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XP01216

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

- UNR2216 × 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	$^\circ\text{C}$

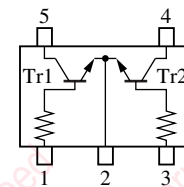
■ Package

- Code
SMINI5-G1
- Pin Name

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

■ Marking Symbol: 9N

■ Internal Connection



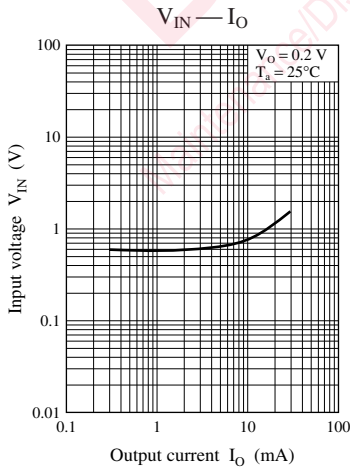
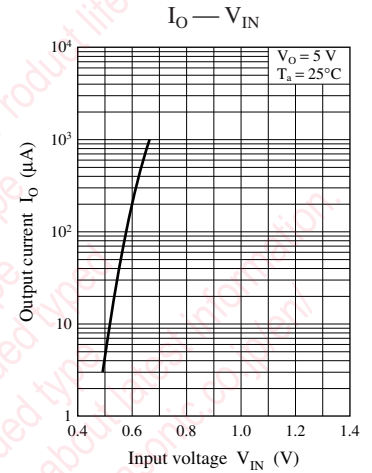
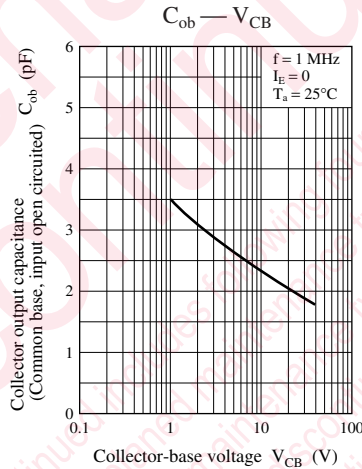
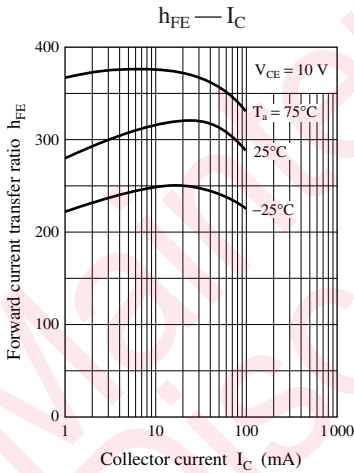
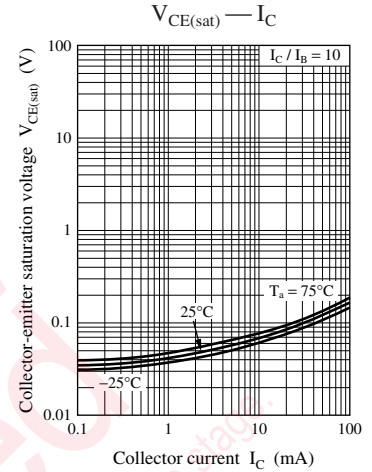
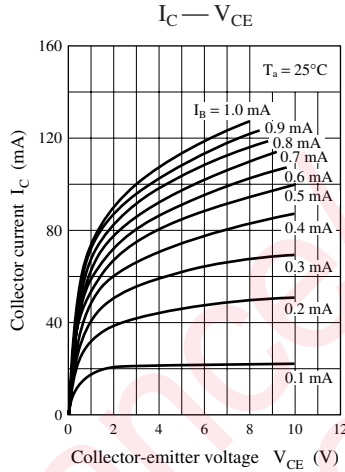
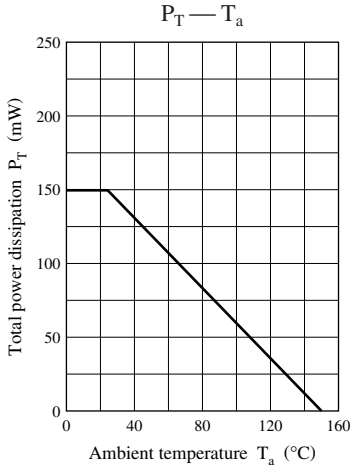
■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_{\text{C}} = 10 \mu\text{A}$, $I_{\text{E}} = 0$	50			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_{\text{C}} = 2 \text{ mA}$, $I_{\text{B}} = 0$	50			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{\text{CB}} = 50 \text{ V}$, $I_{\text{E}} = 0$			0.1	μA
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{\text{CE}} = 50 \text{ V}$, $I_{\text{B}} = 0$			0.5	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{\text{EB}} = 6 \text{ V}$, $I_{\text{C}} = 0$			0.01	mA
Forward current transfer ratio	h_{FE}	$V_{\text{CE}} = 10 \text{ V}$, $I_{\text{C}} = 5 \text{ mA}$	160		460	—
h_{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_{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_{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_{I}		-30%	4.7	+30%	$\text{k}\Omega$
Transition frequency	f_{T}	$V_{\text{CB}} = 10 \text{ V}$, $I_{\text{E}} = -2 \text{ mA}$, $f = 200 \text{ MHz}$		150		MHz

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

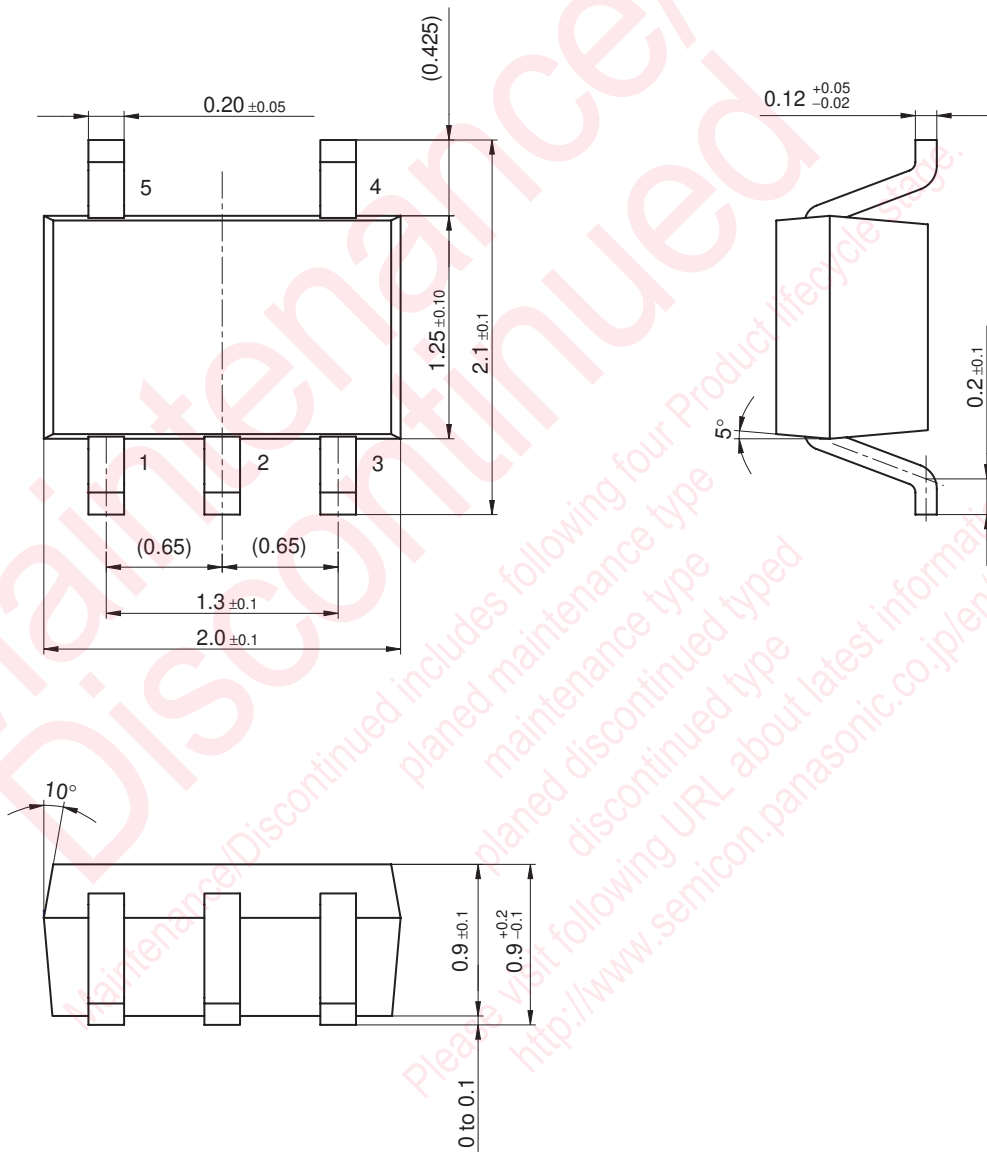
2. *: Ratio between 2 elements

XP01216



SMini5-G1

Unit: mm



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