

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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# 2SA673, 2SA673A

Silicon PNP Epitaxial

**RENESAS**

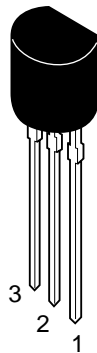
ADE-208-125 (Z)  
1st. Edition  
Mar. 2001

## Application

- Low frequency amplifier
- Complementary pair with 2SC1213 and 2SC1213A

## Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

## 2SA673, 2SA673A

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

| Item                         | Symbol    | 2SA673      | 2SA673A     | Unit |
|------------------------------|-----------|-------------|-------------|------|
| Collector to base voltage    | $V_{CBO}$ | -35         | -50         | V    |
| Collector to emitter voltage | $V_{CEO}$ | -35         | -50         | V    |
| Emitter to base voltage      | $V_{EBO}$ | -4          | -4          | V    |
| Collector current            | $I_C$     | -500        | -500        | mA   |
| Collector power dissipation  | $P_C$     | 400         | 400         | mW   |
| Junction temperature         | $T_j$     | 150         | 150         | °C   |
| Storage temperature          | $T_{stg}$ | -55 to +150 | -55 to +150 | °C   |

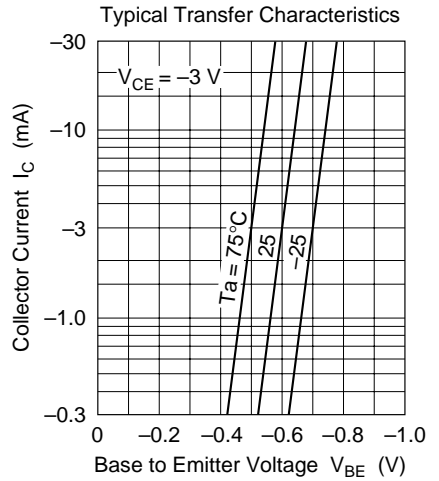
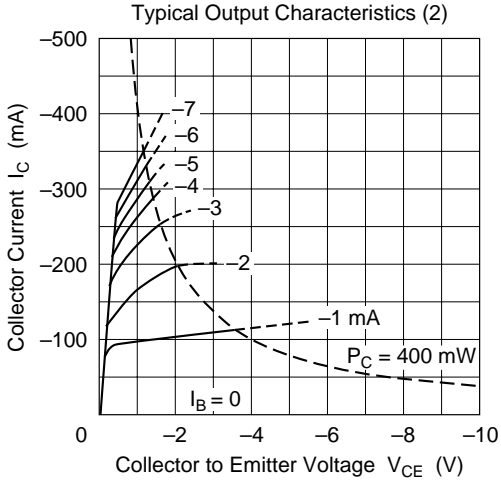
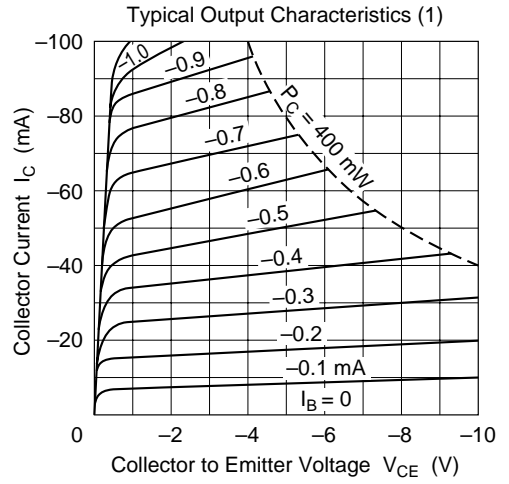
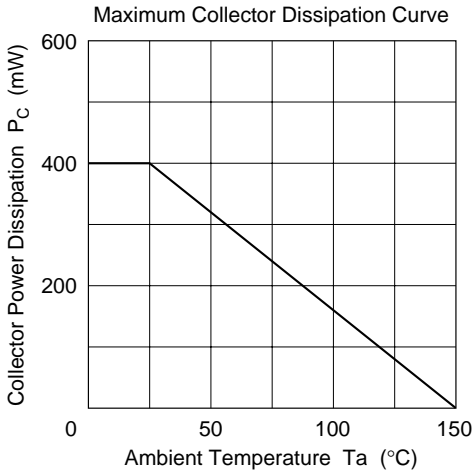
### Electrical Characteristics (Ta = 25°C)

| Item                                    | Symbol        | 2SA673 |       |      | 2SA673A |       |      | Unit    | Test conditions                                     |
|---|---------------|--------|-------|------|---------|-------|------|---------|---|
|   |               | Min    | Typ   | Max  | Min     | Typ   | Max  |         |   |
| Collector to base breakdown voltage     | $V_{(BR)CBO}$ | -35    | —     | —    | -50     | —     | —    | V       | $I_C = -10 \mu A, I_E = 0$                          |
| Collector to emitter breakdown voltage  | $V_{(BR)CEO}$ | -35    | —     | —    | -50     | —     | —    | V       | $I_C = -1 \text{ mA}, R_{BE} = \infty$              |
| Emitter to base breakdown voltage       | $V_{(BR)EBO}$ | -4     | —     | —    | -4      | —     | —    | V       | $I_E = -10 \mu A, I_C = 0$                          |
| Collector cutoff current                | $I_{CBO}$     | —      | —     | -0.5 | —       | —     | -0.5 | $\mu A$ | $V_{CB} = -20 \text{ V}, I_E = 0$                   |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | —      | -0.2  | -0.6 | —       | -0.2  | -0.6 | V       | $I_C = -150 \text{ mA}, I_B = -15 \text{ mA}^{*2}$  |
| DC current transfer ratio               | $h_{FE}^{*1}$ | 60     | —     | 320  | 60      | —     | 320  |         | $V_{CE} = -3 \text{ V}, I_C = -10 \text{ mA}$       |
| DC current transfer ratio               | $h_{FE}$      | 10     | —     | —    | 10      | —     | —    |         | $V_{CE} = -3 \text{ V}, I_C = -500 \text{ mA}^{*2}$ |
| Base to emitter voltage                 | $V_{BE}$      | —      | -0.64 | —    | —       | -0.64 | —    | V       | $V_{CE} = -3 \text{ V}, I_C = -10 \text{ mA}$       |

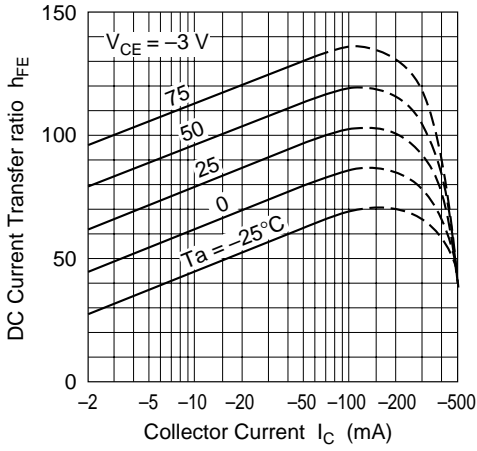
Notes: 1. The 2SA673 and 2SA673A are grouped by  $h_{FE}$  as follows.

2. Pulse test

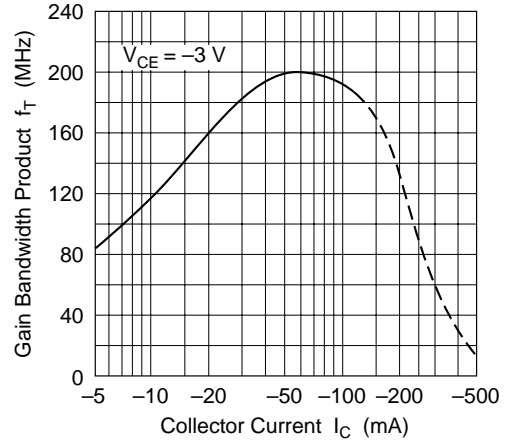
| B         | C          | D          |
|-----------|------------|------------|
| 60 to 120 | 100 to 200 | 160 to 320 |



DC Current Transfer Ratio vs. Collector Current

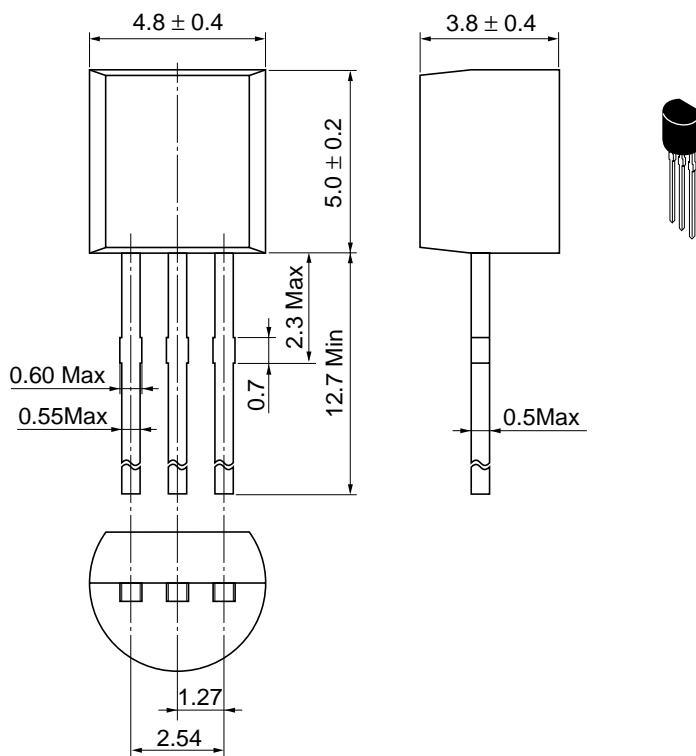


Gain Bandwidth Product vs. Collector Current



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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