

XP04683 (XP4683)

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

For high-frequency amplification (Tr1)

For general amplification (Tr2)

■ Features

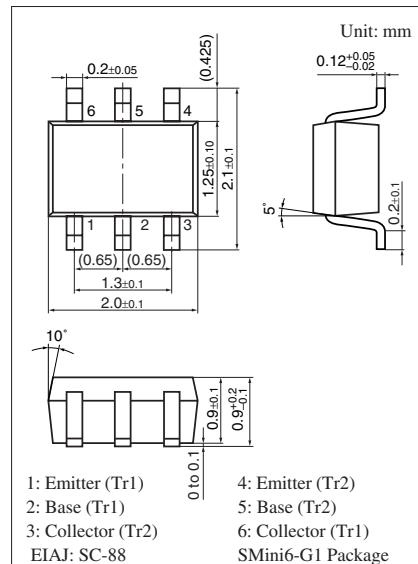
- Two elements incorporated into one package
- Reduction of the mounting area and assembly cost by one half

■ Basic Part Number

- 2SC2404 + 2SB0709A (2SB709A)

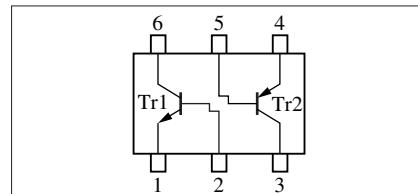
■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

	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
	Peak collector current	I_{CP}	-200	mA
Overall	Total power dissipation	P_T	150	mW
	Junction temperature	T_j	150	°C
	Storage temperature	T_{stg}	-55 to +150	°C



Marking Symbol: ER

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-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
Base-emitter voltage	V_{BE}	$V_{\text{CB}} = 6 \text{ V}, I_E = -1 \text{ mA}$		720		mV
Forward current transfer ratio	h_{FE}	$V_{\text{CB}} = 6 \text{ V}, I_E = -1 \text{ mA}$	40		260	—
Transition frequency	f_T	$V_{\text{CB}} = 6 \text{ V}, I_E = -1 \text{ mA}, f = 200 \text{ MHz}$	450	650		MHz
Reverse transfer capacitance (Common emitter)	C_{re}	$V_{\text{CB}} = 6 \text{ V}, I_E = -1 \text{ mA}, f = 10.7 \text{ MHz}$		0.8	1.0	pF
Power gain	G_P	$V_{\text{CB}} = 6 \text{ V}, I_E = -1 \text{ mA}, f = 100 \text{ MHz}$		24		dB
Noise figure	NF	$V_{\text{CB}} = 6 \text{ V}, I_E = -1 \text{ mA}, f = 100 \text{ MHz}$		3.3		dB

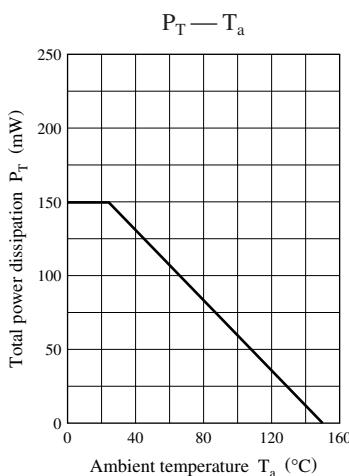
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

• Tr2

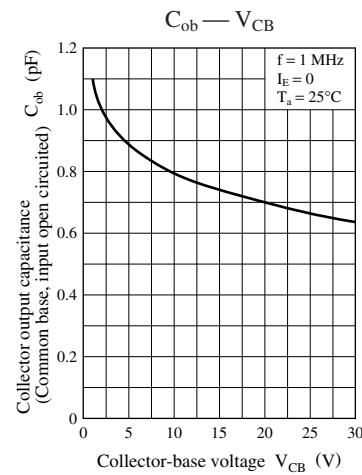
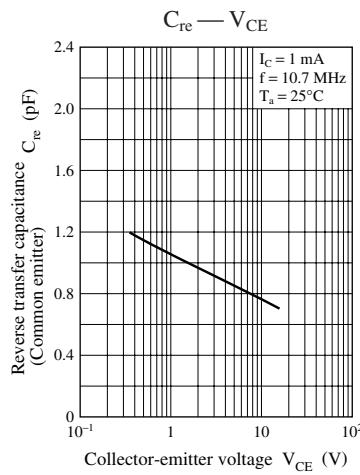
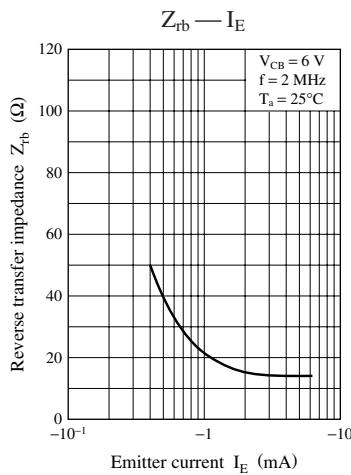
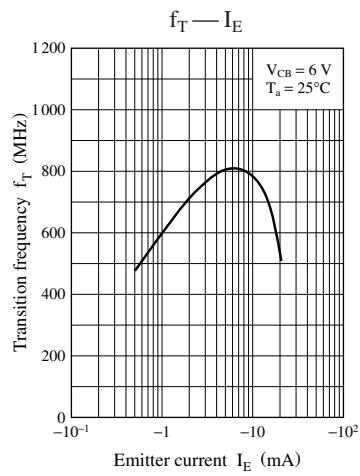
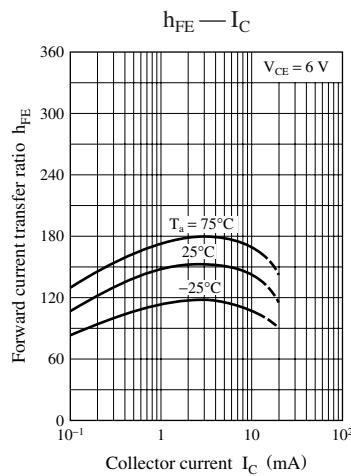
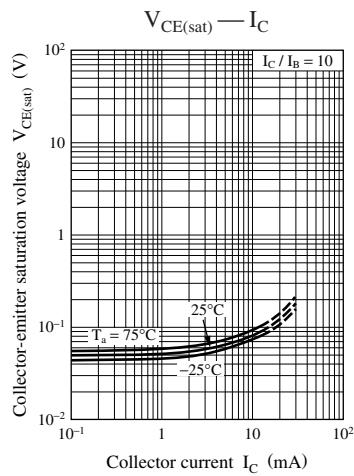
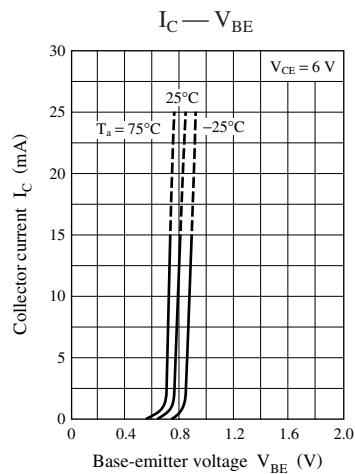
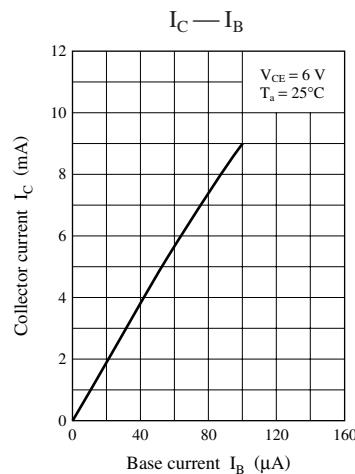
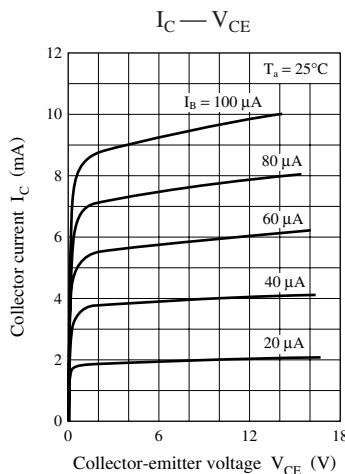
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = -10 \mu\text{A}, I_E = 0$	-60			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = -2 \text{ mA}, I_B = 0$	-50			V
Emitter-base voltage (Collector open)	V_{EBO}	$I_E = -10 \mu\text{A}, I_C = 0$	-7		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

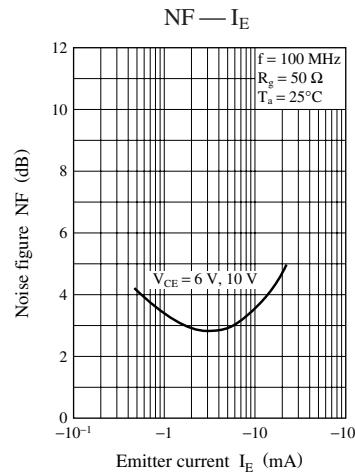
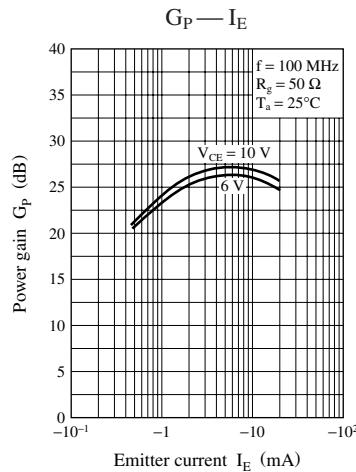
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

Common characteristics chart

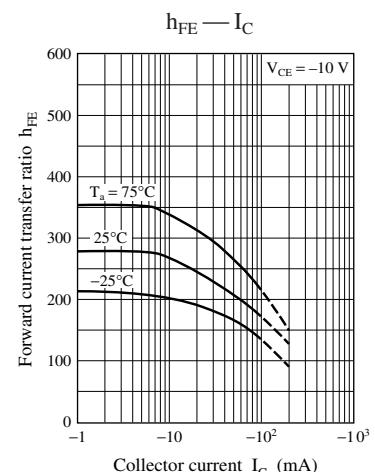
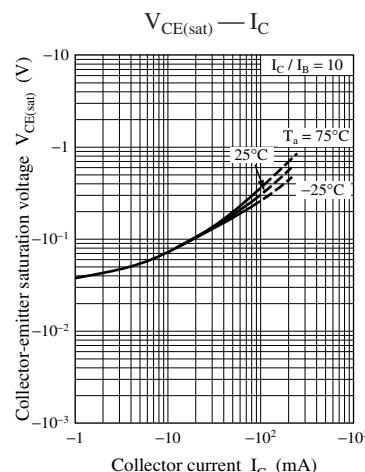
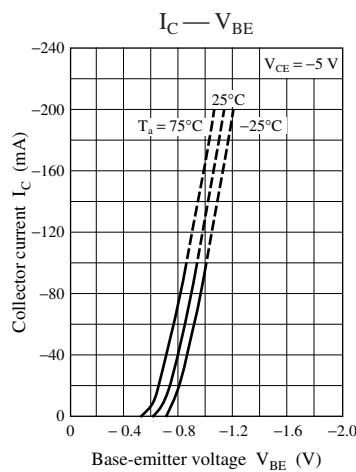
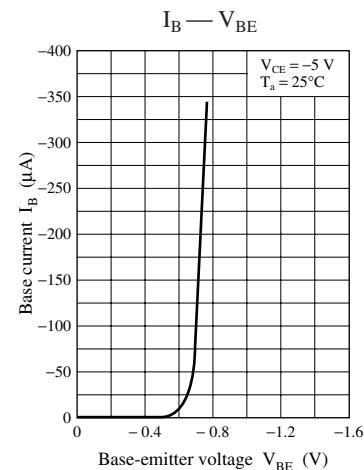
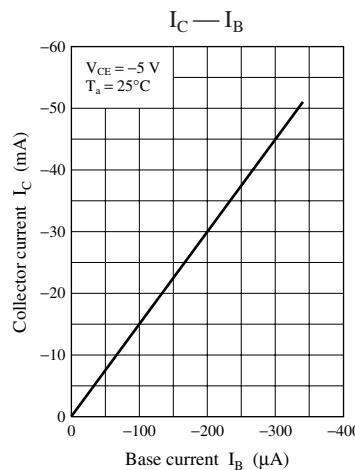
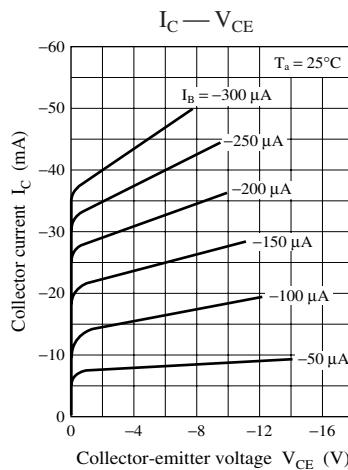


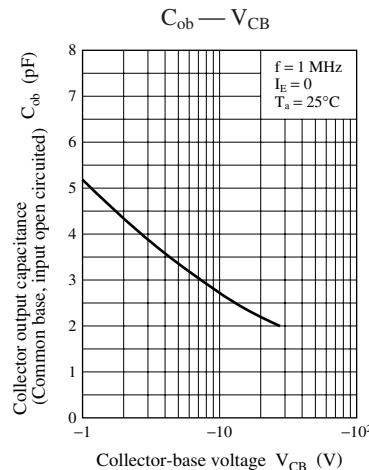
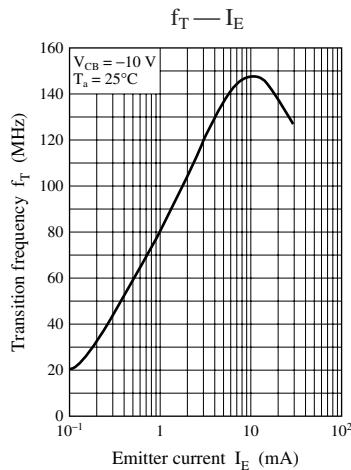
Characteristics charts of Tr1





Characteristics charts of Tr2





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