

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 | $^\circ\text{C}$ |

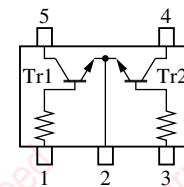
■ Package

- Code
SMINI5-G1
- Pin Name

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

■ Marking Symbol: 9N

■ Internal Connection



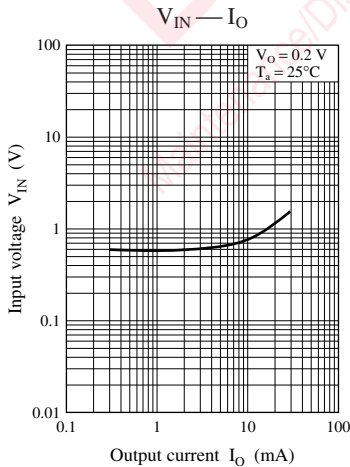
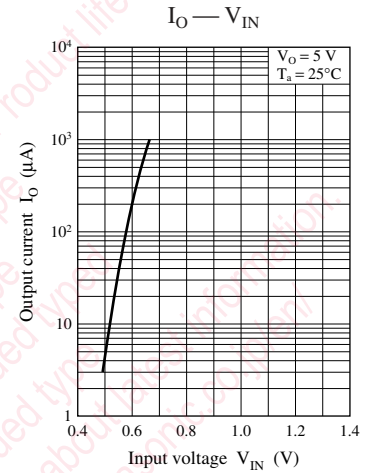
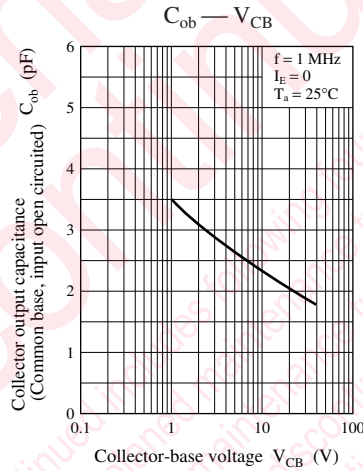
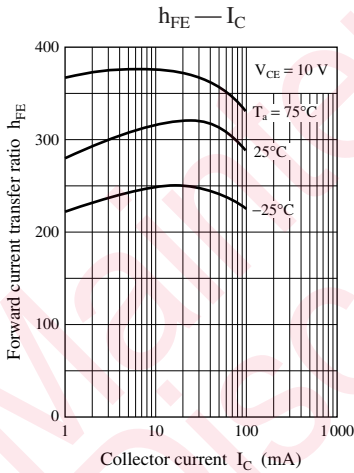
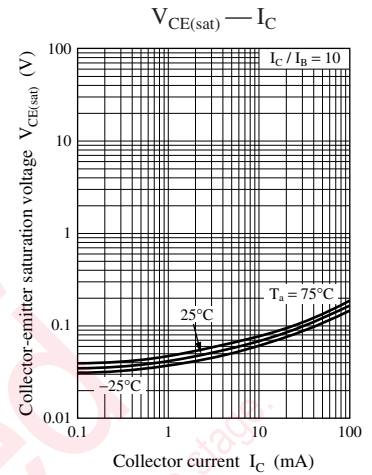
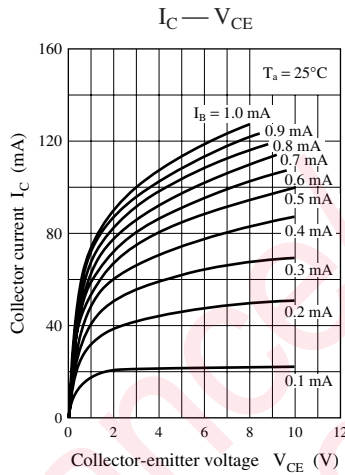
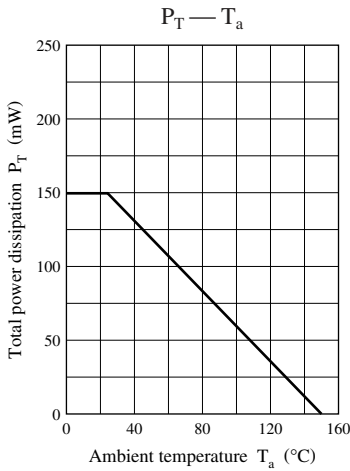
■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

| 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.

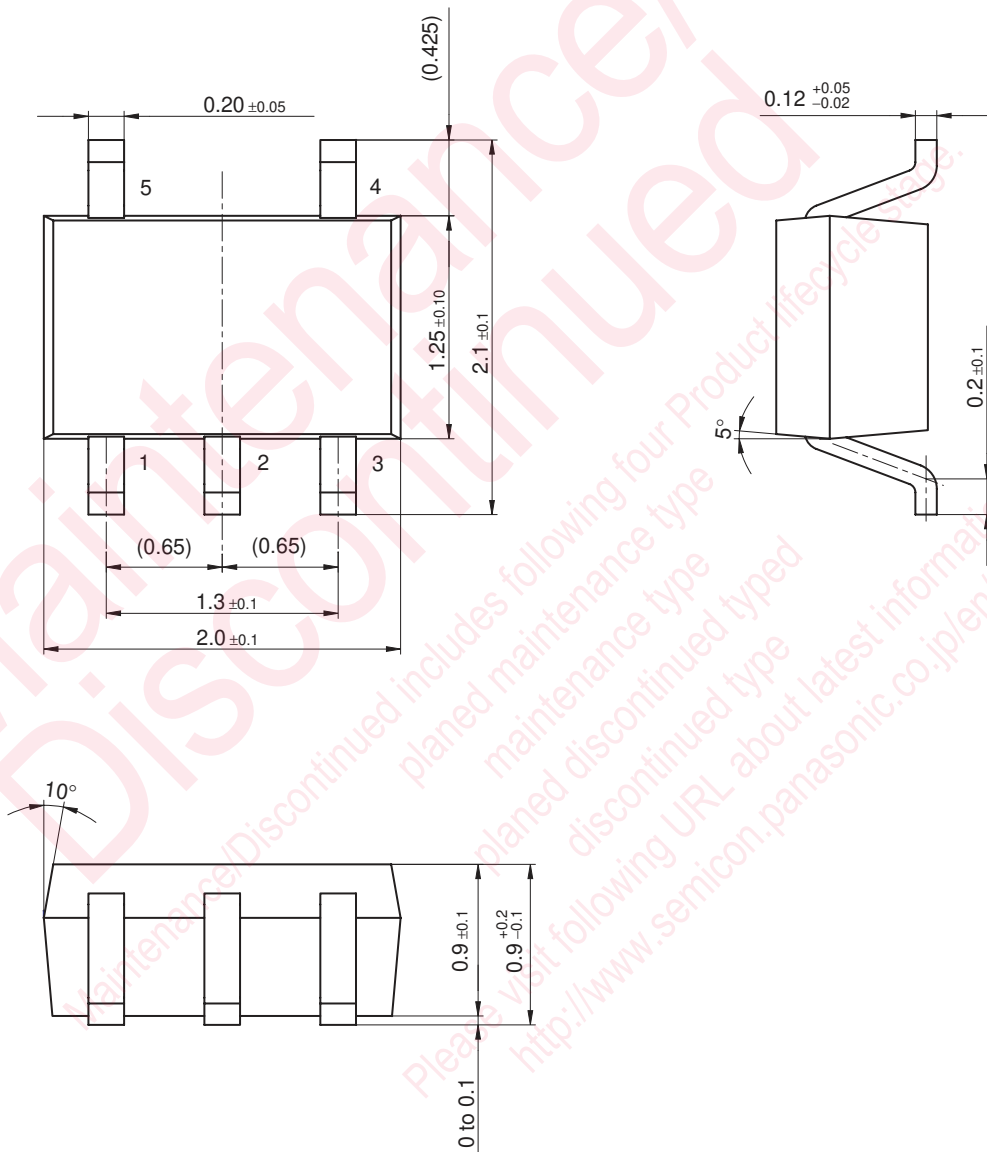
2. *: Ratio between 2 elements

XP01216



SMini5-G1

Unit: mm



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