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

Not recommend for new design

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

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Renesas Technology Home Page: http://www.renesas.com

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

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2SD1471

Silicon NPN Planar, Darlington

RENESAS

ADE-208-1154 (Z)
1st. Edition
Mar. 2001

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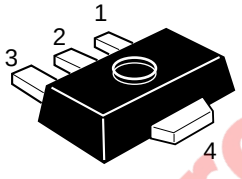
Application

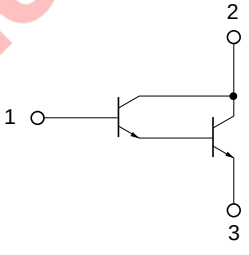
High gain amplifier

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	$i_{C(peak)}$*[1]	500	mA
Collector power dissipation	P_C*[2]	1	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. Pulse ≤ 10 ms, Duty cycle ≤ 20%
2. Value on the alumina ceramic board (12.5 x 30 x 0.7 mm)

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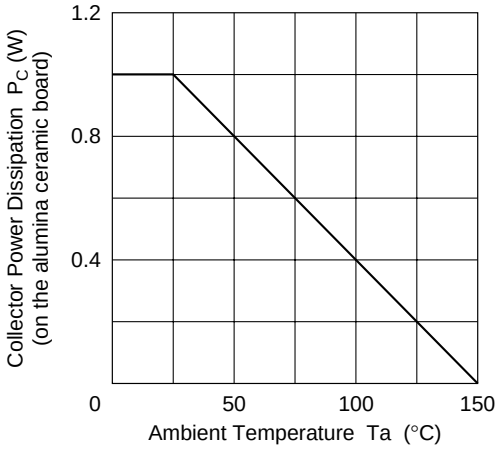
Electrical Characteristics (Ta = 25°C)

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

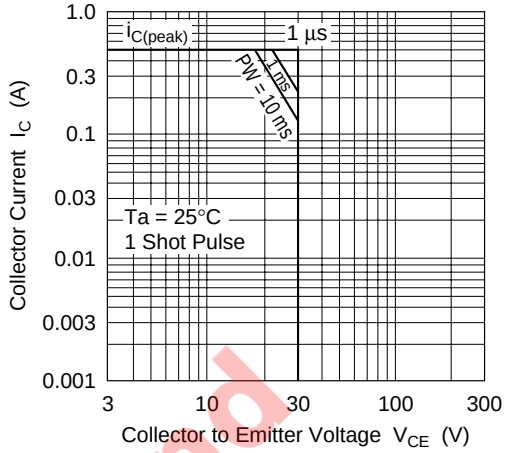
Notes: 1. The 2SD1471 is grouped by h_{FE} as follows.
2. Pulse test

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

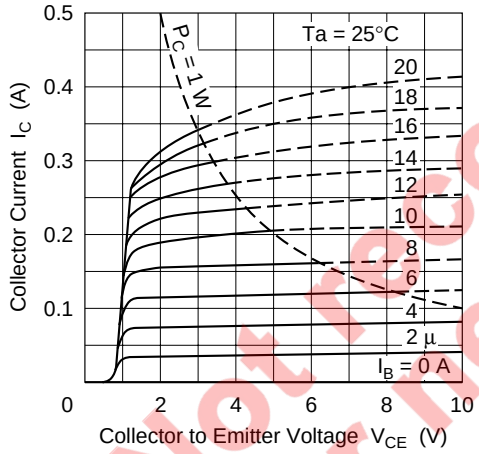
Maximum Collector Dissipation Curve



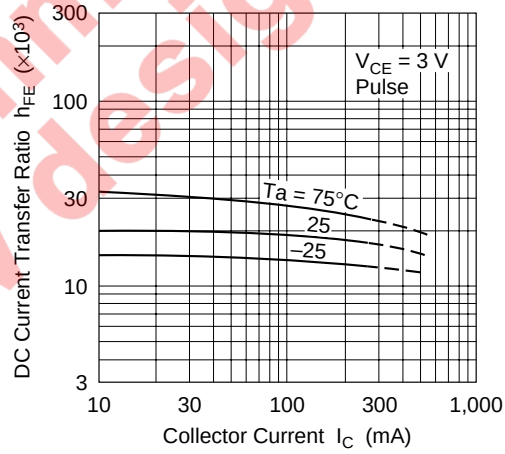
Area of Safe Operation



Typical Output Characteristics



DC Current Transfer Ratio vs. Collector Current



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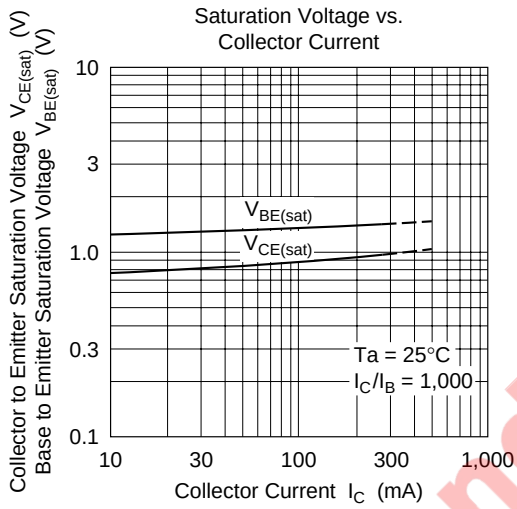

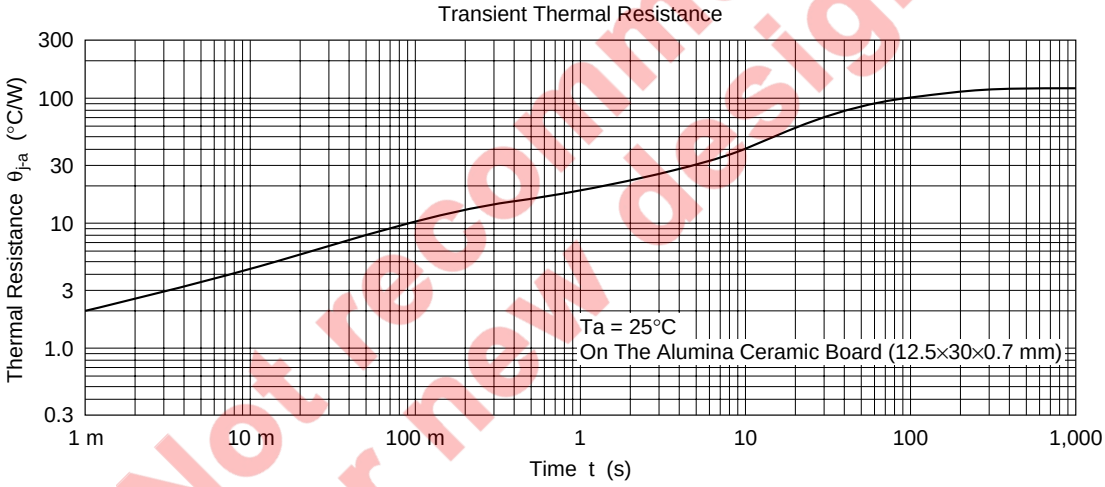

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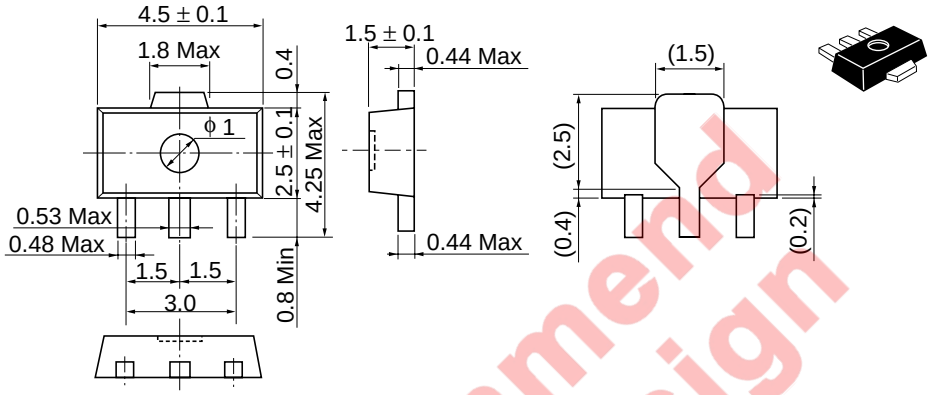
Package Dimensions

As of January, 2001

Unit: mm



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

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