

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!

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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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# 2SD1471

Silicon NPN Planar, Darlington

**RENESAS**

ADE-208-1154 (Z)

1st. Edition

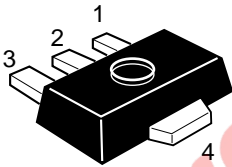
Mar. 2001

## Application

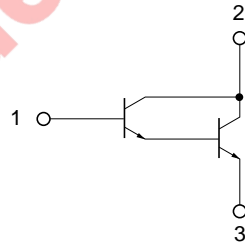
High gain amplifier

## 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	$V_{CBO}$	40	V
Collector to emitter voltage	$V_{CEO}$	30	V
Emitter to base voltage	$V_{EBO}$	10	V
Collector current	$I_C$	300	mA
Collector peak current	$i_{C(\text{peak})}^{*1}$	500	mA
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. Pulse  $\leq 10$  ms, Duty cycle  $\leq 20\%$

2. Value on the alumina ceramic board (12.5 x 30 x 0.7 mm)

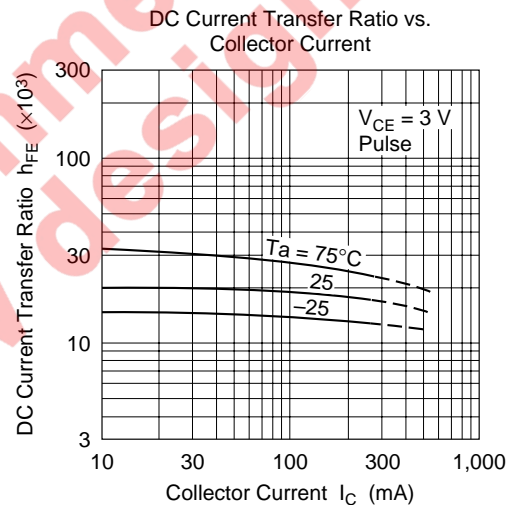
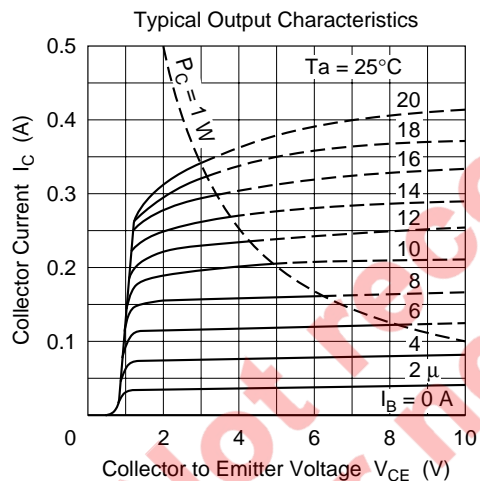
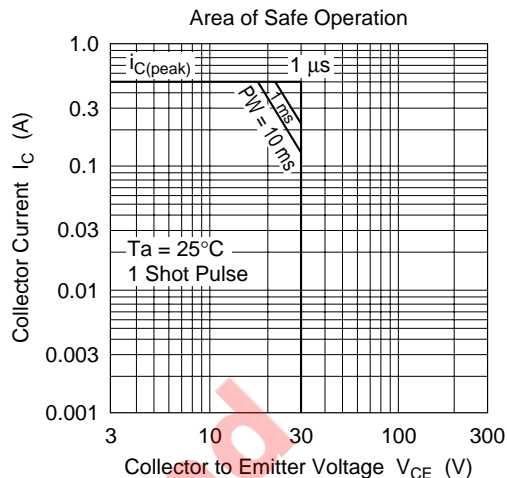
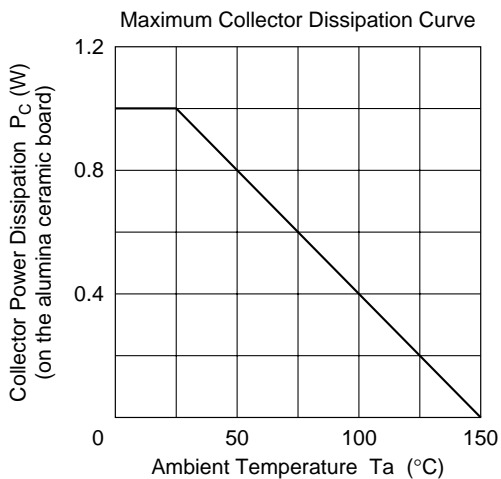
## Electrical Characteristics (Ta = 25°C)

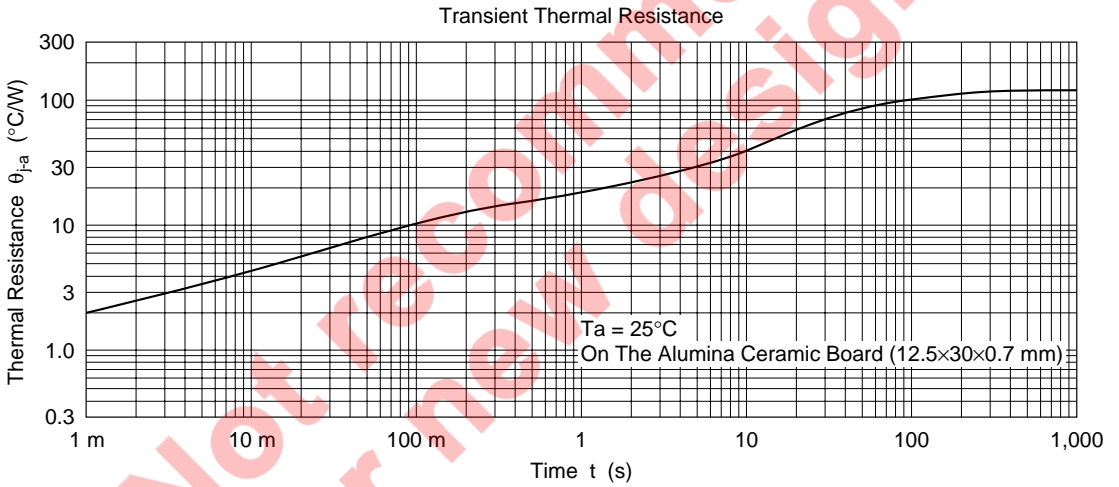
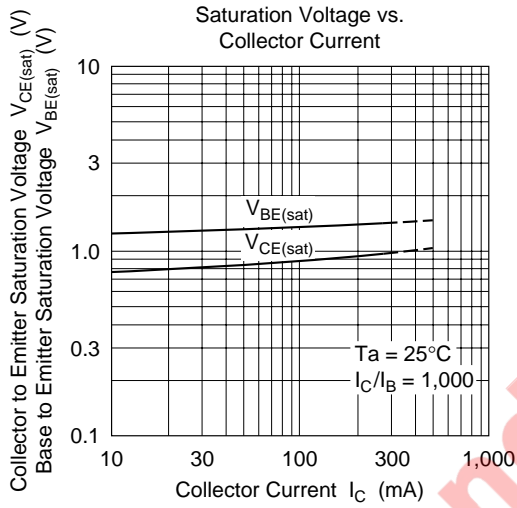
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	40	—	—	V	$I_C = 10 \mu\text{A}, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	30	—	—	V	$I_C = 1 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	10	—	—	V	$I_E = 10 \mu\text{A}, I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	1	$\mu\text{A}$	$V_{CB} = 30 \text{ V}, I_E = 0$
	$I_{CEO}$	—	—	10	$\mu\text{A}$	$V_{CE} = 24 \text{ V}, R_{BE} = \infty$
DC current transfer ratio	$h_{FE1}^{*1}$	2000	—	100000		$V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}^{*2}$
	$h_{FE2}^{*1}$	3000	—	—		$V_{CE} = 5 \text{ V}, I_C = 100 \text{ mA}^{*2}$
	$h_{FE3}^{*1}$	3000	—	—		$V_{CE} = 5 \text{ V}, I_C = 400 \text{ mA}^{*2}$
Collector to emitter saturation voltage	$V_{CE(\text{sat})}$	—	—	1.5	V	$I_C = 100 \text{ mA}, I_B = 0.1 \text{ mA}^{*2}$
Base to emitter saturation voltage	$V_{BE(\text{sat})}$	—	—	2.0	V	$I_C = 100 \text{ mA}, I_B = 0.1 \text{ mA}^{*2}$

Notes: 1. The 2SD1471 is grouped by  $h_{FE}$  as follows.

2. Pulse test

Mark	DT	ET
$h_{FE1}$	2000 to 100000	5000 to 100000
$h_{FE2}$	3000 min	10000 min
$h_{FE3}$	3000 min	10000 min

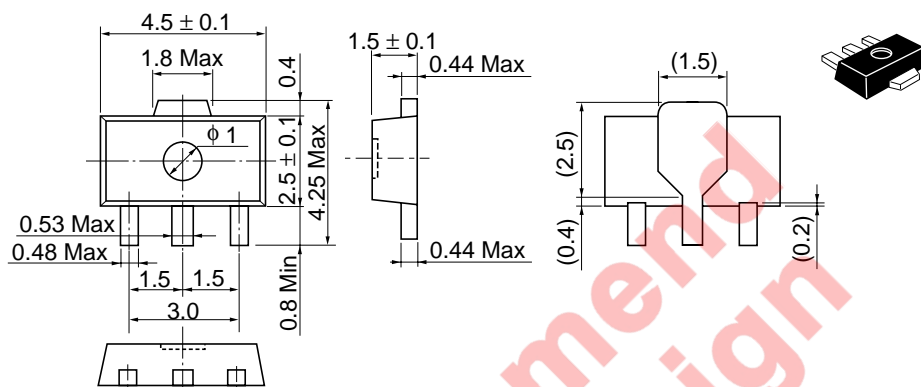




## Package Dimensions

As of January, 2001

Unit: mm



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

## Cautions

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