# UNR51AAG

## Silicon PNP epitaxial planar type

For digital circuits

### ■ Features

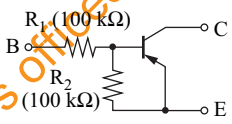
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- SMini type package allowing easy automatic insertion through tape packing

### ■ Package

- Code
  SMini3-F2
- Pin Name
  1: Base
  2: Emitter
  3: Collector

### ■ Marking Symbol: DE

### ■ Internal Connection




### ■ Absolute Maximum Ratings $T_a = 25°C$

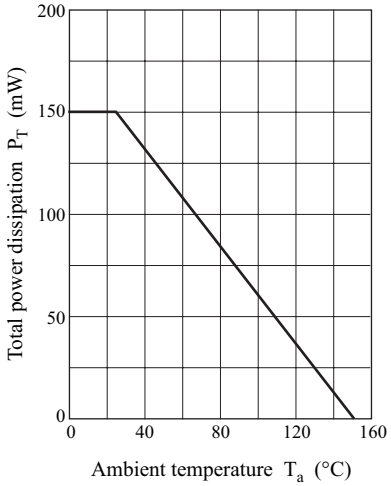
| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Collector-base voltage (Emitter open) | $V_{CBO}$ | –50 | V |
| Collector-emitter voltage (Base open) | $V_{CEO}$ | –50 | V |
| Collector current | $I_C$ | –80 | mA |
| Total power dissipation | $P_T$ | 150 | mW |
| Junction temperature | $T_j$ | 150 | °C |
| Storage temperature | $T_{stg}$ | –55 to +150 | °C |

### ■ Electrical Characteristics $T_a = 25°C \pm 3°C$

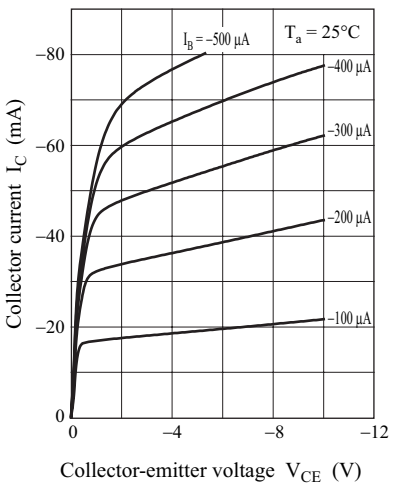
| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector-base voltage (Emitter open) | $V_{CBO}$ | $I_C = -10$ µA, $I_E = 0$ | –50 | | | V |
| Collector-emitter voltage (Base open) | $V_{CEO}$ | $I_C = -2$ mA, $I_B = 0$ | –50 | | | V |
| Collector-base cutoff current (Emitter open) | $I_{CBO}$ | $V_{CB} = -50$ V, $I_E = 0$ | | | – 0.1 | µA |
| Collector-emitter cutoff current (Base open) | $I_{CEO}$ | $V_{CE} = -50$ V, $I_B = 0$ | | | – 0.5 | µA |
| Emitter-base cutoff current (Collector open) | $I_{EBO}$ | $V_{EB} = -6$ V, $I_C = 0$ | | | – 0.1 | mA |
| Forward current transfer ratio | $h_{FE}$ | $V_{CE} = -10$ V, $I_C = -5$ mA | 80 | | | — |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -10$ mA, $I_B = -0.3$ mA | | | – 0.25 | V |
| Output voltage high-level | $V_{OH}$ | $V_{CC} = -5$ V, $V_B = -0.5$ V, $R_L = 1$ kΩ | –4.9 | | | V |
| Output voltage low-level | $V_{OL}$ | $V_{CC} = -5$ V, $V_B = -5$ V, $R_L = 1$ kΩ | | | – 0.2 | V |
| Input resistance | $R_1$ | | –30% | 100 | +30% | kΩ |
| Resistance ratio | $R_1 / R_2$ | | 0.8 | 1 | 1.2 | — |
| Transition frequency | $f_T$ | $V_{CB} = -10$ V, $I_E = 1$ mA, f = 200 MHz | | 80 | | MHz |

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

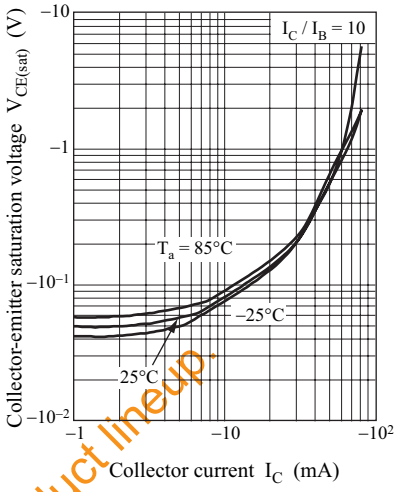
$P_T$ — $T_a$



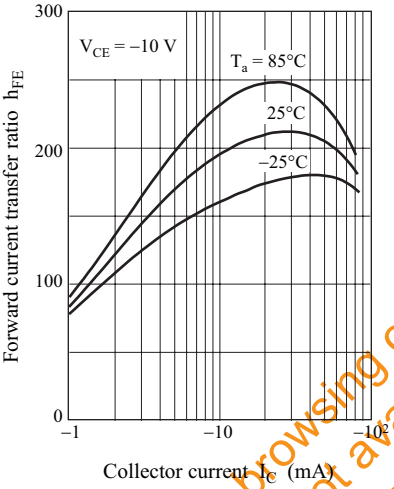

$I_C$ — $V_{CE}$



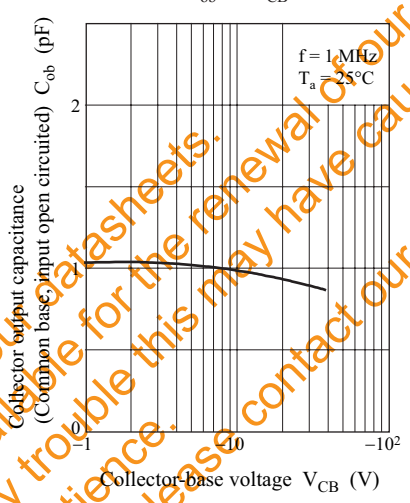

$V_{CE(sat)}$ — $I_C$



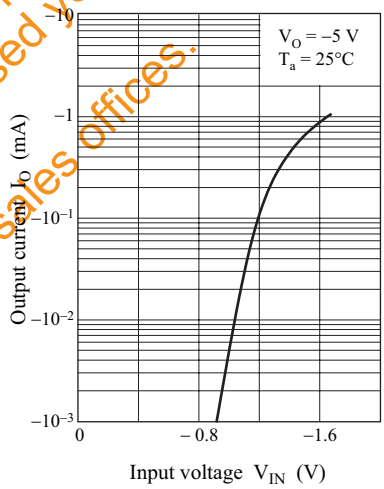

$h_{FE}$ — $I_C$



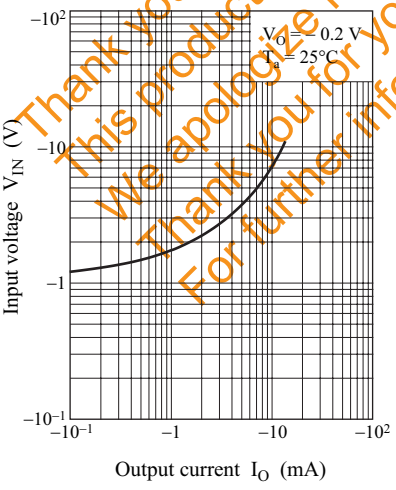

$C_{ob}$ — $V_{CB}$




$I_O$ — $V_{IN}$

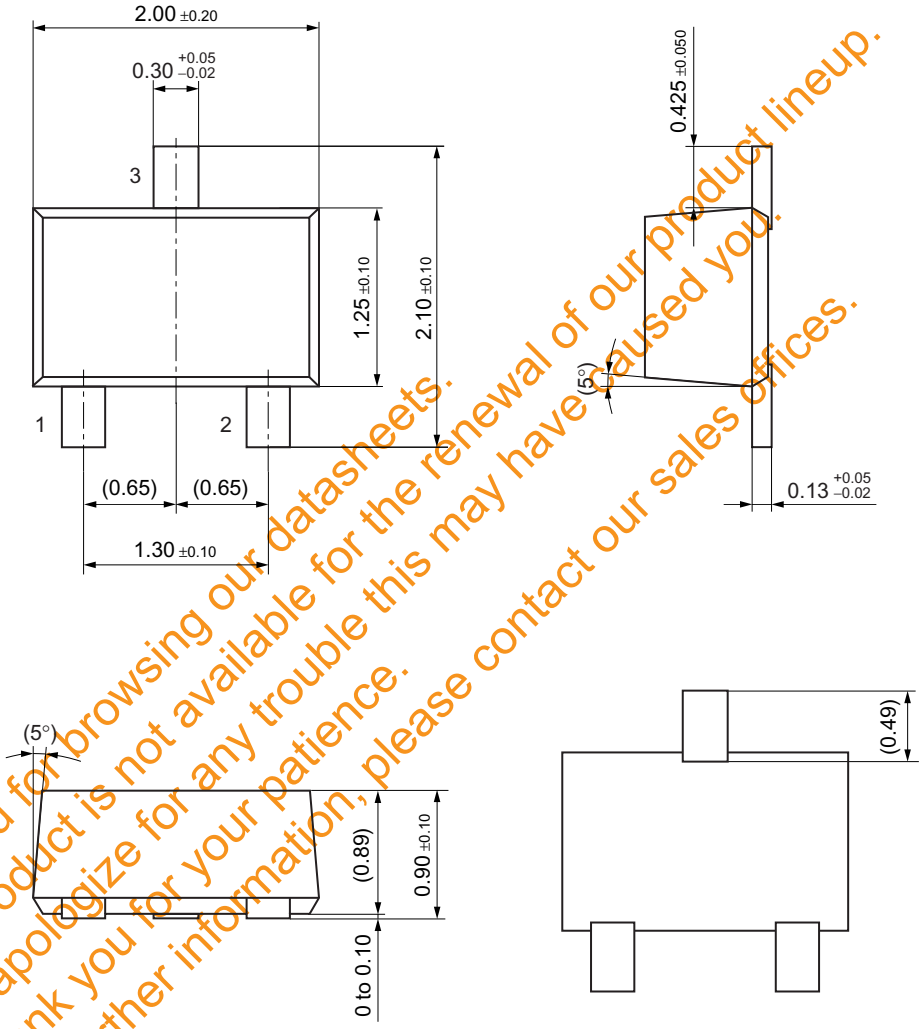



$V_{IN}$ — $I_O$



## SMini3-F2

Unit: mm



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