

# XN4212

## Silicon NPN epitaxial planer transistor

For switching/digital circuits

### Features

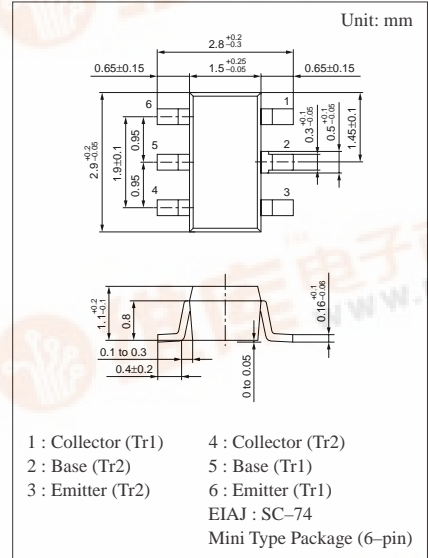
- Two elements incorporated into one package.  
(Transistors with built-in resistor)
- Reduction of the mounting area and assembly cost by one half.

### Basic Part Number of Element

- UN1212 × 2 elements

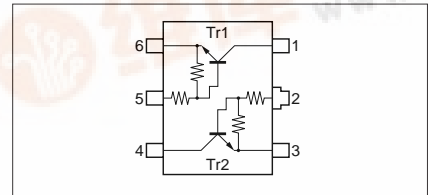
### Absolute Maximum Ratings (Ta=25°C)

| Parameter         | Symbol                       | Ratings   | Unit           |
|-------------------|------------------------------|-----------|----------------|
| Rating of element | Collector to base voltage    | $V_{CBO}$ | 50 V           |
|                   | Collector to emitter voltage | $V_{CEO}$ | 50 V           |
|                   | Collector current            | $I_C$     | 100 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: 8R

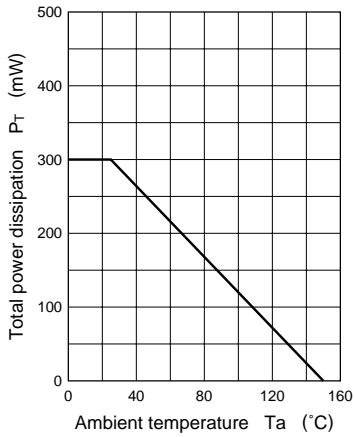
Internal Connection



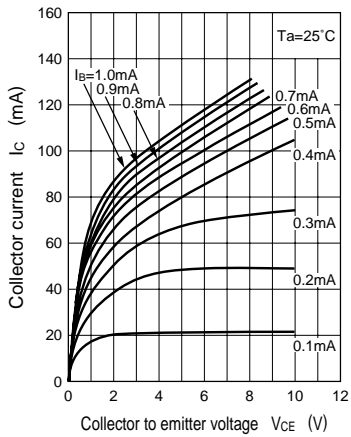
### Electrical Characteristics (Ta=25°C)

| Parameter                               | Symbol        | Conditions                                | min  | typ | max  | Unit       |
|---|---------------|---|------|-----|------|------------|
| Collector to base voltage               | $V_{CBO}$     | $I_C = 10\mu A, I_E = 0$                  | 50   |     |      | V          |
| Collector to emitter voltage            | $V_{CEO}$     | $I_C = 2mA, I_B = 0$                      | 50   |     |      | V          |
| Collector cutoff current                | $I_{CBO}$     | $V_{CB} = 50V, I_E = 0$                   |      |     | 0.1  | $\mu A$    |
|   | $I_{CEO}$     | $V_{CE} = 50V, I_B = 0$                   |      |     | 0.5  | $\mu A$    |
| Emitter cutoff current                  | $I_{EBO}$     | $V_{EB} = 6V, I_C = 0$                    |      |     | 0.2  | mA         |
| Forward current transfer ratio          | $h_{FE}$      | $V_{CE} = 10V, I_C = 5mA$                 | 60   |     |      |            |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 10mA, I_B = 0.3mA$                 |      |     | 0.25 | V          |
| Output voltage high level               | $V_{OH}$      | $V_{CC} = 5V, V_B = 0.5V, R_L = 1k\Omega$ | 4.9  |     |      | V          |
| Output voltage low level                | $V_{OL}$      | $V_{CC} = 5V, V_B = 2.5V, R_L = 1k\Omega$ |      |     | 0.2  | V          |
| Transition frequency                    | $f_T$         | $V_{CB} = 10V, I_E = -1mA, f = 200MHz$    |      | 150 |      | MHz        |
| Input resistance                        | $R_1$         |   | -30% | 22  | +30% | k $\Omega$ |
| Resistance ratio                        | $R_1/R_2$     |   | 0.8  | 1.0 | 1.2  |            |

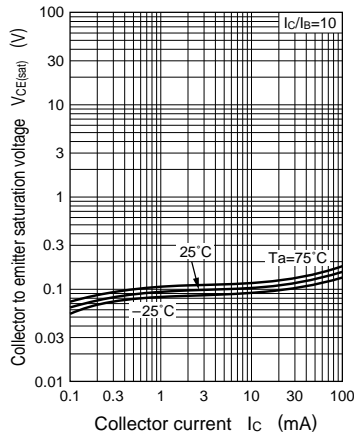
$P_T - T_a$



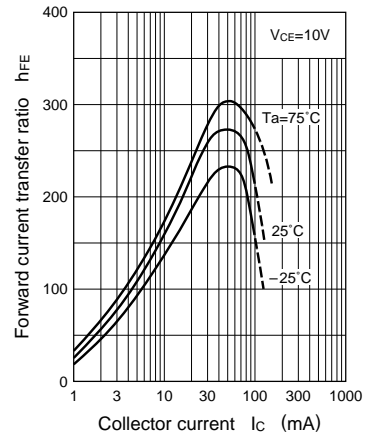
$I_C - V_{CE}$



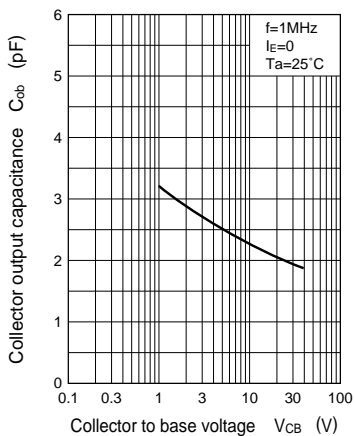
$V_{CE(sat)} - I_C$



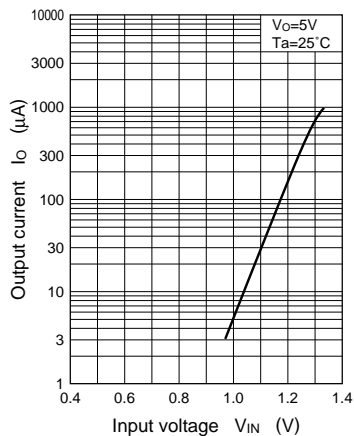
$h_{FE} - I_C$



$C_{ob} - V_{CB}$



$I_O - V_{IN}$



$V_{IN} - I_O$

