

# 2SC1472(K)

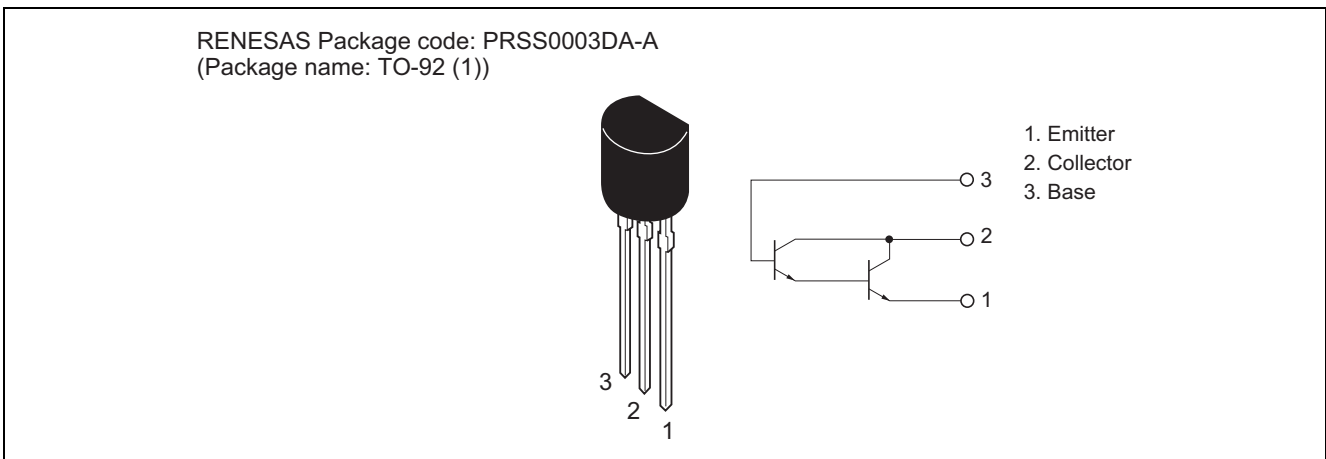
Silicon NPN Epitaxial, Darlington

REJ03G0688-0200  
 (Previous ADE-208-1054)  
 Rev.2.00  
 Aug.10.2005

## Application

High gain amplifier

## Outline



## 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       | $i_{C(peak)}$ | 500         | mA   |
| Collector power dissipation  | $P_C$         | 500         | mW   |
| Junction temperature         | $T_j$         | 150         | °C   |
| Storage temperature          | $T_{stg}$     | -55 to +150 | °C   |

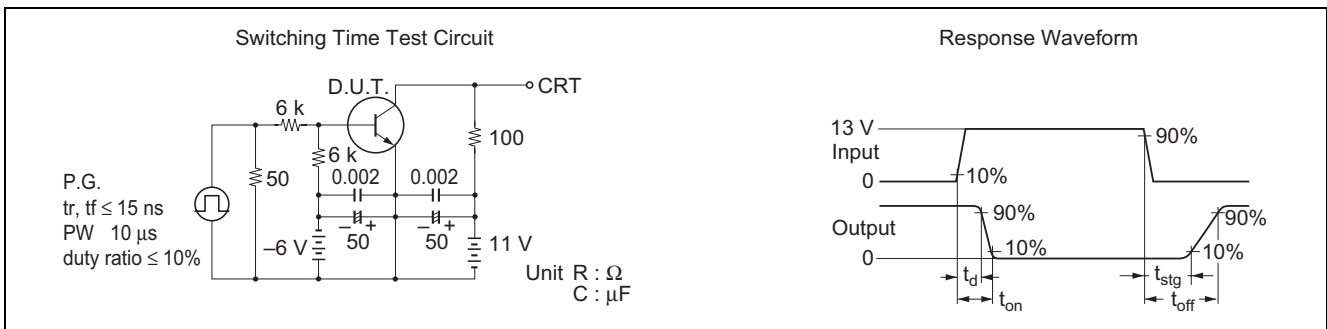
Electrical Characteristics

(Ta = 25°C)

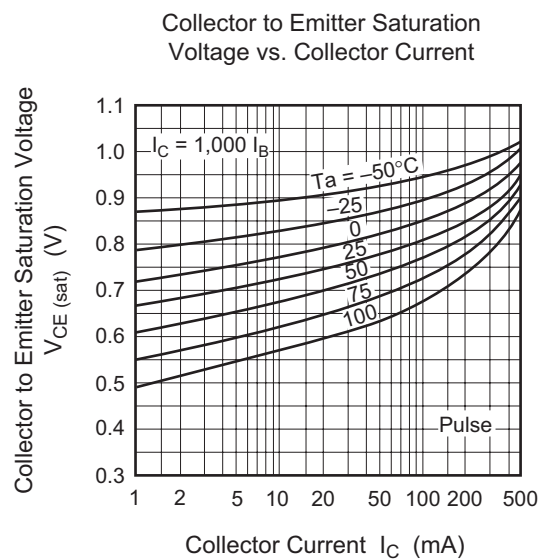
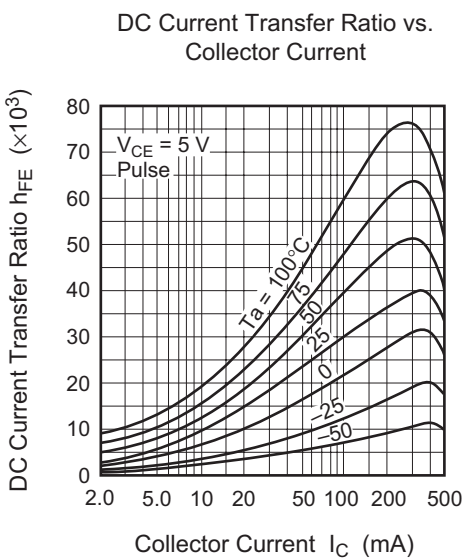
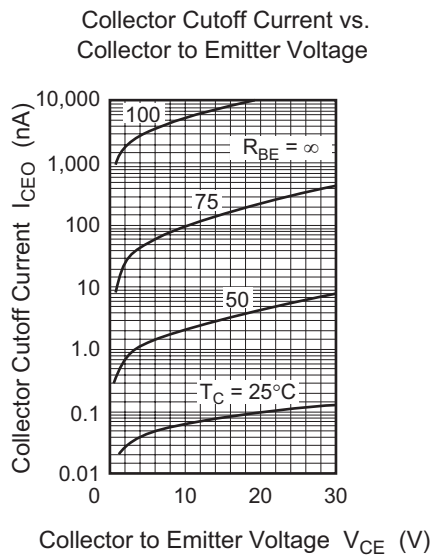
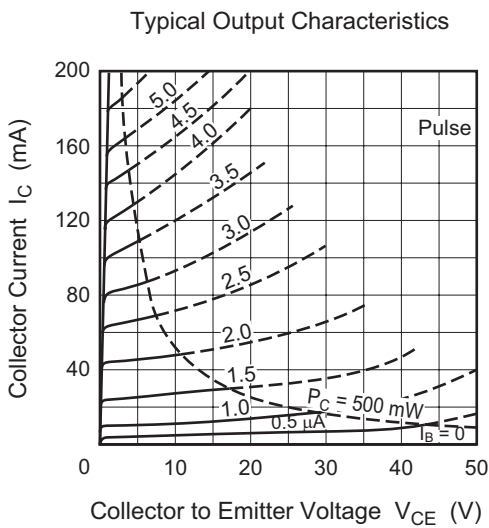
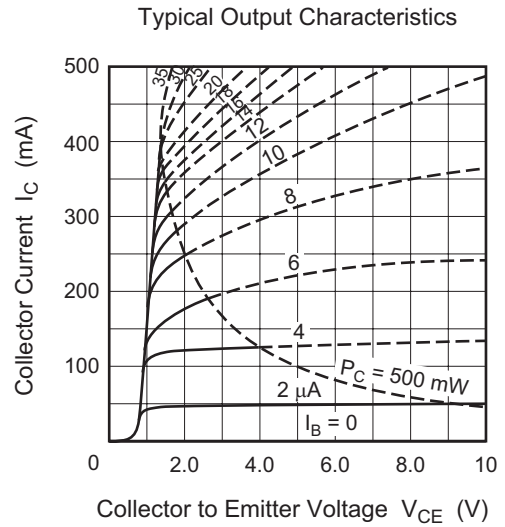
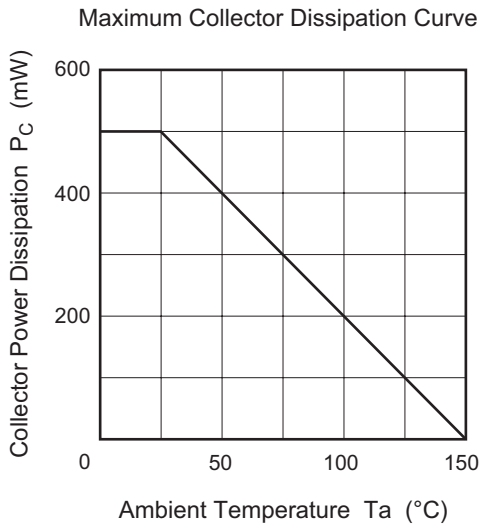
| Item                                    | Symbol         | Min  | Typ | Max    | Unit | Test conditions                                                                                  |
|-----------------------------------------|----------------|------|-----|--------|------|--------------------------------------------------------------------------------------------------|
| Collector to emitter breakdown voltage  | $V_{(BR)CEO}$  | 30   | —   | —      | V    | $I_C = 1 \text{ mA}, R_{BE} = \infty$                                                            |
| Collector cutoff current                | $I_{CBO}$      | —    | —   | 100    | nA   | $V_{CB} = 30 \text{ V}, I_E = 0$                                                                 |
| Emitter cutoff current                  | $I_{EBO}$      | —    | —   | 100    | nA   | $V_{EB} = 10 \text{ V}, I_C = 0$                                                                 |
| DC current transfer ratio               | $h_{FE1}^{*1}$ | 2000 | —   | 100000 |      | $I_C = 10 \text{ mA}, V_{CE} = 5 \text{ V}$                                                      |
|                                         | $h_{FE2}^{*1}$ | 3000 | —   | —      |      | $I_C = 100 \text{ mA}, V_{CE} = 5 \text{ V}$<br>(Pulse Test)                                     |
|                                         | $h_{FE3}^{*1}$ | 3000 | —   | —      |      | $I_C = 400 \text{ mA}, V_{CE} = 5 \text{ V}$<br>(Pulse Test)                                     |
| Collector to emitter saturation voltage | $V_{CE(sat)}$  | —    | —   | 1.5    | V    | $I_C = 100 \text{ mA}, I_B = 0.1 \text{ mA}$                                                     |
| Base to emitter voltage                 | $V_{BE(sat)}$  | —    | —   | 2.0    | V    | $I_C = 100 \text{ mA}, I_B = 0.1 \text{ mA}$                                                     |
| Gain bandwidth product                  | $f_T$          | 50   | —   | —      | MHz  | $V_{CE} = 5 \text{ V}, I_C = 10 \text{ mA}$                                                      |
| Collector output capacitance            | $C_{ob}$       | —    | —   | 10     | pF   | $V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$                                              |
| Turn on time                            | $t_{on}$       | —    | 60  | —      | ns   | $V_{CC} = 11 \text{ V}$<br>$I_C = 100 \text{ mA}, I_{B1} = 100 \text{ mA}$<br>$I_{B2} = -I_{B1}$ |
| Turn off time                           | $t_{off}$      | —    | 800 | —      | ns   |                                                                                                  |
| Storage time                            | $t_{stg}$      | —    | 350 | —      | ns   |                                                                                                  |

Note: 1. The 2SC1472(K) is grouped by  $h_{FE}$  as follows.

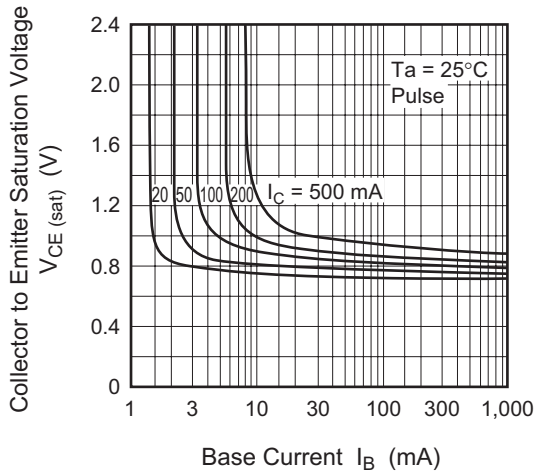
|           | A              | B              |
|-----------|----------------|----------------|
| $h_{FE1}$ | 2000 to 100000 | 5000 to 100000 |
| $h_{FE2}$ | 3000 min       | 10000 min      |
| $h_{FE3}$ | 3000 min       | 10000 min      |



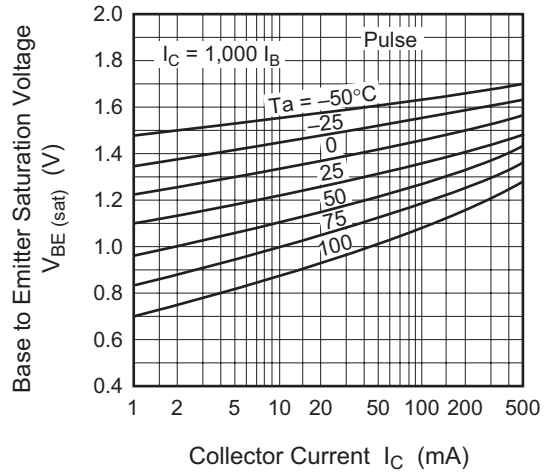
Main Characteristics



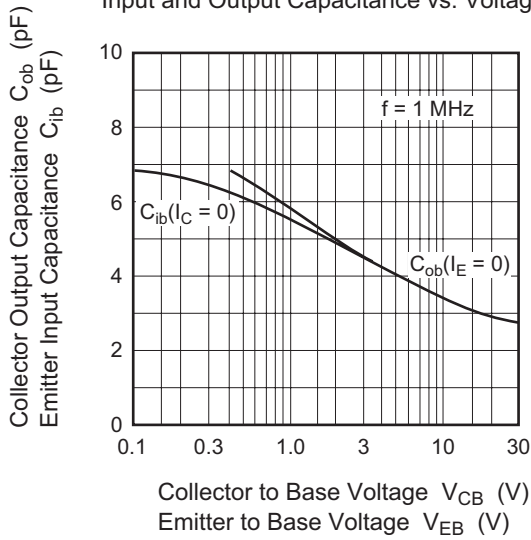
Collector to Emitter Saturation Voltage vs. Base Current



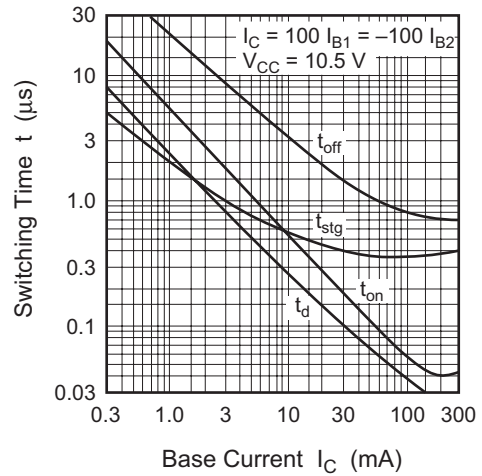
Base to Emitter Saturation Voltage vs. Collector Current



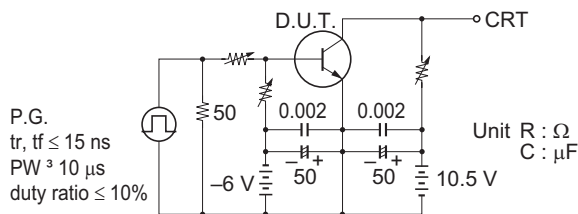
Input and Output Capacitance vs. Voltage



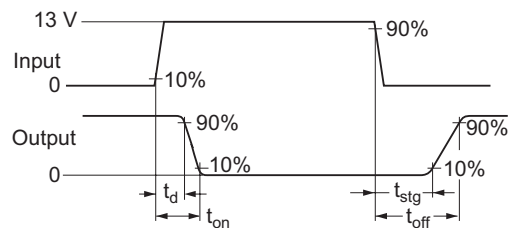
Switching Time vs. Collector Current



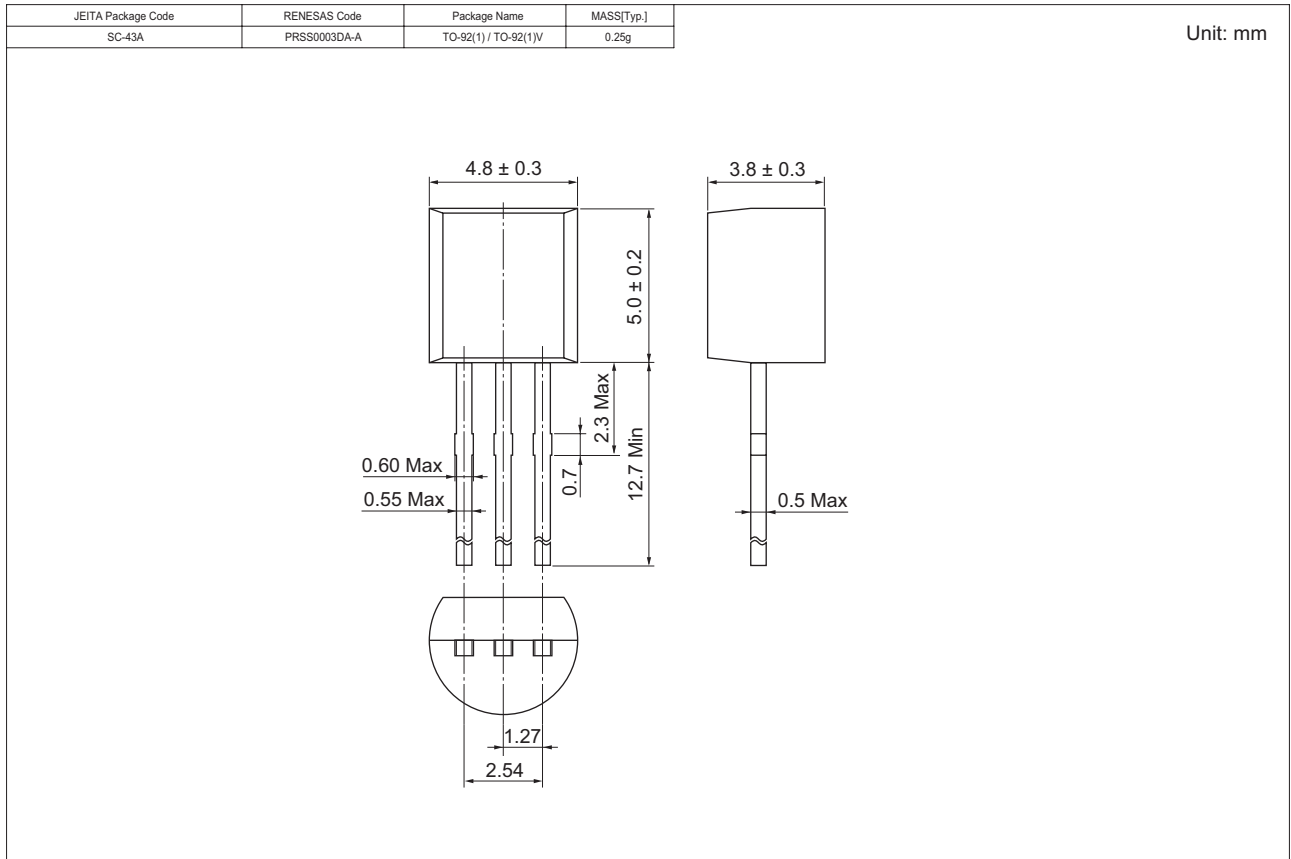
Switching Time Test Circuit



Response Waveform



### Package Dimensions



### Ordering Information

| Part Name                      | Quantity | Shipping Container      |
|--------------------------------|----------|-------------------------|
| 2SC1472KATZ-E<br>2SC1472KBTZ-E | 2500     | Hold Box, Radial Taping |

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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