

# XP05531

## Silicon NPN epitaxial planer transistor

For high frequency, oscillation and mixing

### ■ Features

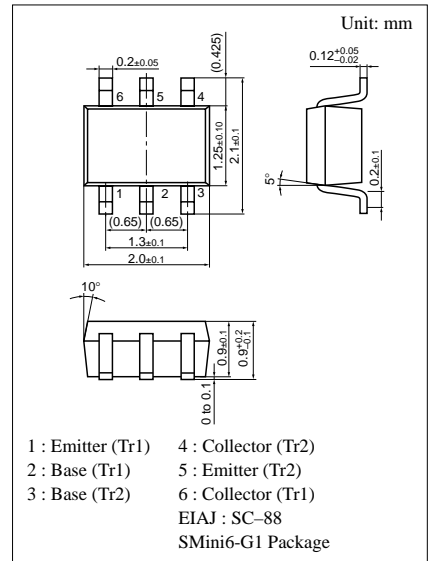
- High transition frequency  $f_T$ .
- Small collector output capacitance  $C_{ob}$  and reverse transfer capacitance  $C_{rb}$ .
- Two elements incorporated into one package.

### ■ Basic Part Number of Element

- 2SC3130 × 2 elements

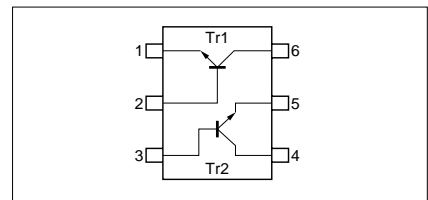
### ■ Absolute Maximum Ratings (Ta=25°C)

	Parameter	Symbol	Ratings	Unit
Rating of element	Collector to base voltage	$V_{CBO}$	15	V
	Collector to emitter voltage	$V_{CEO}$	10	V
	Emitter to base voltage	$V_{EBO}$	3	V
Overall	Collector current	$I_C$	50	mA
	Total power dissipation	$P_T$	150	mW
	Junction temperature	$T_j$	150	°C
	Storage temperature	$T_{stg}$	-55 to +150	°C



Marking Symbol: 5M

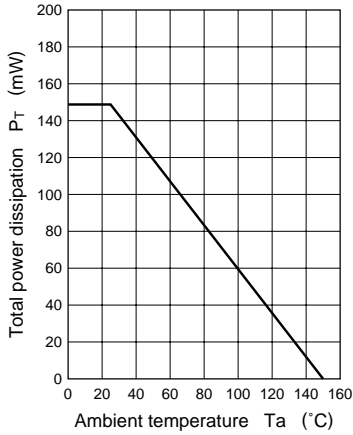
Internal Connection



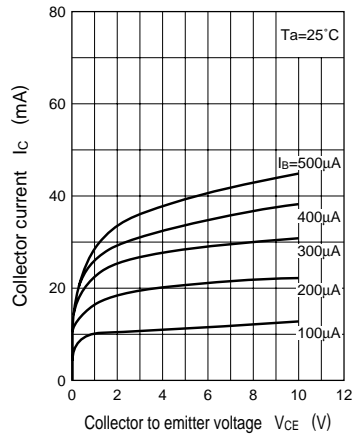
### ■ Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector to emitter voltage	$V_{CEO}$	$I_C = 2\text{mA}, I_B = 0$	10			V
Emitter to base voltage	$V_{EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	3			V
Collector cutoff current	$I_{CBO}$	$V_{CB} = 10\text{V}, I_E = 0$			1	$\mu\text{A}$
	$I_{CEO}$	$V_{CE} = 10\text{V}, I_B = 0$			10	$\mu\text{A}$
Forward current transfer ratio	$h_{FE1}$	$V_{CE} = 4\text{V}, I_C = 5\text{mA}$	75		400	
$h_{FE2}/h_{FE1}$ ratio	$h_{FE2}/h_{FE1}$	$V_{CE} = 4\text{V}, I_C = 100\mu\text{A}$ $V_{CE} = 4\text{V}, I_C = 5\text{mA}$		0.75	1.6	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 20\text{mA}, I_B = 4\text{mA}$			0.5	V
Transition frequency	$f_T$	$V_{CB} = 4\text{V}, I_E = -5\text{mA}, f = 200\text{MHz}$	1.4	1.9	2.5	GHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 4\text{V}, I_E = 0, f = 1\text{MHz}$		0.9	1.1	pF
Common base reverse transfer capacitance	$C_{rb}$	$V_{CB} = 4\text{V}, I_E = 0, f = 1\text{MHz}$		0.25	0.35	pF
Collector to base parameter	$r_{bb} \cdot C_C$	$V_{CB} = 4\text{V}, I_E = -5\text{mA}, f = 31.9\text{MHz}$		11.8	13.5	ps

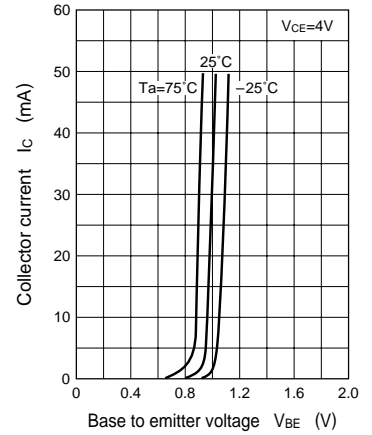
$P_T - T_a$



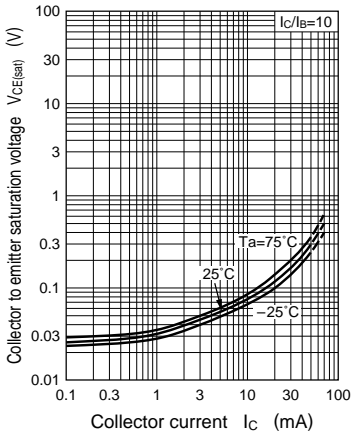
$I_C - V_{CE}$



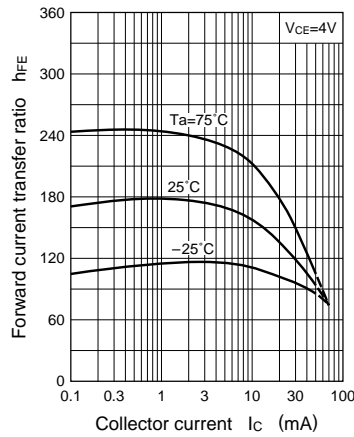
$I_C - V_{BE}$



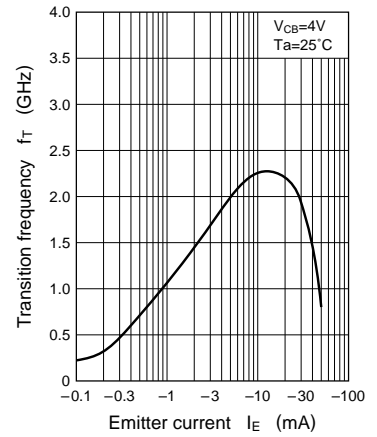
$V_{CE(sat)} - I_C$



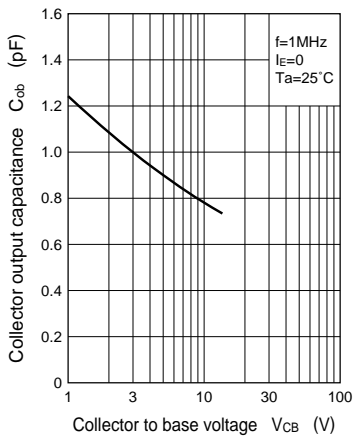
$h_{FE} - I_C$



$f_T - I_E$



$C_{ob} - V_{CB}$



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