

# 2SA2163

## Silicon PNP epitaxial planar type

For high frequency amplification

### ■ Features

- High transition frequency  $f_T$
- Optimum for high-density mounting and downsizing of the equipment for Ultraminiature leadless package  
0.6 mm × 1.0 mm (height 0.39 mm)

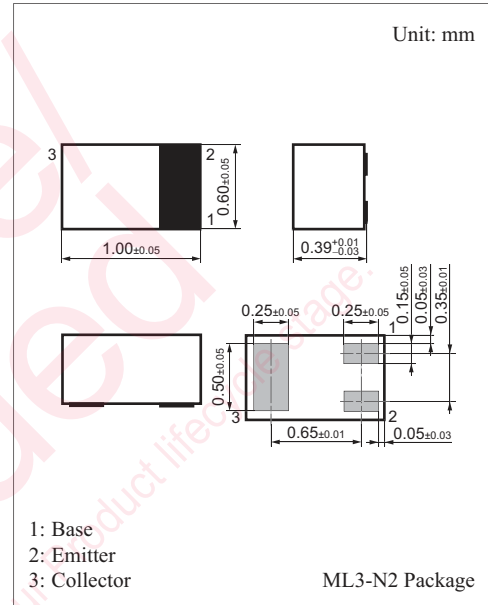
### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	-30	V
Collector-emitter voltage (Base open)	$V_{CEO}$	-20	V
Emitter-base voltage (Collector open)	$V_{EBO}$	-5	V
Collector current	$I_C$	-30	mA
Collector power dissipation	$P_C$	100	mW
Junction temperature	$T_j$	125	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +125	$^\circ\text{C}$

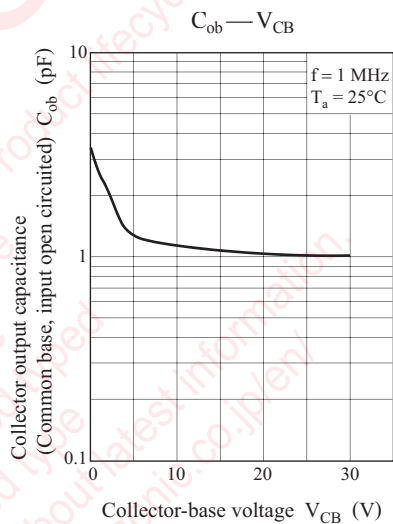
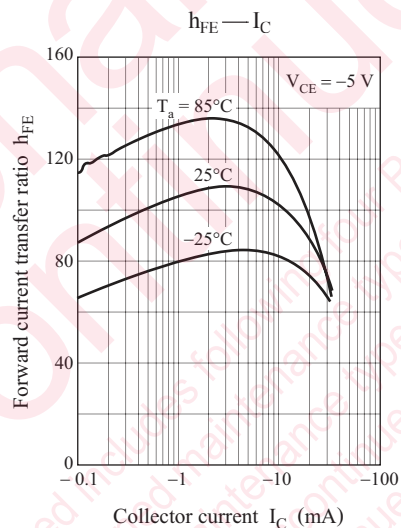
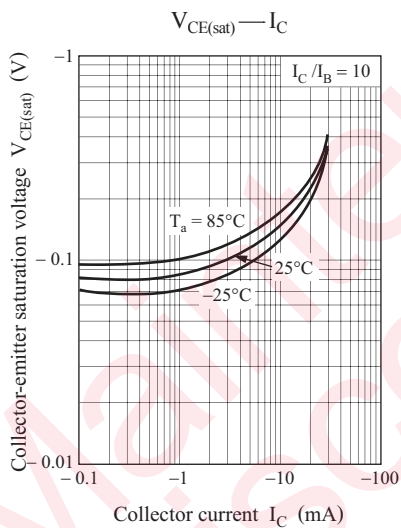
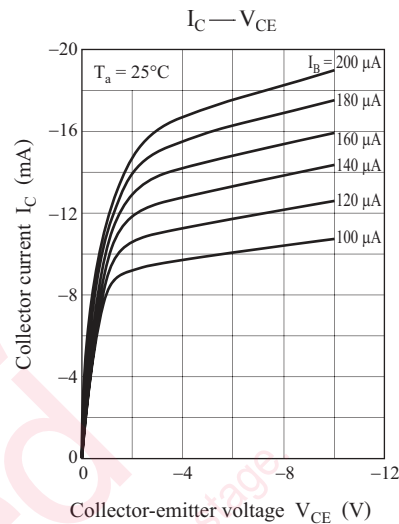
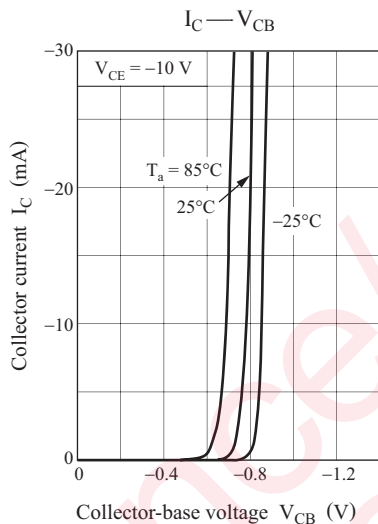
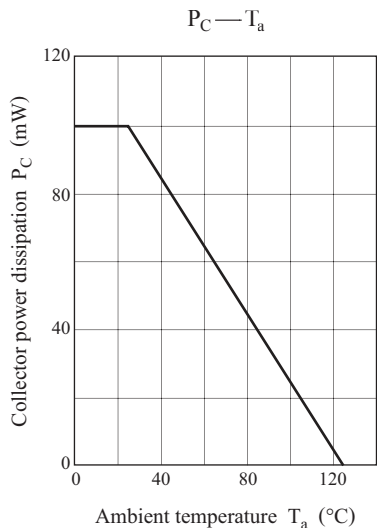
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Base-emitter voltage	$V_{BE}$	$V_{CE} = -10\text{ V}, I_C = -1\text{ mA}$		-0.7		V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = -10\text{ V}, I_E = 0$			-0.1	$\mu\text{A}$
Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = -20\text{ V}, I_B = 0$			-100	$\mu\text{A}$
Emitter-base cutoff current (Collector open)	$I_{EBO}$	$V_{EB} = -5\text{ V}, I_C = 0$			-10	$\mu\text{A}$
Forward current transfer ratio	$h_{FE}$	$V_{CE} = -10\text{ V}, I_C = -1\text{ mA}$	70		220	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10\text{ mA}, I_B = -1\text{ mA}$		-0.1		V
Transition frequency	$f_T$	$V_{CB} = -10\text{ V}, I_E = 1\text{ mA}, f = 200\text{ MHz}$	150	300		MHz
Noise figure	NF	$V_{CB} = -10\text{ V}, I_E = 1\text{ mA}, f = 5\text{ MHz}$		2.8	4.0	dB
Reverse transfer impedance	$Z_{rb}$	$V_{CB} = -10\text{ V}, I_E = 1\text{ mA}, f = 2\text{ MHz}$		22	50	$\Omega$
Reverse transfer capacitance (Common emitter)	$C_{re}$	$V_{CB} = -10\text{ V}, I_E = 1\text{ mA}, f = 10.7\text{ MHz}$		1.2	2.0	pF

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



Marking Symbol: 6J



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