

# 2SC3130

Silicon NPN epitaxial planer type

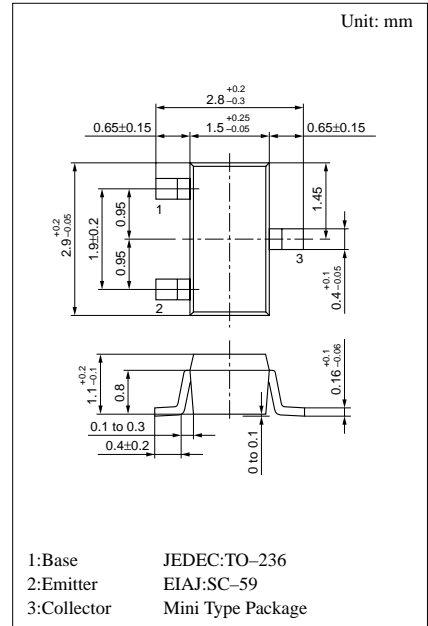
For high-frequency amplification/oscillation/mixing

## Features

- High transition frequency  $f_T$ .
- Small collector output capacitance  $C_{ob}$  and common base reverse transfer capacitance  $C_{rb}$ .
- 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	$V_{CEO}$	10	V
Emitter to base voltage	$V_{EBO}$	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 ~ +150	°C



Marking symbol : 1S

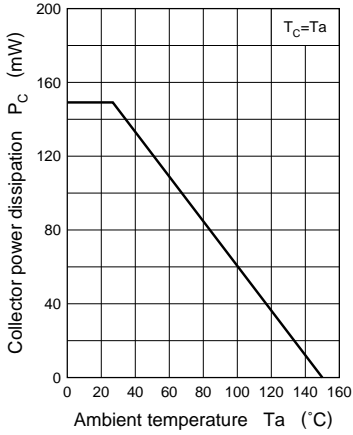
## Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 10V, I_E = 0$			1	$\mu A$
Collector to emitter voltage	$V_{CEO}$	$I_C = 2mA, I_B = 0$	10			V
Emitter to base voltage	$V_{EBO}$	$I_E = 10\mu A, I_C = 0$	3			V
Forward current transfer ratio	$h_{FE}^*$	$V_{CE} = 4V, I_C = 5mA$	75	200	400	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 20mA, I_B = 4mA$			0.5	V
Transition frequency	$f_T$	$V_{CB} = 4V, I_E = -5mA, f = 200MHz$	1.4	1.9	2.5	GHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 4V, I_E = 0, f = 1MHz$		1.4		pF
Base time constant	$r_{bb'} \cdot C_C$	$V_{CB} = 4V, I_E = -5mA, f = 31.9MHz$		11		ps
Common emitter reverse transfer capacitance	$C_{rb}$	$V_{CB} = 4V, I_E = 0, f = 1MHz$		0.45		pF
$h_{FE}$ ratio	$\Delta h_{FE}$	$V_{CE} = 4V, I_C = 100\mu A$	0.75		1.6	
		$V_{CE} = 4V, I_C = 5mA$				

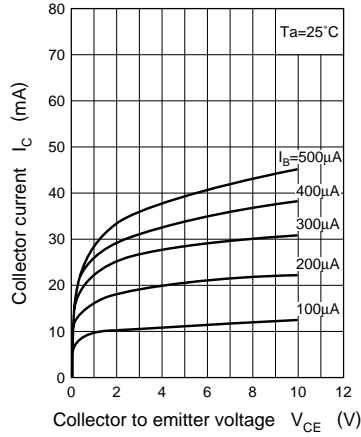
\* $h_{FE}$  Rank classification

Rank	P	Q	R
$h_{FE}$	75 ~ 130	110 ~ 220	200 ~ 400
Marking Symbol	1SP	1SQ	1SR

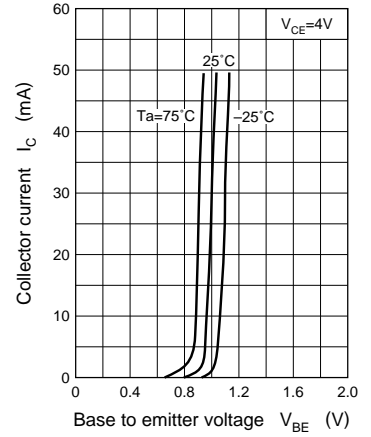
$P_C - T_a$



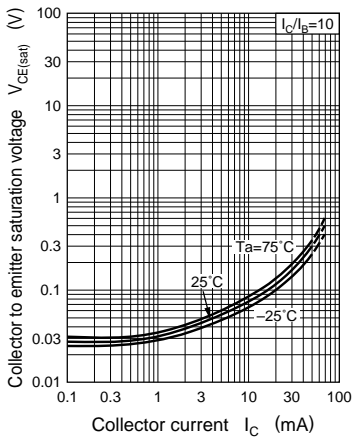
$I_C - V_{CE}$



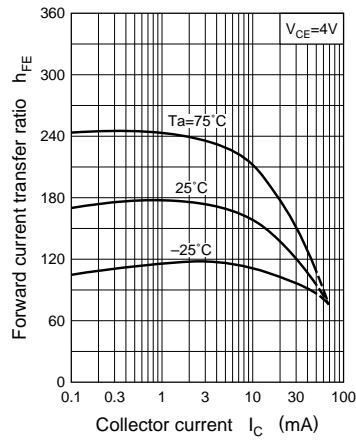
$I_C - V_{BE}$



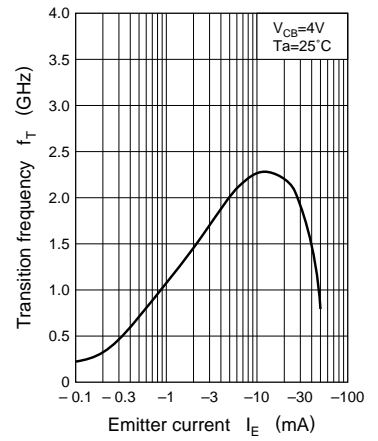
$V_{CE(sat)} - I_C$



$h_{FE} - I_C$



$f_T - I_E$



$C_{ob} - V_{CB}$

