

# 2SC5939

## Silicon NPN epitaxial planar type

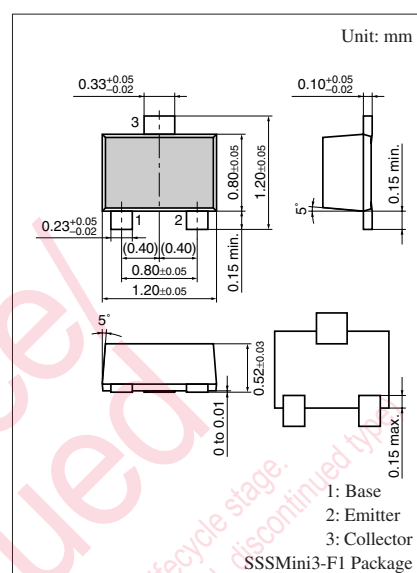
For high-frequency amplification/oscillation/mixing

### ■ Features

- High transition frequency  $f_T$
- Small collector output capacitance (Common base, input open circuited)  $C_{ob}$  and reverse transfer capacitance (Common base)  $C_{rb}$
- SSS-Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing

### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

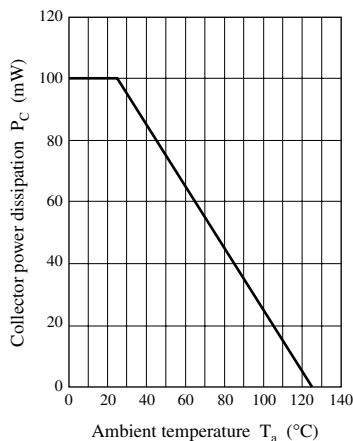
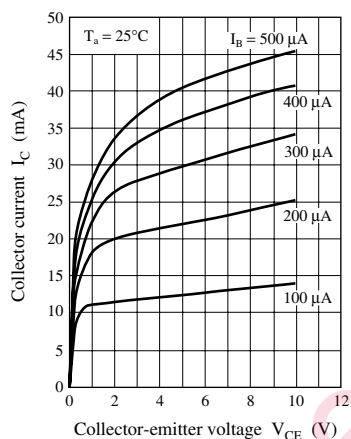
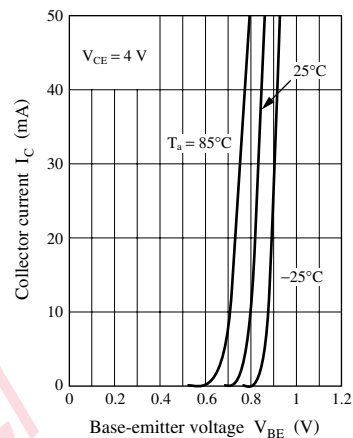
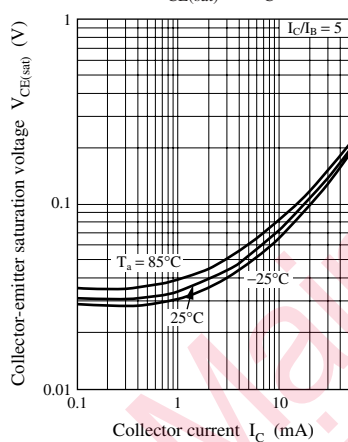
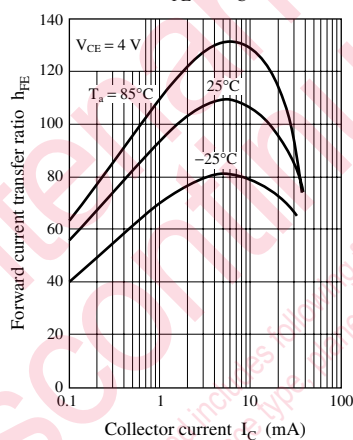
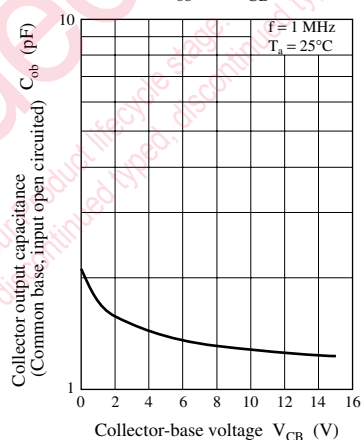
Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	15	V
Collector-emitter voltage (Base open)	$V_{CEO}$	10	V
Emitter-base voltage (Collector open)	$V_{EBO}$	3	V
Collector current	$I_C$	50	mA
Collector power dissipation	$P_C$	100	mW
Junction temperature	$T_j$	125	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +125	$^\circ\text{C}$



### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = 2\text{ mA}, I_B = 0$	10			V
Emitter-base voltage (Collector open)	$V_{EBO}$	$I_E = 10\text{ }\mu\text{A}, I_C = 0$	3			V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = 10\text{ V}, I_E = 0$			1	$\mu\text{A}$
Forward current transfer ratio	$h_{FE}$	$V_{CE} = 4\text{ V}, I_C = 5\text{ mA}$	75		400	—
$h_{FE}$ ratio	$\Delta h_{FE}$	$V_{CE} = 4\text{ V}, I_C = 100\text{ }\mu\text{A}$	0.75		1.6	—
		$V_{CE} = 4\text{ V}, I_C = 5\text{ mA}$				
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 20\text{ mA}, I_B = 4\text{ mA}$			0.5	V
Transition frequency	$f_T$	$V_{CE} = 4\text{ V}, I_E = -5\text{ mA}, f = 200\text{ MHz}$	1.4	1.9	2.7	GHz
Collector output capacitance (Common base, input open circuited)	$C_{ob}$	$V_{CB} = 4\text{ V}, I_E = 0, f = 1\text{ MHz}$		1.4		pF
Reverse transfer capacitance (Common base)	$C_{rb}$	$V_{CB} = 4\text{ V}, I_E = 0, f = 1\text{ MHz}$		0.45		pF
Collector-base parameter	$r_{bb'} \cdot C_C$	$V_{CB} = 4\text{ V}, I_E = -5\text{ mA}, f = 31.9\text{ MHz}$		11		ps

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

$P_C - T_a$  $I_C - V_{CE}$  $I_C - V_{BE}$  $V_{CE(sat)} - I_C$  $h_{FE} - I_C$  $C_{ob} - V_{CB}$ 

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