

To our customers,

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## Old Company Name in Catalogs and Other Documents

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

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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

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## 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

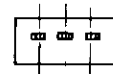
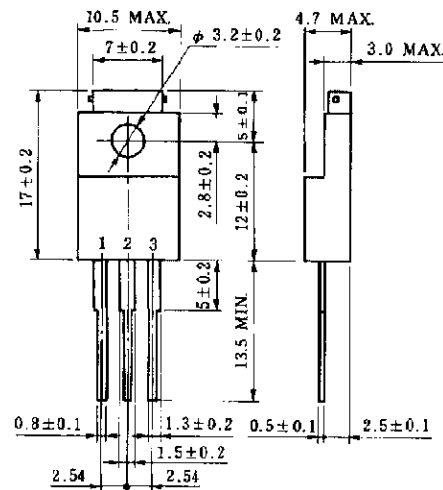
- Standard  
Please refer to "Quality Grades on NEC Semiconductor Devices" (Document No. C11531E) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

### 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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**ELECTRICAL CHARACTERISTICS (Ta = 25°C)**

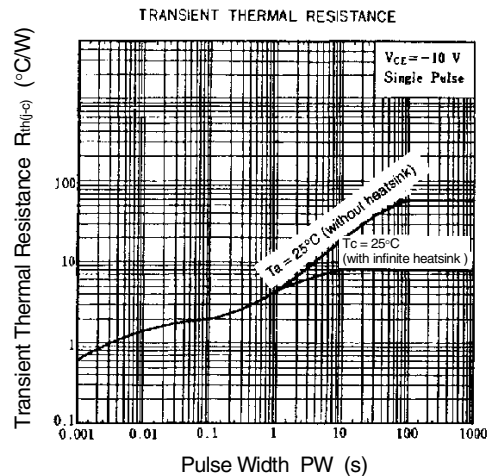
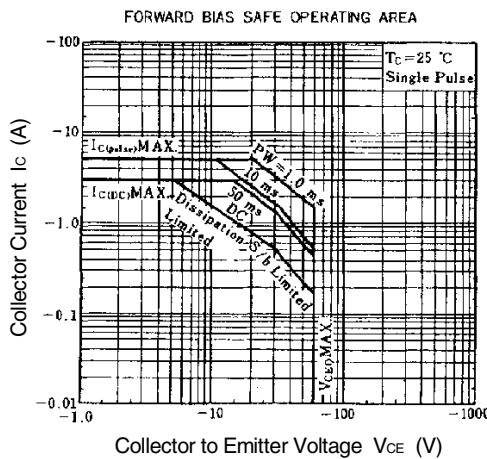
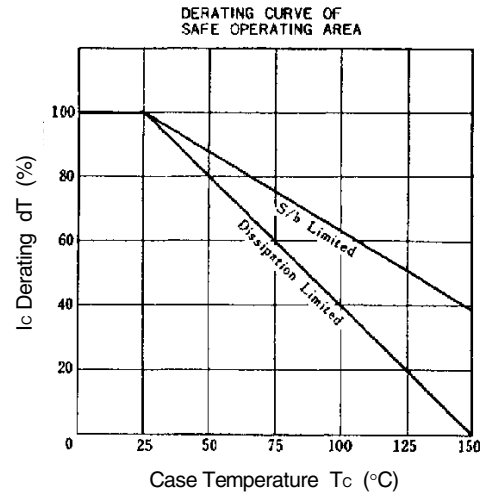
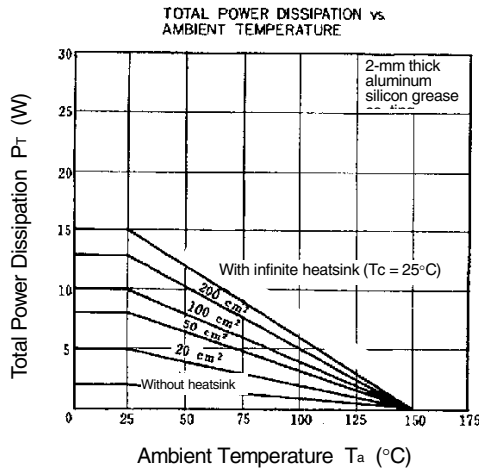
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = -60\text{ V}, I_E = 0$			-10	$\mu\text{A}$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = -7.0\text{ V}, I_C = 0$			-10	$\mu\text{A}$
DC current gain	$h_{FE1}^{**}$	$V_{CE} = -5.0\text{ V}, I_C = -50\text{ mA}$	20			
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

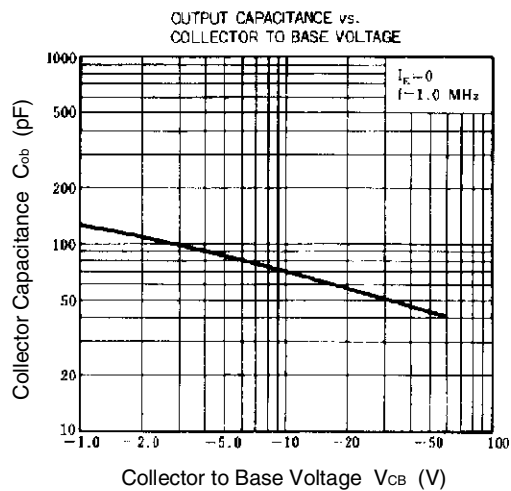
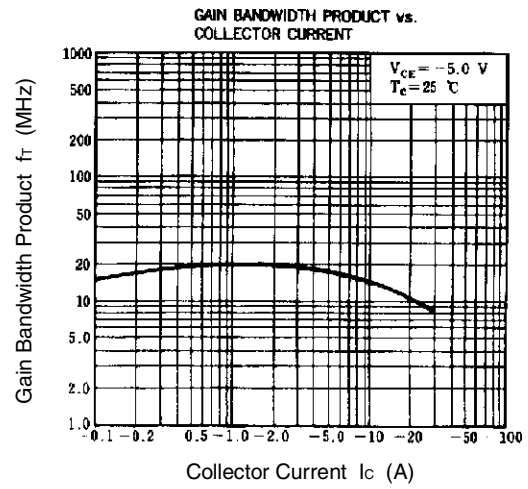
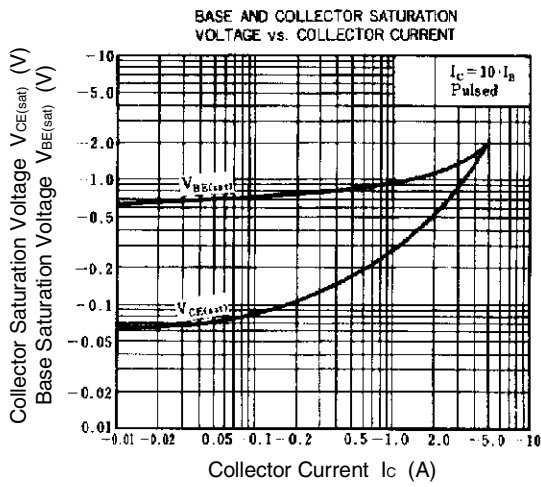
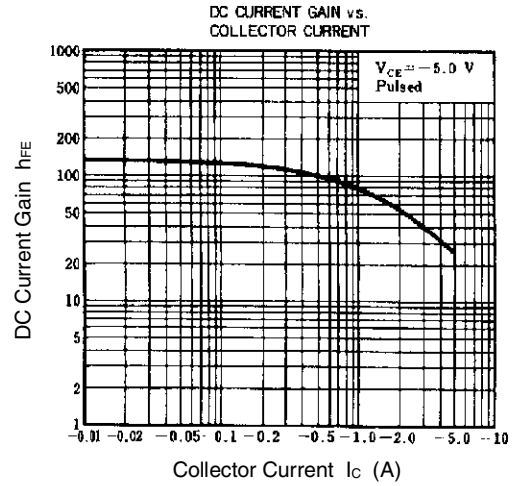
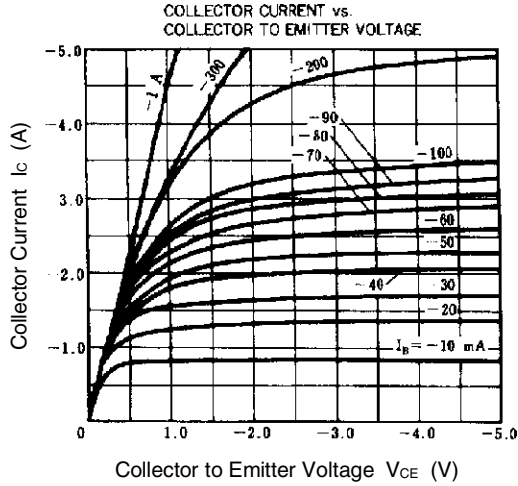
\*\* Pulse test  $PW \leq 350\ \mu\text{s}$ , duty cycle  $\leq 2\%$

**$h_{FE}$  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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