

## Description

- Dual chip digital transistor

## Features

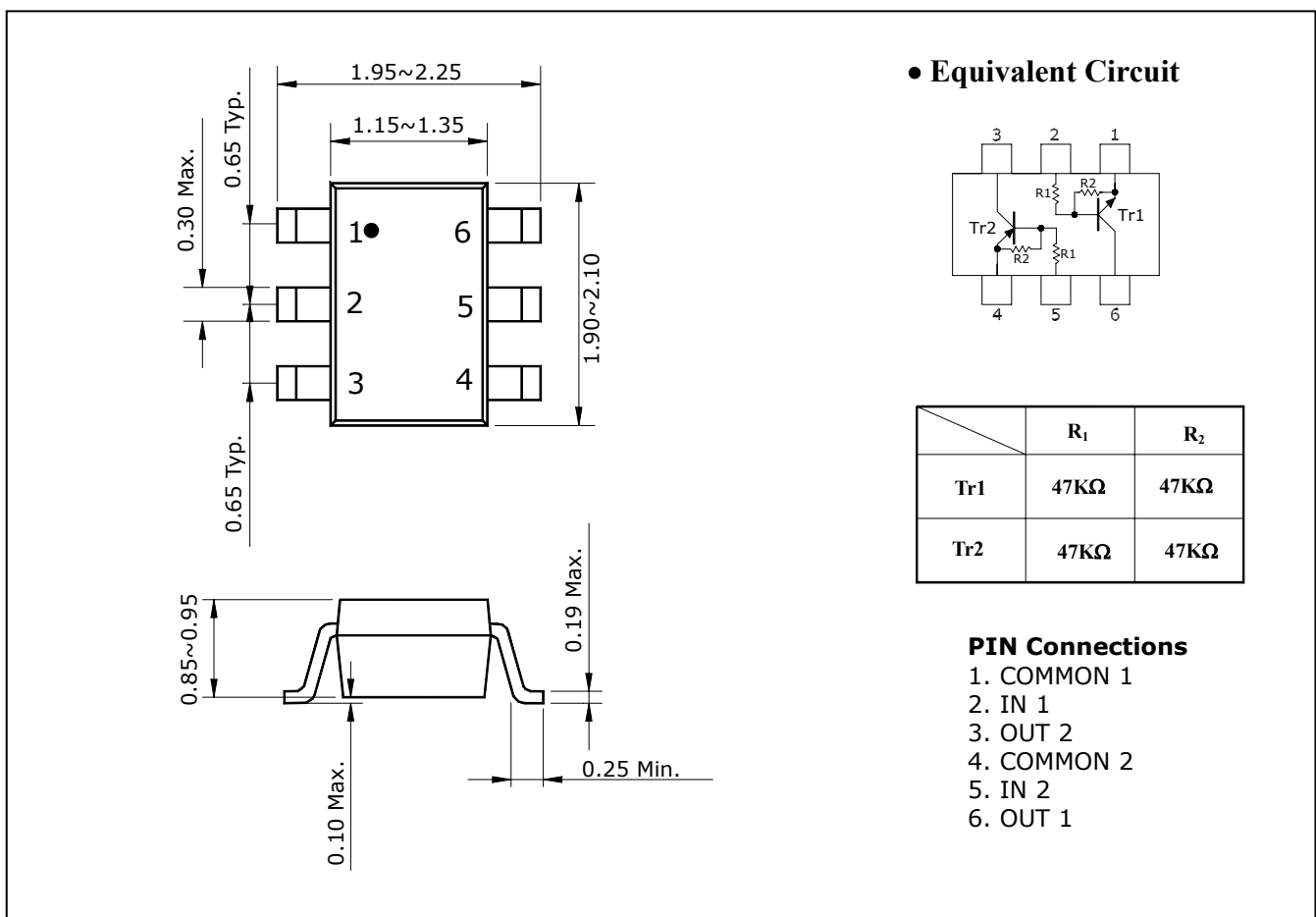
- Both SRC1204 chips and SRA2204 chip in SOT-363 package
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process

## Ordering Information

| Type NO. | Marking | Package Code |
|----------|---------|--------------|
| SUR552J  | 52J     | SOT-363      |

## Outline Dimensions

unit : mm



## Absolute Maximum Ratings [Tr1, Tr2]

(Ta=25°C)

| Characteristic            | Symbol     | Rating    |        | Unit |
|---------------------------|------------|-----------|--------|------|
|                           |            | Tr1       | Tr2    |      |
| Output voltage            | $V_O$      | 50        | -50    | V    |
| Input voltage             | $V_I$      | 40,-10    | -40,10 | V    |
| Output current            | $I_O$      | 100       | -100   | mA   |
| Power dissipation         | $P_D^{**}$ | 200       |        | mW   |
| Junction temperature      | $T_J$      | 150       |        | °C   |
| Storage temperature Range | $T_{stg}$  | -55 ~ 150 |        | °C   |

※: Total rating

## Electrical Characteristics [Tr1]

(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 Characteristics [Tr2]

(Ta=25°C)

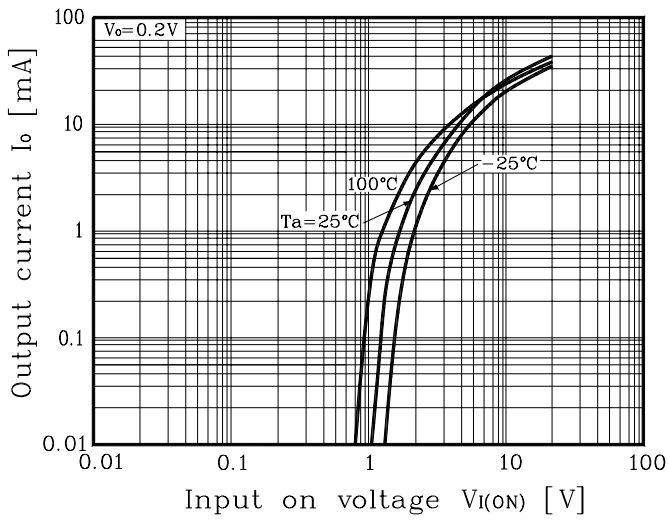
| Characteristic                  | Symbol       | Test Condition               | Min. | Typ. | Max.  | Unit       |
|---------------------------------|--------------|------------------------------|------|------|-------|------------|
| Output cut-off current          | $I_{O(OFF)}$ | $V_O=-50V, V_I=0$            | -    | -    | -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

[Tr1]

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



[Tr2]

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

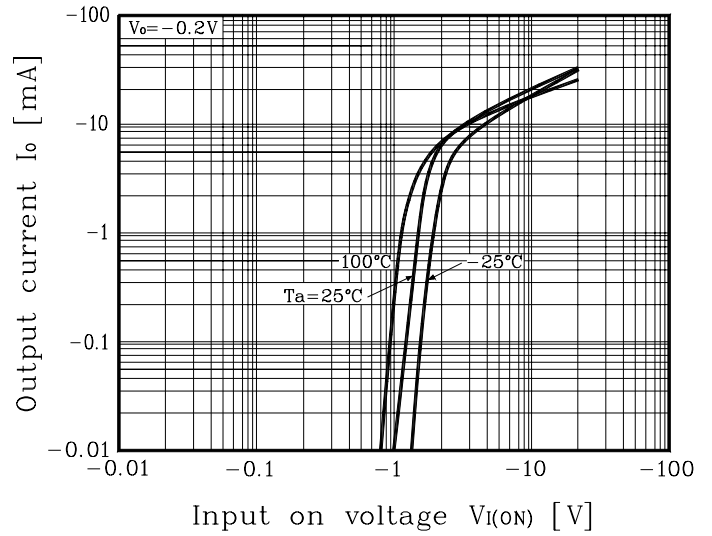


Fig. 2  $I_O - V_{I(OFF)}$

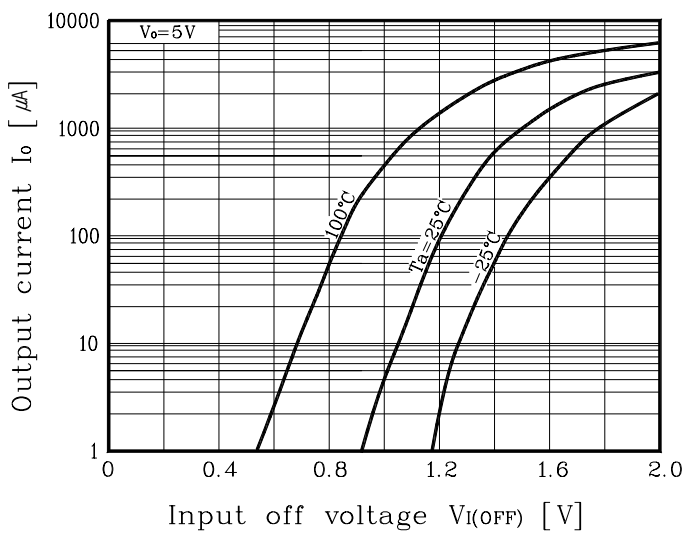


Fig. 2  $I_O - V_{I(OFF)}$

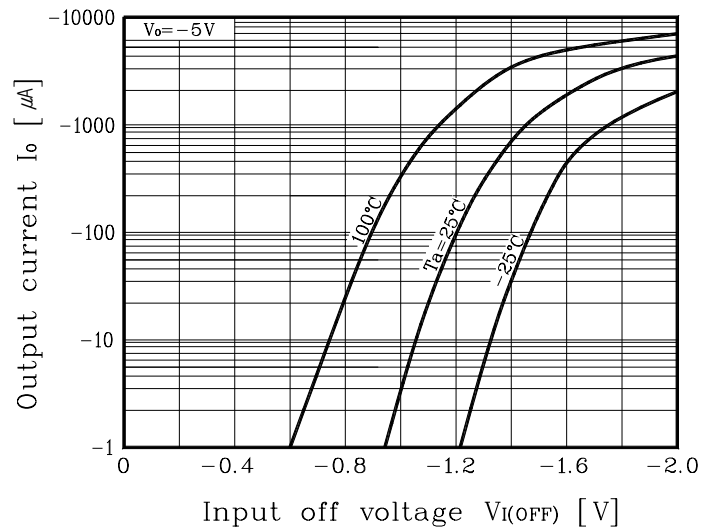


Fig. 3  $G_I - I_O$

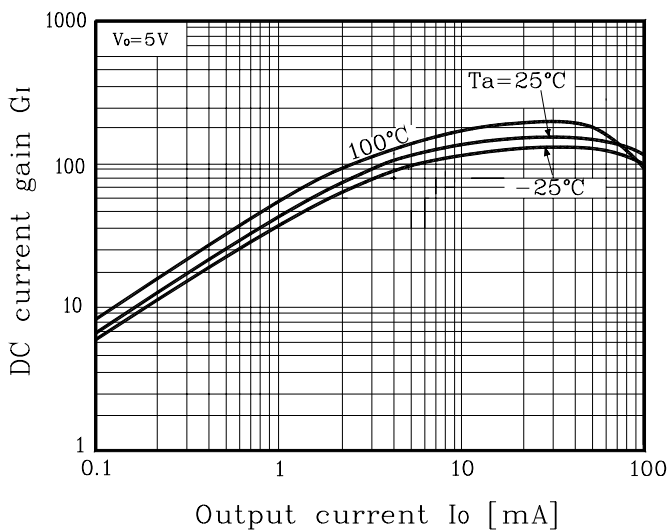
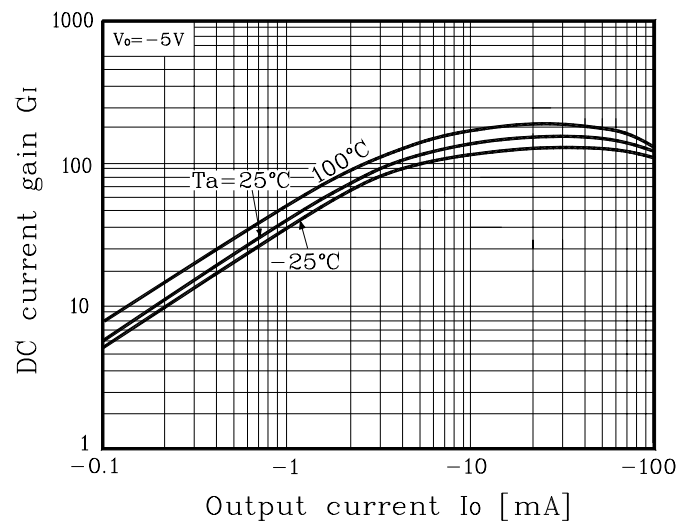


Fig. 3  $G_I - I_O$



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