

# XP02401 (XP2401)

## Silicon PNP epitaxial planer transistor

For general amplification

### Features

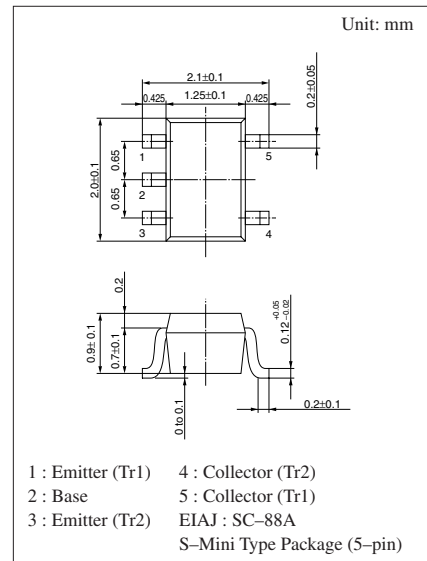
- Two elements incorporated into one package.  
(Base-coupled transistors)
- Reduction of the mounting area and assembly cost by one half.

### Basic Part Number of Element

- 2SB709A(2SB709A) × 2 elements

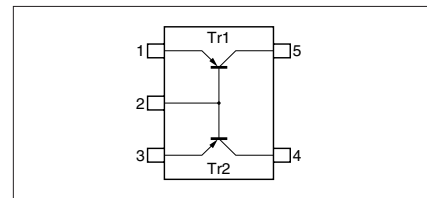
### Absolute Maximum Ratings (Ta=25°C)

	Parameter	Symbol	Rated	Unit
Rating of element	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	$P_T$	150	mW
	Junction temperature	$T_j$	150	°C
	Storage temperature	$T_{sig}$	-55 to +150	°C



Marking Symbol: 7R

Internal Connection



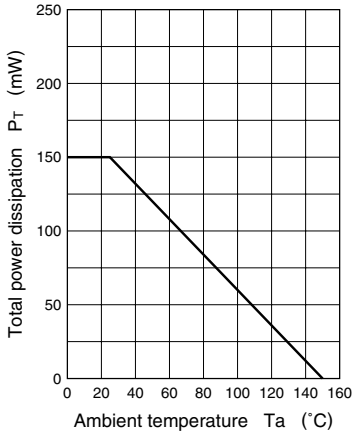
### Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector to base voltage	$V_{CBO}$	$I_C = -10\mu A, I_E = 0$	-60			V
Collector to emitter voltage	$V_{CEO}$	$I_C = -2mA, I_B = 0$	-50			V
Emitter to base voltage	$V_{EBO}$	$I_E = -10\mu A, I_C = 0$	-7			V
Collector cutoff current	$I_{CBO}$	$V_{CB} = -20V, I_E = 0$			-0.1	$\mu A$
	$I_{CEO}$	$V_{CE} = -10V, I_B = 0$			-100	$\mu A$
Forward current transfer ratio	$h_{FE}$	$V_{CE} = -10V, I_C = -2mA$	160		460	
Forward current transfer $h_{FE}$ ratio	$h_{FE} (small/large)^{*1}$	$V_{CE} = -10V, I_C = -2mA$	0.5	0.99		
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

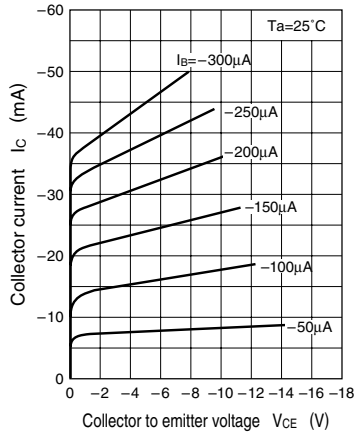
\*1 Ratio between 2 elements

Note.) The Part number in the Parenthesis shows conventional part number.

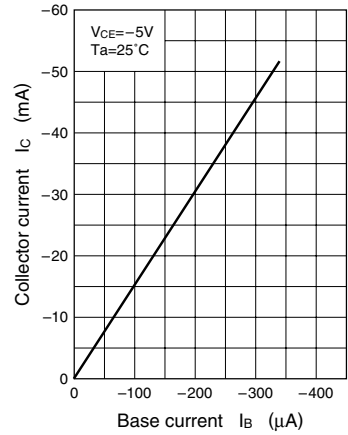
$P_T - T_a$



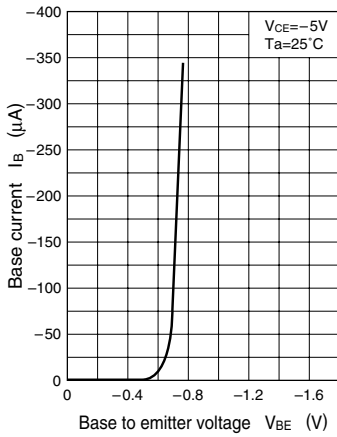
$I_C - V_{CE}$



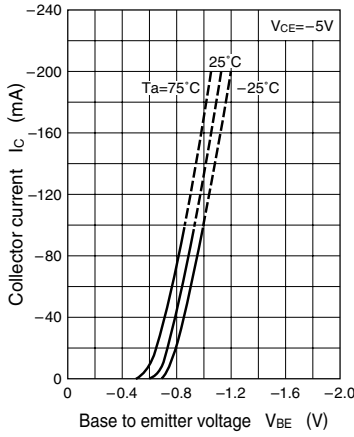
$I_C - I_B$



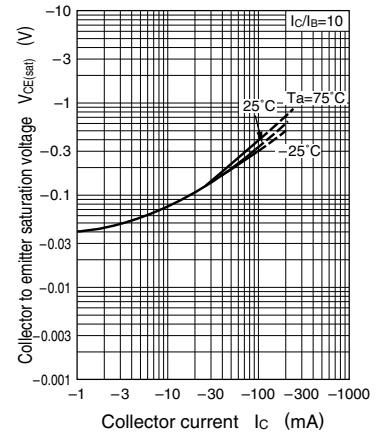
$I_B - V_{BE}$



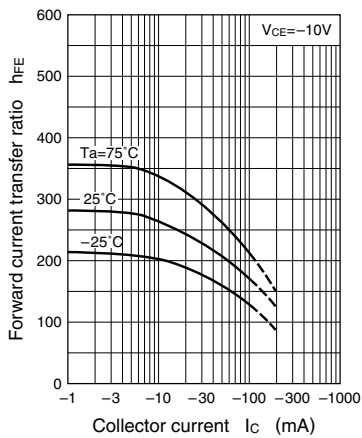
$I_C - V_{BE}$



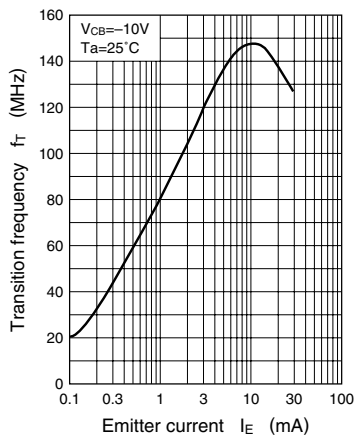
$V_{CE(sat)} - I_C$



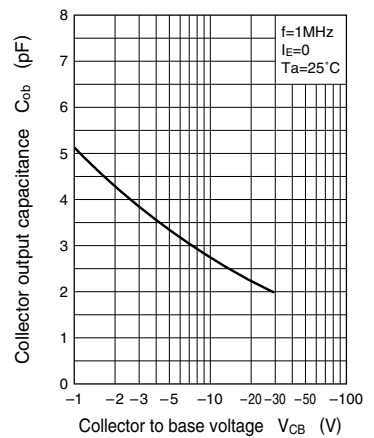
$h_{FE} - I_C$



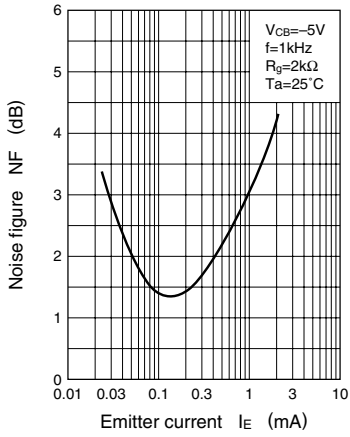
$f_T - I_E$



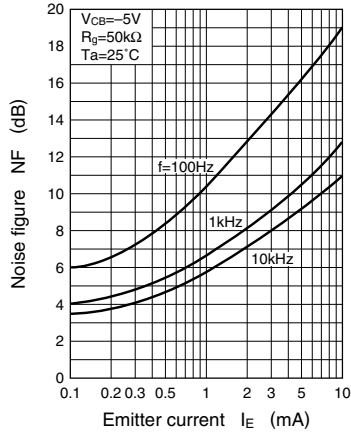
$C_{ob} - V_{CB}$



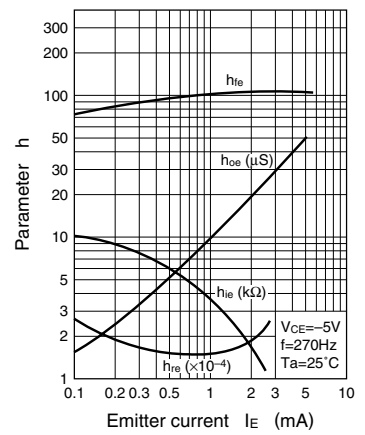
NF —  $I_E$



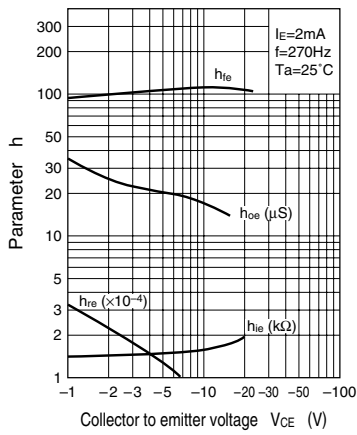
NF —  $I_E$



h Parameter —  $I_E$



h Parameter —  $V_{CE}$



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