

## UN1121/1122/1123/1124/112X/112Y

## Silicon PNP epitaxial planer transistor

For digital circuits

## ■ Features

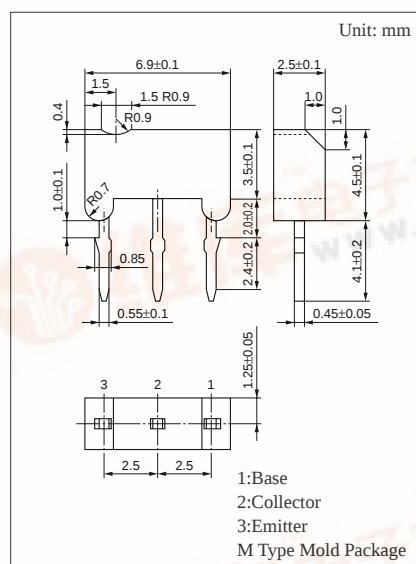
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- M type package allowing easy automatic and manual insertion as well as stand-alone fixing to the printed circuit board.

### ■ Resistance by Part Number

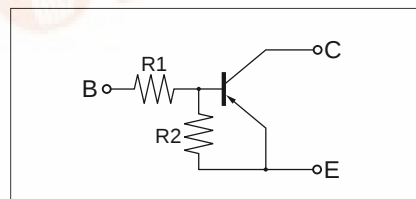
|          | (R <sub>1</sub> ) | (R <sub>2</sub> ) |
|----------|-------------------|-------------------|
| ● UN1121 | 2.2kΩ             | 2.2kΩ             |
| ● UN1122 | 4.7kΩ             | 4.7kΩ             |
| ● UN1123 | 10kΩ              | 10kΩ              |
| ● UN1124 | 2.2kΩ             | 10kΩ              |
| ● UN112X | 0.27kΩ            | 5kΩ               |
| ● UN112Y | 3.1kΩ             | 4.6kΩ             |

■ Absolute Maximum Ratings (Ta=25°C)

| Parameter                    | Symbol    | Ratings     | Unit |
|------------------------------|-----------|-------------|------|
| Collector to base voltage    | $V_{CBO}$ | −50         | V    |
| Collector to emitter voltage | $V_{CEO}$ | −50         | V    |
| Collector current            | $I_C$     | −500        | mA   |
| Total power dissipation      | $P_T$     | 600         | mW   |
| Junction temperature         | $T_j$     | 150         | °C   |
| Storage temperature          | $T_{stg}$ | −55 to +150 | °C   |



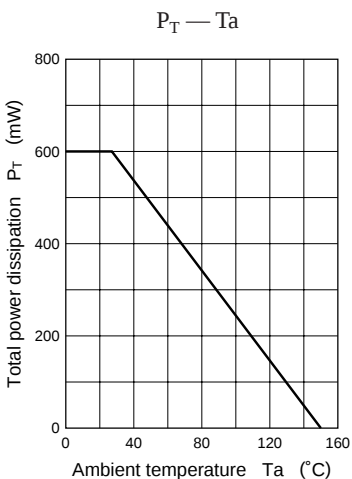
### Internal Connection



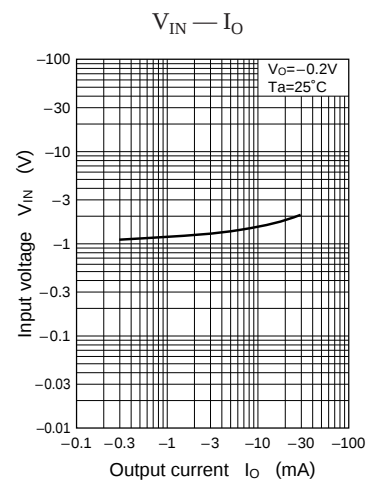
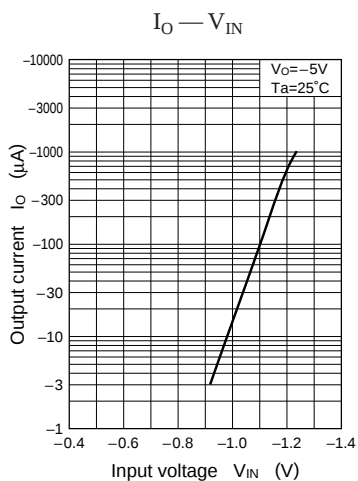
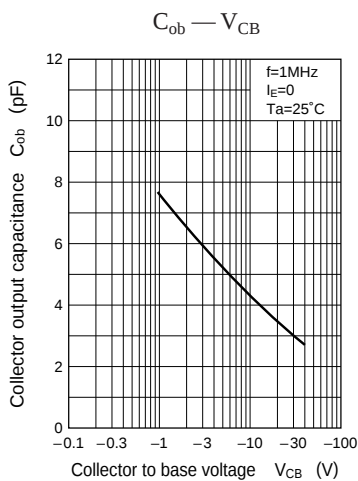
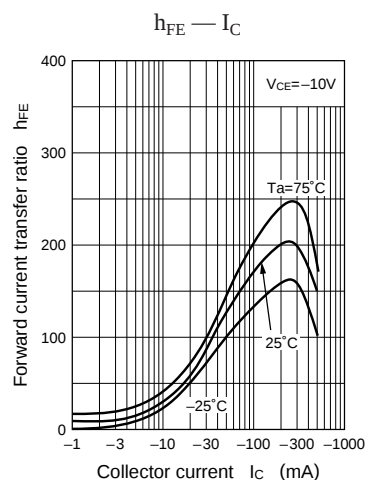
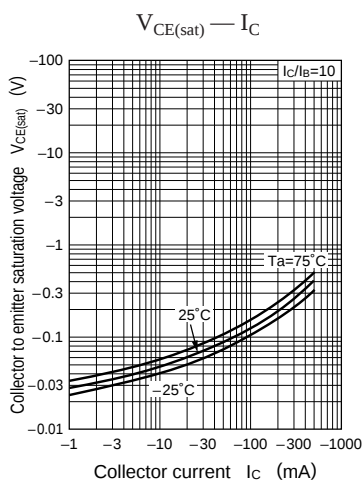
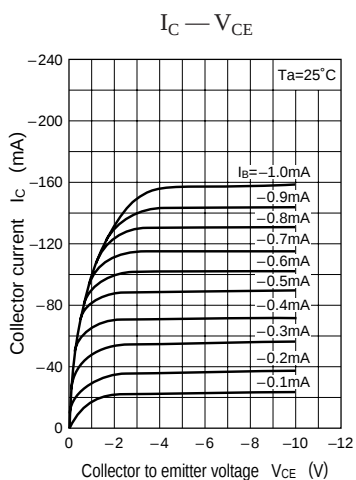
■ Electrical Characteristics (Ta=25°C)

| Parameter                               |                  | Symbol                  | Conditions                                    | min    | typ   | max     | Unit      |
|-----------------------------------------|------------------|-------------------------|-----------------------------------------------|--------|-------|---------|-----------|
| Collector cutoff current                |                  | $I_{CBO}$               | $V_{CB} = -50V, I_E = 0$                      |        |       | -1      | $\mu A$   |
|                                         |                  | UN112X<br>$I_{CBO}$     | $V_{CB} = -50V, I_E = 0$                      |        |       | - 0.1   |           |
| Collector cutoff current                |                  | $I_{CEO}$               | $V_{CE} = -50V, I_B = 0$                      |        |       | -1      | $\mu A$   |
|                                         |                  | UN112X<br>$I_{CEO}$     | $V_{CE} = -50V, I_B = 0$                      |        |       | - 0.5   |           |
| Emitter cutoff current                  | UN1121           | $I_{EBO}$               | $V_{EB} = -6V, I_C = 0$                       |        |       | -5      | mA        |
|                                         | UN1122/112X/112Y |                         |                                               |        |       | -2      |           |
|                                         | UN1123/1124      |                         |                                               |        |       | -1      |           |
| Collector to base voltage               |                  | $V_{CBO}$               | $I_C = -10\mu A, I_E = 0$                     | -50    |       |         | V         |
| Forward current transfer ratio          | UN1121           | $h_{FE}$                | $V_{CE} = -10V, I_C = -100mA$                 | 40     |       |         |           |
|                                         | UN1122/112Y      |                         |                                               | 50     |       |         |           |
|                                         | UN1123/1124      |                         |                                               | 60     |       |         |           |
|                                         | UN112X           |                         |                                               | 20     |       |         |           |
| Collector to emitter saturation voltage |                  | $V_{CE(sat)}$           | $I_C = -100mA, I_B = -5mA$                    |        |       | - 0.25  | V         |
|                                         |                  | UN112X<br>$V_{CE(sat)}$ | $I_C = -10mA, I_B = - 0.3mA$                  |        |       | - 0.25  |           |
|                                         |                  | UN112Y<br>$V_{CE(sat)}$ | $I_C = -50mA, I_B = -5mA$                     |        |       | - 0.15  |           |
| Output voltage high level               |                  | $V_{OH}$                | $V_{CC} = -5V, V_B = - 0.5V, R_L = 500\Omega$ | -4.9   |       |         | V         |
| Output voltage low level                |                  | $V_{OL}$                | $V_{CC} = -5V, V_B = -3.5V, R_L = 500\Omega$  |        |       | - 0.2   | V         |
| Transition frequency                    |                  | $f_T$                   | $V_{CB} = -10V, I_E = 50mA, f = 200MHz$       |        | 200   |         | MHz       |
| Input resistance                        | UN1121           | $R_1$                   |                                               | (-30%) | 2.2   | ( +30%) | $k\Omega$ |
|                                         | UN1122           |                         |                                               |        | 4.7   |         |           |
|                                         | UN1123           |                         |                                               |        | 10    |         |           |
|                                         | UN112X           |                         |                                               |        | 0.27  |         |           |
|                                         | UN112Y           |                         |                                               |        | 3.1   |         |           |
| Resistance ratio                        |                  | $R_1/R_2$               |                                               | 0.8    | 1.0   | 1.2     |           |
|                                         |                  |                         |                                               |        | 0.22  |         |           |
|                                         |                  |                         |                                               |        | 0.054 |         |           |
|                                         |                  |                         |                                               |        | 0.67  |         |           |

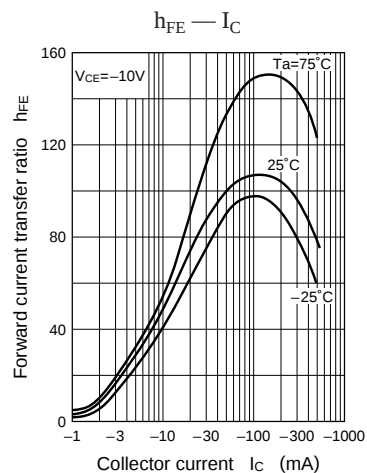
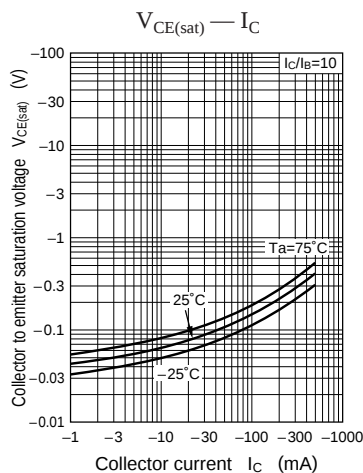
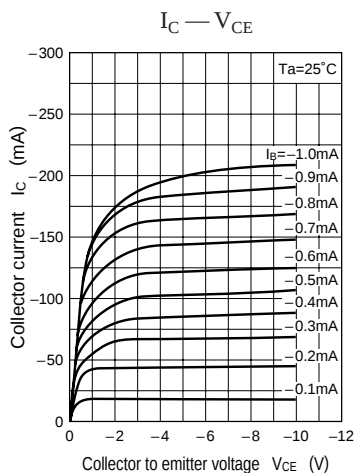
Common characteristics chart

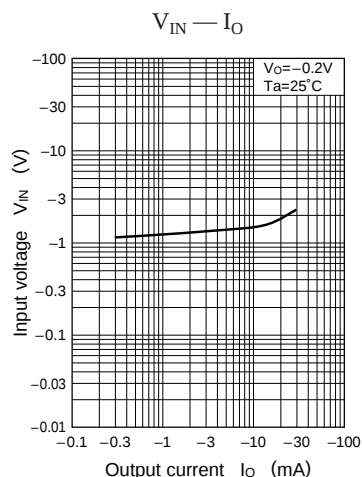
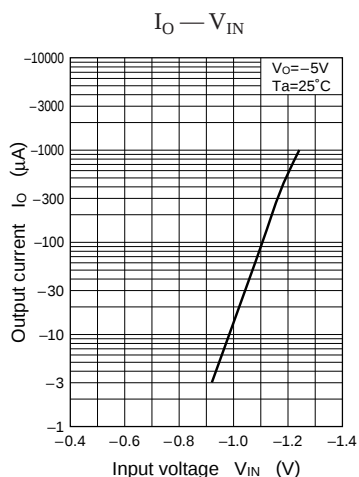
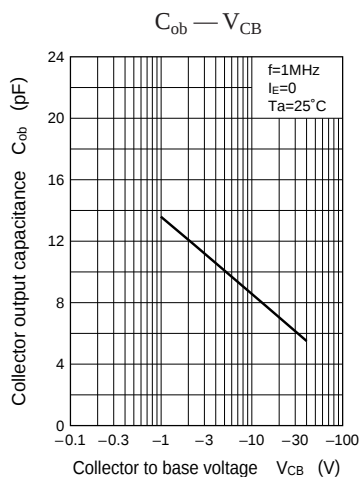


Characteristics charts of UN1121

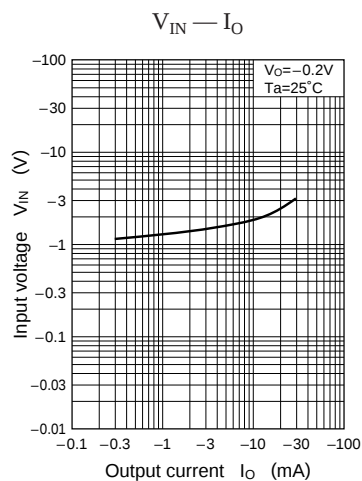
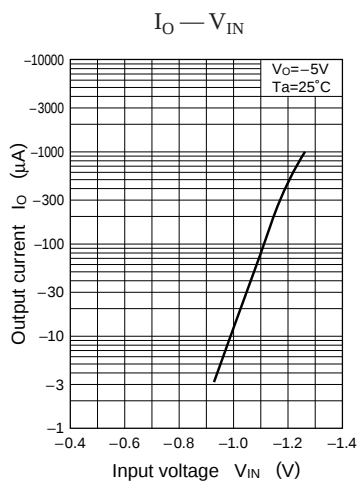
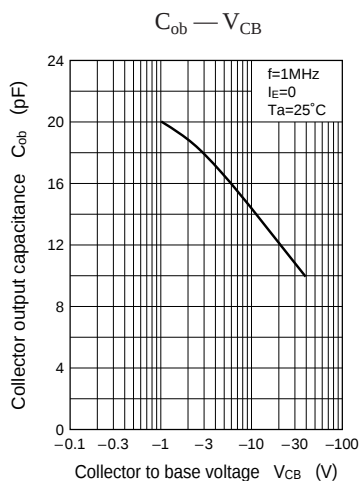
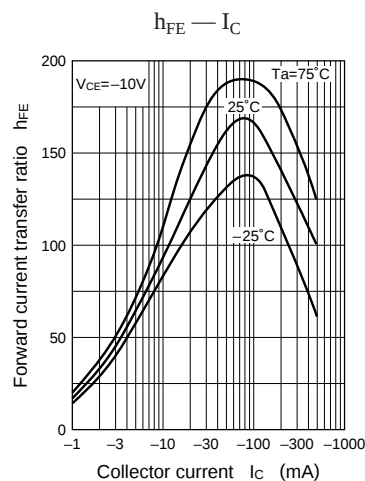
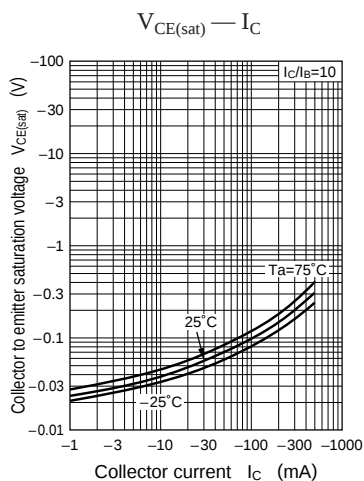
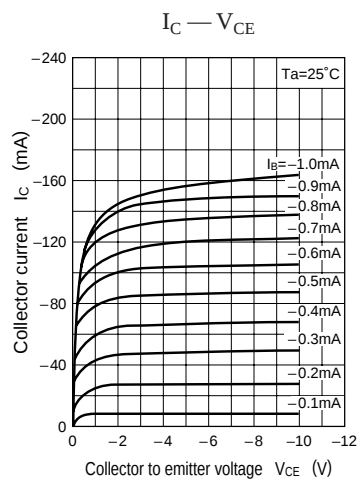


Characteristics charts of UN1122

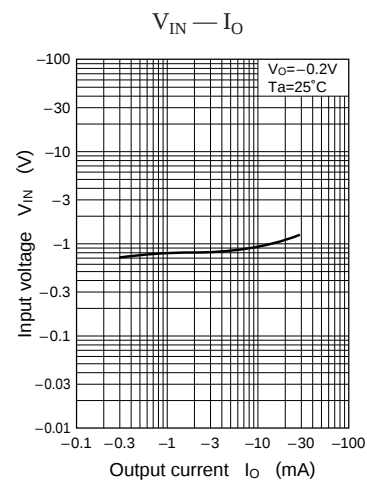
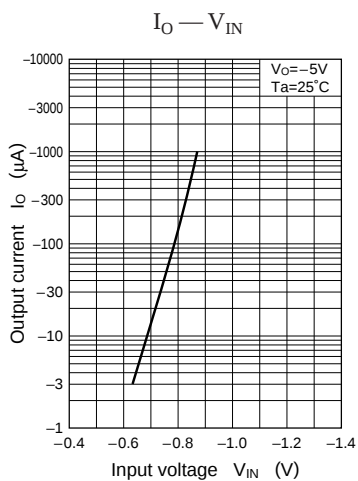
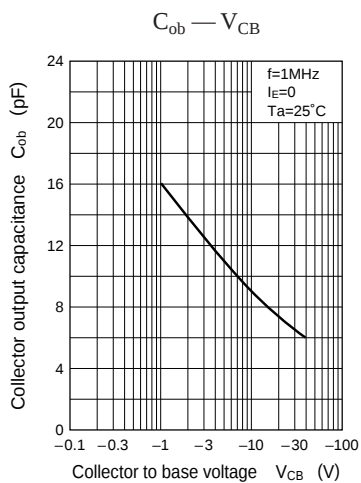
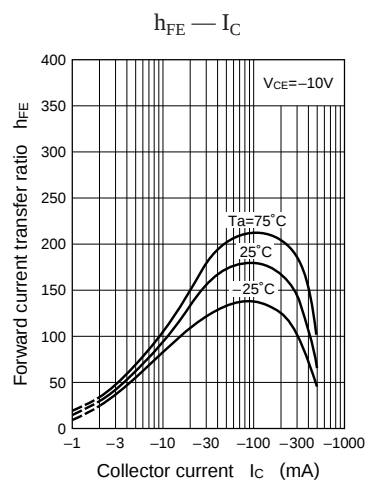
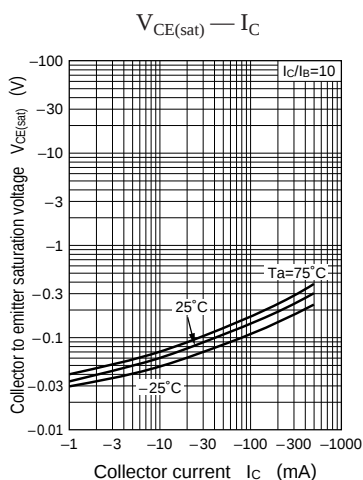
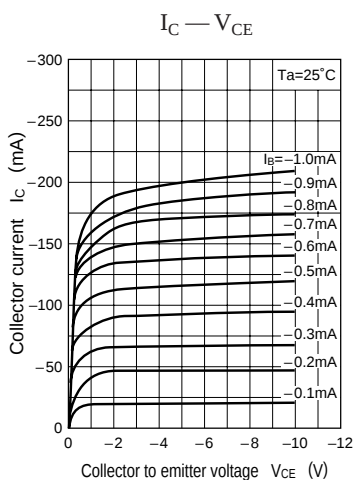




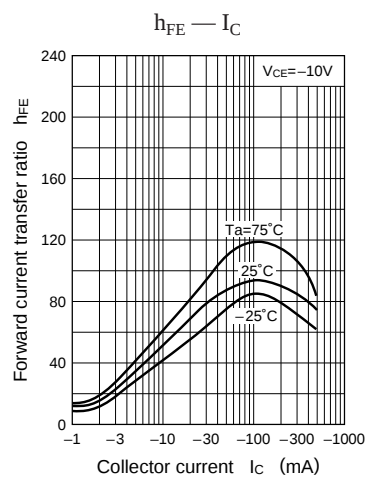
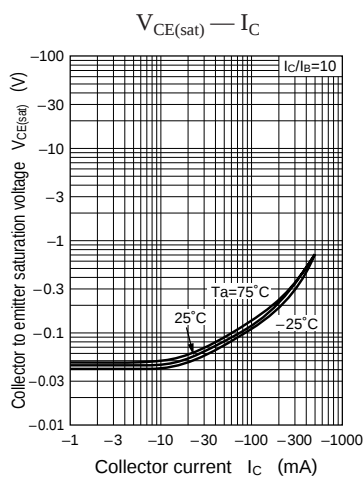
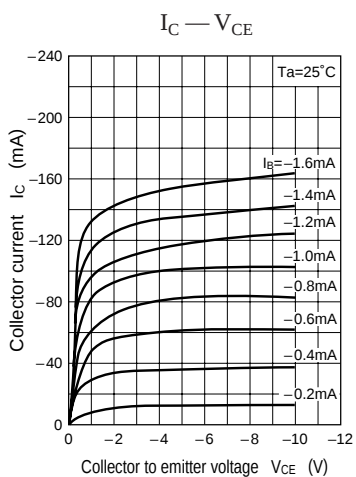
Characteristics charts of UN1123

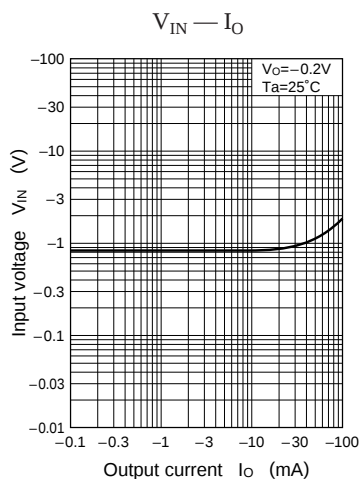
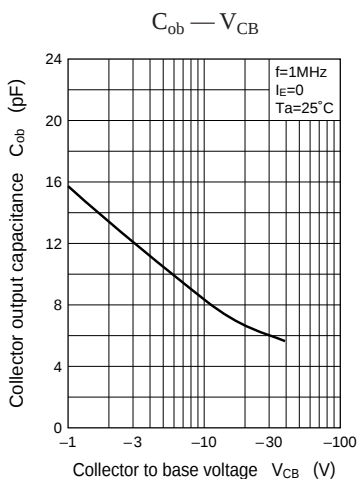


Characteristics charts of UN1124



Characteristics charts of UN112X





Characteristics charts of UN112Y

