

To our customers,

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## Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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Not recommended  
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To all our customers

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

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# 2SD2263

Silicon NPN Epitaxial

RENESAS

ADE-208-1167 (Z)

1st. Edition

Mar. 2001

## Application

Low frequency power amplifier

## Features

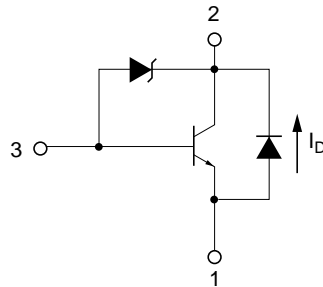
- Built in zener diode for surge absorb.
- Suitable for relay drive with small power loss.

## Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base



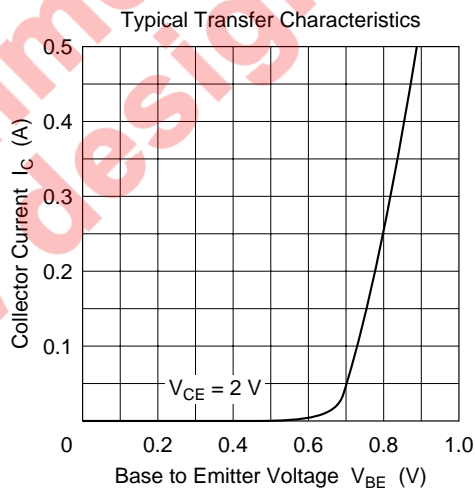
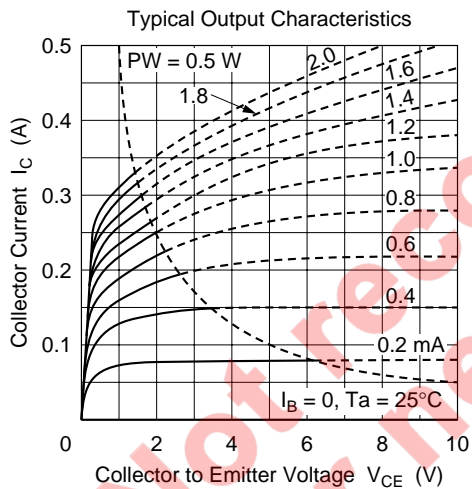
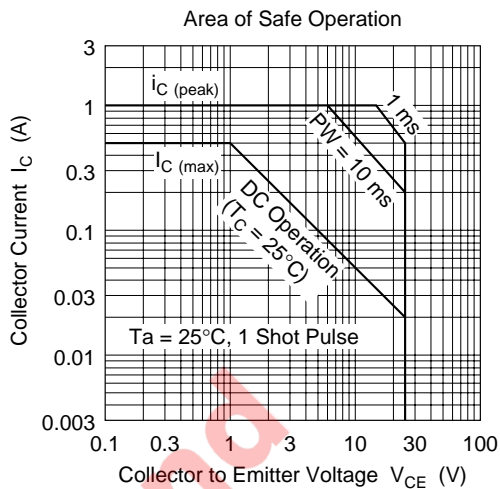
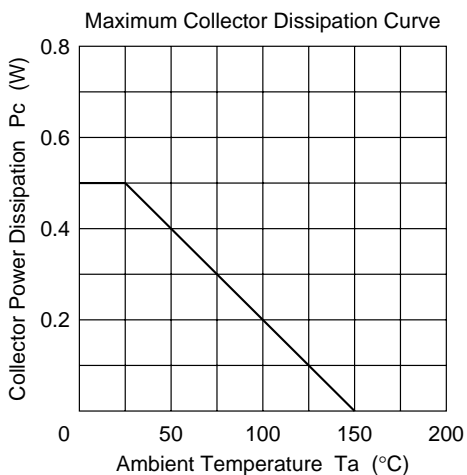
## Absolute Maximum Ratings (Ta = 25°C)

| Item                         | Symbol        | Ratings     | Unit |
|------------------------------|---------------|-------------|------|
| Collector to base voltage    | $V_{CBO}$     | 25          | V    |
| Collector to emitter voltage | $V_{CEO}$     | 25          | V    |
| Emitter to base voltage      | $V_{EBO}$     | 6           | V    |
| Collector current            | $I_C$         | 0.5         | A    |
| Collector peak current       | $i_{C(peak)}$ | 1.0         | A    |
| E to C diode current         | $I_D$         | 0.5         | A    |
| Collector power dissipation  | $P_C$         | 0.5         | W    |
| Junction temperature         | $T_j$         | 150         | °C   |
| Storage temperature          | $T_{stg}$     | -55 to +150 | °C   |

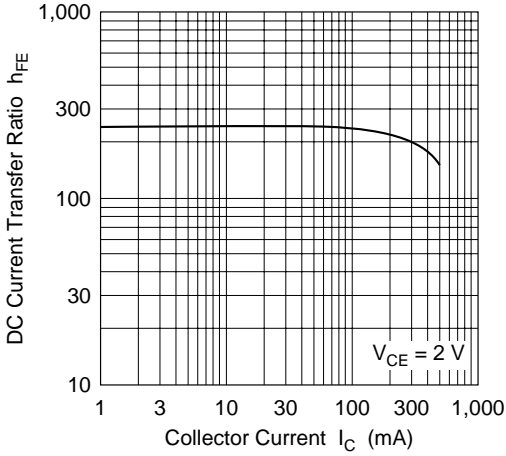
## Electrical Characteristics (Ta = 25°C)

| Item                                    | Symbol         | Min | Typ | Max | Unit    | Test conditions   |
|---|----------------|-----|-----|-----|---------|---|
| Collector to base breakdown voltage     | $V_{(BR)CBO}$  | 25  | —   | —   | V       | $I_C = 10 \mu A, I_E = 0$                                 |
| Collector to emitter breakdown voltage  | $V_{(BR)CEO}$  | 25  | —   | 35  | V       | $I_C = 1 \text{ mA}, R_{BE} = \infty$                     |
| Collector to emitter sustaining voltage | $V_{CEO(sus)}$ | 26  | —   | 36  | V       | $I_C = 0.5 \text{ A}, R_{BE} = \infty, L = 20 \text{ mH}$ |
| Emitter to base breakdown voltage       | $V_{(BR)EBO}$  | 6   | —   | —   | V       | $I_E = 10 \mu A, I_C = 0$                                 |
| Collector cutoff current                | $I_{CBO}$      | —   | —   | 0.2 | $\mu A$ | $V_{CB} = 20 \text{ V}, I_E = 0$                          |
|   | $I_{CEO}$      | —   | —   | 0.5 | $\mu A$ | $V_{CE} = 20 \text{ V}, R_{BE} = \infty$                  |
| Emitter cutoff current                  | $I_{EBO}$      | —   | —   | 0.2 | $\mu A$ | $V_{EB} = 5 \text{ V}, I_C = 0$                           |
| DC current transfer ratio               | $h_{FE1}$      | 100 | —   | 500 |         | $V_{CE} = 2 \text{ V}, I_C = 50 \text{ mA}^{*1}$          |
|   | $h_{FE2}$      | 50  | —   | —   |         | $V_{CE} = 2 \text{ V}, I_C = 0.5 \text{ A}^{*1}$          |
| Collector to emitter saturation voltage | $V_{CE(sat)}$  | —   | —   | 0.5 | V       | $I_C = 0.5 \text{ A}^{*1}, I_B = 50 \text{ mA}$           |
| E to C diode forward voltage            | $V_D$          | —   | —   | 1.2 | V       | $I_E = 0.5 \text{ A}^{*1}$                                |

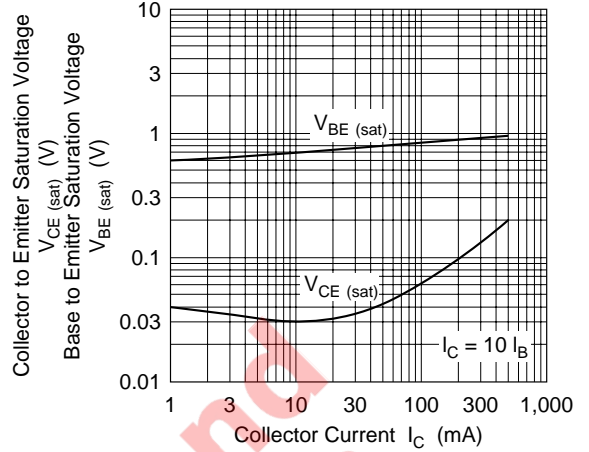
Note: 1. Pulse test



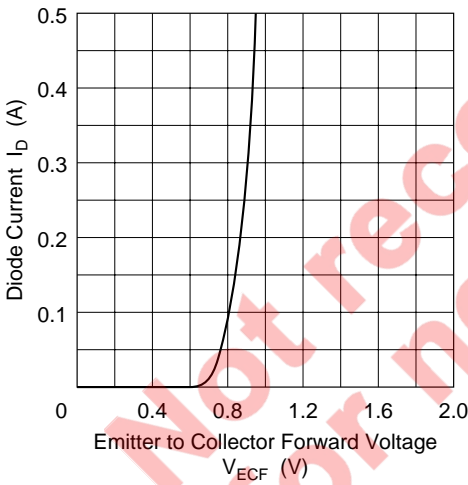
DC Current Transfer Ratio vs. Collector Current



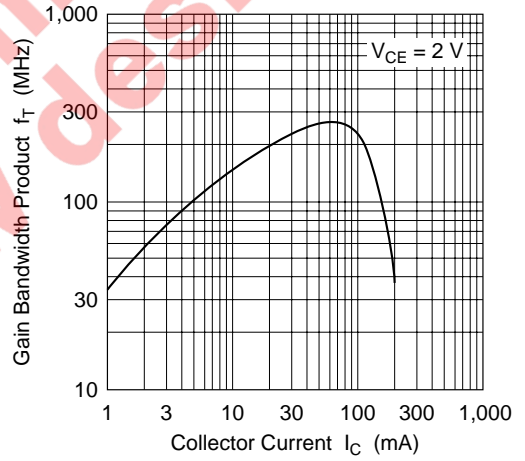
Saturation Voltage vs. Collector Current



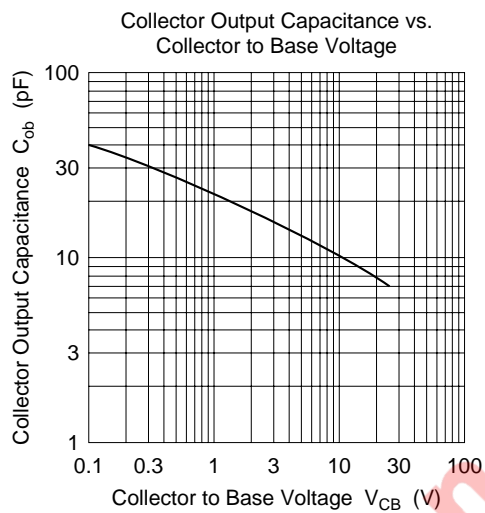
Typical Characteristics of Emitter to Collector Diode



Gain Bandwidth Product vs. Collector Current





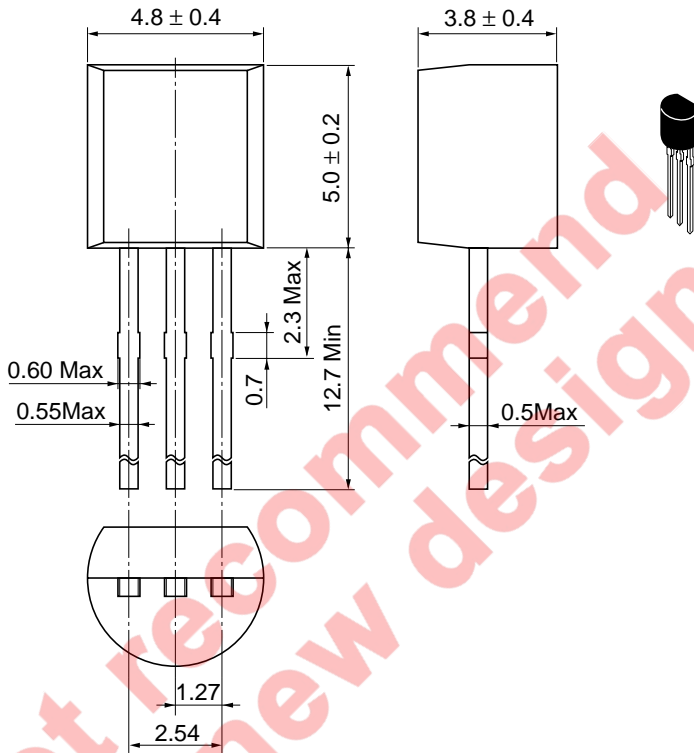


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Package Dimensions

As of January, 2001

Unit: mm



|                        |           |
|------------------------|-----------|
| Hitachi Code           | TO-92 (1) |
| JEDEC                  | Conforms  |
| EIAJ                   | Conforms  |
| Mass (reference value) | 0.25 g    |

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# HITACHI

## Hitachi, Ltd.

Semiconductor & Integrated Circuits.

Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan

Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL       NorthAmerica       : <http://semiconductor.hitachi.com/>  
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### For further information write to:

Hitachi Semiconductor  
(America) Inc.  
179 East Tasman Drive,  
San Jose, CA 95134  
Tel: <1> (408) 433-1990  
Fax: <1> (408) 433-0223

Hitachi Europe GmbH  
Electronic Components Group  
Dornacher Straße 3  
D-85622 Feldkirchen, Munich  
Germany  
Tel: <49> (89) 9 9180-0  
Fax: <49> (89) 9 29 30 00

Hitachi Europe Ltd.  
Electronic Components Group.  
Whitebrook Park  
Lower Cookham Road  
Maidenhead  
Berkshire SL6 8YA, United Kingdom  
Tel: <44> (1628) 585000  
Fax: <44> (1628) 585160

Hitachi Asia Ltd.  
Hitachi Tower  
16 Collyer Quay #20-00,  
Singapore 049318  
Tel : <65>-538-6533/538-8577  
Fax : <65>-538-6933/538-3877  
URL : <http://www.hitachi.com.sg>

Hitachi Asia Ltd.  
(Taipei Branch Office)  
4/F, No. 167, Tun Hwa North Road,  
Hung-Kuo Building,  
Taipei (105), Taiwan  
Tel : <886>-(2)-2718-3666  
Fax : <886>-(2)-2718-8180  
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