

Descriptions

- Switching application
- Interface circuit and driver circuit application

Features

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- High packing density

Ordering Information

| Type NO. | Marking | Package Code |
|----------|---------|--------------|
| SRC1203U | R3 | SOT-323 |

Outline Dimensions

unit : mm

The mechanical drawing shows the top and side views of the SOT-323 package. Key dimensions include: total width 2.1±0.1 mm, base width 1.25±0.05 mm, total height 2.0±0.2 mm, base height 1.30±0.1 mm, emitter height 0.30±0.1 mm, and collector height 0.15±0.05 mm. The base is labeled 1, emitter 2, and collector 3. A minimum lead length of 0.1 mm is specified.

• Equivalent Circuit

The equivalent circuit shows an NPN transistor with an input terminal B(IN) connected to the base through resistor R₁. The emitter is connected to a common terminal E(COMMON) through resistor R₂. The collector terminal is labeled C(OUT).

| R ₁ | R ₂ |
|----------------|----------------|
| 22KΩ | 22KΩ |

PIN Connections

1. Base
2. Emitter
3. Collector

Absolute maximum ratings

(Ta=25°C)

| Characteristic | Symbol | Ratings | Unit |
|----------------------|-----------|-----------|------|
| Out Voltage | V_o | 50 | V |
| Input Voltage | V_I | 40 | V |
| Out Current | I_o | 100 | mA |
| Power Dissipation | P_D | 200 | mW |
| Junction Temperature | T_J | 150 | °C |
| Storage Temperature | T_{STG} | -55 ~ 150 | °C |

Electrical Characteristics

(Ta=25°C)

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|------------------------|--------------|-----------------------|------|------|------|------|
| Output Cut-off Current | $I_{O(OFF)}$ | $V_o=50V, V_I=0$ | - | - | 500 | nA |
| DC Current Gain | G_I | $V_o=5V, I_o=10mA$ | 70 | 120 | - | - |
| Output Voltage | $V_{O(ON)}$ | $I_o=10mA, I_i=0.5mA$ | - | 0.1 | 0.3 | V |
| Input Voltage (ON) | $V_{I(ON)}$ | $V_o=0.2V, I_o=5mA$ | - | 2.1 | 3.0 | V |
| Input Voltage (OFF) | $V_{I(OFF)}$ | $V_o=5V, I_o=0.1mA$ | 1.0 | 1.2 | - | V |
| Transition Frequency | f_T^* | $V_o=10V, I_o=5mA$ | - | 200 | - | MHz |
| Input Current | I_I | $V_I=5V$ | - | - | 0.36 | mA |

* : Characteristic of Transistor Only

Electrical Characteristic Curves

Fig. 1 $I_o - V_{I(ON)}$

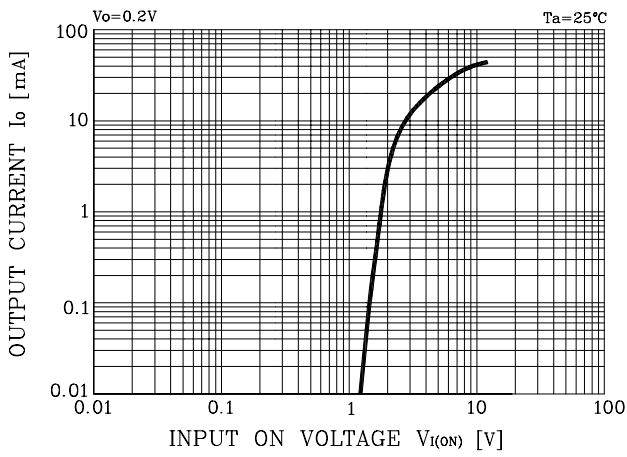


Fig. 2 $I_o - V_{I(OFF)}$

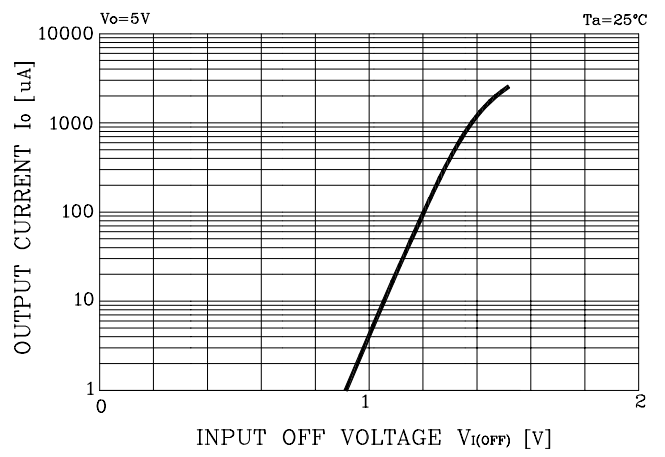


Fig. 3 $G_1 - I_o$

