

XN0B301 (XN1B301)

Silicon PNP epitaxial planar transistor (Tr1)
 Silicon NPN epitaxial planar transistor (Tr2)

For general amplification

■ Features

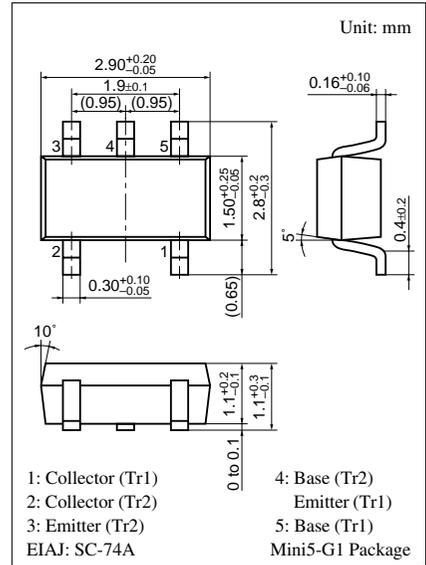
- Two elements incorporated into one package
- Reduction of the mounting area and assembly cost by one half

■ Basic Part Number of Element

- 2SB0709A (2SB709A) + 2SD0601A (2SD601A)

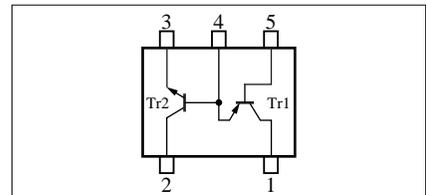
■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

	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}	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
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: 4Q

Internal Connection



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

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

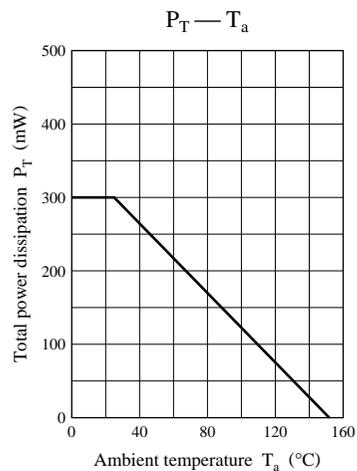
• Tr1

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

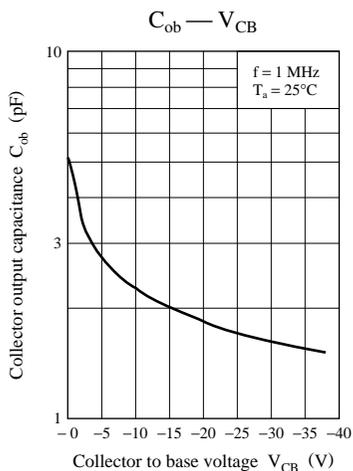
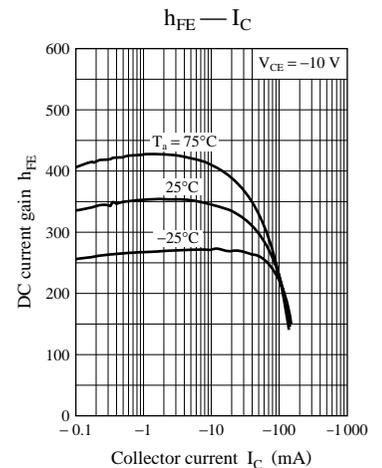
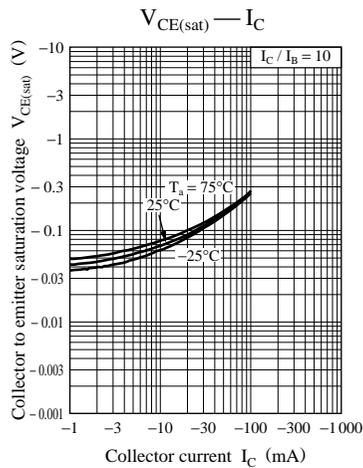
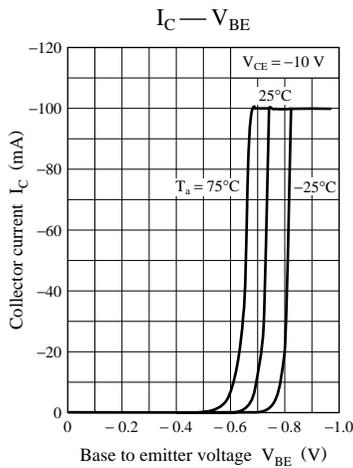
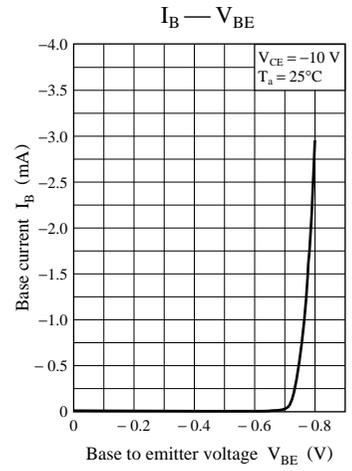
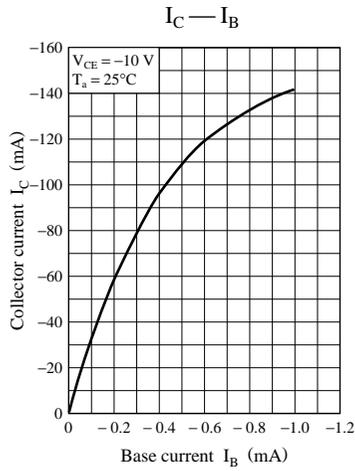
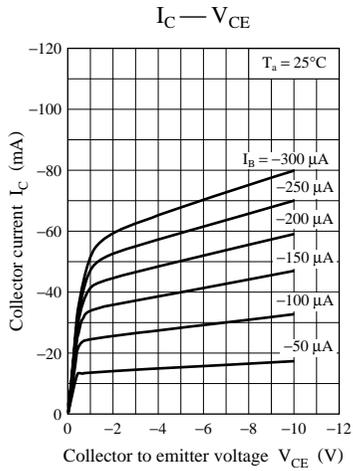
• Tr2

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector to base voltage	V_{CBO}	$I_C = 10 \mu\text{A}, I_E = 0$	60			V
Collector to emitter voltage	V_{CEO}	$I_C = 2 \text{ mA}, I_B = 0$	50			V
Emitter to base voltage	V_{EBO}	$I_E = 10 \mu\text{A}, I_C = 0$	7			V
Collector cutoff current	I_{CBO}	$V_{CB} = 20 \text{ V}, I_E = 0$			0.1	μA
	I_{CEO}	$V_{CE} = 10 \text{ V}, I_B = 0$			100	
DC current gain	h_{FE}	$V_{CE} = 10 \text{ V}, I_C = 2 \text{ mA}$	160		460	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 100 \text{ mA}, I_B = 10 \text{ mA}$		0.1	0.3	V
Gain bandwidth product	f_T	$V_{CB} = 10 \text{ V}, I_E = -2 \text{ mA}, f = 200 \text{ MHz}$		150		MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$		3.5		pF

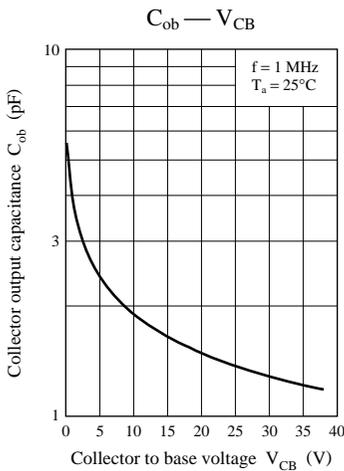
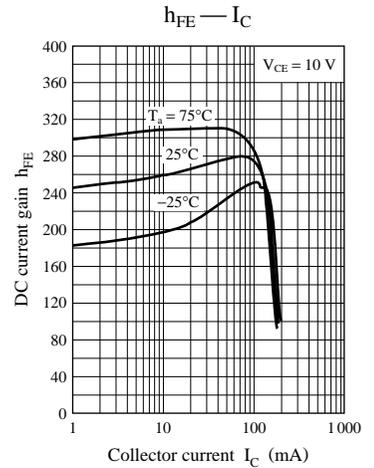
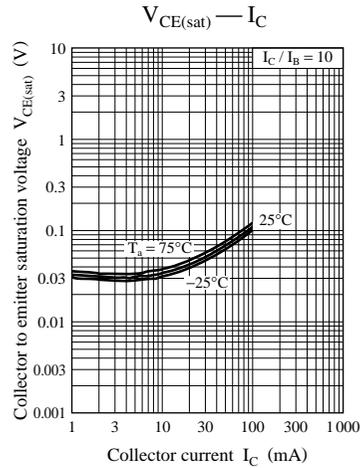
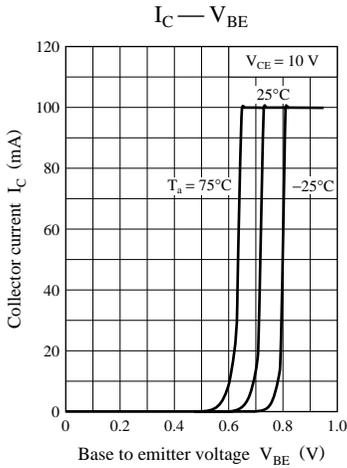
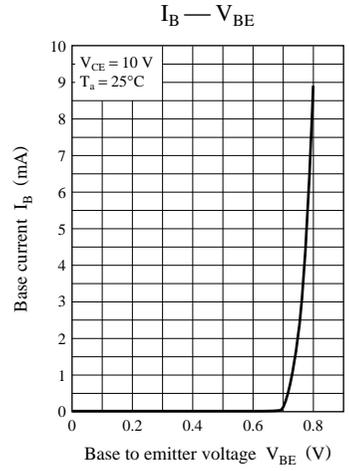
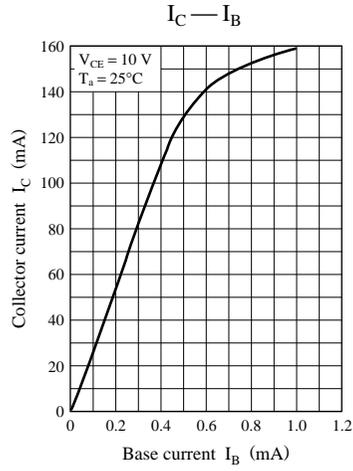
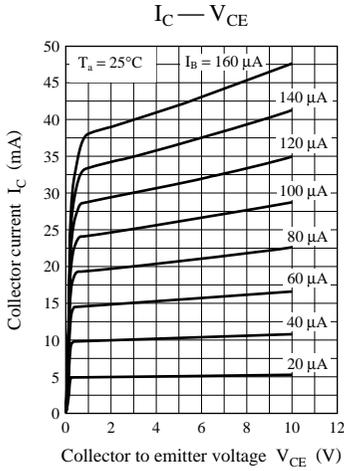
Common characteristics chart



Characteristics charts of Tr1



Characteristics charts of Tr2



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