

2SC1472(K)

Silicon NPN Epitaxial, Darlington

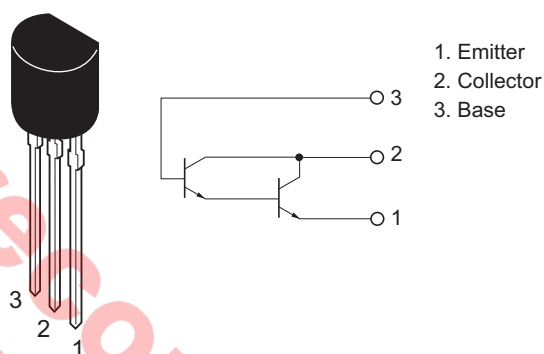
REJ03G0688-0200
(Previous ADE-208-1054)
Rev.2.00
Aug.10.2005

Application

High gain amplifier

Outline

RENESAS Package code: PRSS0003DA-A
(Package name: TO-92 (1))



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 |

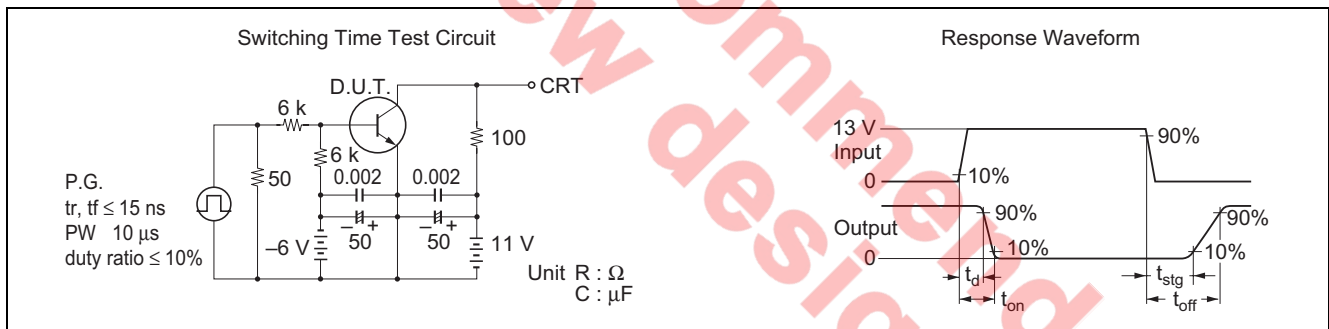
Electrical Characteristics

(Ta = 25°C)

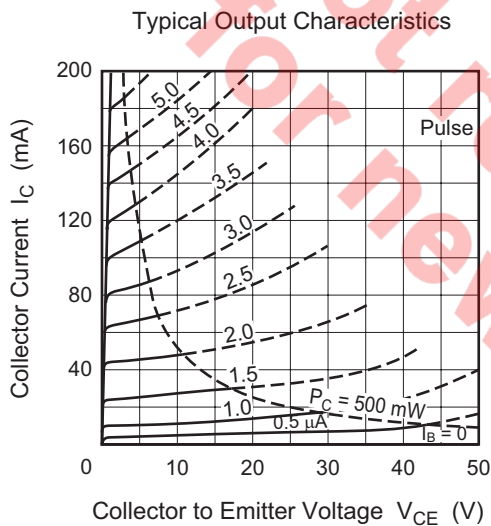
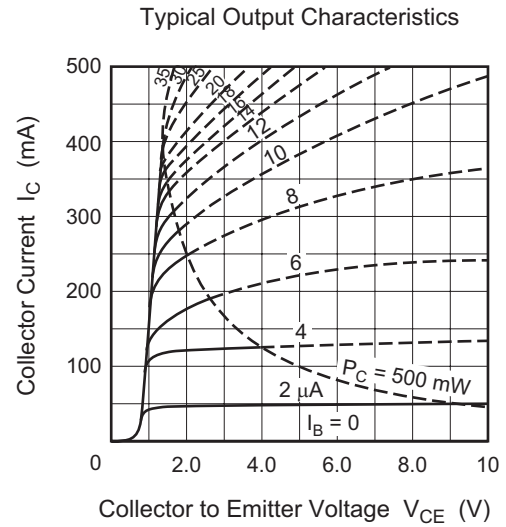
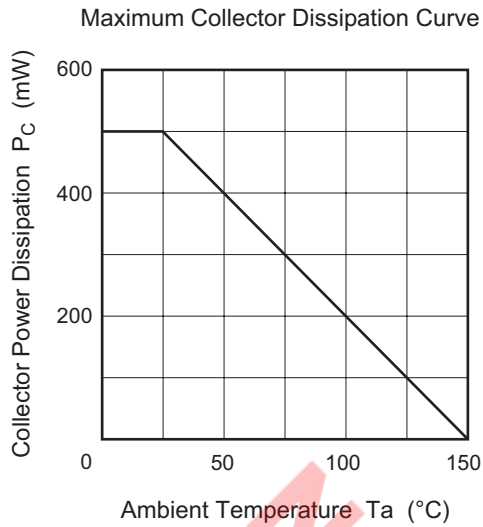
| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|---|----------------|------|-----|--------|------|---|
| Collector to emitter breakdown voltage | $V_{(BR)CEO}$ | 30 | — | — | V | $I_C = 1 \text{ mA}$, $R_{BE} = \infty$ |
| Collector cutoff current | I_{CBO} | — | — | 100 | nA | $V_{CB} = 30 \text{ V}$, $I_E = 0$ |
| 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 | — | — | | $I_C = 100 \text{ mA}$, $V_{CE} = 5 \text{ V}$ (Pulse Test) |
| | h_{FE3}^{*1} | 3000 | — | — | | $I_C = 400 \text{ mA}$, $V_{CE} = 5 \text{ V}$ (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 | $V_{CC} = 11 \text{ V}$ $I_C = 100 \text{ mA}$, $I_{B1} = 100 \text{ mA}$ $I_{B2} = -I_{B1}$ |
| 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.

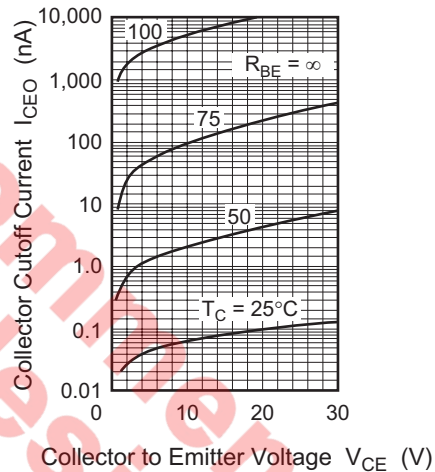
| | A | B |
|-----------|----------------|----------------|
| h_{FE1} | 2000 to 100000 | 5000 to 100000 |
| h_{FE2} | 3000 min | 10000 min |
| h_{FE3} | 3000 min | 10000 min |



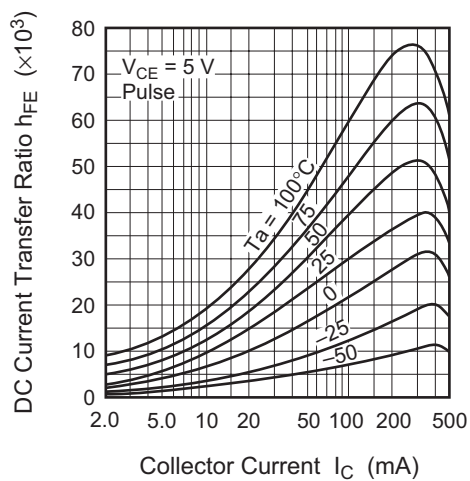
Main Characteristics



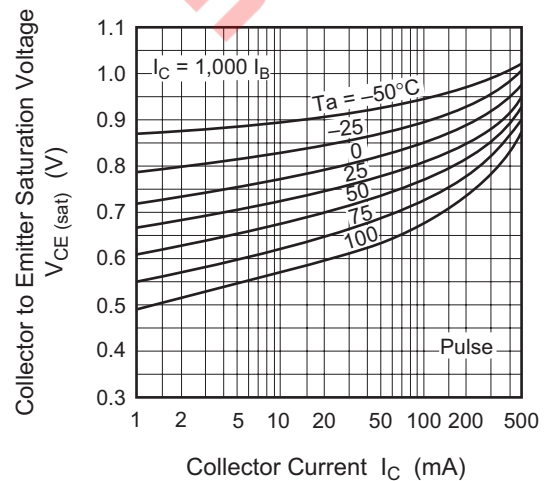
Collector Cutoff Current vs.
Collector to Emitter Voltage



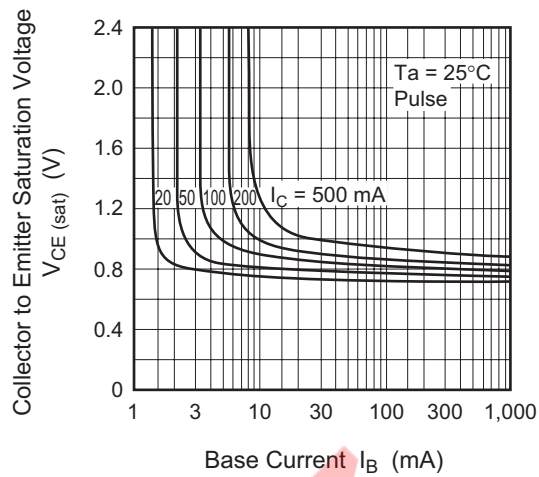
DC Current Transfer Ratio vs.
Collector Current



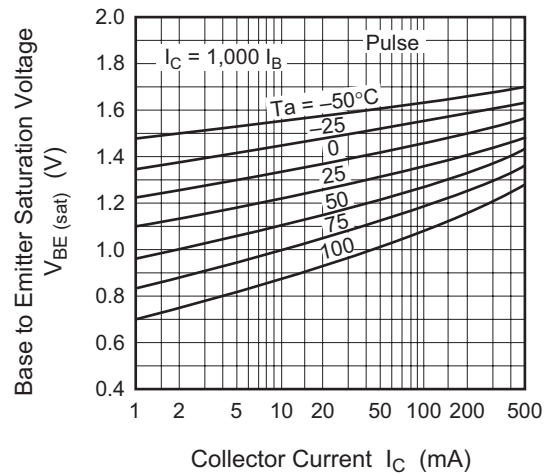
Collector to Emitter Saturation
Voltage vs. Collector Current



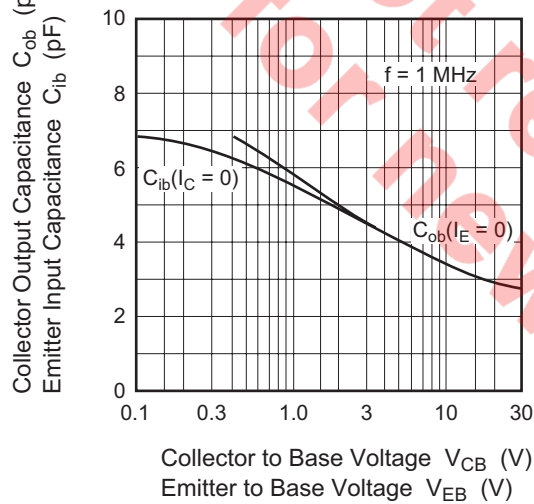
Collector to Emitter Saturation
Voltage vs. Base Current



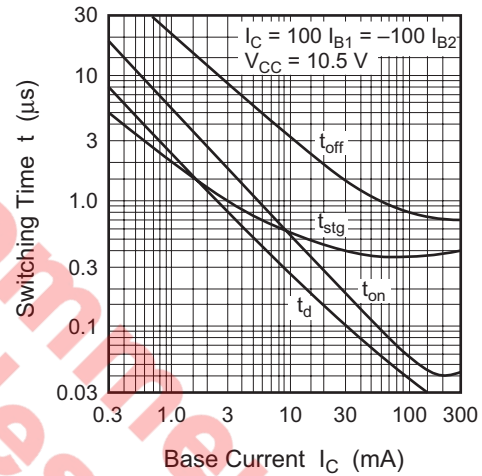
Base to Emitter Saturation
Voltage vs. Collector Current



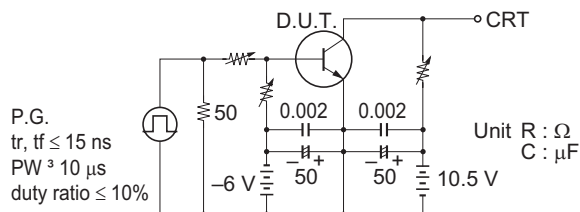
Input and Output Capacitance vs. Voltage



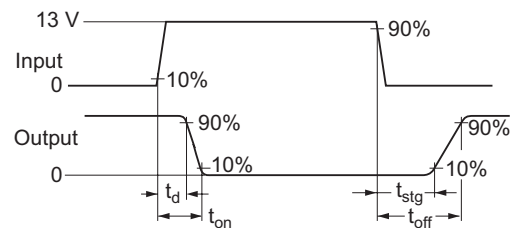
Switching Time vs. Collector Current



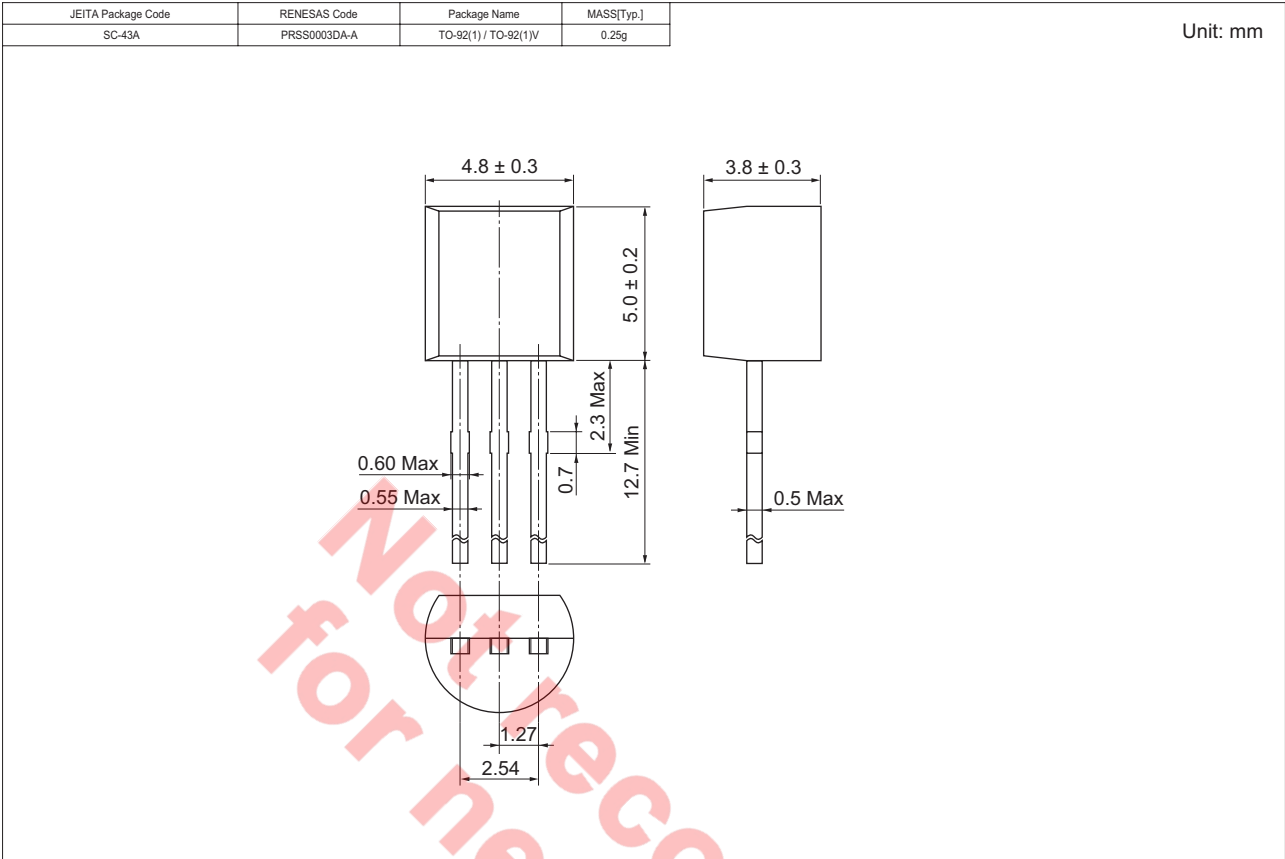
Switching Time Test Circuit



Response Waveform



Package Dimensions



Ordering Information

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

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