

To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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Phase-out/Discontinued

PNP SILICON EPITAXIAL TRANSISTOR FOR LOW-FREQUENCY POWER AMPLIFIER

FEATURES

- The 2SB1094 features ratings covering a wide range of applications and is ideal for power supplies or a variety of drives in audio and other equipment.:
 $V_{CE0} \geq -60\text{ V}$, $V_{EBO} \geq -7.0\text{ V}$, $I_{C(DC)} \leq -3.0\text{ A}$
- Mold package that does not require an insulating board or insulation bushing
- Complementary transistor with 2SD1585

QUALITY GRADES

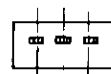
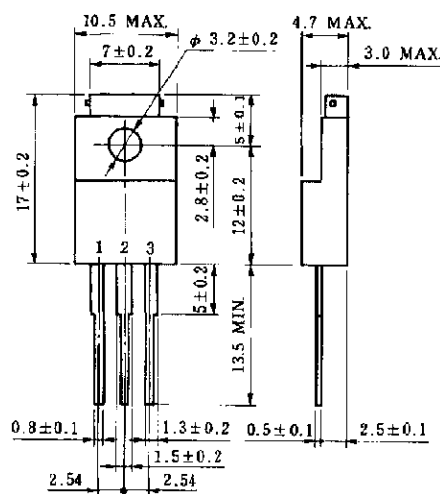
- Standard
Please refer to "Quality Grades on NEC Semiconductor Devices" (Document No. C11531E) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

| Parameter | Symbol | Ratings | Unit |
|------------------------------|------------------------------------|-------------|------------------|
| Collector to base voltage | V_{CBO} | -60 | V |
| Collector to emitter voltage | V_{CEO} | -60 | V |
| Emitter to base voltage | V_{EBO} | -7.0 | V |
| Collector current (DC) | $I_{C(DC)}$ | -3.0 | A |
| Collector current (pulse) | $I_{C(pulse)}^*$ | -5.0 | A |
| Base current (DC) | $I_{B(DC)}$ | -0.6 | A |
| Total power dissipation | P_T ($T_c = 25^\circ\text{C}$) | 15 | W |
| Total power dissipation | P_T ($T_a = 25^\circ\text{C}$) | 2.0 | W |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

* $PW \leq 10\text{ ms}$, duty cycle $\leq 50\%$

PACKAGE DRAWING (UNIT: mm)



Electrode Connection

1. Base
2. Collector
3. Emitter

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Not all devices/types available in every country. Please check with local NEC representative for availability and additional information.

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

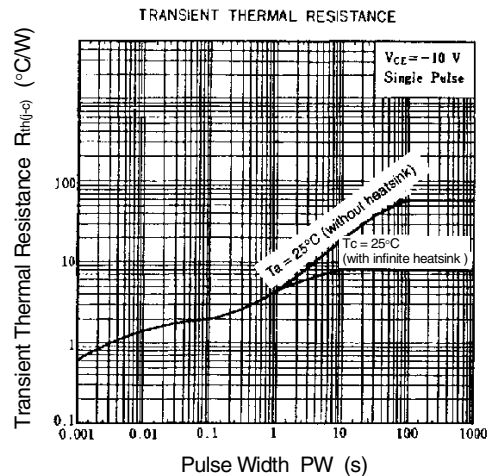
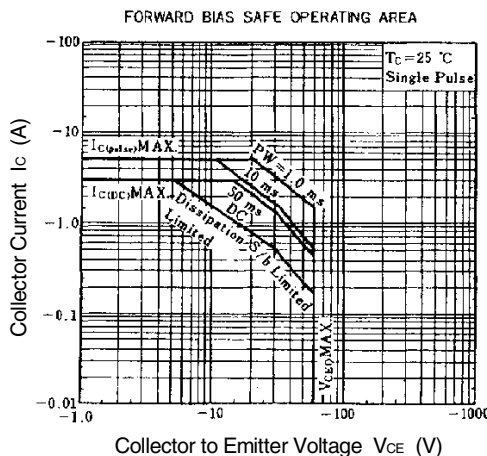
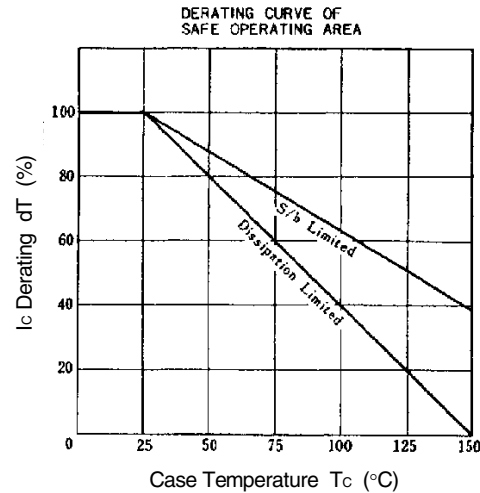
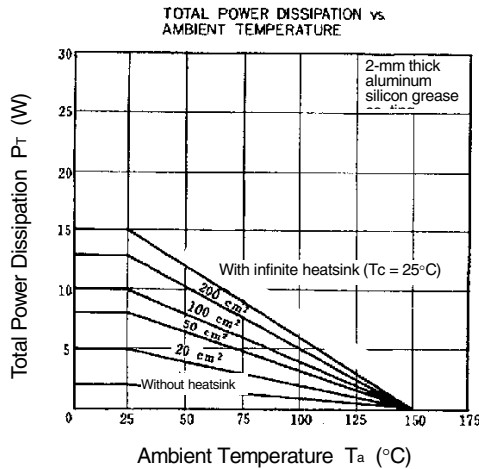
| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|------------------------------|--------------------|--|------|------|------|---------------|
| Collector cutoff current | I_{CBO} | $V_{CB} = -60\text{ V}, I_E = 0$ | | | -10 | μA |
| Emitter cutoff current | I_{EBO} | $V_{EB} = -7.0\text{ V}, I_C = 0$ | | | -10 | μA |
| DC current gain | h_{FE1}^{**} | $V_{CE} = -5.0\text{ V}, I_C = -50\text{ mA}$ | 20 | | | |
| DC current gain | h_{FE2}^{**} | $V_{CE} = -5.0\text{ V}, I_C = -0.5\text{ A}$ | 40 | 100 | 200 | |
| Collector saturation voltage | $V_{CE(sat)}^{**}$ | $I_C = -2.0\text{ A}, I_B = -0.2\text{ A}$ | | -0.5 | -1.5 | V |
| Base saturation voltage | $V_{BE(sat)}^{**}$ | $I_C = -2.0\text{ A}, I_B = -0.2\text{ A}$ | | -1.1 | -2.0 | V |
| Collector capacitance | C_{ob} | $V_{CB} = -10\text{ V}, I_E = 0, f = 1.0\text{ MHz}$ | | 70 | | pF |
| Gain bandwidth product | f_T | $V_{CE} = -5.0\text{ V}, I_C = -0.1\text{ A}$ | | 20 | | MHz |

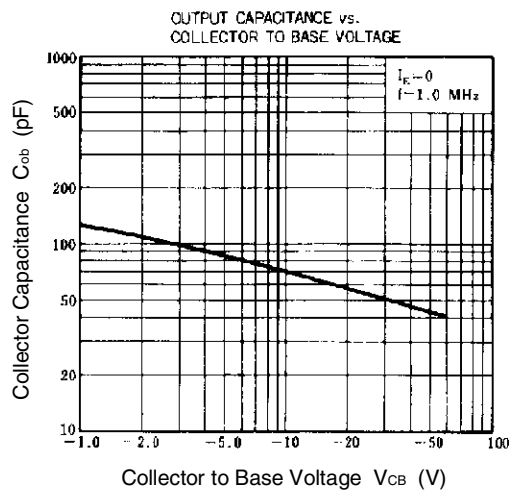
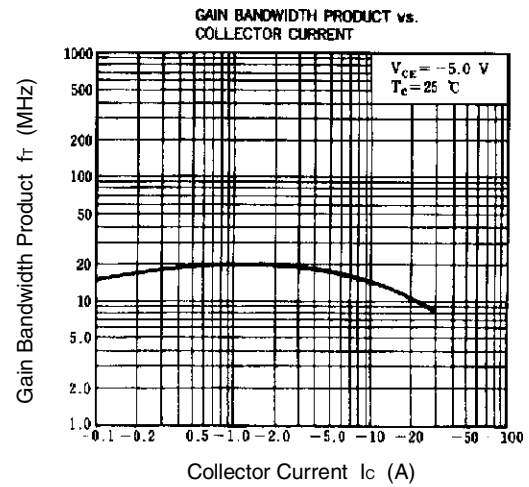
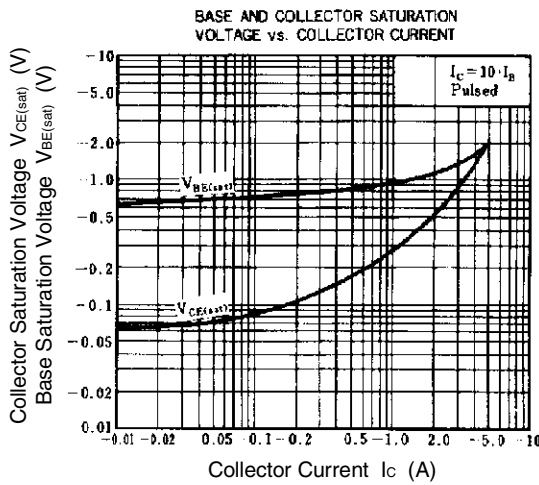
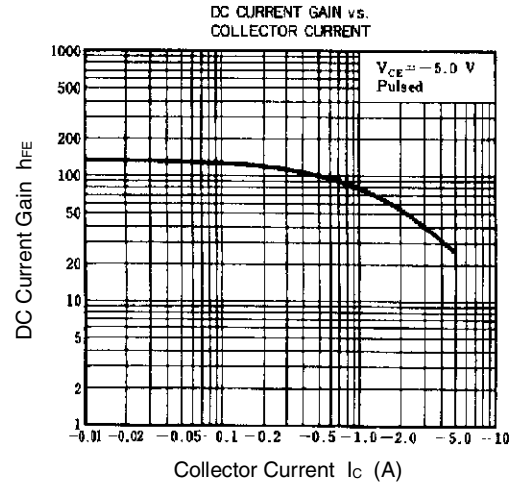
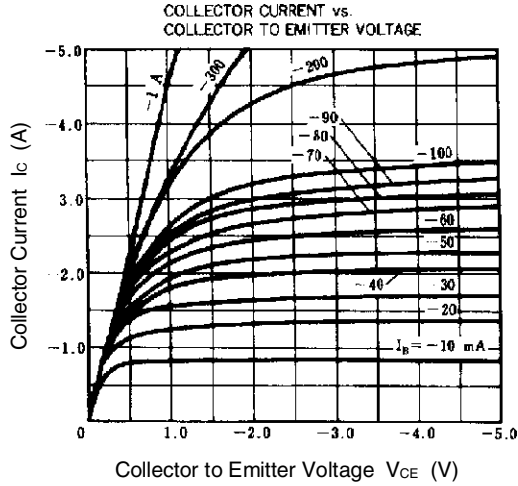
** Pulse test $PW \leq 350\ \mu\text{s}$, duty cycle $\leq 2\%$

hFE CLASSIFICATION

| Marking | M | L | K |
|-----------|----------|-----------|------------|
| h_{FE2} | 40 to 80 | 60 to 120 | 100 to 200 |

TYPICAL CHARACTERISTICS (Ta = 25°C)





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