

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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# 2SD667, 2SD667A

Silicon NPN Epitaxial

**RENESAS**

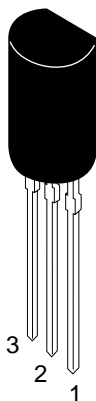
ADE-208-1137 (Z)  
1st. Edition  
Mar. 2001

## Application

- Low frequency power amplifier
- Complementary pair with 2SB647/A

## Outline

TO-92MOD



1. Emitter
2. Collector
3. Base

Absolute Maximum Ratings (Ta = 25°C)

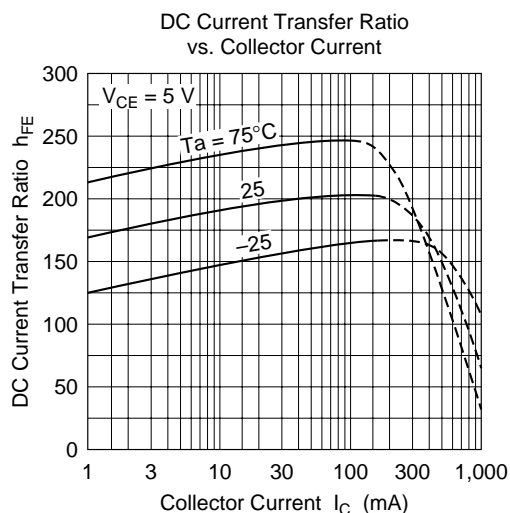
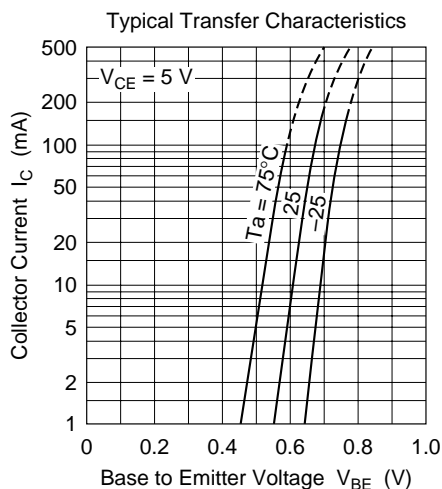
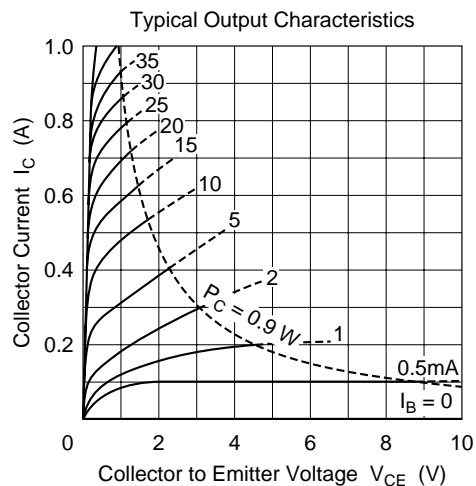
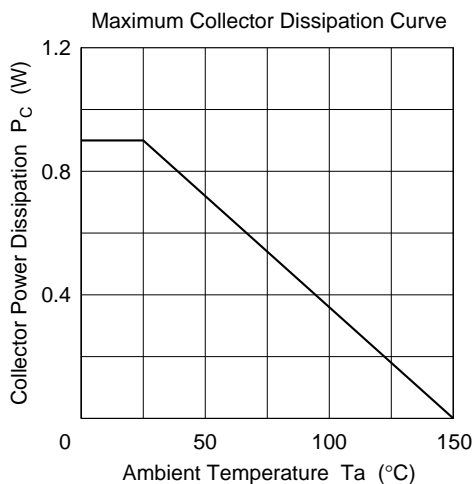
Item	Symbol	2SD667	2SD667A	Unit
Collector to base voltage	V <sub>CBO</sub>	120	120	V
Collector to emitter voltage	V <sub>CEO</sub>	80	100	V
Emitter to base voltage	V <sub>EBO</sub>	5	5	V
Collector current	I <sub>C</sub>	1	1	A
Collector peak current	i <sub>C(peak)</sub>	2	2	A
Collector power dissipation	P <sub>C</sub>	0.9	0.9	W
Junction temperature	T <sub>j</sub>	150	150	°C
Storage temperature	T <sub>stg</sub>	−55 to +150	−50 to +150	°C

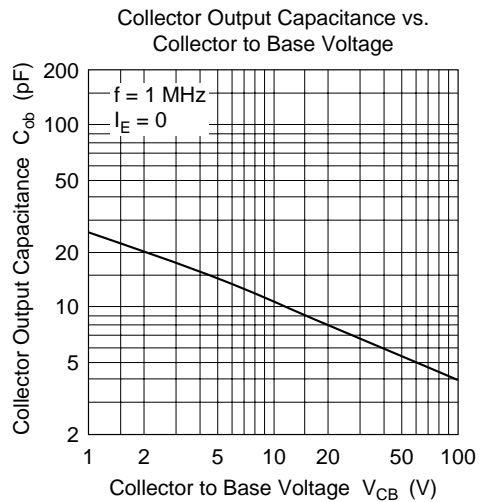
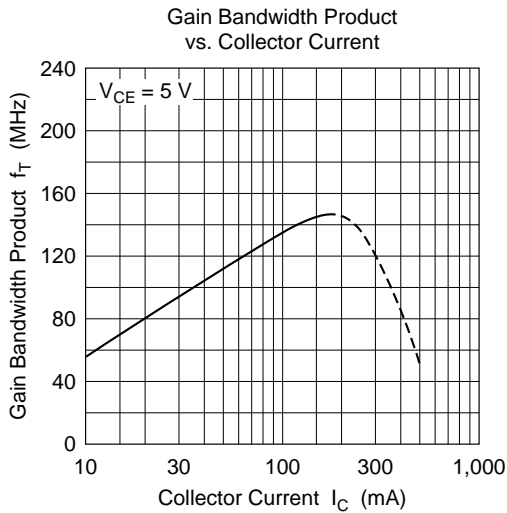
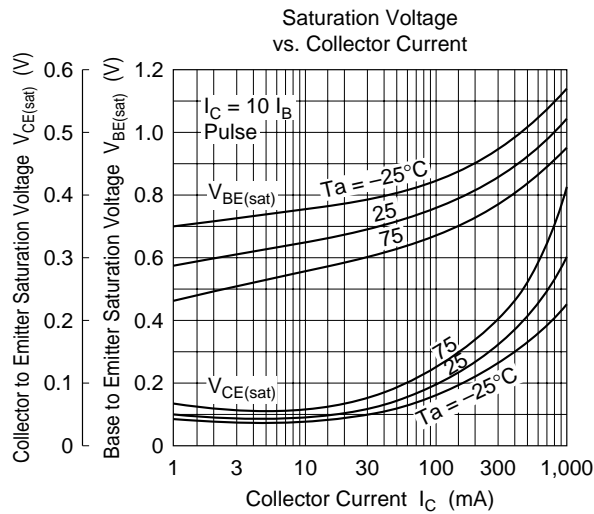
Electrical Characteristics (Ta = 25°C)

Item	Symbol	2SD667			2SD667A			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	V <sub>(BR)CBO</sub>	120	—	—	120	—	—	V	I <sub>C</sub> = 10 μA, I <sub>E</sub> = 0
Collector to emitter breakdown voltage	V <sub>(BR)CEO</sub>	80	—	—	100	—	—	V	I <sub>C</sub> = 1 mA, R <sub>BE</sub> = ∞
Emitter to base breakdown voltage	V <sub>(BR)EBO</sub>	5	—	—	5	—	—	V	I <sub>E</sub> = 10 μA, I <sub>C</sub> = 0
Collector cutoff current	I <sub>CBO</sub>	—	—	10	—	—	10	μA	V <sub>CB</sub> = 100 V, I <sub>E</sub> = 0
DC current transfer ratio	h <sub>FE1</sub> <sup>*1</sup>	60	—	320	60	—	200		V <sub>CE</sub> = 5 V, I <sub>C</sub> = 150 mA <sup>*2</sup>
	h <sub>FE2</sub>	30	—	—	30	—	—		V <sub>CE</sub> = 5 V, I <sub>C</sub> = 500 mA <sup>*2</sup>
Collector to emitter saturation voltage	V <sub>CE(sat)</sub>	—	—	1	—	—	1	V	I <sub>C</sub> = 500 mA, I <sub>B</sub> = 50 mA <sup>*2</sup>
Base to emitter voltage	V <sub>BE</sub>	—	—	1.5	—	—	1.5	V	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 150 mA <sup>*2</sup>
Gain bandwidth product	f <sub>T</sub>	—	140	—	—	140	—	MHz	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 150 mA <sup>*2</sup>
Collector output capacitance	Cob	—	12	—	—	12	—	pF	V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0, f = 1 MHz

Notes: 1. The 2SD667 and 2SD667A are grouped by h<sub>FE1</sub> as follows.  
2. Pulse test

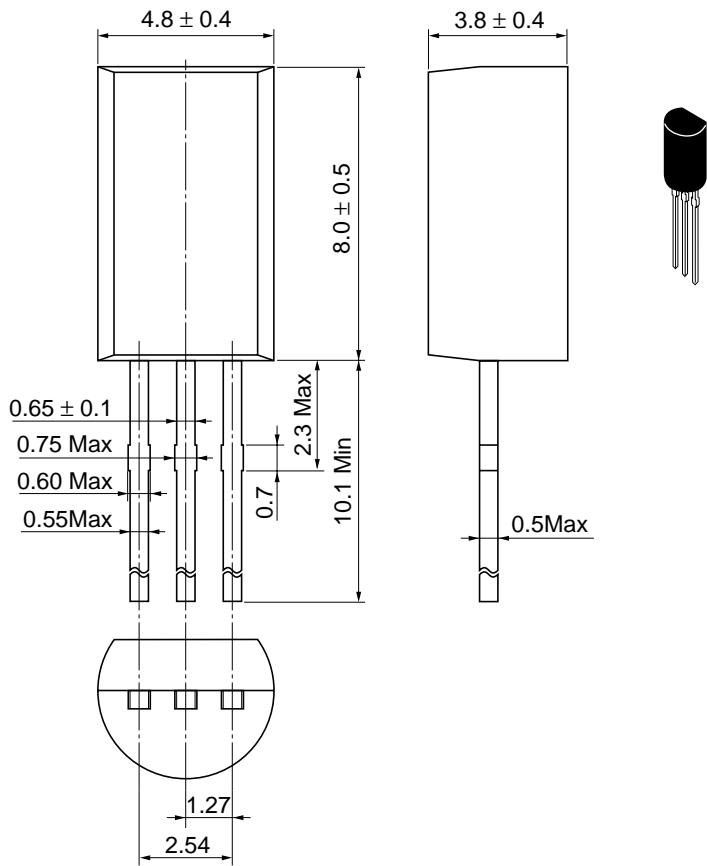
	B	C	D
2SD667	60 to 120	100 to 200	160 to 320
2SD667A	60 to 120	100 to 200	





Package Dimensions

As of January, 2001  
Unit: mm



Hitachi Code	TO-92 Mod
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.35 g

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