

# XN0111F (XN111F)

## Silicon PNP epitaxial planar type

For switching/digital circuits

### ■ Features

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

### ■ Basic Part Number

- UNR211F (UN211F) × 2

### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| Parameter                             | Symbol    | Rating      | Unit             |
|---------------------------------------|-----------|-------------|------------------|
| Collector-base voltage (Emitter open) | $V_{CBO}$ | -50         | V                |
| Collector-emitter voltage (Base open) | $V_{CEO}$ | -50         | V                |
| Collector current                     | $I_C$     | -100        | mA               |
| Total power dissipation               | $P_T$     | 300         | mW               |
| Junction temperature                  | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage temperature                   | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

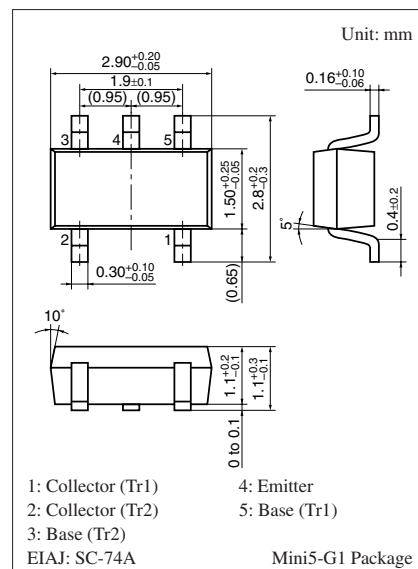
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

| Parameter                                    | Symbol                              | Conditions                                                                   | Min  | Typ  | Max   | Unit             |
|----------------------------------------------|-------------------------------------|------------------------------------------------------------------------------|------|------|-------|------------------|
| Collector-base voltage (Emitter open)        | $V_{CBO}$                           | $I_C = -10\ \mu\text{A}$ , $I_E = 0$                                         | -50  |      |       | V                |
| Collector-emitter voltage (Base open)        | $V_{CEO}$                           | $I_C = -2\ \text{mA}$ , $I_B = 0$                                            | -50  |      |       | V                |
| Collector-base cutoff current (Emitter open) | $I_{CBO}$                           | $V_{CB} = -50\ \text{V}$ , $I_E = 0$                                         |      |      | -0.1  | $\mu\text{A}$    |
| Collector-emitter cutoff current (Base open) | $I_{CEO}$                           | $V_{CE} = -50\ \text{V}$ , $I_B = 0$                                         |      |      | -0.5  | $\mu\text{A}$    |
| Emitter-base cutoff current (Collector open) | $I_{EBO}$                           | $V_{EB} = -6\ \text{V}$ , $I_C = 0$                                          |      |      | -1.0  | mA               |
| Forward current transfer ratio               | $h_{FE}$                            | $V_{CE} = -10\ \text{V}$ , $I_C = -5\ \text{mA}$                             | 30   |      |       | —                |
| $h_{FE}$ Ratio *                             | $h_{FE(\text{Small}/\text{Large})}$ | $V_{CE} = -10\ \text{V}$ , $I_C = -5\ \text{mA}$                             | 0.50 | 0.99 |       | —                |
| Collector-emitter saturation voltage         | $V_{CE(\text{sat})}$                | $I_C = -10\ \text{mA}$ , $I_B = -0.3\ \text{mA}$                             |      |      | -0.25 | V                |
| Output voltage high-level                    | $V_{OH}$                            | $V_{CC} = -5\ \text{V}$ , $V_B = -0.5\ \text{V}$ , $R_L = 1\ \text{k}\Omega$ | -4.9 |      |       | V                |
| Output voltage low-level                     | $V_{OL}$                            | $V_{CC} = -5\ \text{V}$ , $V_B = -2.5\ \text{V}$ , $R_L = 1\ \text{k}\Omega$ |      |      | -0.2  | V                |
| Input resistance                             | $R_1$                               |                                                                              | -30% | 4.7  | +30%  | $\text{k}\Omega$ |
| Resistance ratio                             | $R_1 / R_2$                         |                                                                              |      | 0.47 |       | —                |
| Transition frequency                         | $f_T$                               | $V_{CB} = -10\ \text{V}$ , $I_E = 1\ \text{mA}$ , $f = 200\ \text{MHz}$      |      | 80   |       | MHz              |

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

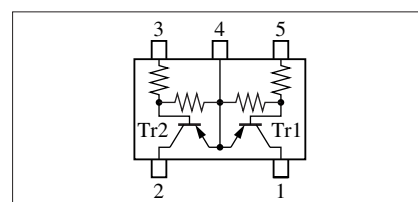
2. \*: Ratio between 2 elements

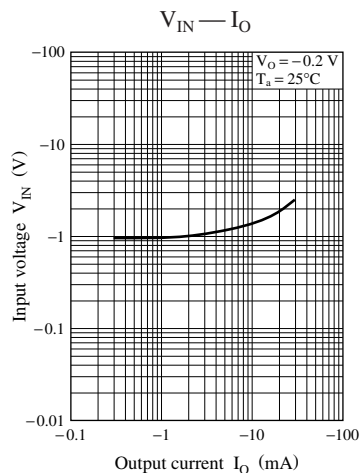
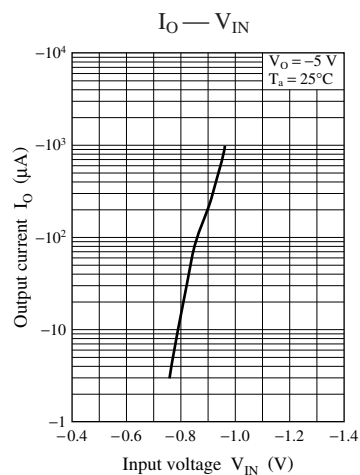
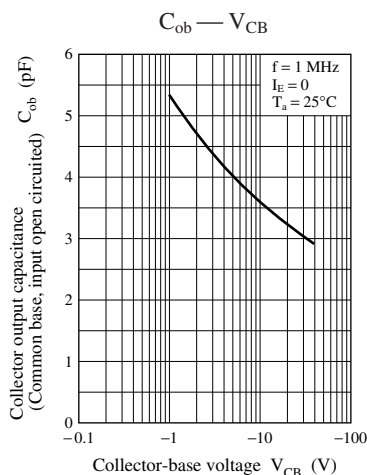
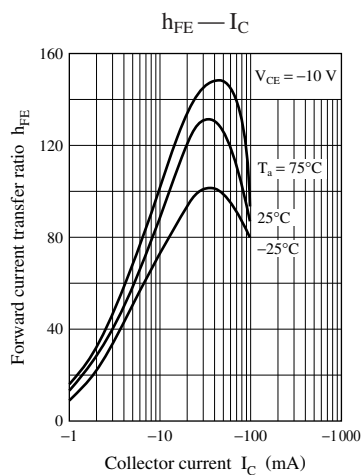
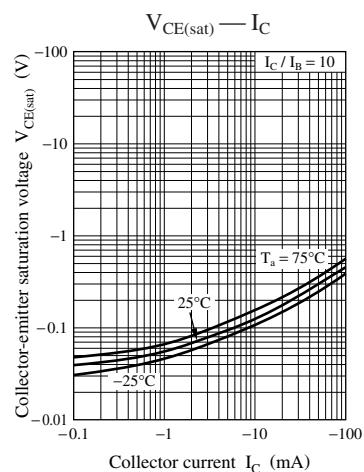
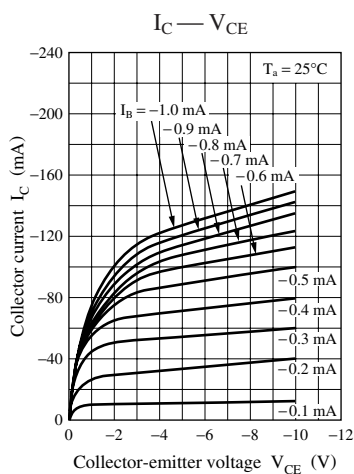
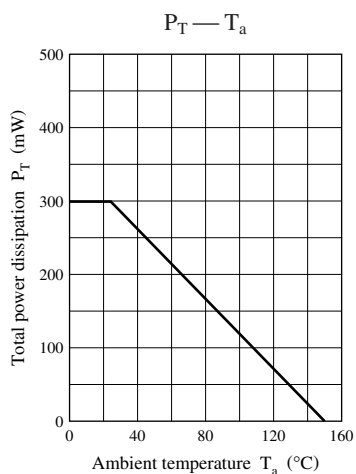
Note) The part number in the parenthesis shows conventional part number.



Marking Symbol: 70

Internal Connection





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