

XP01212

Silicon NPN epitaxial planar type

For 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

- UNR2212 × 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	$^\circ\text{C}$

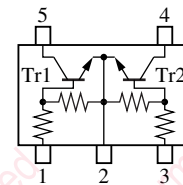
■ Package

- Code
SMini5-G1
- Pin Name

1: Base (Tr1)	4: Collector (Tr2)
2: Emitter	5: Collector (Tr1)
3: Base (Tr2)	

■ Marking Symbol: 9K

■ Internal Connection

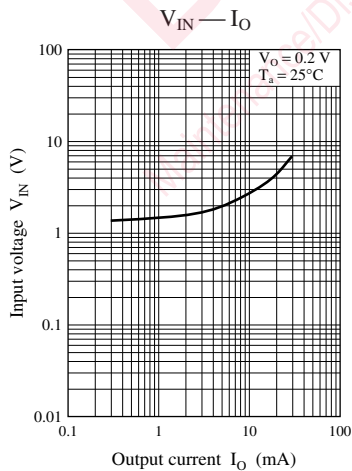
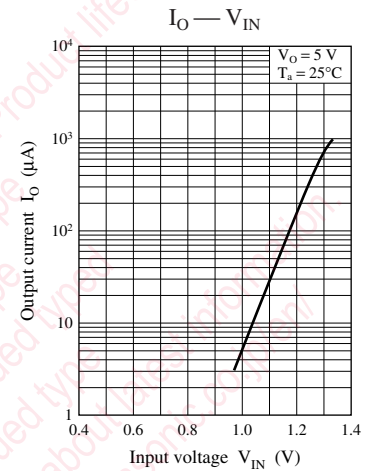
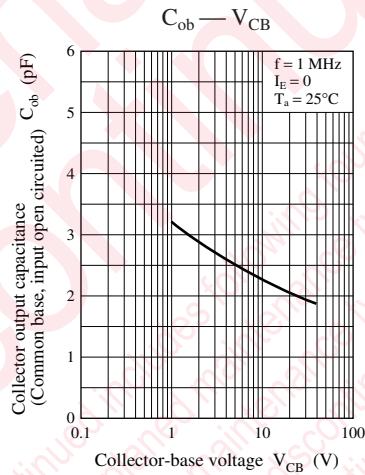
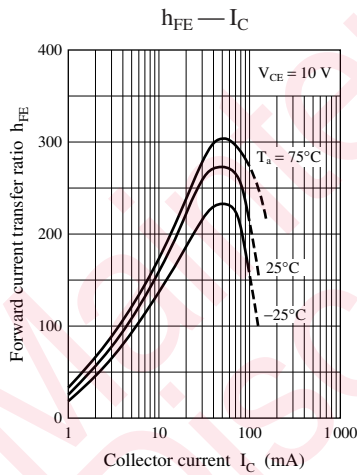
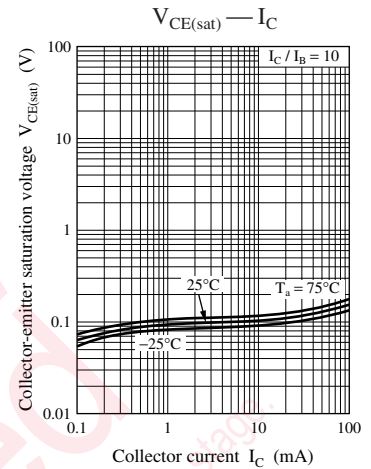
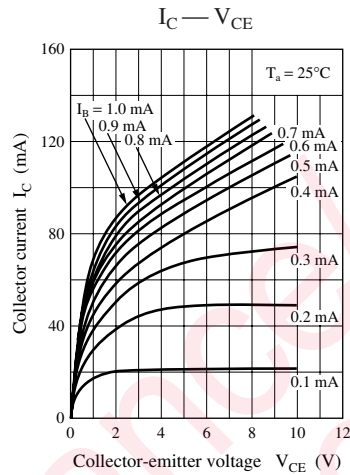
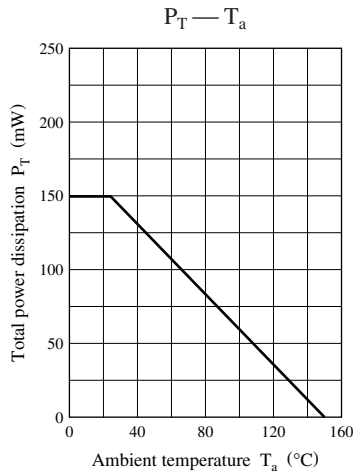


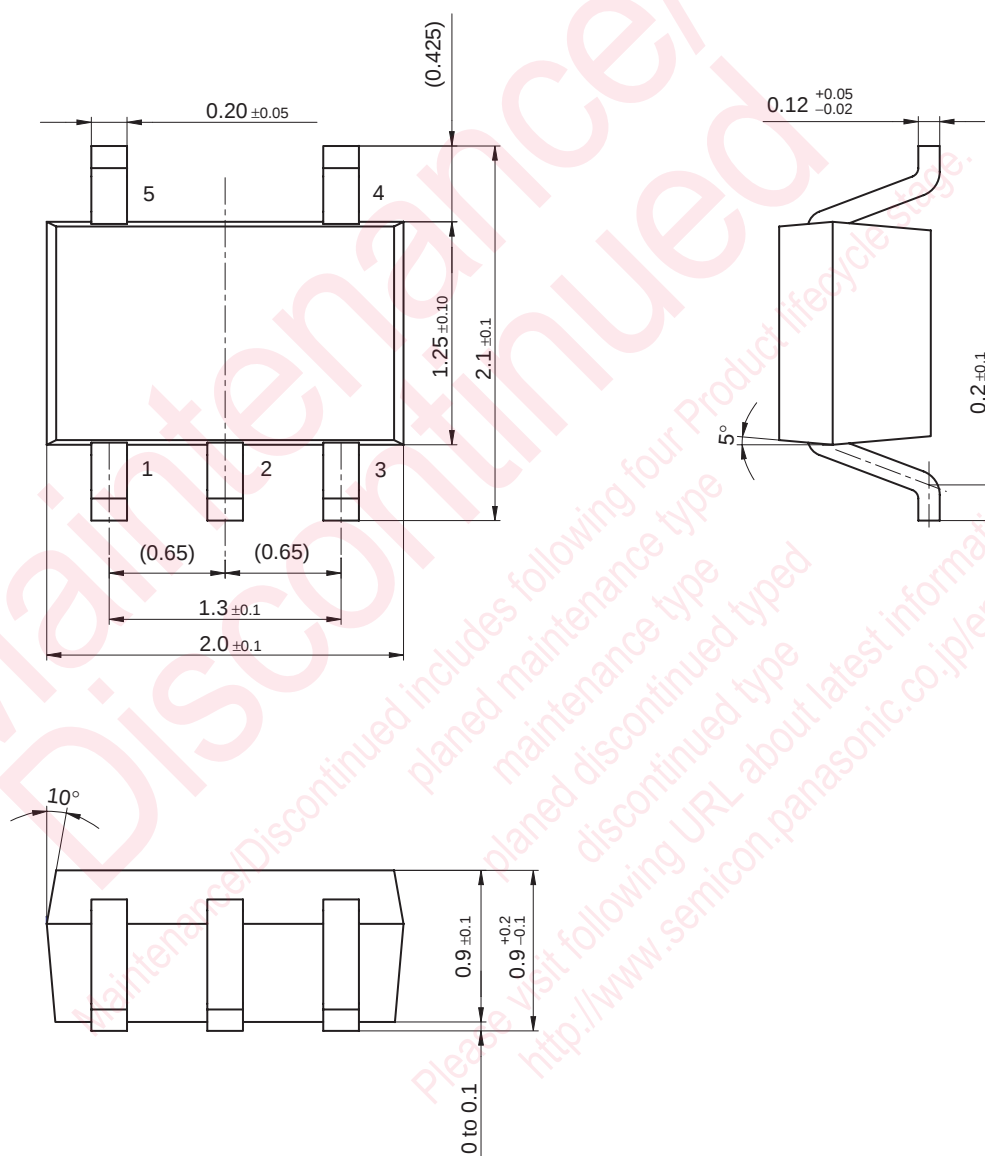
■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

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	μA
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = 50\ \text{V}$, $I_B = 0$			0.5	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 6\ \text{V}$, $I_C = 0$			0.2	mA
Forward current transfer ratio	h_{FE}	$V_{CE} = 10\ \text{V}$, $I_C = 5\ \text{mA}$	60			—
h_{FE} Ratio *	$h_{FE(\text{Small})}$ $/h_{FE(\text{Large})}$	$V_{CE} = 10\ \text{V}$, $I_C = 5\ \text{mA}$	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%	22	+30%	$\text{k}\Omega$
Resistance ratio	R_1 / R_2		0.8	1.0	1.2	—
Transition frequency	f_T	$V_{CB} = 10\ \text{V}$, $I_E = -2\ \text{mA}$, $f = 200\ \text{MHz}$		150		MHz

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

2. *: Ratio between 2 elements





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