

# XP0111F (XP111F)

## 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) | $V_{\text{CBO}}$ | -50         | V                |
| Collector-emitter voltage (Base open) | $V_{\text{CEO}}$ | -50         | V                |
| Collector current                     | $I_{\text{C}}$   | -100        | mA               |
| Total power dissipation               | $P_{\text{T}}$   | 150         | mW               |
| Junction temperature                  | $T_{\text{j}}$   | 150         | $^\circ\text{C}$ |
| Storage temperature                   | $T_{\text{stg}}$ | -55 to +150 | $^\circ\text{C}$ |

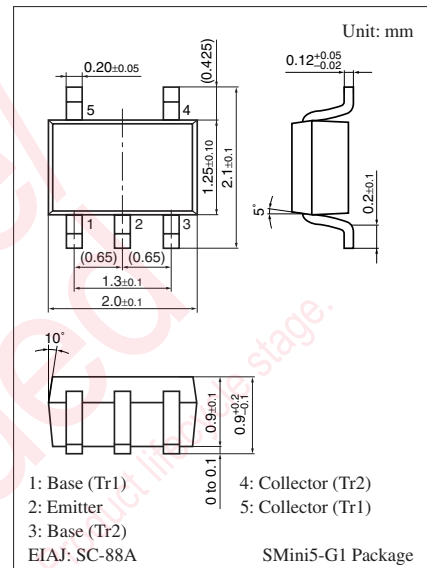
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

| Parameter                                    | Symbol                                     | Conditions   | Min  | Typ  | Max   | Unit             |
|--|--|--|------|------|-------|------------------|
| Collector-base voltage (Emitter open)        | $V_{\text{CBO}}$                           | $I_{\text{C}} = -10 \mu\text{A}$ , $I_{\text{E}} = 0$  | -50  |      |       | V                |
| Collector-emitter voltage (Base open)        | $V_{\text{CEO}}$                           | $I_{\text{C}} = -2 \text{mA}$ , $I_{\text{B}} = 0$   | -50  |      |       | V                |
| Collector-base cutoff current (Emitter open) | $I_{\text{CBO}}$                           | $V_{\text{CB}} = -50 \text{V}$ , $I_{\text{E}} = 0$  |      |      | -0.1  | $\mu\text{A}$    |
| Collector-emitter cutoff current (Base open) | $I_{\text{CEO}}$                           | $V_{\text{CE}} = -50 \text{V}$ , $I_{\text{B}} = 0$  |      |      | -0.5  | $\mu\text{A}$    |
| Emitter-base cutoff current (Collector open) | $I_{\text{EBO}}$                           | $V_{\text{EB}} = -6 \text{V}$ , $I_{\text{C}} = 0$   |      |      | -1.0  | mA               |
| Forward current transfer ratio               | $h_{\text{FE}}$                            | $V_{\text{CE}} = -10 \text{V}$ , $I_{\text{C}} = -5 \text{mA}$                                     | 30   |      |       | —                |
| $h_{\text{FE}}$ Ratio *                      | $h_{\text{FE}}(\text{Small}/\text{Large})$ | $V_{\text{CE}} = -10 \text{V}$ , $I_{\text{C}} = -5 \text{mA}$                                     | 0.50 | 0.99 |       | —                |
| Collector-emitter saturation voltage         | $V_{\text{CE(sat)}}$                       | $I_{\text{C}} = -10 \text{mA}$ , $I_{\text{B}} = -0.3 \text{mA}$                                   |      |      | -0.25 | V                |
| Output voltage high-level                    | $V_{\text{OH}}$                            | $V_{\text{CC}} = -5 \text{V}$ , $V_{\text{B}} = -0.5 \text{V}$ , $R_{\text{L}} = 1 \text{k}\Omega$ | -4.9 |      |       | V                |
| Output voltage low-level                     | $V_{\text{OL}}$                            | $V_{\text{CC}} = -5 \text{V}$ , $V_{\text{B}} = -2.5 \text{V}$ , $R_{\text{L}} = 1 \text{k}\Omega$ |      |      | -0.2  | V                |
| Input resistance                             | $R_{\text{I}}$                             |  | -30% | 4.7  | +30%  | $\text{k}\Omega$ |
| Resistance ratio                             | $R_{\text{I}} / R_{\text{2}}$              |  | 0.37 | 0.47 | 0.57  | —                |
| Transition frequency                         | $f_{\text{T}}$                             | $V_{\text{CB}} = -10 \text{V}$ , $I_{\text{E}} = 1 \text{mA}$ , $f = 200 \text{MHz}$               |      | 80   |       | MHz              |

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

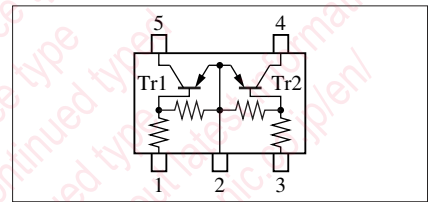
2. \*: Ratio between 2 elements

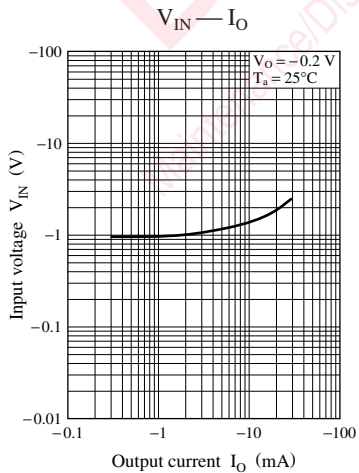
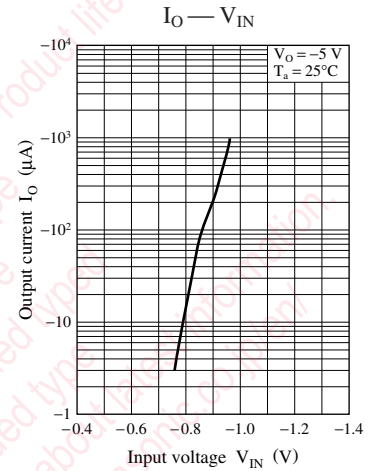
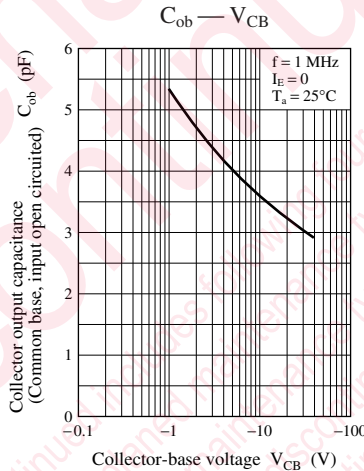
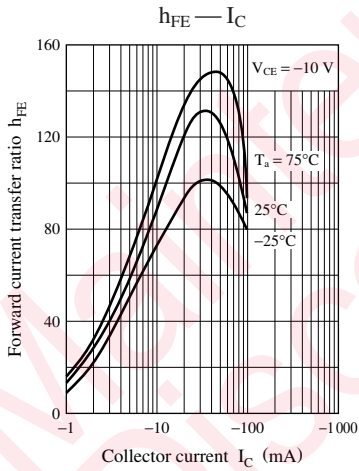
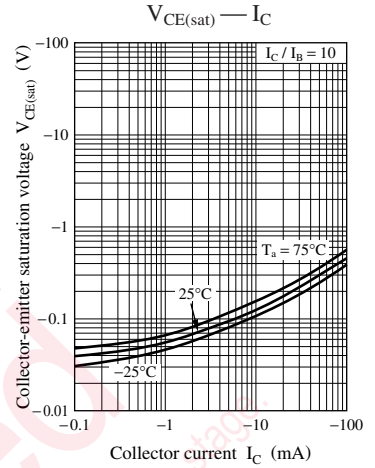
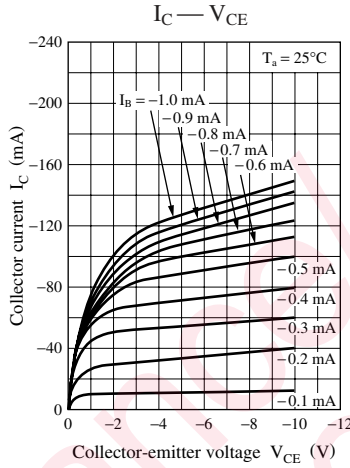
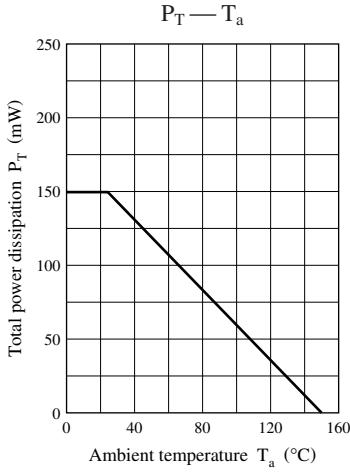
Note) The part number in the parenthesis shows conventional part number.



Marking Symbol: 70

Internal Connection





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