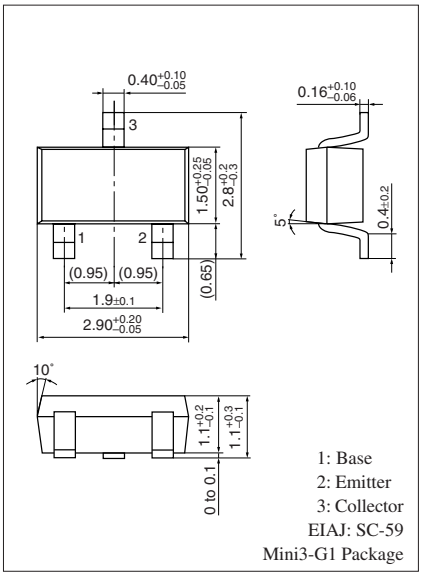
2SC3130

Silicon NPN epitaxial planar type

For high-frequency amplification/oscillation/mixing



Marking Symbol: 1S

■ Features

- High transition frequency f_T
- Small collector output capacitance (Common base, input open circuited) C_{ob} and reverse transfer capacitance (Common emitter) C_{rb}
- 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}	3	V
Collector current	I_C	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-emitter voltage (Base open)	V_{CEO}	I_C = 2 mA, I_B = 0	10			V
Emitter-base voltage (Collector open)	V_{EBO}	I_E = 10 µA, I_C = 0	3			V
Collector-base cutoff current (Emitter open)	I_{CBO}	V_{CB} = 10 V, I_E = 0			1	µA
Forward current transfer ratio *1	h_{FE}	V_{CE} = 4 V, I_C = 5 mA	75		220	—
h_{FE} ratio *2	Δh_{FE}	h_{FE2}: V_{CE} = 4 V, I_C = 100 µA	0.75		1.60	—
		h_{FE1}: V_{CE} = 4 V, I_C = 5 mA				
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = 20 mA, I_B = 4 mA			0.5	V
Transition frequency	f_T	V_{CB} = 4 V, I_E = −5 mA, f = 200 MHz	1.4	1.9	2.5	GHz
Collector output capacitance (Common base, input open circuited)	C_{ob}	V_{CB} = 4 V, I_E = 0, f = 1 MHz		1.4		pF
Reverse transfer capacitance (Common emitter)	C_{rb}	V_{CB} = 4 V, I_E = 0, f = 1 MHz		0.45		pF
Collector-base parameter	$r_{bb}' \cdot C_C$	V_{CB} = 4 V, I_E = −5 mA, f = 31.9 MHz		11		ps

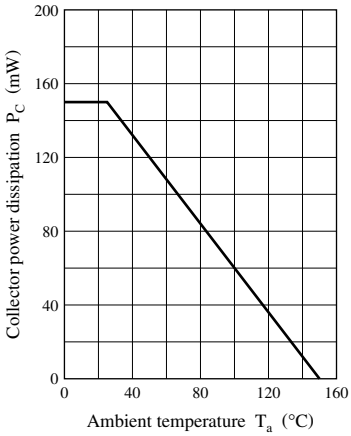
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. *1: Rank classification

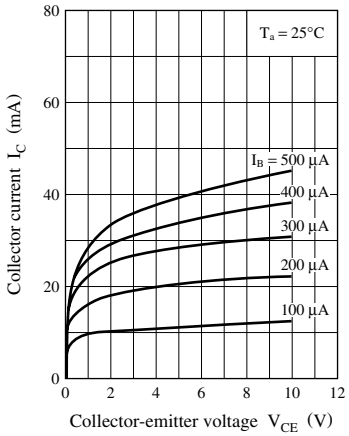
Rank	P	Q
h_{FE}	75 to 130	110 to 220

*2: $\Delta h_{FE} = h_{FE2} / h_{FE1}$

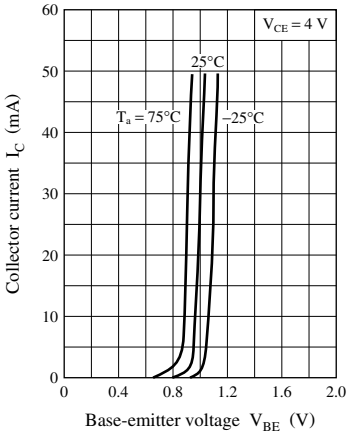
P_C — T_a



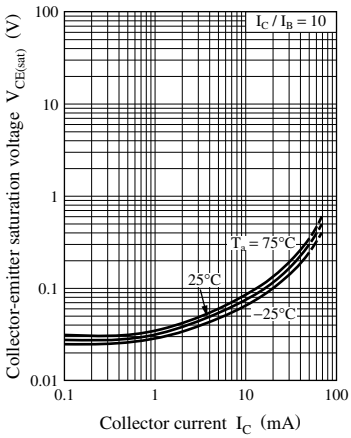
I_C — V_{CE}



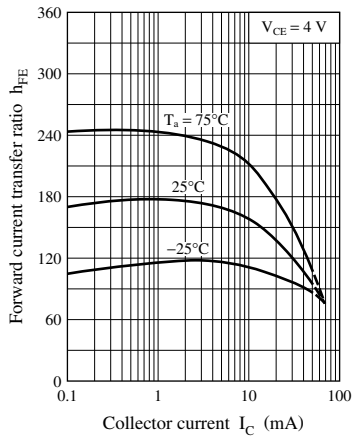
I_C — V_{BE}



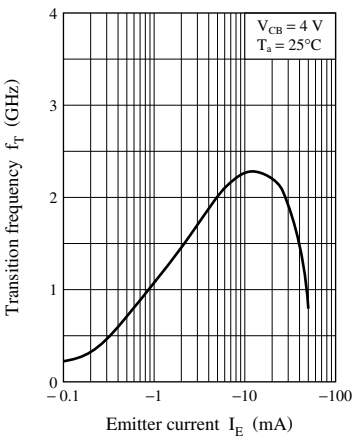
$V_{CE(sat)}$ — I_C



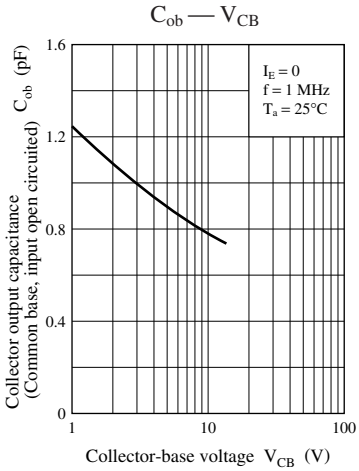
h_{FE} — I_C



f_T — I_E



C_{ob} — V_{CB}



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