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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

Cautions

Keep safety first in your circuit designs!

1. Renesas Technology Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage.

Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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2SB1001

Silicon PNP Epitaxial

RENESAS

ADE-208-1034 (Z)

1st. Edition

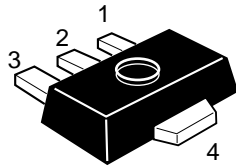
Mar. 2001

Application

- Low frequency power amplifier
- Complementary pair with 2SD1367

Outline

UPAK



1. Base
2. Collector
3. Emitter
4. Collector (Flange)

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	-20	V
Collector to emitter voltage	V_{CEO}	-16	V
Emitter to base voltage	V_{EBO}	-6	V
Collector current	I_C	-2	A
Collector peak current	$i_{C(\text{peak})}^{*1}$	-3	A
Collector power dissipation	P_C^{*2}	1	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Notes: 1. $PW \leq 10$ ms, Duty cycle $\leq 20\%$

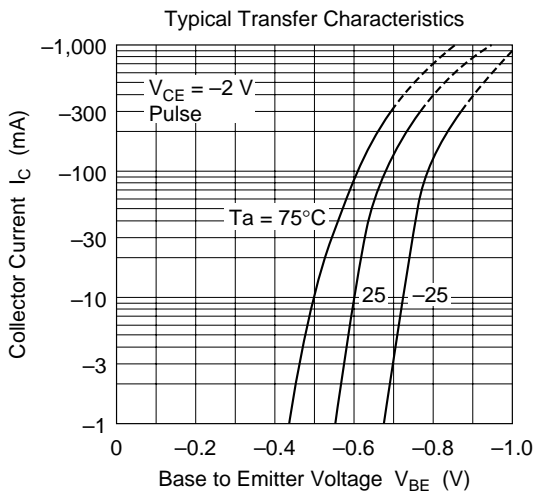
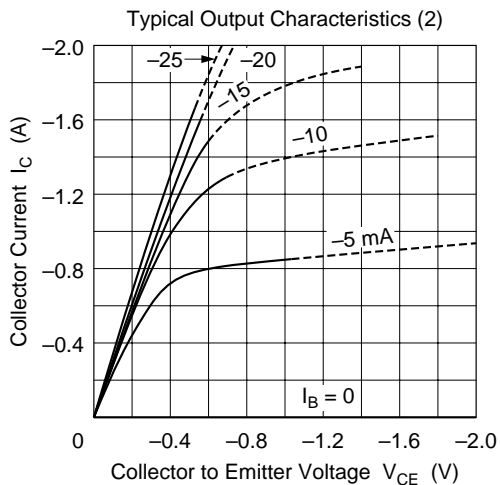
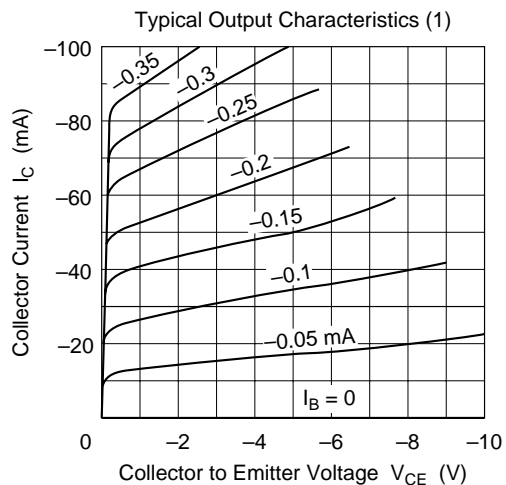
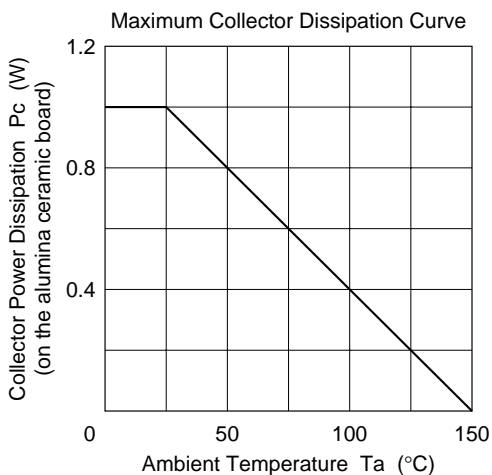
2. Value on the alumina ceramic board (12.5 × 20 × 0.7 mm)

Electrical Characteristics (Ta = 25°C)

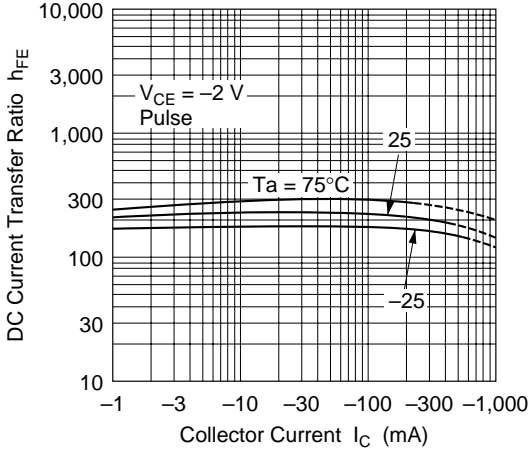
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	-20	—	—	V	$I_C = -10 \mu\text{A}$, $I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	-16	—	—	V	$I_C = -1$ mA, $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	-6	—	—	V	$I_E = -10 \mu\text{A}$, $I_C = 0$
Collector cutoff current	I_{CBO}	—	—	-0.1	μA	$V_{CB} = -16$ V, $I_E = 0$
Emitter cutoff current	I_{EBO}	—	—	-0.1	μA	$V_{EB} = -5$ V, $I_C = 0$
DC current transfer ratio	h_{FE}^{*1}	100	—	320		$V_{CE} = -2$ V, $I_C = -0.1$ A (Pulse test)
Collector to emitter saturation voltage	$V_{CE(\text{sat})}$	—	-0.15	-0.3	V	$I_C = -1$ A, $I_B = -0.1$ A (Pulse test)
Base to emitter saturation voltage	$V_{BE(\text{sat})}$	—	-1.0	-1.2	V	$I_C = -1$ A, $I_B = -0.1$ A (Pulse test)
Gain bandwidth product	f_T	—	150	—	MHz	$V_{CE} = -2$ V, $I_C = -10$ mA
Collector output capacitance	C_{ob}	—	50	—	pF	$V_{CB} = -10$ V, $I_E = 0$, $f = 1$ MHz

Note: 1. The 2SB1001 is grouped by h_{FE} as follows.

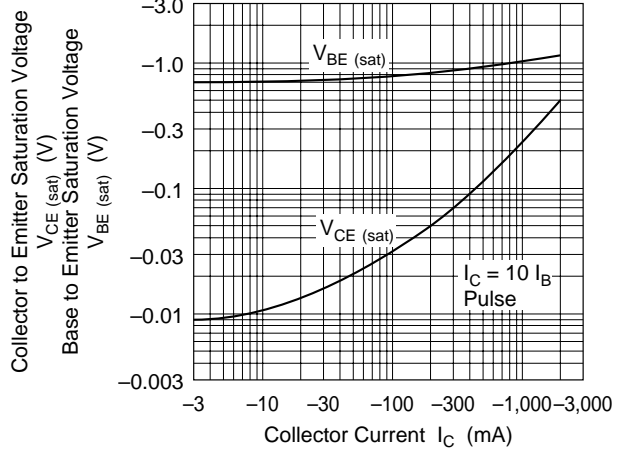
Mark	BH	BJ
h_{FE}	100 to 200	160 to 320



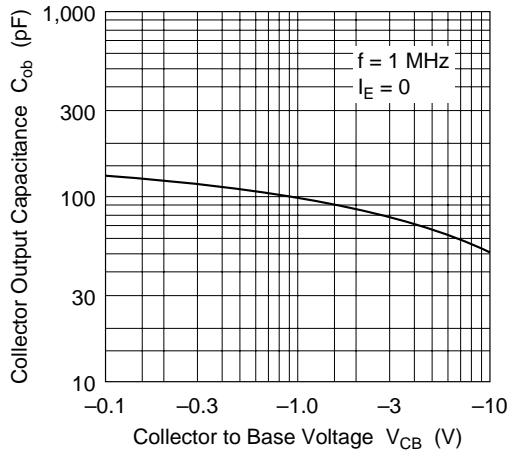
DC Current Transfer Ratio vs. Collector Current



Saturation Voltage vs. Collector Current



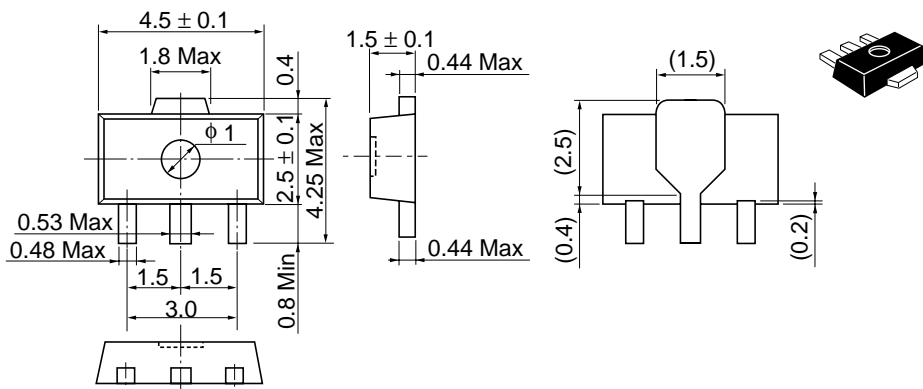
Collector Output Capacitance vs. Collector to Base Voltage



Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	UPAK
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.050 g

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