

# XN04602

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

For general amplification

■ Features

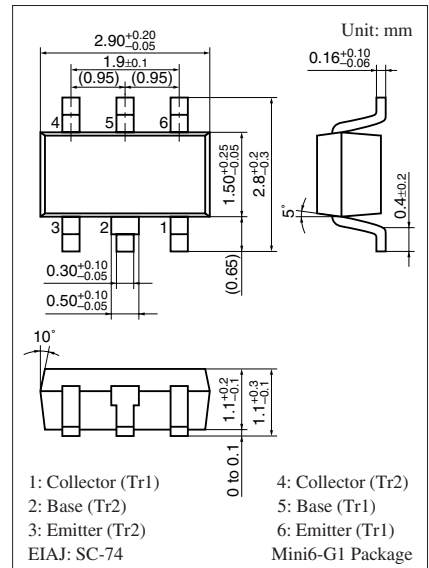
- Two elements incorporated into one package
- Reduction of the mounting area and assembly cost by one half

■ Basic Part Number

- 2SD0602A + 2SB0710A

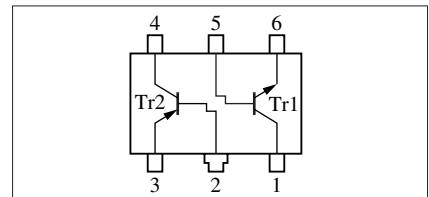
■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$

	Parameter	Symbol	Rating	Unit
Tr1	Collector-base voltage (Emitter open)	$V_{CBO}$	60	V
	Collector-emitter voltage (Base open)	$V_{CEO}$	50	V
	Emitter-base voltage (Collector open)	$V_{EBO}$	5	V
	Collector current	$I_C$	0.5	A
	Peak collector current	$I_{CP}$	1	A
Tr2	Collector-base voltage (Emitter open)	$V_{CBO}$	-60	V
	Collector-emitter voltage (Base open)	$V_{CEO}$	-50	V
	Emitter-base voltage (Collector open)	$V_{EBO}$	-5	V
	Collector current	$I_C$	-0.5	A
	Peak collector current	$I_{CP}$	-1	A
Overall	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: 4A

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)	$V_{\text{CBO}}$	$I_{\text{C}} = 10 \mu\text{A}, I_{\text{E}} = 0$	60			V
Collector-emitter voltage (Base open)	$V_{\text{CEO}}$	$I_{\text{C}} = 10 \text{mA}, I_{\text{B}} = 0$	50			V
Emitter-base voltage (Collector open)	$V_{\text{EBO}}$	$I_{\text{E}} = 10 \mu\text{A}, I_{\text{C}} = 0$	5			V
Collector-base cutoff current (Emitter open)	$I_{\text{CBO}}$	$V_{\text{CB}} = 20 \text{V}, I_{\text{E}} = 0$			0.1	$\mu\text{A}$
Forward current transfer ratio *	$h_{\text{FE1}}$	$V_{\text{CE}} = 10 \text{V}, I_{\text{C}} = 150 \text{mA}$	85		340	—
	$h_{\text{FE2}}$	$V_{\text{CE}} = 10 \text{V}, I_{\text{C}} = 500 \text{mA}$	40			
Collector-emitter saturation voltage *	$V_{\text{CE(sat)}}$	$I_{\text{C}} = 300 \text{mA}, I_{\text{B}} = 30 \text{mA}$		0.35	0.60	V
Transition frequency	$f_{\text{T}}$	$V_{\text{CB}} = 10 \text{V}, I_{\text{E}} = -50 \text{mA}, f = 200 \text{MHz}$		200		MHz
Collector output capacitance (Common base, input open circuited)	$C_{\text{ob}}$	$V_{\text{CB}} = 10 \text{V}, I_{\text{E}} = 0, f = 1 \text{MHz}$		6	15	pF

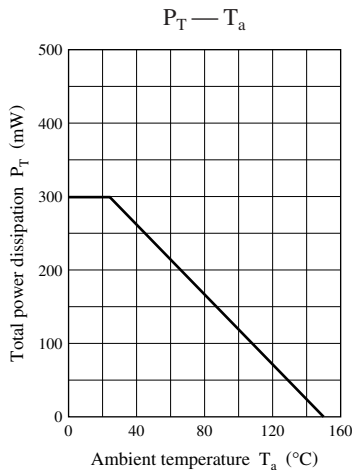
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.  
 2. \*: Pulse measurement

• Tr2

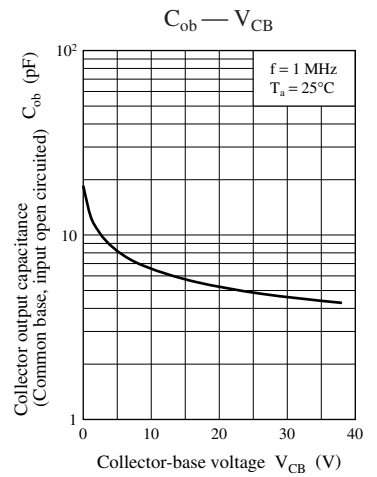
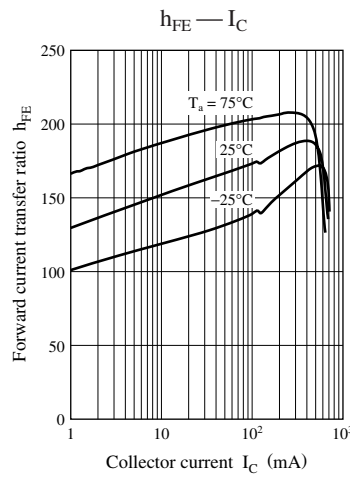
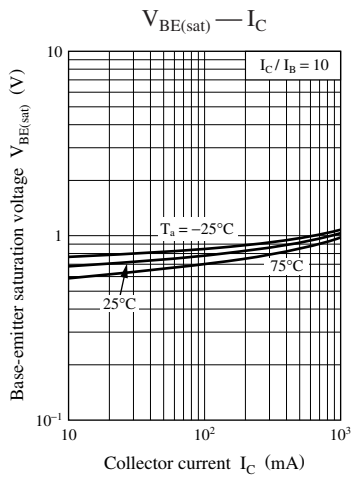
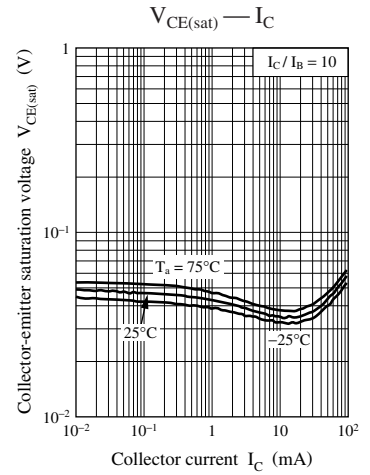
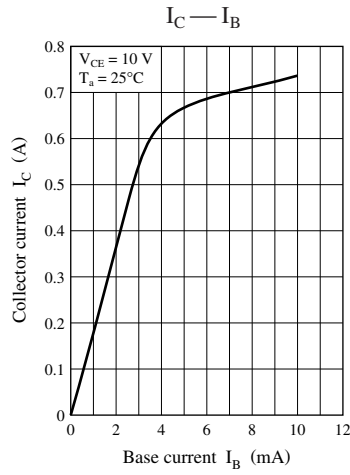
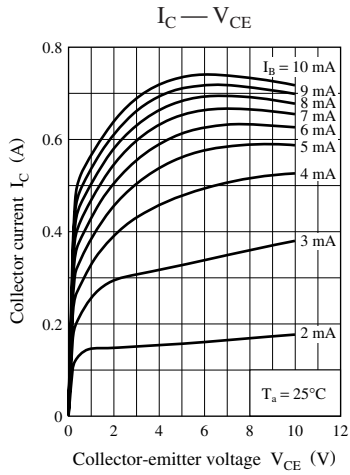
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{\text{CBO}}$	$I_{\text{C}} = -10 \mu\text{A}, I_{\text{E}} = 0$	-60			V
Collector-emitter voltage (Base open)	$V_{\text{CEO}}$	$I_{\text{C}} = -10 \text{mA}, I_{\text{B}} = 0$	-50			V
Emitter-base voltage (Collector open)	$V_{\text{EBO}}$	$I_{\text{E}} = -10 \mu\text{A}, I_{\text{C}} = 0$	-5			V
Collector-base cutoff current (Emitter open)	$I_{\text{CBO}}$	$V_{\text{CB}} = -20 \text{V}, I_{\text{E}} = 0$			-0.1	$\mu\text{A}$
Forward current transfer ratio	$h_{\text{FE1}}$	$V_{\text{CE}} = -10 \text{V}, I_{\text{C}} = -150 \text{mA}$	85		340	—
	$h_{\text{FE2}}$	$V_{\text{CE}} = -10 \text{V}, I_{\text{C}} = -500 \text{mA}$	40			
Collector-emitter saturation voltage *	$V_{\text{CE(sat)}}$	$I_{\text{C}} = -300 \text{mA}, I_{\text{B}} = -30 \text{mA}$		-0.35	-0.60	V
Base-emitter saturation voltage *	$V_{\text{BE(sat)}}$	$I_{\text{C}} = -300 \text{mA}, I_{\text{B}} = -30 \text{mA}$		-1.1	-1.5	V
Transition frequency	$f_{\text{T}}$	$V_{\text{CB}} = -10 \text{V}, I_{\text{E}} = 50 \text{mA}, f = 200 \text{MHz}$		200		MHz
Collector output capacitance (Common base, input open circuited)	$C_{\text{ob}}$	$V_{\text{CB}} = -10 \text{V}, I_{\text{E}} = 0, f = 1 \text{MHz}$		6	15	pF

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 2. \*: Pulse measurement

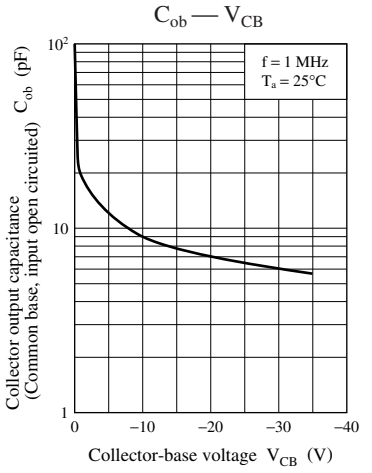
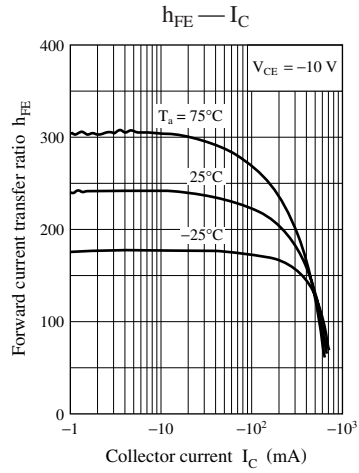
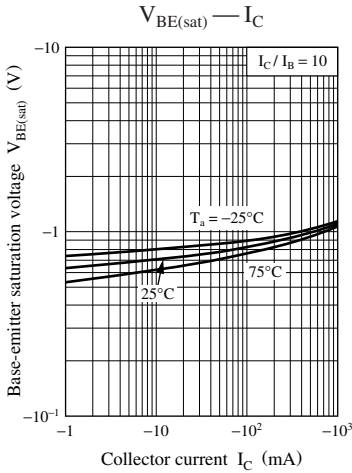
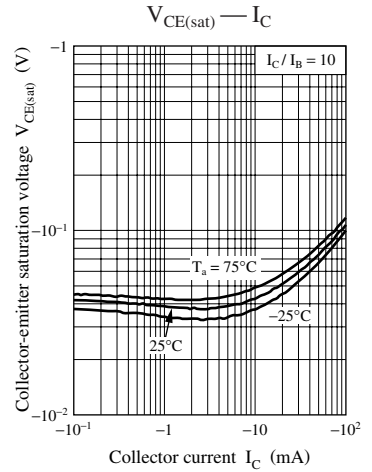
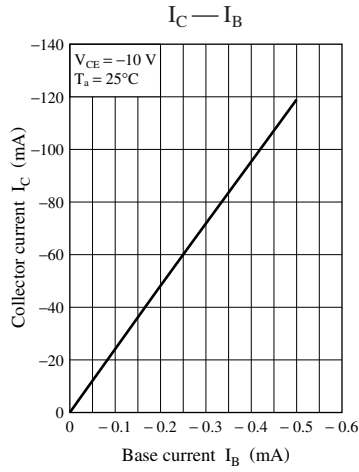
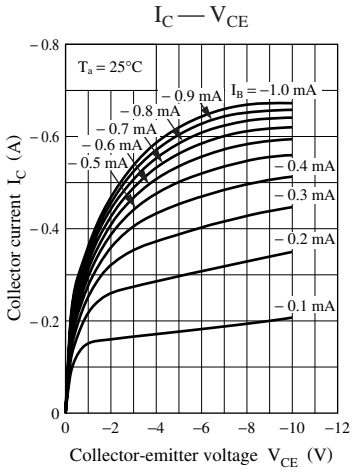
Common characteristics chart



Characteristics charts of Tr1



Characteristics charts of Tr2



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