

# 2SC1907

Silicon NPN Epitaxial Planar

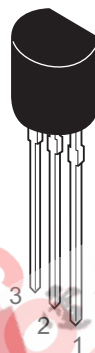
REJ03G0694-0200  
(Previous ADE-208-1059)  
Rev.2.00  
Aug.10.2005

## Application

UHF TV Tuner, Local oscillator

## Outline

RENESAS Package code: PRSS0003DA-C  
(Package name: TO-92 (2))



- 1. Emitter
- 2. Collector
- 3. Base

## Absolute Maximum Ratings

(Ta = 25°C)

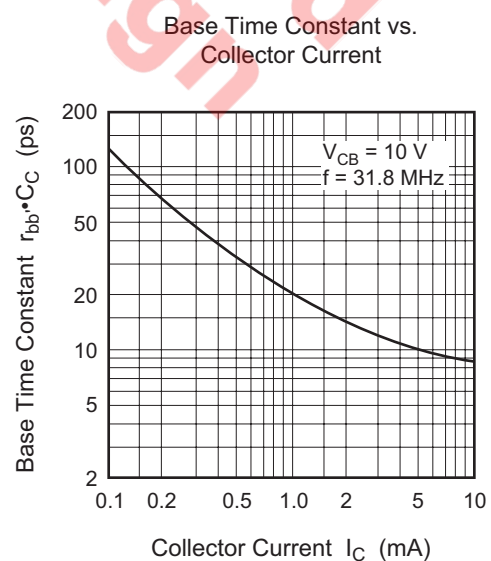
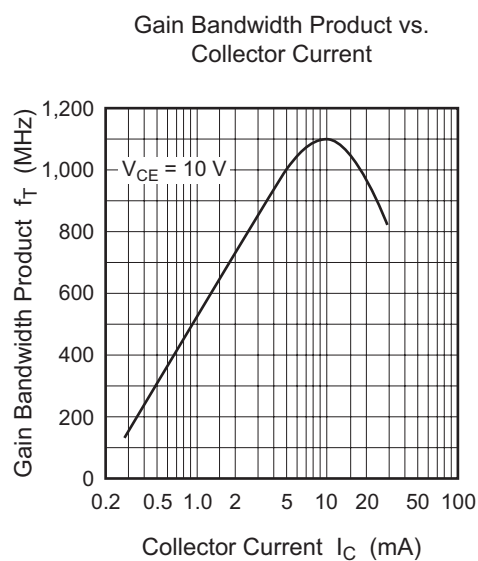
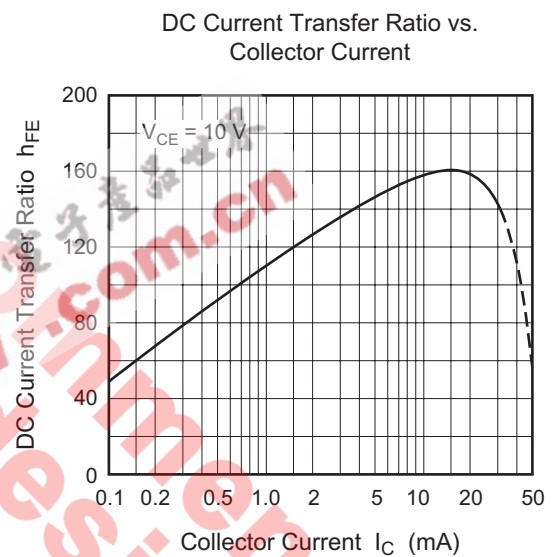
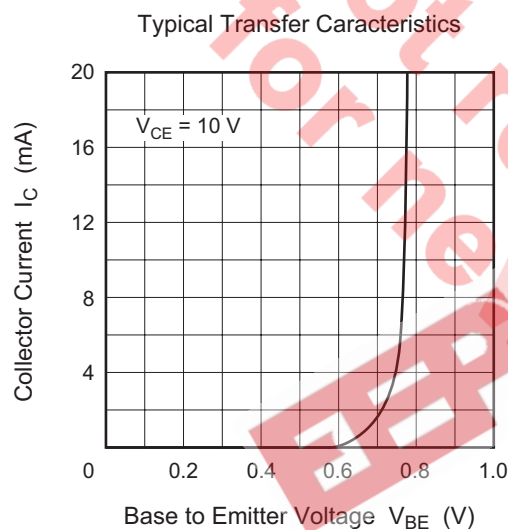
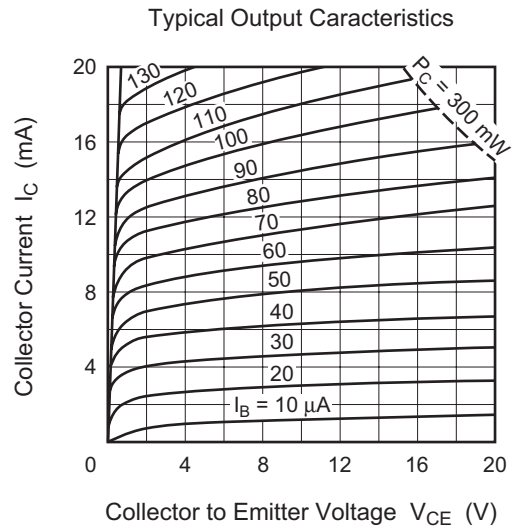
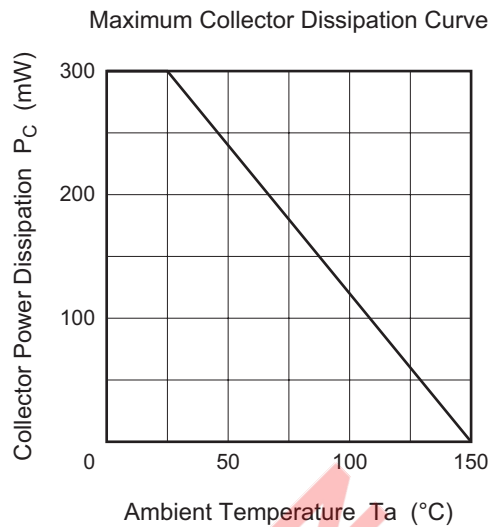
| Item                         | Symbol    | Ratings     | Unit |
|------------------------------|-----------|-------------|------|
| Collector to base voltage    | $V_{CBO}$ | 30          | V    |
| Collector to emitter voltage | $V_{CEO}$ | 19          | V    |
| Emitter to base voltage      | $V_{EBO}$ | 2           | V    |
| Collector current            | $I_C$     | 50          | mA   |
| Emitter current              | $I_E$     | -50         | mA   |
| Collector power dissipation  | $P_C$     | 300         | mW   |
| Junction temperature         | $T_j$     | 150         | °C   |
| Storage temperature          | $T_{stg}$ | -55 to +150 | °C   |

## Electrical Characteristics

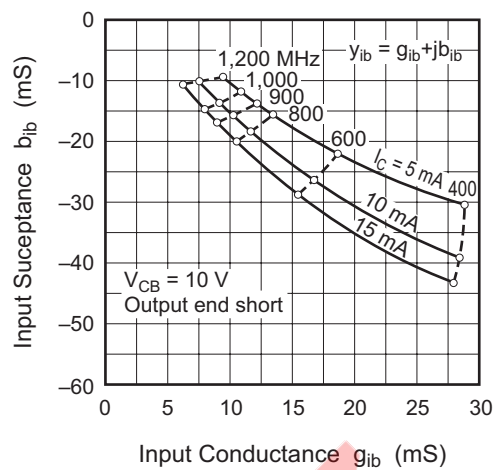
(Ta = 25°C)

| Item                                    | Symbol              | Min | Typ  | Max | Unit    | Test conditions                               |
|---|---------------------|-----|------|-----|---------|---|
| Collector to base breakdown voltage     | $V_{(BR)CBO}$       | 30  | —    | —   | V       | $I_C = 10\ \mu A, I_E = 0$                    |
| Collector to emitter breakdown voltage  | $V_{(BR)CEO}$       | 19  | —    | —   | V       | $I_C = 3\ mA, R_{BE} = \infty$                |
| Emitter to base breakdown voltage       | $V_{(BR)EBO}$       | 2   | —    | —   | V       | $I_E = 10\ \mu A, I_C = 0$                    |
| Collector cutoff current                | $I_{CBO}$           | —   | —    | 0.5 | $\mu A$ | $V_{CB} = 10\ V, I_E = 0$                     |
| DC current transfer ratio               | $h_{FE}$            | 40  | —    | —   |         | $V_{CE} = 10\ V, I_C = 10\ mA$                |
| Collector to emitter saturation voltage | $V_{CE(sat)}$       | —   | 0.2  | 1.0 | V       | $I_C = 20\ mA, I_B = 4\ mA$                   |
| Collector output capacitance            | $C_{ob}$            | —   | 1.0  | 2.0 | pF      | $V_{CB} = 10\ V, I_E = 0, f = 1\ MHz$         |
| Gain bandwidth product                  | $f_T$               | 900 | 1100 | —   | MHz     | $V_{CE} = 10\ V, I_C = 10\ mA$                |
| Base time constant                      | $r_{bb'} \cdot C_C$ | —   | 10   | 25  | ps      | $V_{CB} = 10\ V, I_C = 10\ mA, f = 31.8\ MHz$ |
| Oscillation output power                | $P_{out}$           | —   | 8    | —   | mW      | $V_{CB} = 10\ V, I_C = 10\ mA, f = 930\ MHz$  |

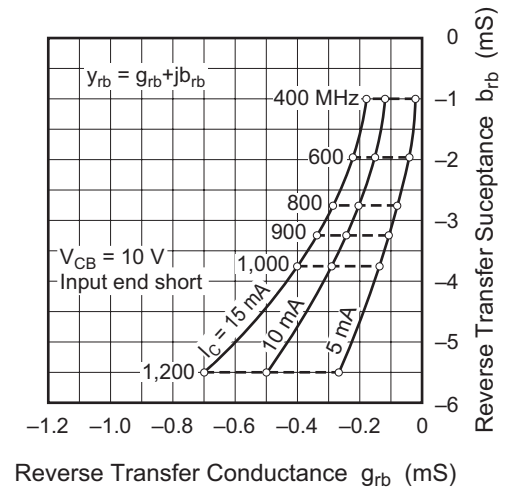
## Main Characteristics



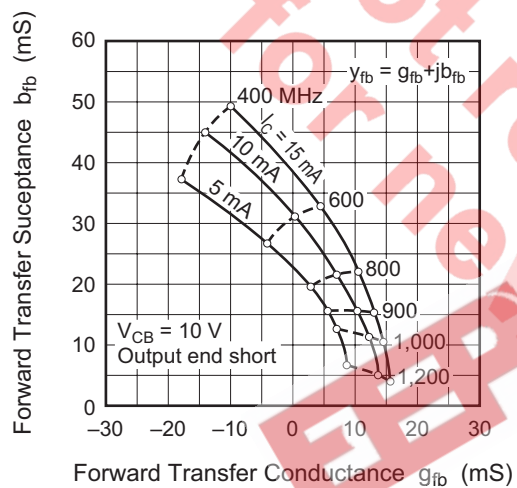
Input Admittance Characteristics



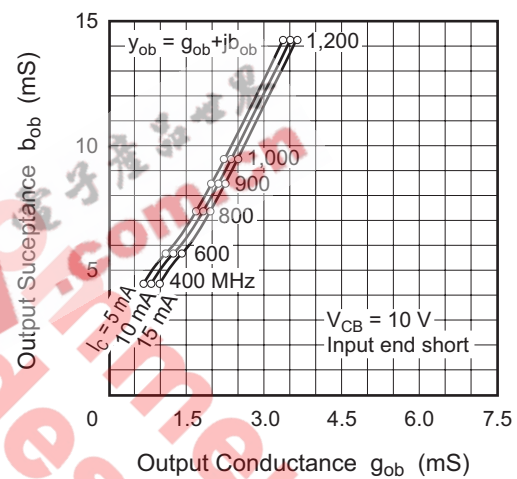
Reverse Transfer Admittance Characteristics



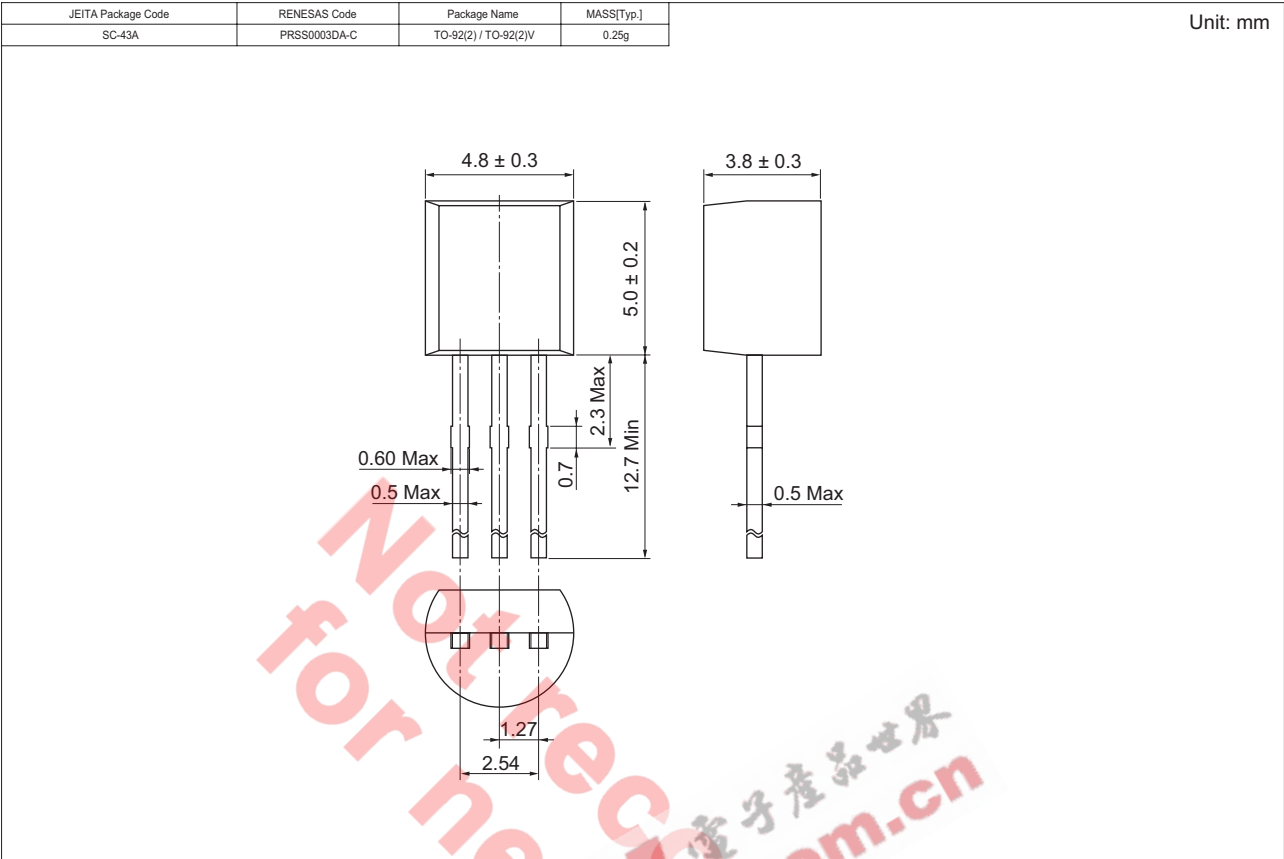
Forward Transfer Admittance Characteristics



Output Admittance Characteristics



Package Dimensions



Ordering Information

| Part Name   | Quantity | Shipping Container      |
|-------------|----------|-------------------------|
| 2SC1907TZ-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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