

## Descriptions

- Switching application
- Interface circuit and driver circuit application

## Features

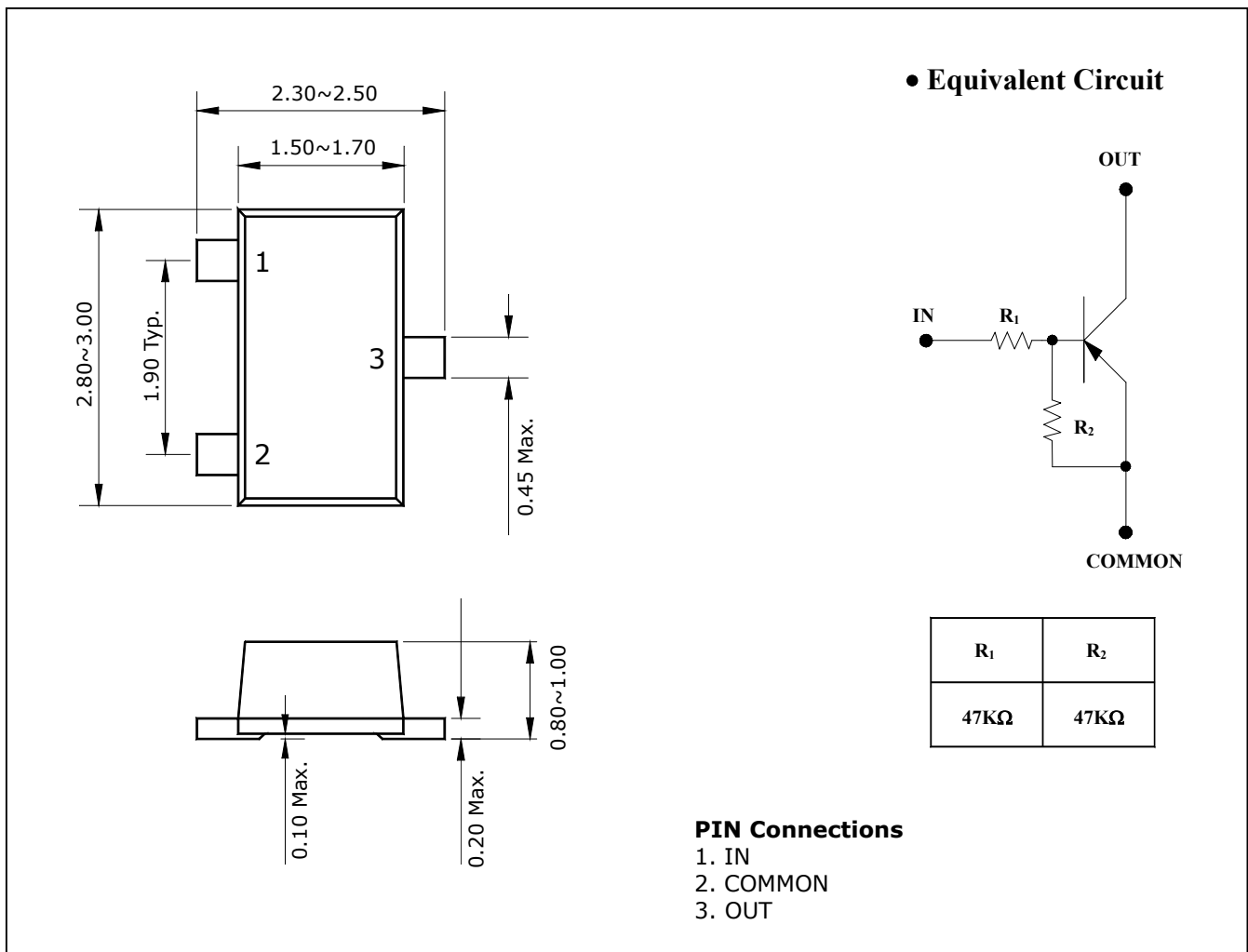
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- High packing density

## Ordering Information

| Type NO.  | Marking | Package Code |
|-----------|---------|--------------|
| SRA2204SF | RA4     | SOT-23F      |

## Outline Dimensions

unit : mm



The image shows the mechanical dimensions and electrical equivalent circuit of the SRA2204SF transistor. The mechanical drawing includes a top view with dimensions: overall width 2.30~2.50 mm, inner width 1.50~1.70 mm, overall height 2.80~3.00 mm, and a typical height of 1.90 mm. Pin 1 is on the left, pin 2 is on the bottom, and pin 3 is on the right. A maximum height of 0.45 mm is indicated for the right side. A side view shows a maximum width of 0.10 mm, a maximum height of 0.20 mm, and a maximum height of 0.80~1.00 mm for the top part.

The equivalent circuit diagram shows a PNP transistor with an input terminal (IN) connected to the base through a resistor R<sub>1</sub>. The emitter is connected to a common terminal (COMMON) through a resistor R<sub>2</sub>. The collector is connected to an output terminal (OUT).

| R <sub>1</sub> | R <sub>2</sub> |
|----------------|----------------|
| 47KΩ           | 47KΩ           |

**PIN Connections**  
 1. IN  
 2. COMMON  
 3. OUT

## Absolute Maximum Ratings

(Ta=25°C)

| Characteristic            | Symbol    | Rating    | Unit |
|---------------------------|-----------|-----------|------|
| Output voltage            | $V_O$     | -50       | V    |
| Input voltage             | $V_I$     | -40, 10   | V    |
| Output current            | $I_O$     | -100      | mA   |
| Power dissipation         | $P_D$     | 200       | mW   |
| Junction temperature      | $T_J$     | 150       | °C   |
| Storage temperature range | $T_{stg}$ | -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                 | $G_I$        | $V_O=-5V, I_O=-10mA$         | 80   | 200  | -     | -          |
| Output voltage                  | $V_{O(ON)}$  | $I_O=-10mA, I_I=-0.5mA$      | -    | -0.1 | -0.3  | V          |
| Input voltage (ON)              | $V_{I(ON)}$  | $V_O=-0.2V, I_O=-5mA$        | -    | -2.8 | -5.0  | V          |
| Input voltage (OFF)             | $V_{I(OFF)}$ | $V_O=-5V, I_O=-0.1mA$        | -1.0 | -1.2 | -     | V          |
| Transition frequency            | $f_T^*$      | $V_O=-10V, I_O=-5mA, f=1MHz$ | -    | 200  | -     | MHz        |
| Input current                   | $I_I$        | $V_I=-5V, I_O=0$             | -    | -    | -0.18 | mA         |
| Input resistor (Input to base)  | $R_1$        | -                            | 33   | 47   | 61    | K $\Omega$ |
| Input resistor (Base to common) | $R_2$        | -                            | 33   | 47   | 61    | K $\Omega$ |

\* : Characteristic of transistor only

Electrical Characteristic Curves

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

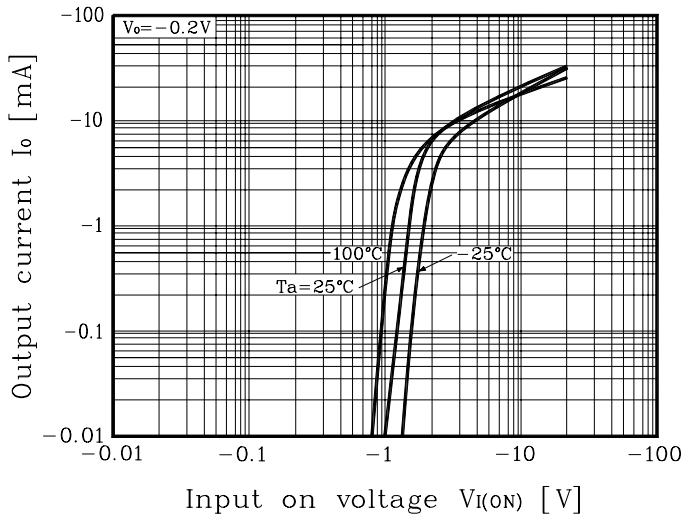


Fig. 2  $I_o - V_{I(OFF)}$

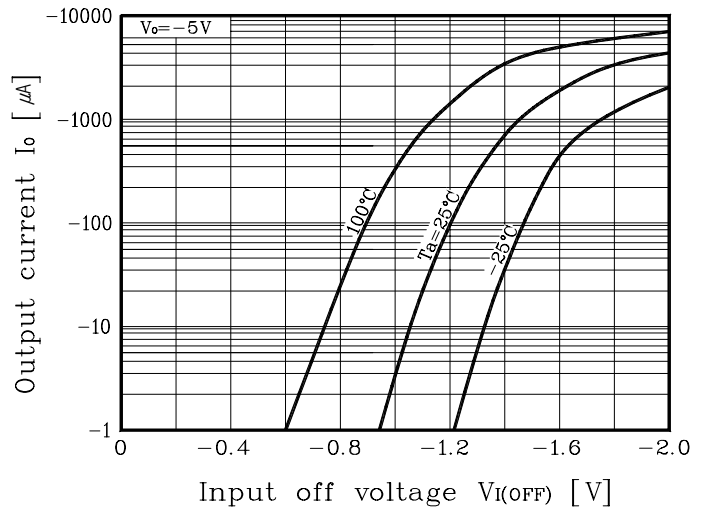
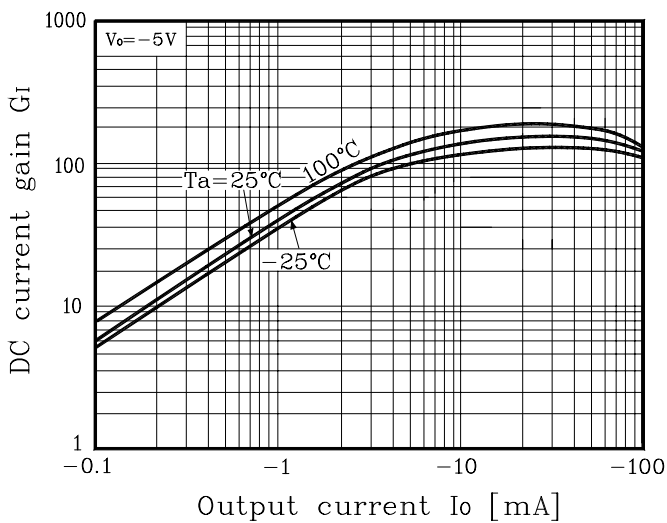


Fig. 3  $G_I - I_o$



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