

# XP0111F (XP111F)

## Silicon PNP epitaxial planar type

For switching/digital circuits

### ■ Features

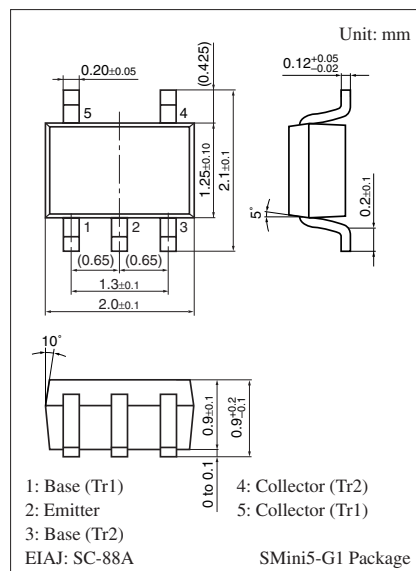
- Two elements incorporated into one package  
(Emitter-coupled transistors with built-in resistor)
- Reduction of the mounting area and assembly cost by one half

### ■ Basic Part Number

- UNR211F (UN211F) × 2

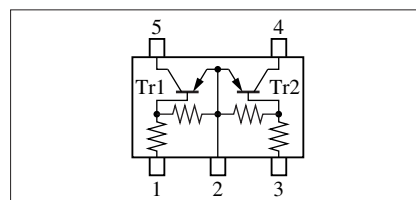
### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

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



Marking Symbol: 70

Internal Connection



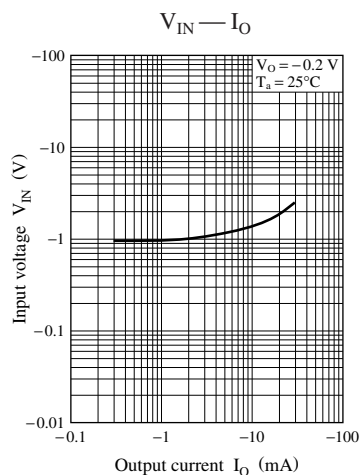
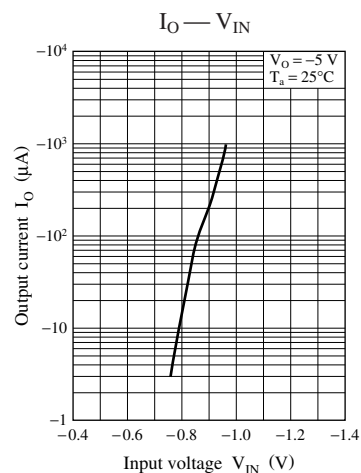
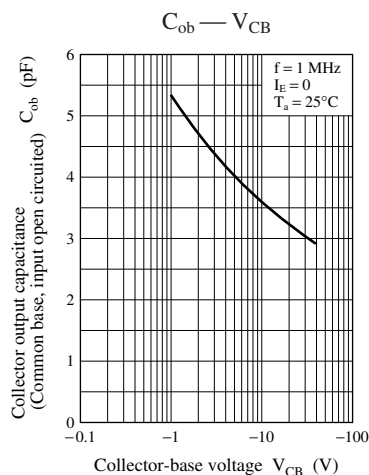
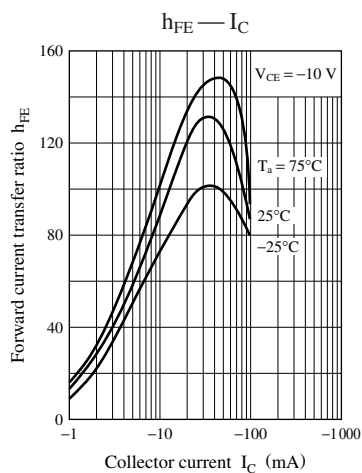
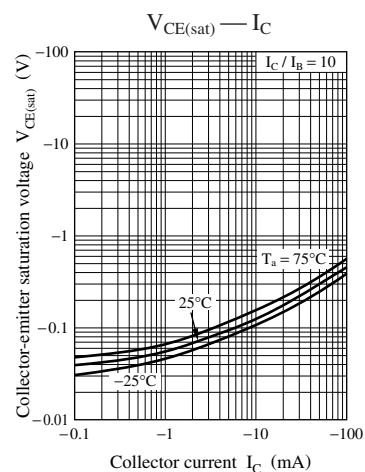
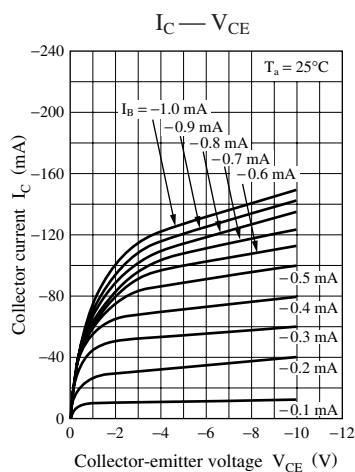
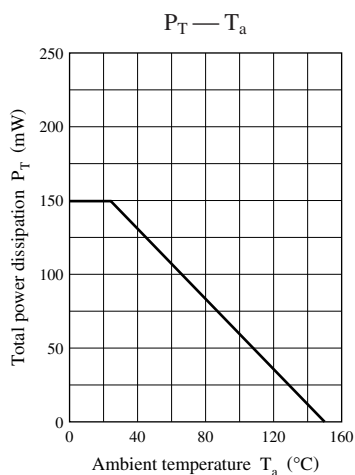
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

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	$R_I$		-30%	4.7	+30%	$\text{k}\Omega$
Resistance ratio	$R_I / R_2$		0.37	0.47	0.57	—
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.



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