

# XN1401

## Silicon PNP epitaxial planer transistor

For general amplification

### Features

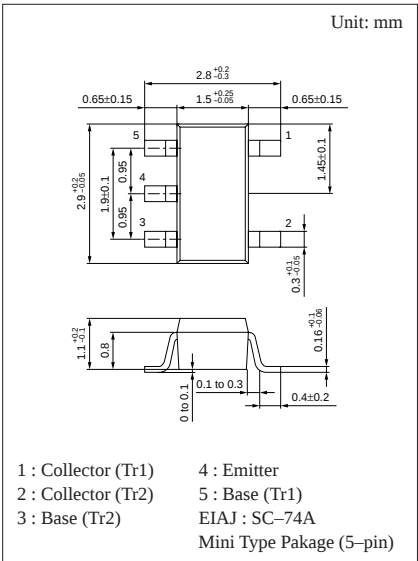
- Two elements incorporated into one package.  
(Emitter-coupled transistors)
- Reduction of the mounting area and assembly cost by one half.

### Basic Part Number of Element

- 2SB709A × 2 elements

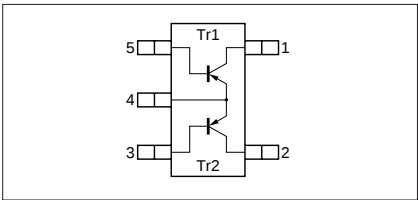
### Absolute Maximum Ratings (Ta=25°C)

|                   | Parameter                    | Symbol    | Ratings     | 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      | $P_T$     | 300         | mW   |
|                   | Junction temperature         | $T_j$     | 150         | °C   |
|                   | Storage temperature          | $T_{sig}$ | -55 to +150 | °C   |



Marking Symbol: 5V

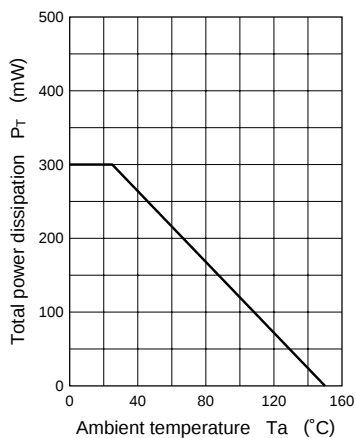
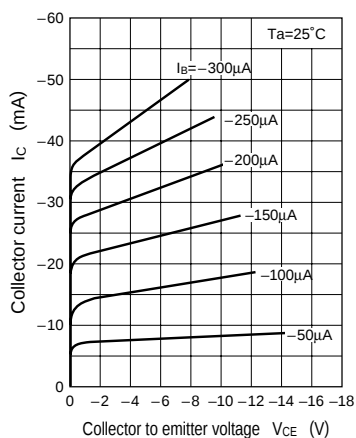
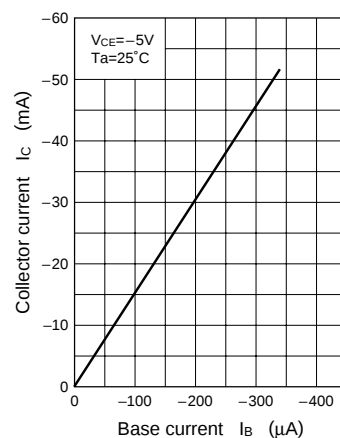
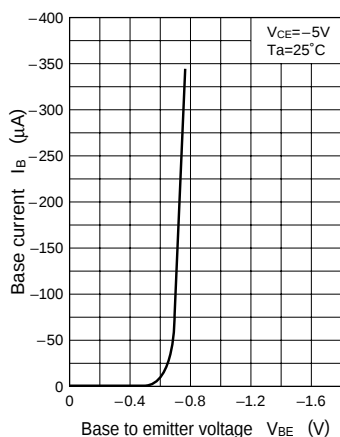
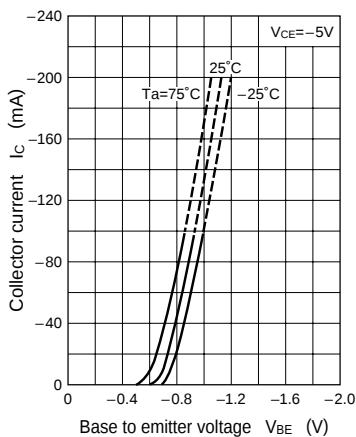
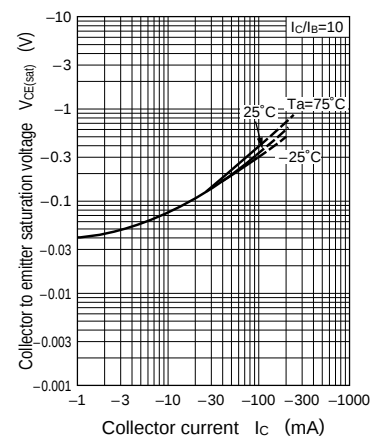
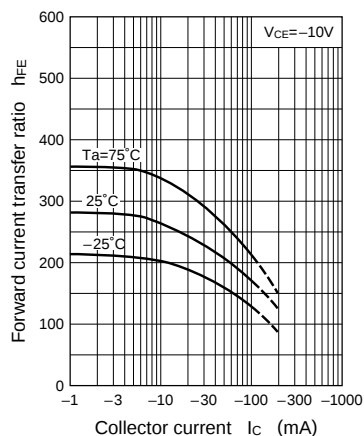
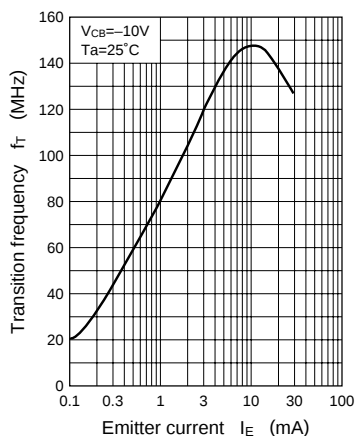
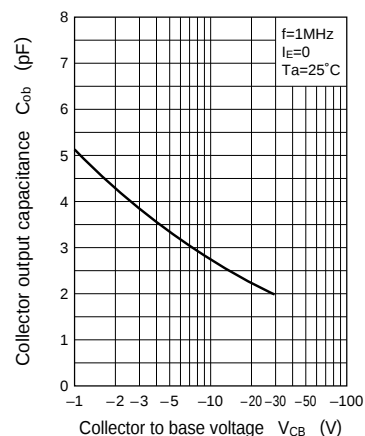
Internal Connection



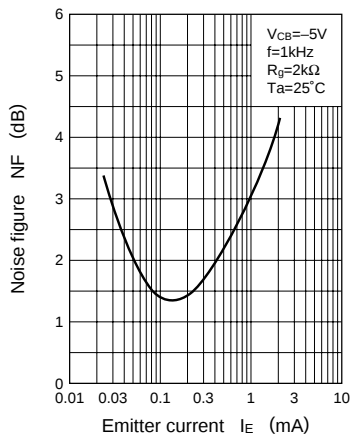
### Electrical Characteristics (Ta=25°C)

| 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      |

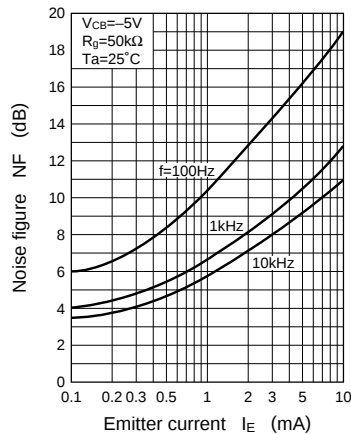
\*1 Ratio between 2 elements

$P_T - T_a$  $I_C - V_{CE}$  $I_C - I_B$  $I_B - V_{BE}$  $I_C - V_{BE}$  $V_{CE(sat)} - I_C$  $h_{FE} - I_C$  $f_T - I_E$  $C_{ob} - V_{CB}$ 

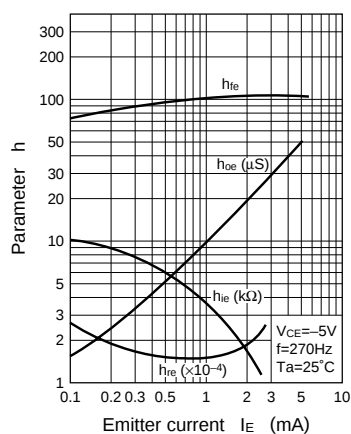
NF —  $I_E$



NF —  $I_E$



h Parameter —  $I_E$



h Parameter —  $V_{CE}$

