# SUR544J

#### Epitaxial planar PNP silicon transistor

# **Description**

• Dual chip digital transistor

#### **Features**

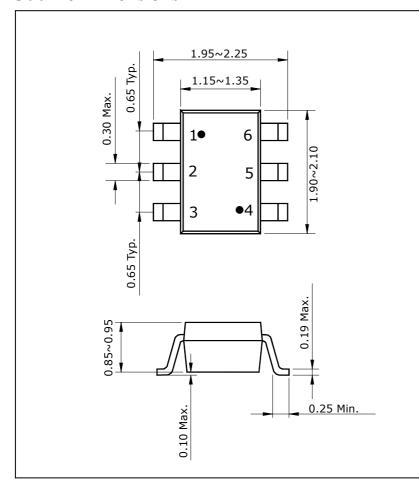
- Two SRA2205 chips in SOT-363 package
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process

# **Ordering Information**

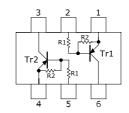
| Type NO. | Marking | Package Code |  |  |
|----------|---------|--------------|--|--|
| SUR544J  | IHI     | SOT-363      |  |  |

# **Outline Dimensions**





## • Equivalent Circuit



|     | $\mathbf{R}_{1}$ | $\mathbf{R}_2$ |  |  |
|-----|------------------|----------------|--|--|
| Tr1 | 2.2ΚΩ            | 47ΚΩ           |  |  |
| Tr2 | 2.2ΚΩ            | 47ΚΩ           |  |  |

#### **PIN Connections**

- 1. COMMON 1
- 2. IN 1
- 3. OUT 2
- 4. COMMON 2
- 5. IN 2
- 6. OUT 1

KSD-R5S011-000

Absolute Maximum Ratings [Tr1,Tr2]

(Ta=25°C)

| Characteristic            | Symbol                      | Rating    | Unit |
|---------------------------|-----------------------------|-----------|------|
| Output voltage            | Vo                          | -50       | V    |
| Input voltage             | $V_{\rm I}$                 | -15, 5    | V    |
| Output current            | $I_{O}$                     | -100      | mA   |
| Power dissipation         | P <sub>D</sub> <sup>∗</sup> | 200       | mW   |
| Junction temperature      | T <sub>J</sub>              | 150       | °C   |
| Storage temperature range | $T_{stg}$                   | -55 ~ 150 | °C   |

**※**: Total rating

# **Electrical Characteristics** [Tr1,Tr2]

(Ta=25°C)

| Characteristic                  | Symbol              | <b>Test Condition</b>                      | Min. | Typ. | Max. | Unit       |
|---------------------------------|---------------------|--|------|------|------|------------|
| Output cut-off current          | I <sub>O(OFF)</sub> | $V_0 = -50V, V_I = 0$                      | -    | -    | -500 | nA         |
| DC current gain                 | $G_{\mathrm{I}}$    | V <sub>O</sub> =-5V, I <sub>O</sub> =-10mA | 80   | 200  | -    | -          |
| Output voltage                  | $V_{O(ON)}$         | $I_O$ =-10mA, $I_I$ =-0.5mA                | -    | -0.1 | -0.3 | V          |
| Input voltage (ON)              | $V_{I(ON)}$         | $V_0 = -0.2V$ , $I_0 = -5mA$               | -    | -    | -1.1 | V          |
| Input voltage (OFF)             | $V_{I(OFF)}$        | $V_0 = -5V$ , $I_0 = -0.1$ mA              | -0.5 | -    | -    | V          |
| Transition frequency            | $f_T^*$             | $V_0$ =-10V, $I_0$ =-5mA, f=1MHz           | -    | 200  | -    | MHz        |
| Input current                   | $I_{\rm I}$         | $V_{I}$ =-5V, $I_{O}$ =0                   | -    | -    | -3.6 | mA         |
| Input resistor (Input to base)  | R <sub>1</sub>      | -  | 1.54 | 2.2  | 2.86 | <b>K</b> Ω |
| Input resistor (Base to common) | R <sub>2</sub>      | -  | 33   | 47   | 61   | <b>K</b> Ω |

<sup>\* :</sup> Characteristic of transistor only

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## **Electrical Characteristic Curves**

[Tr1, Tr2]

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

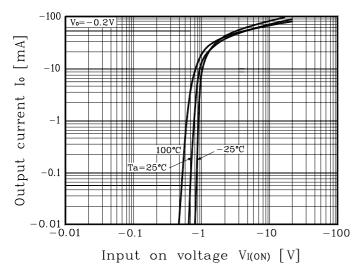


Fig. 2  $I_O$  -  $V_{I(OFF)}$ 

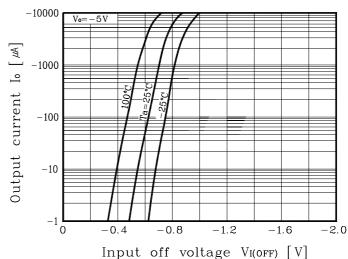
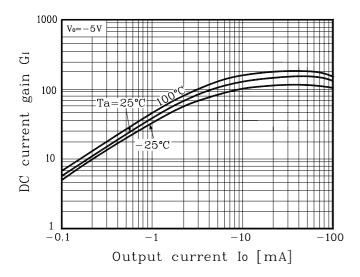


Fig. 3 G<sub>1</sub> - I<sub>0</sub>



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