

UNRF2A3

Silicon NPN epitaxial planar type

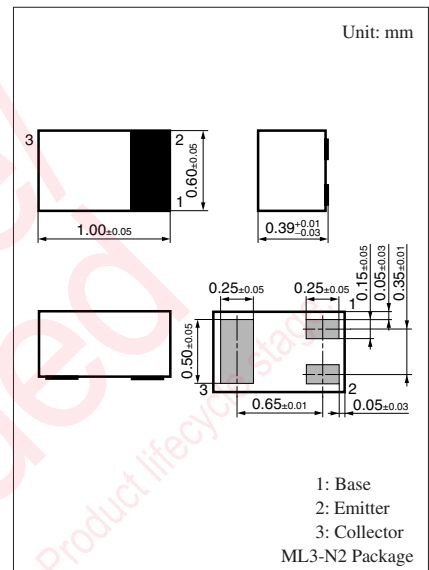
For digital circuits

■ Features

- Reduction of assembly cost and package size with 1006 type mold leadless package is possible
- Maximum package height (0.4 mm) contributes to develop thinner equipments

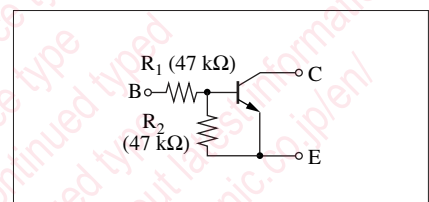
■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| 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} | 100 | mW |
| Junction temperature | T_{j} | 125 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +125 | $^\circ\text{C}$ |



Marking Symbol: 1W

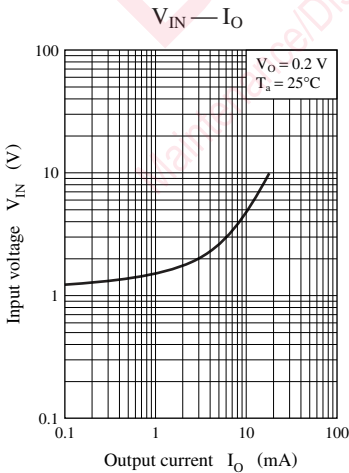
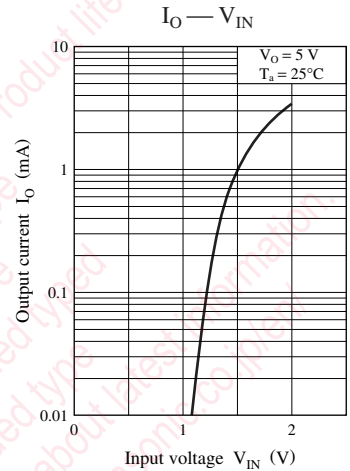
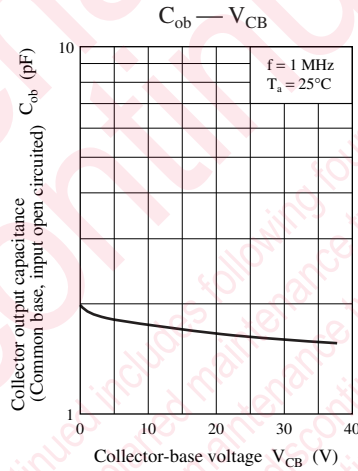
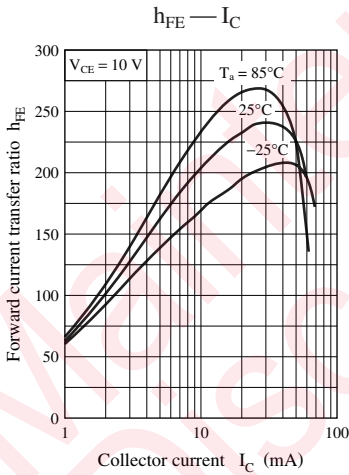
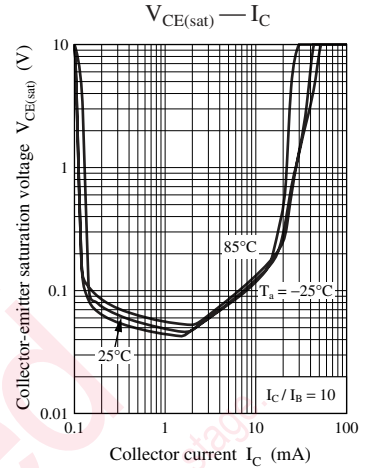
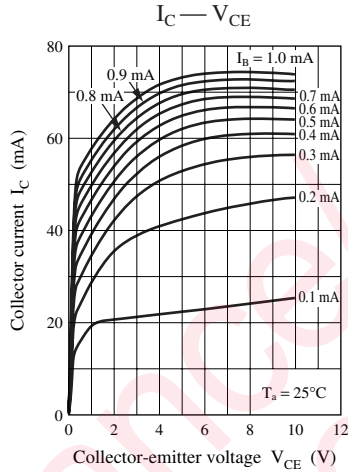
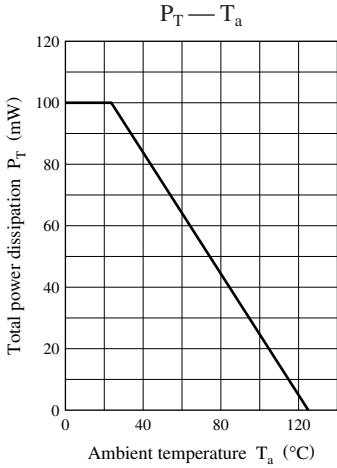
Internal Connection



■ 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} | $V_{\text{EB}} = 6 \text{ V}$, $I_{\text{C}} = 0$ | | | 0.1 | mA |
| Forward current transfer ratio | h_{FE} | $V_{\text{CE}} = 10 \text{ V}$, $I_{\text{C}} = 5 \text{ mA}$ | 80 | | | — |
| 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} | $V_{\text{CC}} = 5 \text{ V}$, $V_{\text{B}} = 3.5 \text{ V}$, $R_{\text{L}} = 1 \text{ k}\Omega$ | | | 0.2 | V |
| Input resistance | R_{I} | | -30% | 47 | +30% | $\text{k}\Omega$ |
| Resistance ratio | $R_{\text{I}} / R_{\text{2}}$ | | 0.8 | 1.0 | 1.2 | — |
| Transition frequency | f_{T} | $V_{\text{CB}} = 10 \text{ V}$, $I_{\text{E}} = -2 \text{ mA}$, $f = 200 \text{ MHz}$ | | 150 | | MHz |

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



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