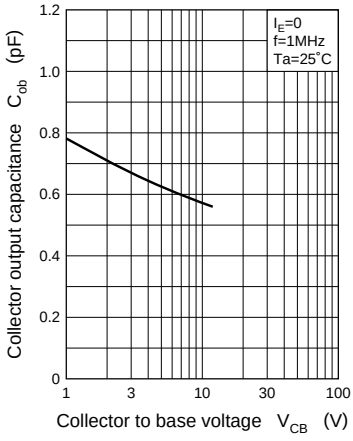
h_{FE} — I_C



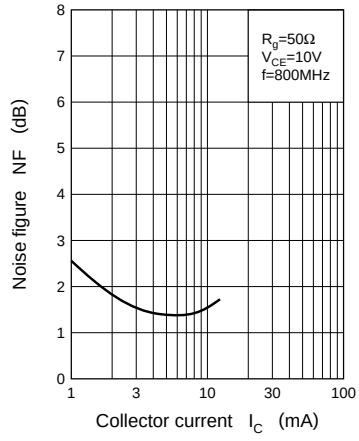
f_T — I_C



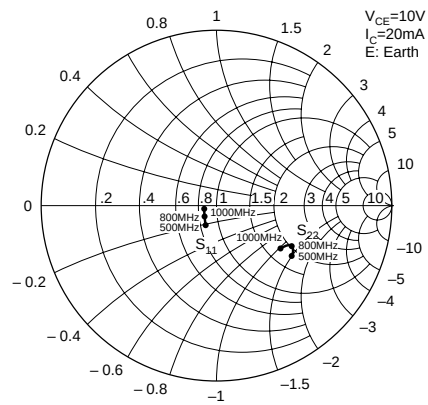
C_{ob} — V_{CB}



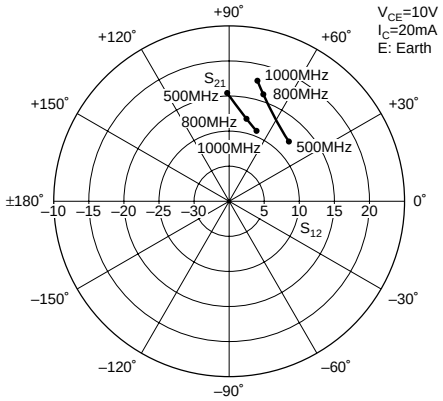
NF — I_C



S_{11}, S_{22}



S_{12}, S_{21}


+90˚
+120˚
+60˚
+150˚
+30˚
±180˚
0˚
–150˚
–30˚
–120˚
–60˚
–90˚
–10 –15 –20 –25 –30
5 10 15 20
S12
S21
1000MHz
800MHz
500MHz
500MHz
800MHz
1000MHz
VCE=10V
IC=20mA
E: Earth

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