

# XP01213 (XP1213)

Silicon NPN 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

- UNR2213 (UN2213) × 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	$I_C$	100	mA
Total power dissipation	$P_T$	150	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-55 to +150	$^\circ\text{C}$

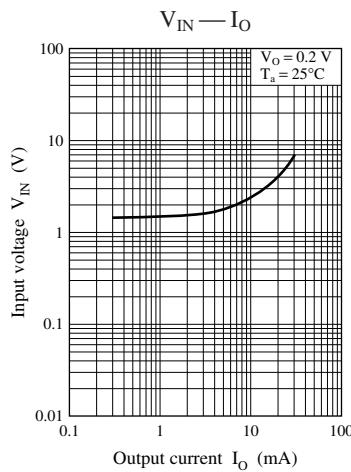
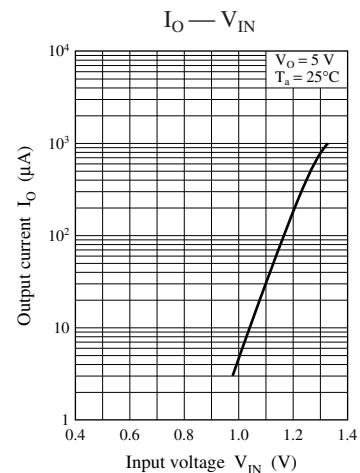
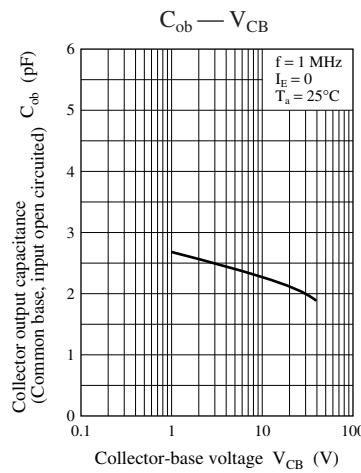
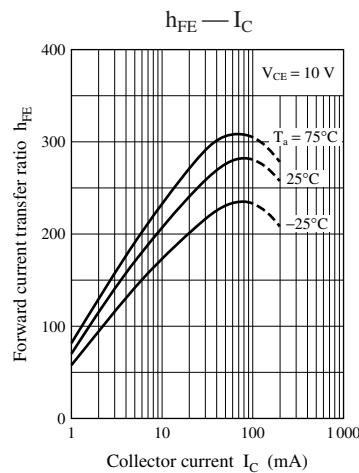
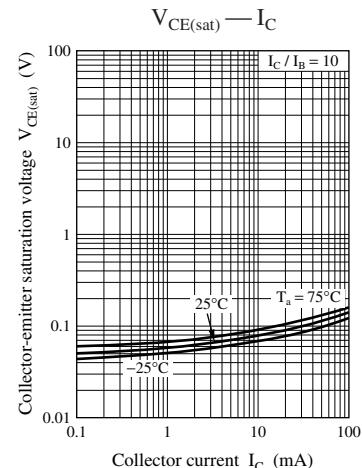
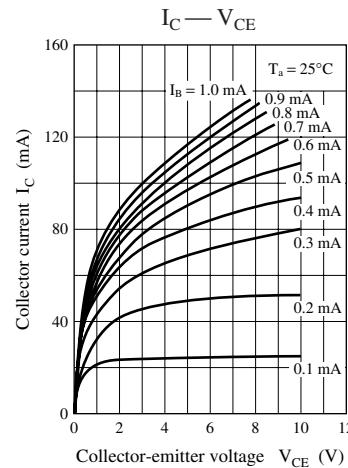
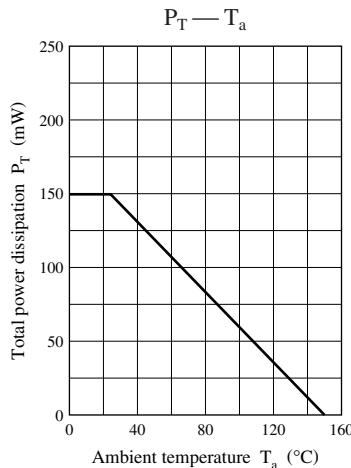
## ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{\text{CBO}}$	$I_C = 10 \mu\text{A}, I_E = 0$	50			V
Collector-emitter voltage (Base open)	$V_{\text{CEO}}$	$I_C = 2 \text{ mA}, I_B = 0$	50			V
Collector-base cutoff current (Emitter open)	$I_{\text{CBO}}$	$V_{\text{CB}} = 50 \text{ V}, I_E = 0$			0.1	$\mu\text{A}$
Collector-emitter cutoff current (Base open)	$I_{\text{CEO}}$	$V_{\text{CE}} = 50 \text{ V}, I_B = 0$			0.5	$\mu\text{A}$
Emitter-base cutoff current (Collector open)	$I_{\text{EBO}}$	$V_{\text{EB}} = 6 \text{ V}, I_C = 0$			0.2	mA
Forward current transfer ratio	$h_{\text{FE}}$	$V_{\text{CE}} = 10 \text{ V}, I_C = 5 \text{ mA}$	80			—
$h_{\text{FE}}$ Ratio *	$h_{\text{FE}}(\text{Small} / \text{Large})$	$V_{\text{CE}} = 10 \text{ V}, I_C = 5 \text{ mA}$	0.50	0.99		—
Collector-emitter saturation voltage	$V_{\text{CE}(\text{sat})}$	$I_C = 10 \text{ mA}, I_B = 0.3 \text{ mA}$			0.25	V
Output voltage high-level	$V_{\text{OH}}$	$V_{\text{CC}} = 5 \text{ V}, V_B = 0.5 \text{ V}, R_L = 1 \text{ k}\Omega$	4.9			V
Output voltage low-level	$V_{\text{OL}}$	$V_{\text{CC}} = 5 \text{ V}, V_B = 3.5 \text{ V}, R_L = 1 \text{ k}\Omega$			0.2	V
Input resistance	$R_I$		-30%	47	+30%	$\text{k}\Omega$
Resistance ratio	$R_1 / R_2$		0.8	1.0	1.2	—
Transition frequency	$f_T$	$V_{\text{CB}} = 10 \text{ V}, I_E = -2 \text{ mA}, f = 200 \text{ MHz}$		150		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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