

# 2SA1022

## Silicon PNP epitaxial planer type

For high-frequency amplification

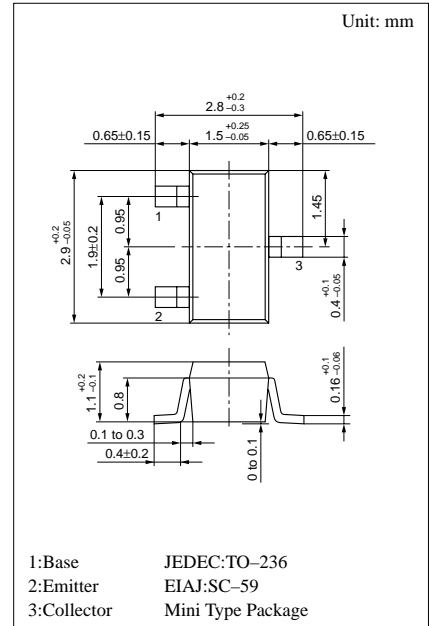
Complementary to 2SC2295

### Features

- High transition frequency  $f_T$ .
- 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	$V_{CBO}$	-30	V
Collector to emitter voltage	$V_{CEO}$	-20	V
Emitter to base voltage	$V_{EBO}$	-5	V
Collector current	$I_C$	-30	mA
Collector power dissipation	$P_C$	200	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 ~ +150	°C



Marking symbol : E

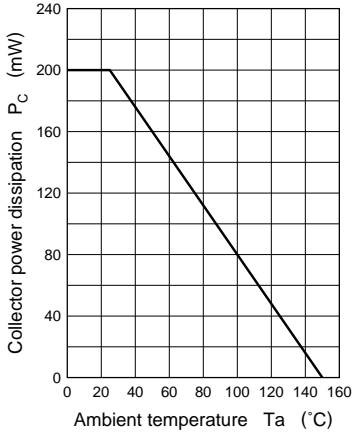
### Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = -10V, I_E = 0$			-0.1	$\mu A$
	$I_{CEO}$	$V_{CE} = -20V, I_B = 0$			-100	$\mu A$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = -5V, I_C = 0$			-10	$\mu A$
Forward current transfer ratio	$h_{FE}^*$	$V_{CE} = -10V, I_C = -1mA$	70		220	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10mA, I_B = -1mA$		-0.1		V
Base to emitter voltage	$V_{BE}$	$V_{CE} = -10V, I_C = -1mA$		-0.7		V
Transition frequency	$f_T$	$V_{CB} = -10V, I_E = 1mA, f = 200MHz$	150	300		MHz
Noise figure	NF	$V_{CB} = -10V, I_E = 1mA, f = 5MHz$		2.8		dB
Reverse transfer impedance	$Z_{rb}$	$V_{CB} = -10V, I_E = 1mA, f = 2MHz$		22		$\Omega$
Common emitter reverse transfer capacitance	$C_{re}$	$V_{CE} = -10V, I_C = -1mA$ $f = 10.7MHz$		1.2		pF

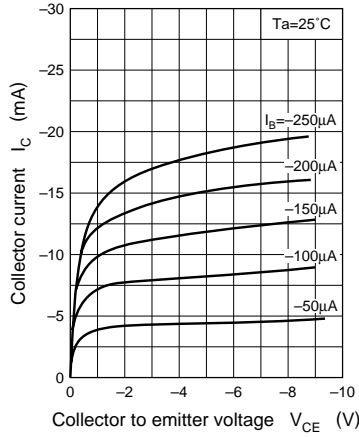
\* $h_{FE}$  Rank classification

Rank	B	C
$h_{FE}$	70 ~ 140	110 ~ 220
Marking Symbol	EB	EC

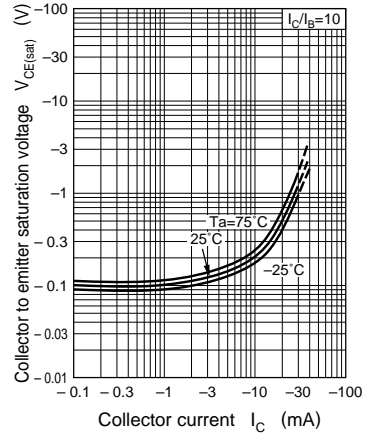
$P_C - T_a$



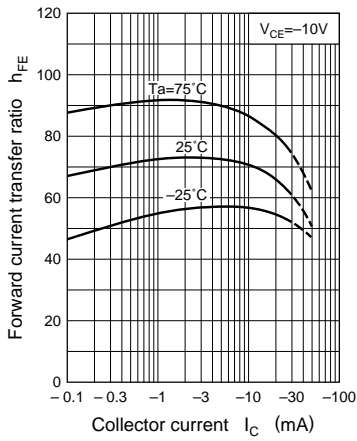
$I_C - V_{CE}$



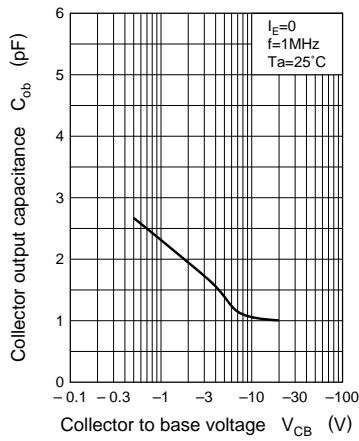
$V_{CE(sat)} - I_C$



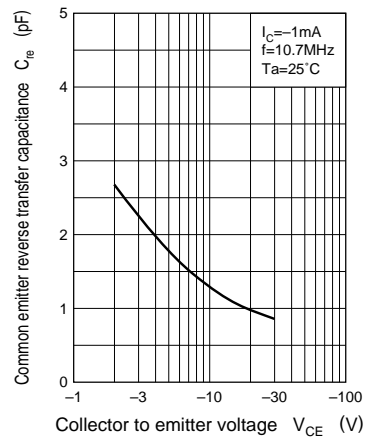
$h_{FE} - I_C$



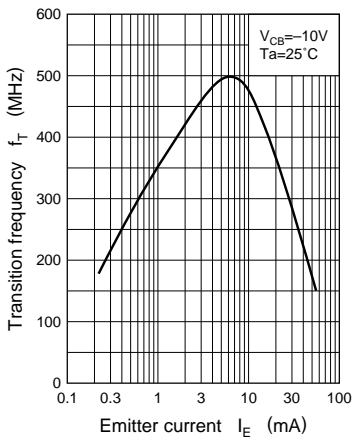
$C_{ob} - V_{CB}$



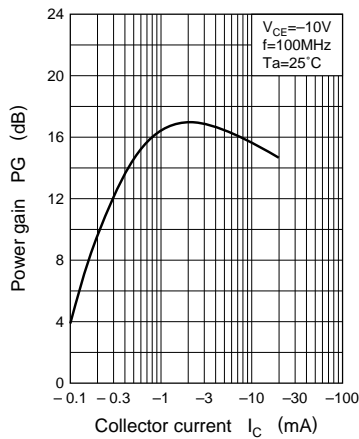
$C_{re} - V_{CE}$



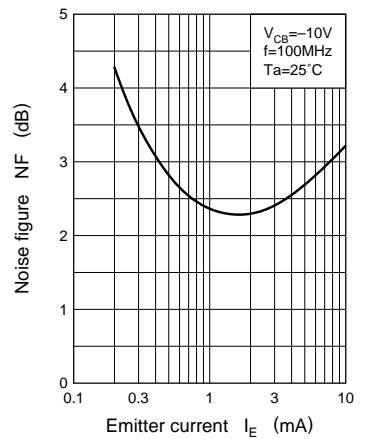
$f_T - I_E$



$PG - I_C$



$NF - I_E$



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