

XN04407 (XN4407)

Silicon PNP epitaxial planar transistor

For general amplification

■ Features

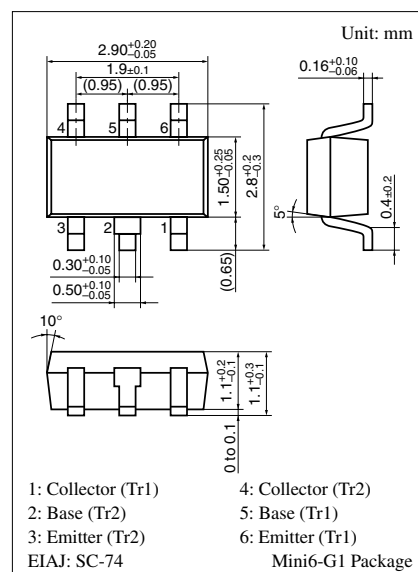
- Two elements incorporated into one package (Each transistor is separated)
- Reduction of the mounting area and assembly cost by one half

■ Basic Part Number of Element

- 2SB0709A (2SB709A) + 2SB0970 (2SB970)

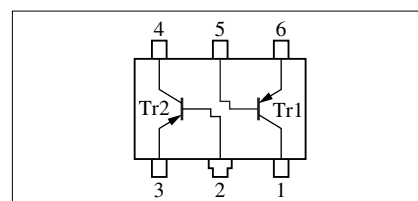
■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

	Parameter	Symbol	Rating	Unit
Tr1	Collector to base voltage	V_{CBO}	-60	V
	Collector to emitter voltage	V_{CEO}	-50	V
	Emitter to base voltage	V_{EBO}	-7	V
	Collector current	I_C	-100	mA
	Peak collector current	I_{CP}	-200	mA
Tr2	Collector to base voltage	V_{CBO}	-15	V
	Collector to emitter voltage	V_{CEO}	-10	V
	Emitter to base voltage	V_{EBO}	-7	V
	Collector current	I_C	-500	mA
	Peak collector current	I_{CP}	-1	A
Total	Total power dissipation	P_T	300	mW
	Junction temperature	T_j	150	$^\circ\text{C}$
	Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$



Marking Symbol: ES

Internal Connection



Note) The part number in the parenthesis shows conventional part number.

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

• Tr1

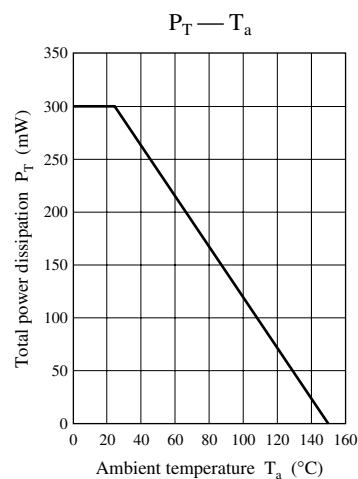
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector to base voltage	V_{CBO}	$I_{\text{C}} = -10\ \mu\text{A}$, $I_{\text{E}} = 0$	-60			V
Collector to emitter voltage	V_{CEO}	$I_{\text{C}} = -2\ \text{mA}$, $I_{\text{B}} = 0$	-50			V
Emitter to base voltage	V_{EBO}	$I_{\text{E}} = -10\ \mu\text{A}$, $I_{\text{C}} = 0$	-7			V
Collector cutoff current	I_{CBO}	$V_{\text{CB}} = -20\ \text{V}$, $I_{\text{E}} = 0$			-0.1	μA
	I_{CEO}	$V_{\text{CE}} = -10\ \text{V}$, $I_{\text{B}} = 0$			-100	
DC current gain	h_{FE}	$V_{\text{CE}} = -10\ \text{V}$, $I_{\text{C}} = -2\ \text{mA}$	160		460	—
Collector to emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}} = -100\ \text{mA}$, $I_{\text{B}} = -10\ \text{mA}$		-0.3	-0.5	V
Collector output capacitance	C_{ob}	$V_{\text{CB}} = -10\ \text{V}$, $I_{\text{E}} = 0$, $f = 1\ \text{MHz}$		2.7		pF
Gain bandwidth product	f_{T}	$V_{\text{CB}} = -10\ \text{V}$, $I_{\text{E}} = 1\ \text{mA}$, $f = 200\ \text{MHz}$		80		MHz

• Tr2

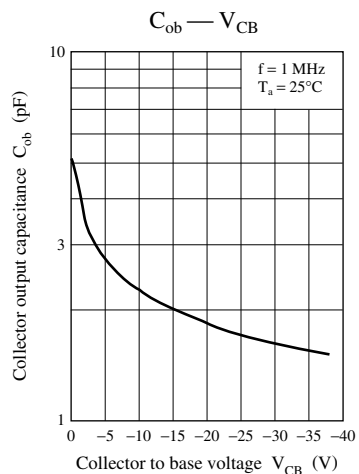
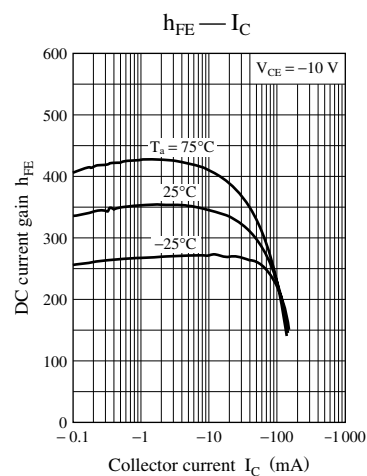
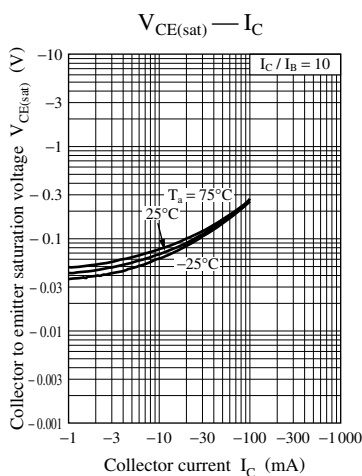
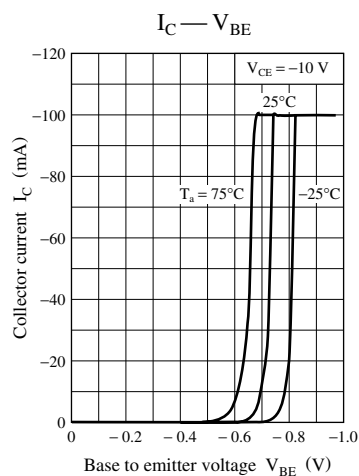
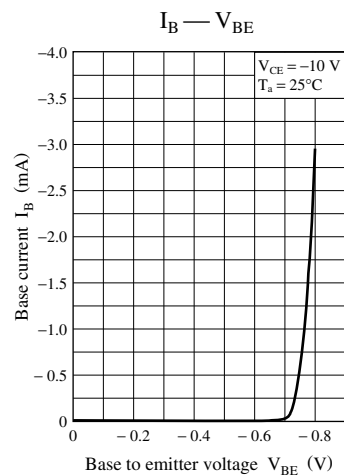
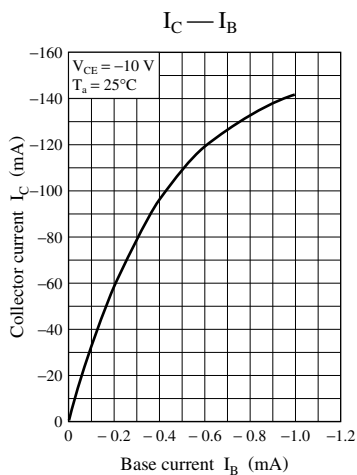
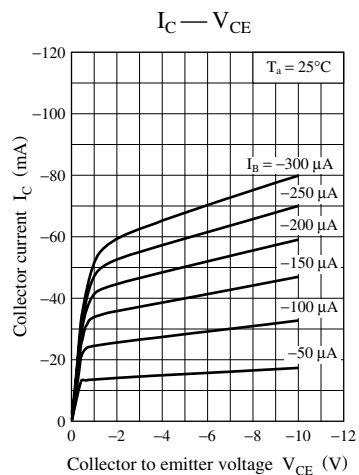
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector to base voltage	V_{CBO}	$I_{\text{C}} = -10\ \mu\text{A}$, $I_{\text{E}} = 0$	-15			V
Collector to emitter voltage	V_{CEO}	$I_{\text{C}} = -1\ \text{mA}$, $I_{\text{B}} = 0$	-10			V
Emitter to base voltage	V_{EBO}	$I_{\text{E}} = -10\ \mu\text{A}$, $I_{\text{C}} = 0$	-7			V
Collector cutoff current	I_{CBO}	$V_{\text{CB}} = -10\ \text{V}$, $I_{\text{E}} = 0$			-0.1	μA
DC current gain *	h_{FE1}	$V_{\text{CE}} = -2\ \text{V}$, $I_{\text{C}} = -500\ \text{mA}$	100		350	—
	h_{FE2}	$V_{\text{CE}} = -2\ \text{V}$, $I_{\text{C}} = -1\ \text{A}$	60			
Collector to emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}} = -400\ \text{mA}$, $I_{\text{B}} = -8\ \text{mA}$		-0.16	-0.3	V
Base to emitter saturation voltage	$V_{\text{BE(sat)}}$	$I_{\text{C}} = -400\ \text{mA}$, $I_{\text{B}} = -8\ \text{mA}$		-0.8	-1.2	V
Collector output capacitance	C_{ob}	$V_{\text{CB}} = -10\ \text{V}$, $I_{\text{E}} = 0$, $f = 1\ \text{MHz}$		22		pF
Gain bandwidth product	f_{T}	$V_{\text{CB}} = -10\ \text{V}$, $I_{\text{E}} = 50\ \text{mA}$, $f = 200\ \text{MHz}$		130		MHz

Note) *: Pulse test

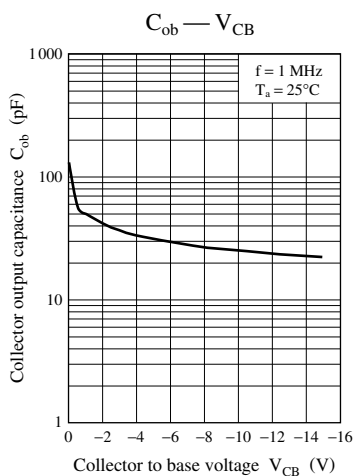
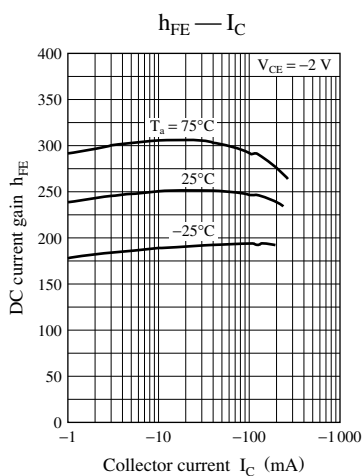
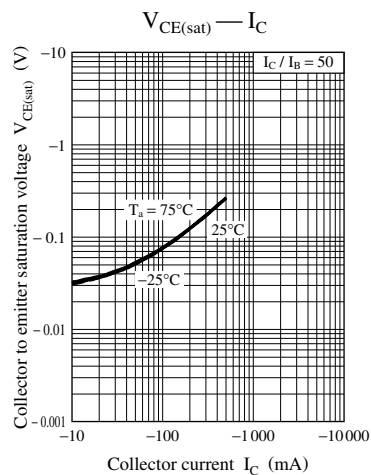
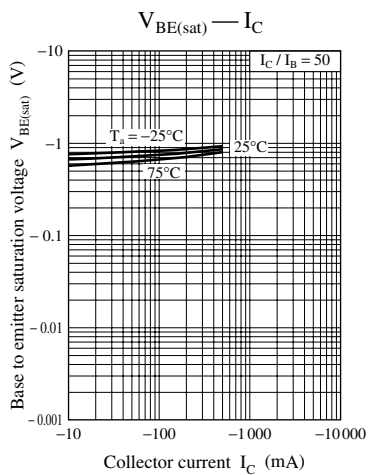
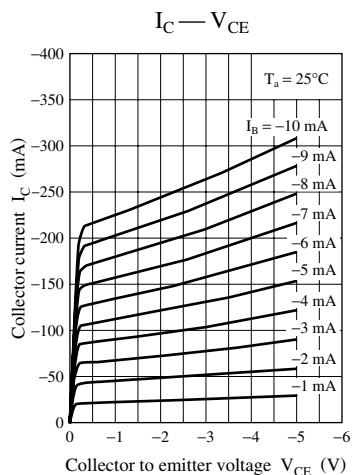
Common characteristics chart



Characteristics chart of Tr1



Characteristics chart of Tr2



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