

XN04683 (XN4683)

Silicon NPN epitaxial planer transistor (Tr1)

Silicon PNP epitaxial planer transistor (Tr2)

For high-frequency amplification/For general amplification

Features

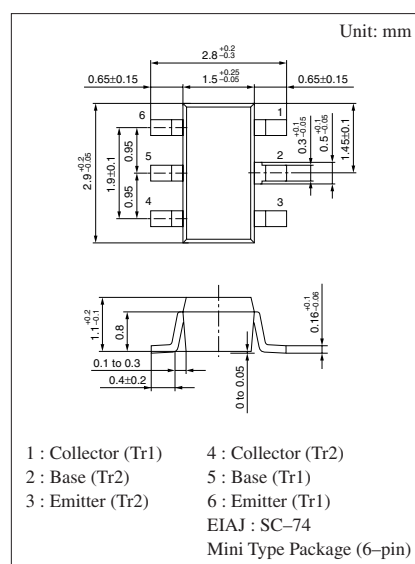
- Two elements incorporated into one package.
- Reduction of the mounting area and assembly cost by one half.

Basic Part Number of Element

- 2SC2404 + 2SB0709A(2SB709A)

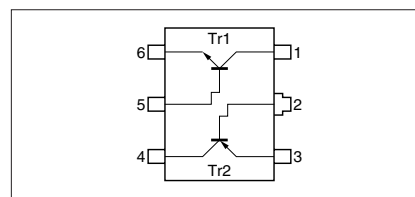
Absolute Maximum Ratings (Ta=25°C)

	Parameter	Symbol	Ratings	Unit
Tr1	Collector to base voltage	V_{CBO}	30	V
	Collector to emitter voltage	V_{CEO}	20	V
	Emitter to base voltage	V_{EBO}	3	V
	Collector current	I_C	15	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
Overall	Total power dissipation	P_T	200	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°C)

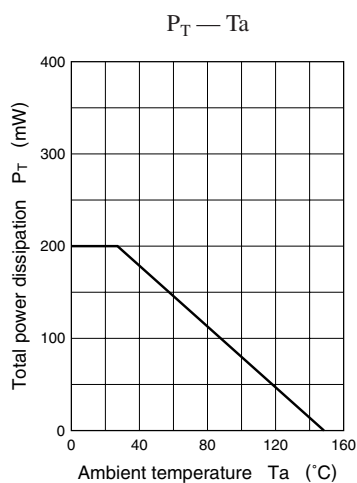
• Tr1

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector to base voltage	V _{CBO}	I _C = 10μA, I _E = 0	30			V
Emitter to base voltage	V _{EBO}	I _E = 10μA, I _C = 0	3			V
Forward current transfer ratio	h _{FE1}	V _{CE} = 6V, I _C = -1mA	40		260	
Base to emitter voltage	V _{BE}	V _{CB} = 6V, I _E = -1mA		720		mV
Feedback capacitance	C _{re}	V _{CB} = 6V, I _E = -1mA, f = 10.7MHz		0.8	1	pF
Transition frequency	f _T	V _{CB} = 6V, I _E = -1mA, f = 200MHz	450	650		MHz
Noise figure	NF	V _{CB} = 6V, I _E = -1mA, f = 100MHz		3.3		dB
Power gain	PG	V _{CB} = 6V, I _E = -1mA, f = 100MHz		24		dB

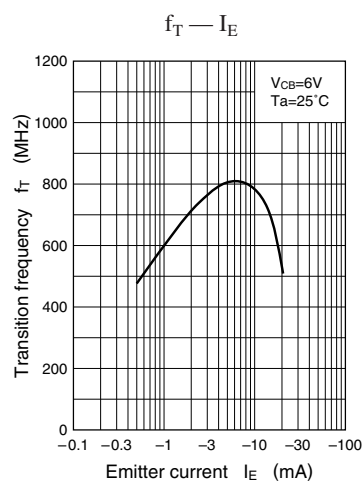
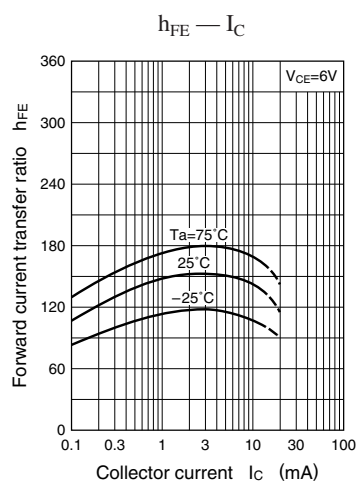
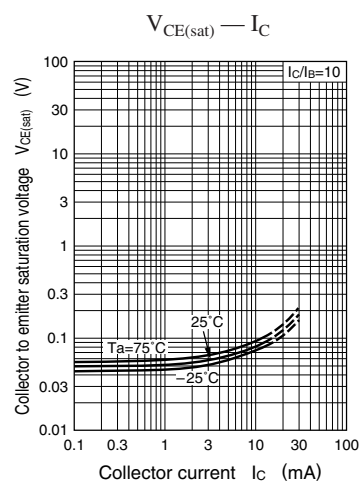
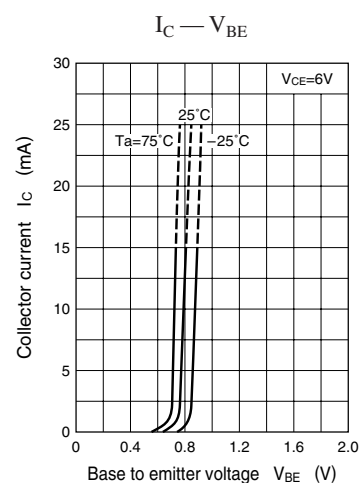
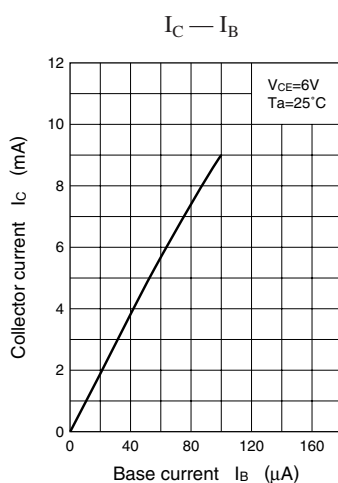
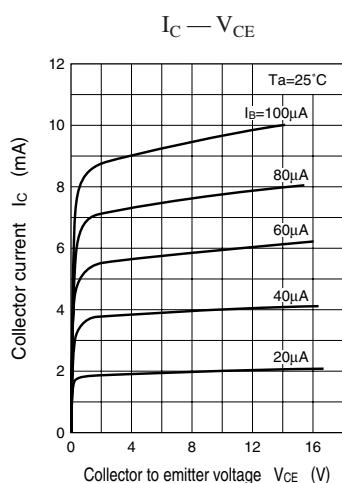
• Tr2

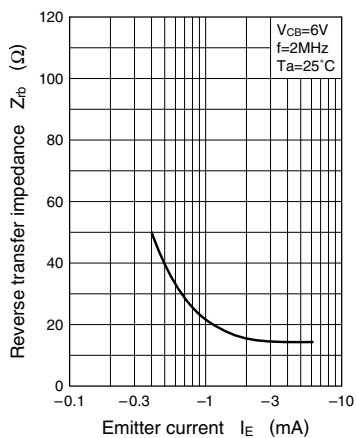
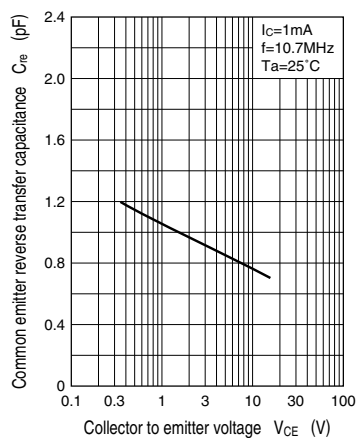
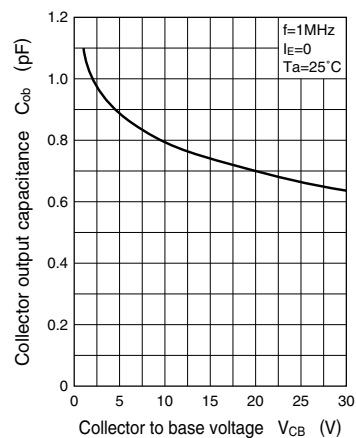
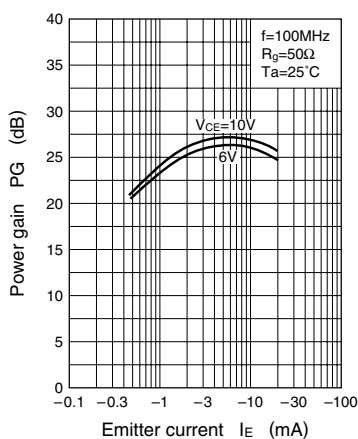
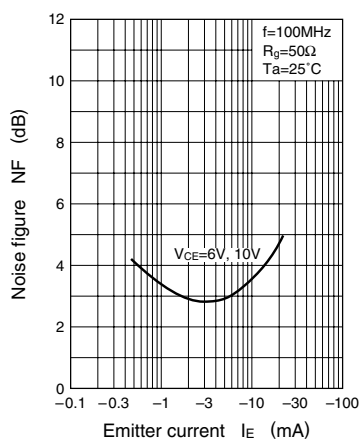
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector to base voltage	V _{CBO}	I _C = -10μA, I _E = 0	-60			V
Collector to emitter voltage	V _{CEO}	I _C = -2mA, I _B = 0	-50			V
Emitter to base voltage	V _{EBO}	I _E = -10μA, I _C = 0	-7			V
Collector cutoff current	I _{CBO}	V _{CB} = -20V, I _E = 0			-0.1	μA
	I _{CEO}	V _{CE} = -10V, I _B = 0			-100	μA
Forward current transfer ratio	h _{FE}	V _{CE} = -10V, I _C = -2mA	160		460	
Collector to emitter saturation voltage	V _{CE(sat)}	I _C = -100mA, I _B = -10mA		-0.3	-0.5	V
Transition frequency	f _T	V _{CB} = -10V, I _E = 1mA, f = 200MHz		80		MHz
Collector output capacitance	C _{ob}	V _{CB} = -10V, I _E = 0, f = 1MHz		2.7		pF

Common characteristics chart

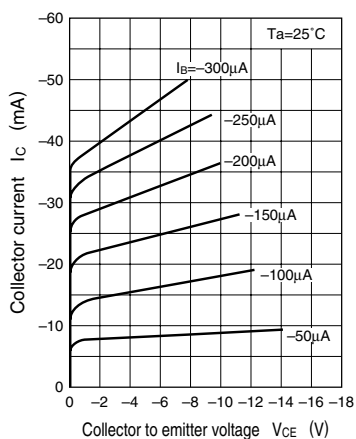
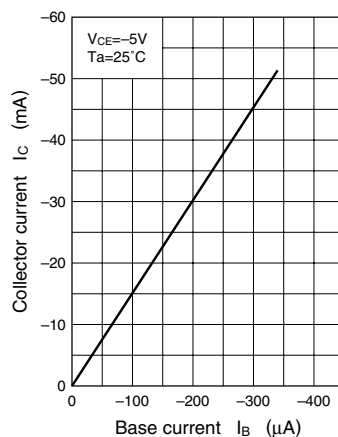
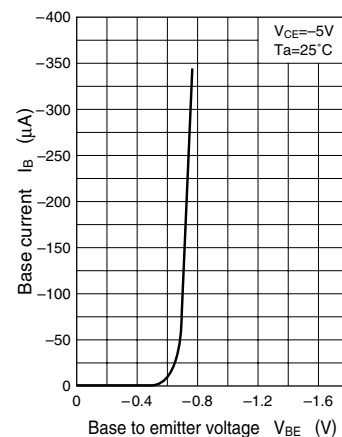


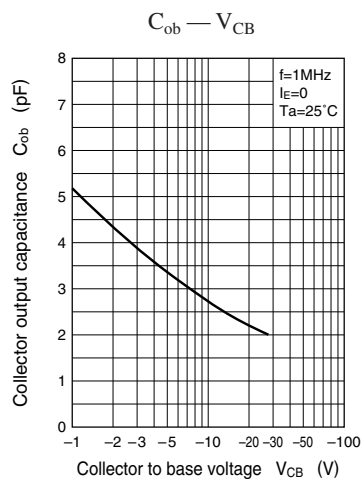
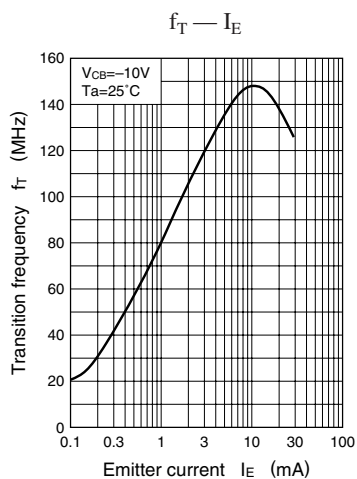
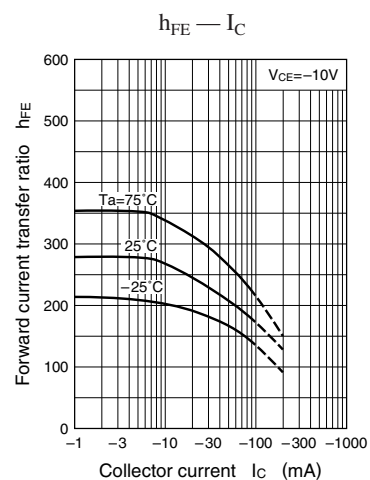
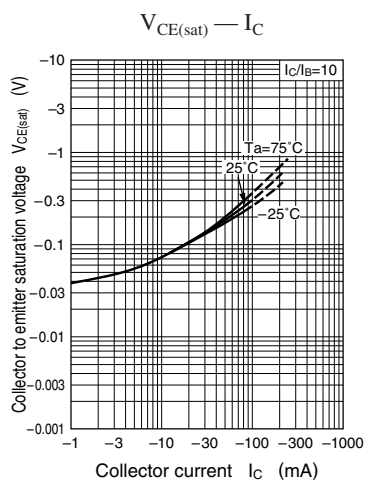
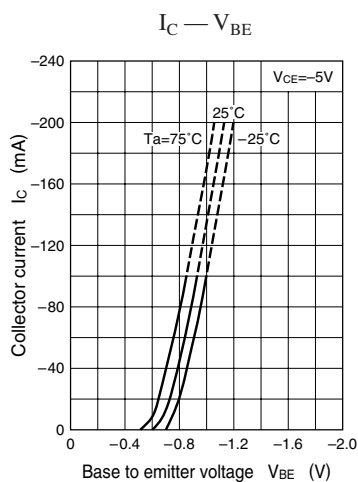
Characteristics charts of Tr1



$Z_{rb} - I_E$  $C_{re} - V_{CE}$  $C_{ob} - V_{CB}$  $P_G - I_E$  $NF - I_E$ 

Characteristics charts of Tr2

 $I_C - V_{CE}$  $I_C - I_B$  $I_B - V_{BE}$ 



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