## **UNR32AM**

## Silicon NPN epitaxial planar type

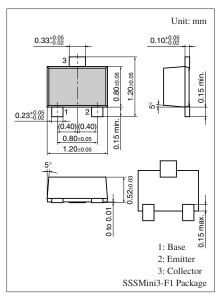
#### For digital circuits

#### ■ Features

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

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

| Parameter                             | Symbol           | Rating      | Unit |  |
|---------------------------------------|------------------|-------------|------|--|
| Collector-base voltage (Emitter open) | V <sub>CBO</sub> | 50          | V    |  |
| Collector-emitter voltage (Base open) | V <sub>CEO</sub> | 50          | V    |  |
| Collector current                     | $I_C$            | 80          | mA   |  |
| Total power dissipation               | $P_{T}$          | 100         | mW   |  |
| Junction temperature                  | $T_{j}$          | 125         | °C   |  |
| Storage temperature                   | T <sub>stg</sub> | -55 to +125 | °C   |  |



Marking Symbol: KH

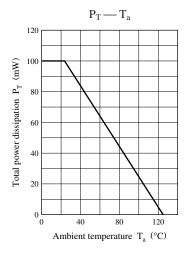
#### Internal Connection

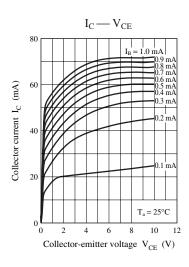
$$\begin{array}{c}
R_1 (2.2 k\Omega) \\
B \circ - W \\
R_2 \\
(47 k\Omega)
\end{array}$$
 $\circ$  C

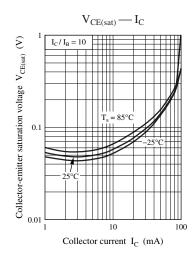
## ■ Electrical Characteristics $T_a = 25$ °C $\pm 3$ °C

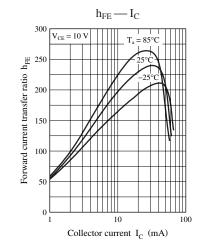
| Parameter                                    | Symbol               | Conditions   | Min   | Тур   | Max   | Unit |
|--|----------------------|--|-------|-------|-------|------|
| Collector-base voltage (Emitter open)        | $V_{CBO}$            | $I_C = 10 \mu\text{A},  I_E = 0$   | 50    |       |       | V    |
| Collector-emitter voltage (Base open)        | V <sub>CEO</sub>     | $I_C = 2 \text{ mA}, I_B = 0$  | 50    |       |       | V    |
| Collector-base cutoff current (Emitter open) | $I_{CBO}$            | $V_{CB} = 50 \text{ V}, I_{E} = 0$                                       |       |       | 0.1   | μΑ   |
| Collector-emitter cutoff current (Base open) | $I_{CEO}$            | $V_{CE} = 50 \text{ V}, I_{B} = 0$                                       |       |       | 0.5   | μΑ   |
| Emitter-base cutoff current (Collector open) | $I_{EBO}$            | $V_{EB} = 6 \text{ V}, I_C = 0$  |       |       | 0.2   | mA   |
| Forward current transfer ratio               | h <sub>FE</sub>      | $V_{CE} = 10 \text{ V}, I_{C} = 5 \text{ mA}$                            | 80    |       |       | _    |
| Collector-emitter saturation voltage         | V <sub>CE(sat)</sub> | $I_C = 10 \text{ mA}, I_B = 0.3 \text{ mA}$                              |       |       | 0.25  | V    |
| Output voltage high-level                    | V <sub>OH</sub>      | $V_{CC} = 5 \text{ V}, V_{B} = 0.5 \text{ V}, R_{L} = 1 \text{ k}\Omega$ | 4.9   |       |       | V    |
| Output voltage low-level                     | V <sub>OL</sub>      | $V_{CC} = 5 \text{ V}, V_{B} = 2.5 \text{ V}, R_{L} = 1 \text{ k}\Omega$ |       |       | 0.2   | V    |
| Input resistance                             | R <sub>1</sub>       |  | -30%  | 2.2   | +30%  | kΩ   |
| Resistance ratio                             | $R_1 / R_2$          |  | 0.037 | 0.047 | 0.057 | _    |
| Transition frequency                         | $f_T$                | $V_{CB} = 10 \text{ V}, I_E = -2 \text{ mA}, f = 200 \text{ MHz}$        |       | 150   |       | MHz  |

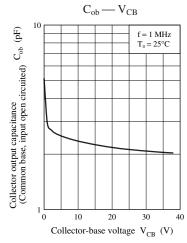
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

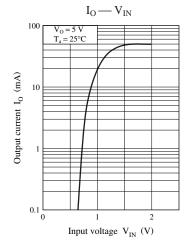


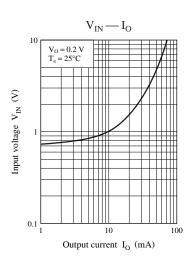












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