

# UNR91ANG

## Silicon PNP epitaxial planar type

For digital circuits

**■ Features**

- Optimum for high-density mounting and downsizing of the equipment
- Contribute to low power consumption

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

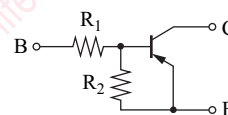
| Parameter                             | Symbol    | Rating      | Unit             |
|---------------------------------------|-----------|-------------|------------------|
| Collector-base voltage (Emitter open) | $V_{CBO}$ | -50         | V                |
| Collector-emitter voltage (Base open) | $V_{CEO}$ | -50         | V                |
| Collector current                     | $I_C$     | -80         | mA               |
| Total power dissipation               | $P_T$     | 125         | mW               |
| Junction temperature                  | $T_j$     | 125         | $^\circ\text{C}$ |
| Storage temperature                   | $T_{stg}$ | -55 to +125 | $^\circ\text{C}$ |

**■ Package**

- Code  
SSMini3-F3
- Pin Name  
1: Base  
2: Emitter  
3: Collector

**■ Marking Symbol: EK**

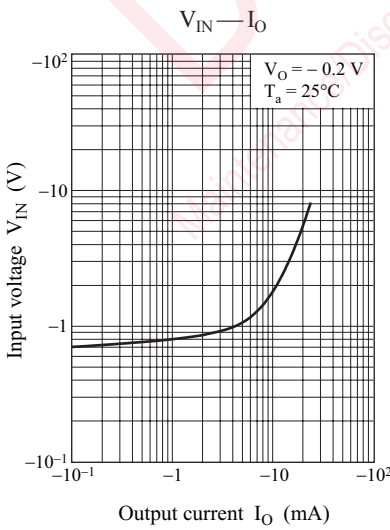
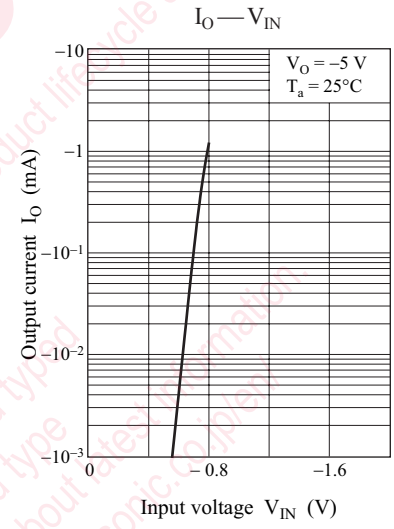
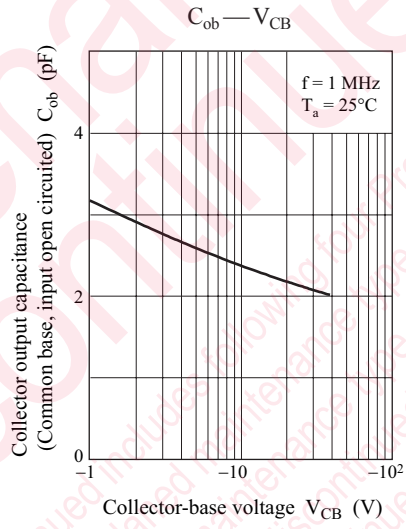
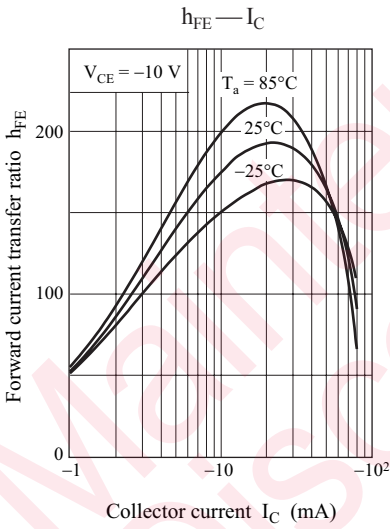
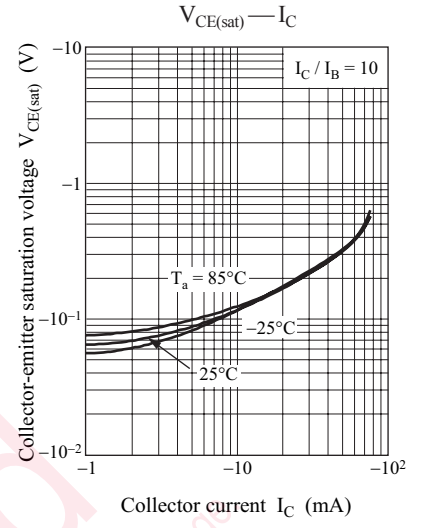
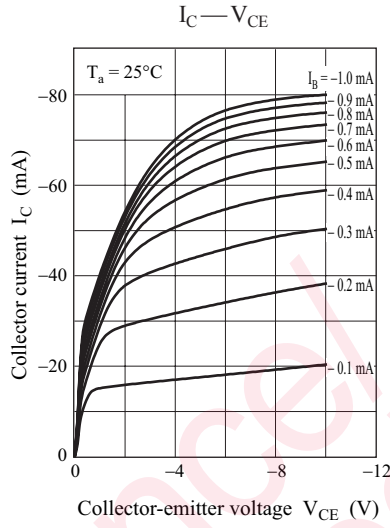
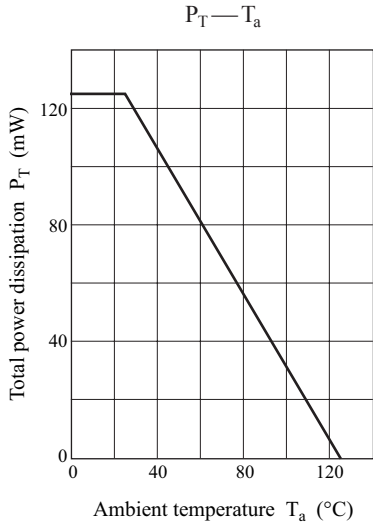
**■ Internal Connection**



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

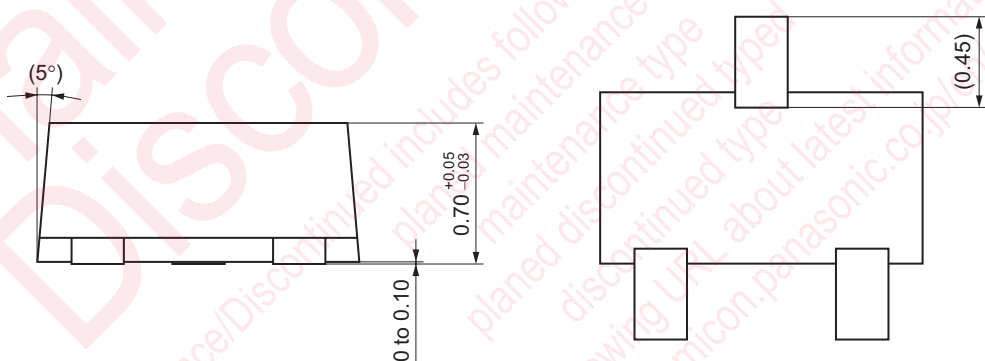
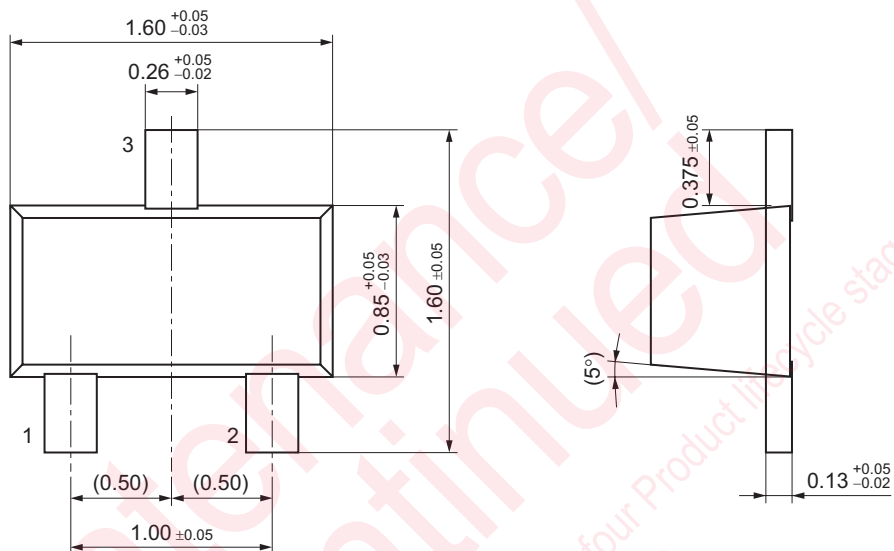
| Parameter                                    | Symbol        | Conditions  | Min  | Typ | Max   | Unit             |
|--|---------------|---|------|-----|-------|------------------|
| Collector-base voltage (Emitter open)        | $V_{CBO}$     | $I_C = -10 \mu\text{A}, I_E = 0$                                    | -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) | $I_{EBO}$     | $V_{EB} = -6 \text{V}, I_C = 0$                                     |      |     | -0.2  | mA               |
| Forward current transfer ratio               | $h_{FE}$      | $V_{CE} = -10 \text{V}, I_C = -5 \text{mA}$                         | 80   |     | 400   | —                |
| Collector-emitter saturation voltage         | $V_{CE(sat)}$ | $I_C = -10 \text{mA}, I_B = -0.3 \text{mA}$                         |      |     | -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                             | $R_1$         |   | -30% | 4.7 | +30%  | $\text{k}\Omega$ |
| Resistance ratio                             | $R_1 / R_2$   |   |      | 0.1 |       | —                |
| Transition frequency                         | $f_T$         | $V_{CB} = -10 \text{V}, I_E = 1 \text{mA}, f = 200 \text{MHz}$      |      | 80  |       | MHz              |

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



SSMini3-F3

Unit: mm



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