

UP04598

Silicon NPN epitaxial planar type

For high-frequency amplification (Tr1)

For low-frequency amplification (Tr2)

■ Features

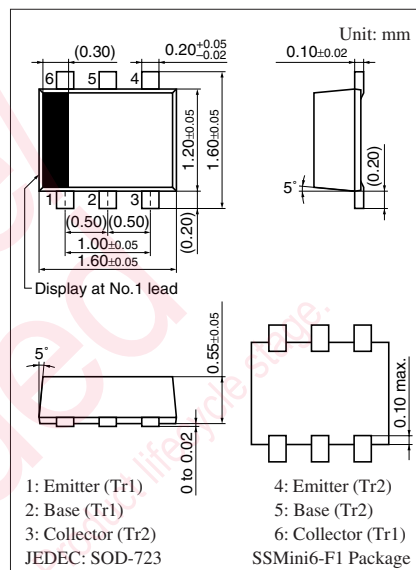
- Two elements incorporated into one package
(Each transistor is separated)
- Reduction of the mounting area and assembly cost by one half

■ Basic Part Number

- 2SC1047 + 2SC3311A

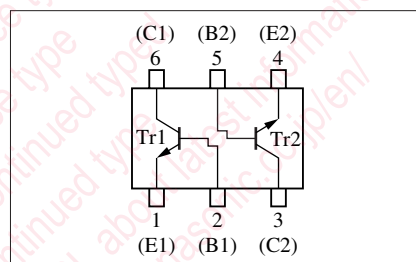
■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

	Parameter	Symbol	Rating	Unit
Tr1	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}	3	V
	Collector current	I_{C}	15	mA
Tr2	Collector-base voltage (Emitter open)	V_{CBO}	60	V
	Collector-emitter voltage (Base open)	V_{CEO}	50	V
	Emitter-base voltage (Collector open)	V_{EBO}	7	V
	Collector current	I_{C}	100	mA
Overall	Peak collector current	I_{CP}	200	mA
	Total power dissipation	P_{T}	125	mW
	Junction temperature	T_{j}	125	$^\circ\text{C}$
	Storage temperature	T_{stg}	-55 to +125	$^\circ\text{C}$



Marking Symbol: 3S

Internal Connection



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

• Tr1

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = 10 \mu\text{A}, I_E = 0$	30			V
Emitter-base voltage (Collector open)	V_{EBO}	$I_E = 10 \mu\text{A}, I_C = 0$	3			V
Forward current transfer ratio	h_{FE}	$V_{CB} = 6 \text{V}, I_E = -1 \text{mA}$	65		260	—
Base-emitter voltage	V_{BE}	$V_{CB} = 6 \text{V}, I_E = -1 \text{mA}$		720		mV
Noise figure	NF	$V_{CB} = 6 \text{V}, I_E = -1 \text{mA}, f = 100 \text{MHz}$		3.3		dB
Power gain	PG	$V_{CB} = 6 \text{V}, I_E = -1 \text{mA}, f = 100 \text{MHz}$		24		dB
Reverse transfer capacitance (Common emitter)	C_{re}	$V_{CB} = 6 \text{V}, I_E = -1 \text{mA}, f = 10.7 \text{MHz}$		0.8	1.0	pF
Transition frequency	f_T	$V_{CB} = 6 \text{V}, I_E = -1 \text{mA}, f = 100 \text{MHz}$	450	650		MHz

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

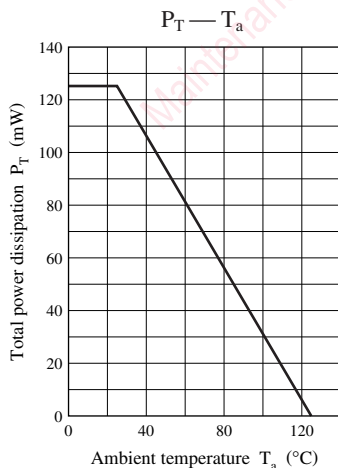
• Tr2

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = 10 \mu\text{A}, I_E = 0$	60			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 2 \text{mA}, I_B = 0$	50			V
Emitter-base voltage (Collector open)	V_{EBO}	$I_E = 10 \mu\text{A}, I_C = 0$	7			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 20 \text{V}, I_E = 0$			0.1	μA
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = 10 \text{V}, I_B = 0$			100	μA
Forward current transfer ratio	h_{FE1}	$V_{CE} = 10 \text{V}, I_C = 2 \text{mA}$	160		460	—
	h_{FE2}^*	$V_{CE} = 2 \text{V}, I_C = 100 \text{mA}$	90			—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 100 \text{mA}, I_B = 10 \text{mA}$		0.1	0.3	V
Transition frequency	f_T	$V_{CB} = 10 \text{V}, I_E = -2 \text{mA}, f = 200 \text{MHz}$		150		MHz
Collector output capacitance (Common base, input open circuited)	C_{ob}	$V_{CB} = 10 \text{V}, I_E = 0, f = 1 \text{MHz}$		3.5		pF

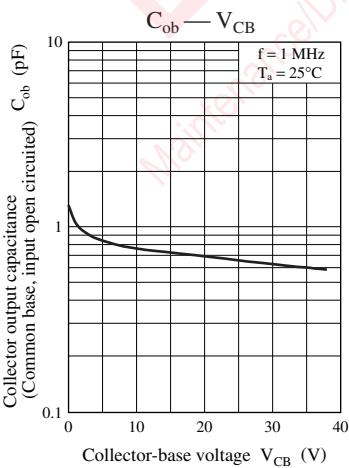
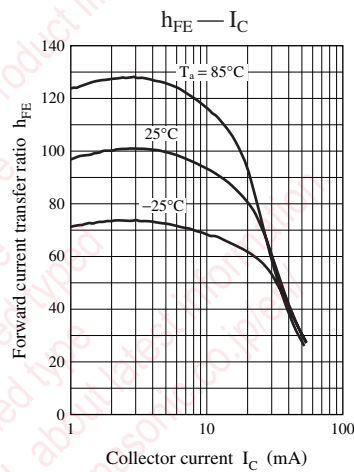
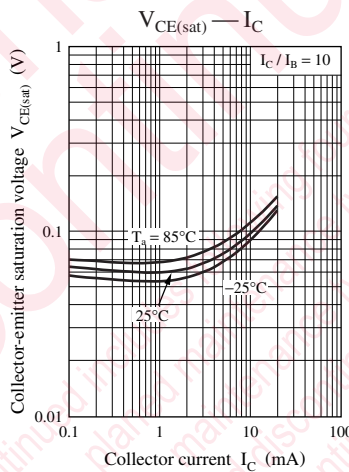
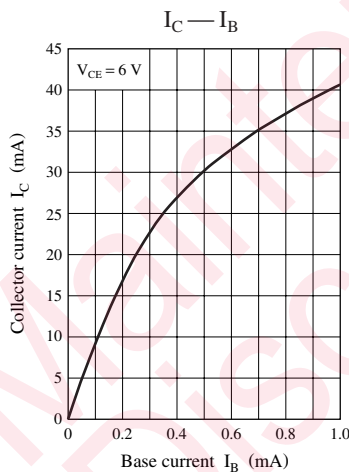
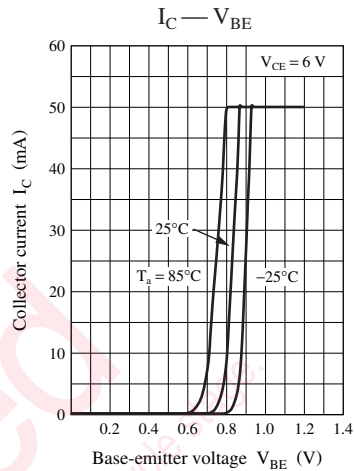
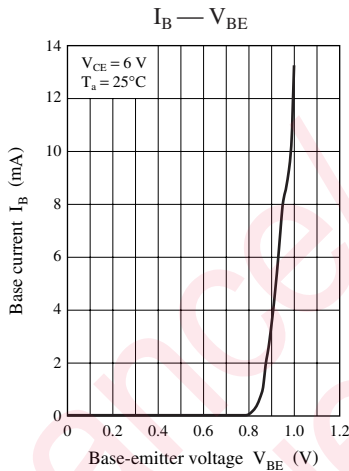
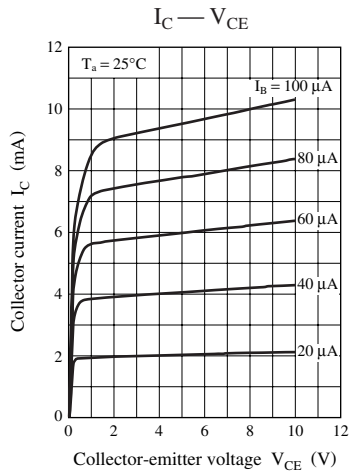
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. *: Pulse measurement

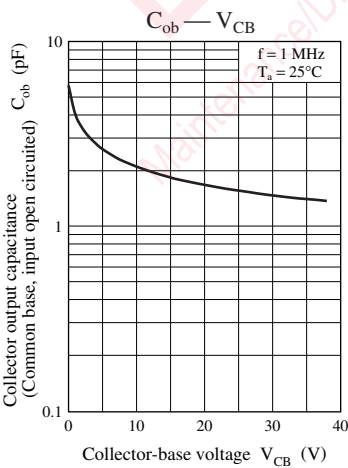
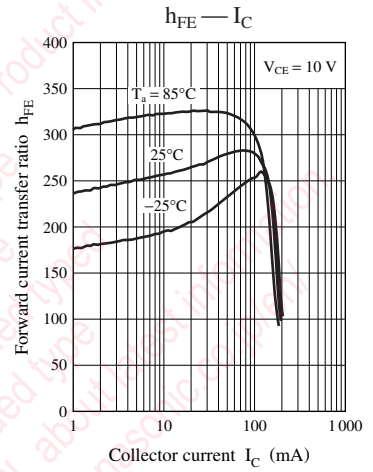
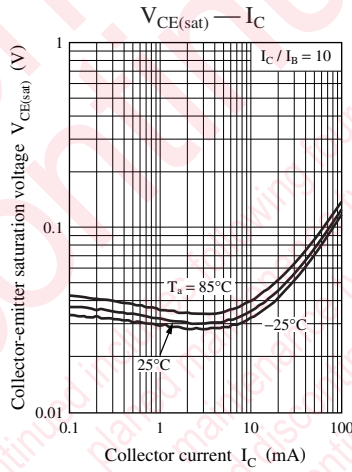
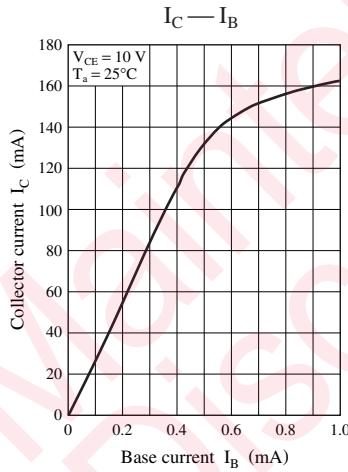
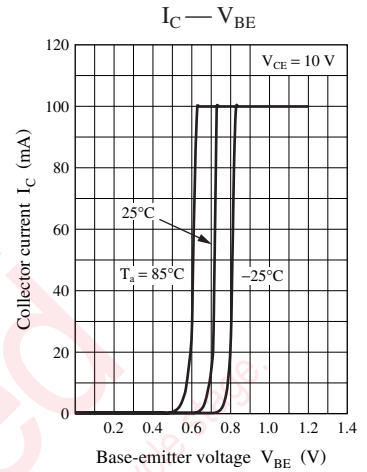
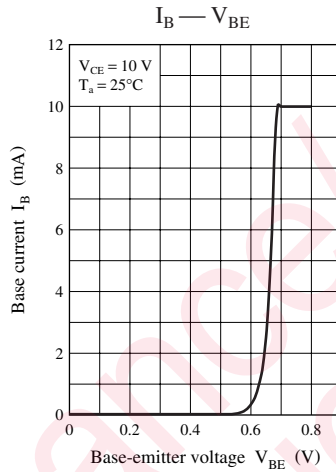
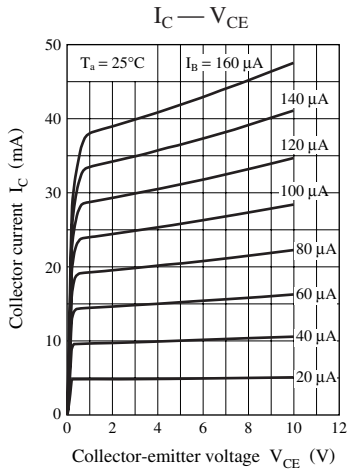
Common characteristics chart



Characteristics charts of Tr1



Characteristics charts of Tr2



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