

To all our customers

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

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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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# 2SD1366

Silicon NPN Epitaxial

**RENESAS**

ADE-208-1145 (Z)

1st. Edition

Mar. 2001

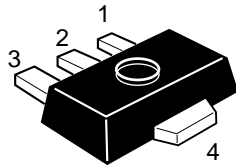
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## Application

Low frequency power amplifier

## 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	$V_{CBO}$	25	V
Collector to emitter voltage	$V_{CEO}$	20	V
Emitter to base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	1	A
Collector peak current	$i_{C(\text{peak})}^{*1}$	1.5	A
Collector power dissipation	$P_C^{*2}$	1	W
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{\text{stg}}$	-55 to +150	°C

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

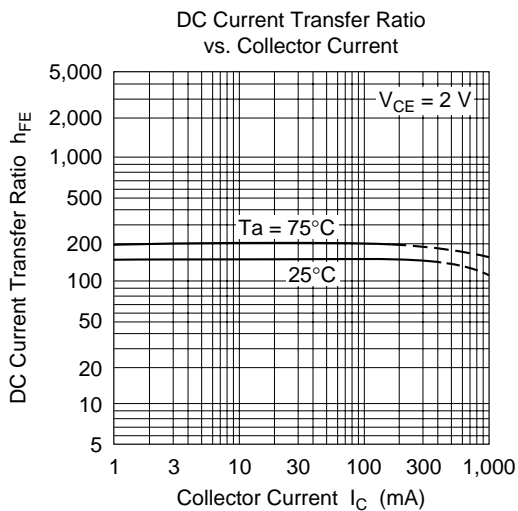
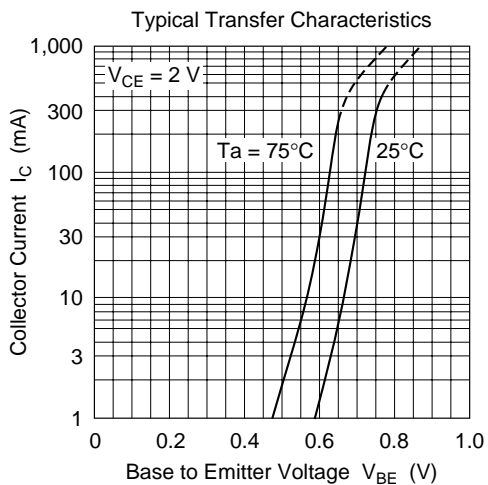
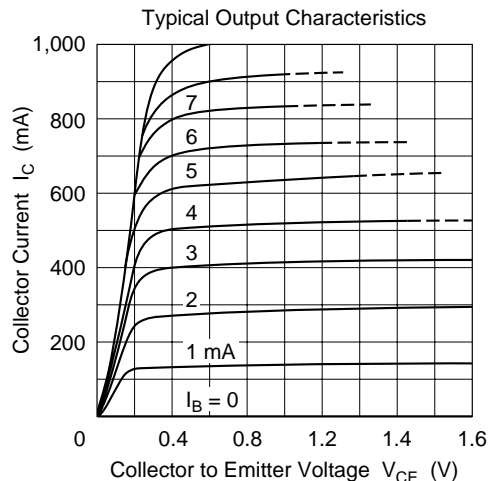
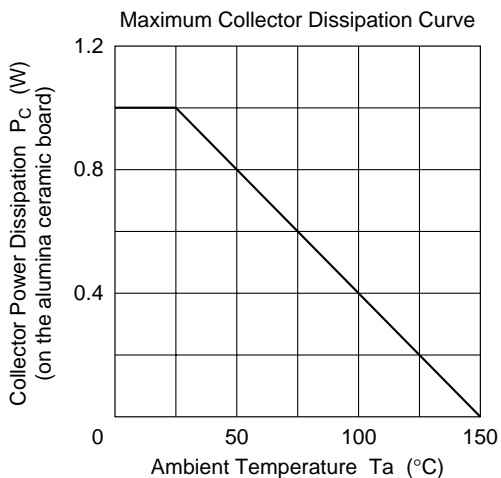
2. Value on the alumina ceramic board (12.5 × 20 × 0.7 mm)

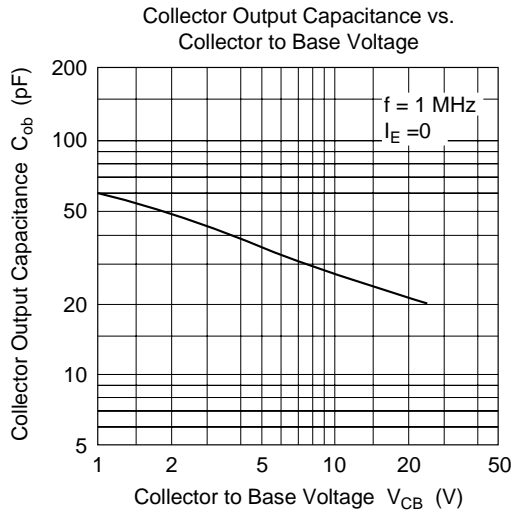
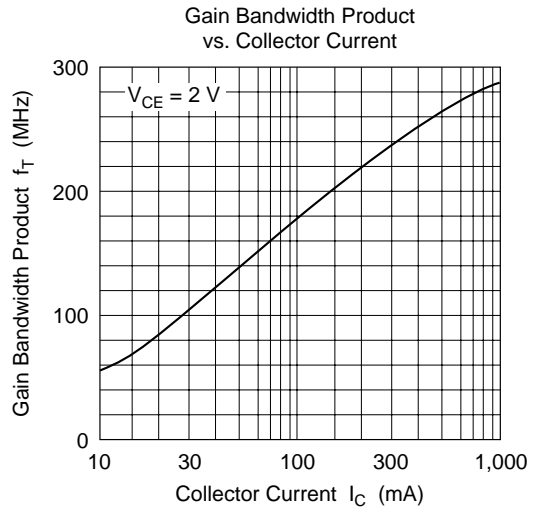
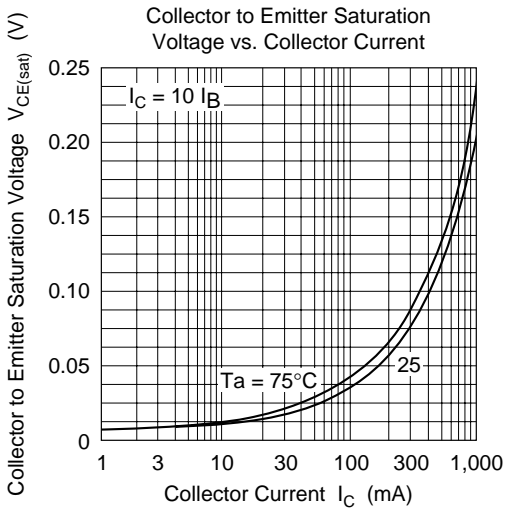
## Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	25	—	—	V	$I_C = 10 \mu\text{A}$ , $I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	20	—	—	V	$I_C = 1 \text{ mA}$ , $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	V	$I_E = 10 \mu\text{A}$ , $I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	0.1	$\mu\text{A}$	$V_{CB} = 20 \text{ V}$ , $I_E = 0$
Emitter cutoff current	$I_{EBO}$	—	—	0.1	$\mu\text{A}$	$V_{EB} = 4 \text{ V}$ , $I_C = 0$
DC current transfer ratio	$h_{FE}^{*1}$	85	—	240		$V_{CE} = 2 \text{ V}$ , $I_C = 0.5 \text{ A}$ , Pulse
Collector to emitter saturation voltage	$V_{CE(\text{sat})}$	—	0.15	0.3	V	$I_C = 0.8 \text{ A}$ , $I_B = 0.08 \text{ A}$ , Pulse
Base to emitter saturation voltage	$V_{BE(\text{sat})}$	—	0.9	1.0	V	$I_C = 0.8 \text{ A}$ , $I_B = 0.08 \text{ A}$ , Pulse
Gain bandwidth product	$f_T$	—	240	—	MHz	$V_{CE} = 2 \text{ V}$ , $I_C = 0.5 \text{ A}$ , Pulse
Collector output capacitance	$C_{ob}$	—	22	—	pF	$V_{CB} = 10 \text{ V}$ , $I_E = 0$ , $f = 1 \text{ MHz}$

Note: 1. The 2SD1366 is grouped by  $h_{FE}$  as follows.

Mark	AA	AB
$h_{FE}$	85 to 170	120 to 240

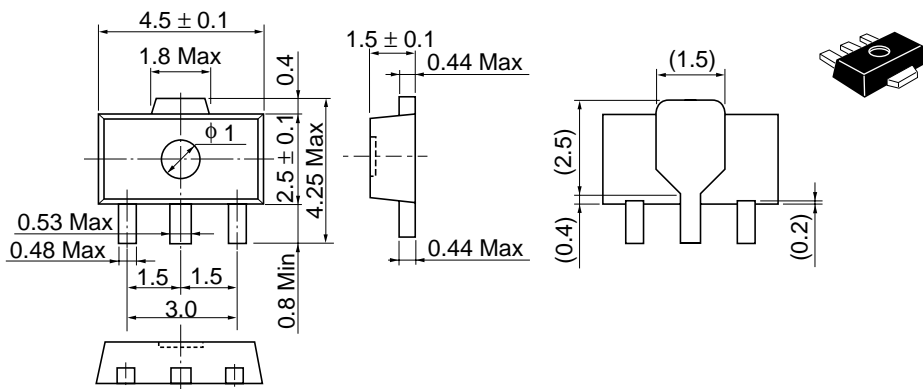




## Package Dimensions

As of January, 2001

Unit: mm



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

## Cautions

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