

## 2SC5049

Silicon NPN Epitaxial

REJ03G0740-0300  
 (Previous ADE-208-1129A)  
 Rev.3.00  
 Aug.10.2005

### Application

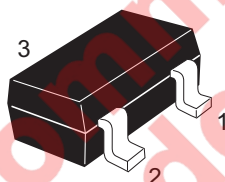
VHF / UHF wide band amplifier

### Features

- High gain bandwidth product  
 $f_T = 10$  GHz Typ
- High gain, low noise figure  
 $PG = 15.0$  dB Typ,  $NF = 1.2$  dB Typ at  $f = 900$  MHz

### Outline

RENESAS Package code: PLSP0003ZB-A  
 (Package name: MPAK)



1. Emitter
2. Base
3. Collector

Note: Marking is "YA-".

Attention: This device is very sensitive to electro static discharge.

It is recommended to adopt appropriate cautions when handling this transistor.

### Absolute Maximum Ratings

( $T_a = 25^\circ\text{C}$ )

| Item                         | Symbol    | Ratings     | Unit             |
|------------------------------|-----------|-------------|------------------|
| Collector to base voltage    | $V_{CBO}$ | 15          | V                |
| Collector to emitter voltage | $V_{CEO}$ | 8           | V                |
| Emitter to base voltage      | $V_{EBO}$ | 1.5         | V                |
| Collector current            | $I_C$     | 20          | mA               |
| Collector power dissipation  | $P_C$     | 150         | mW               |
| Junction temperature         | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage temperature          | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

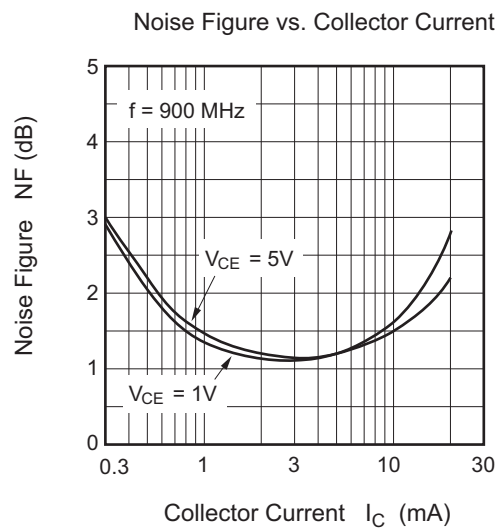
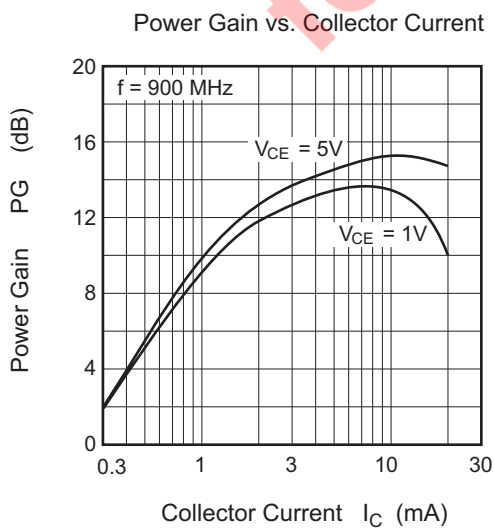
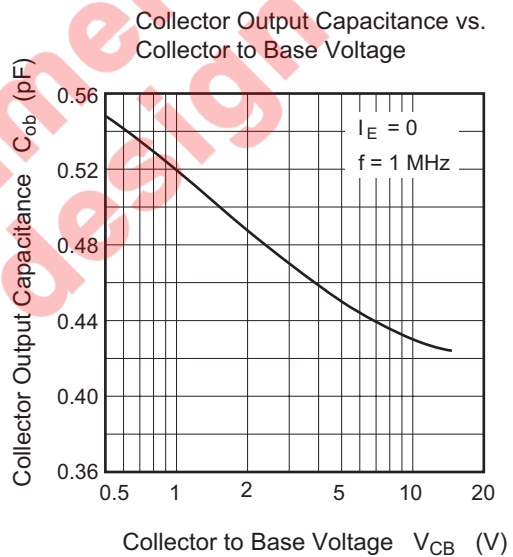
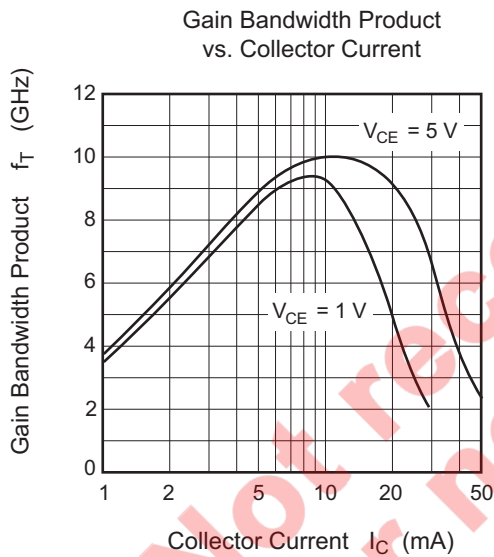
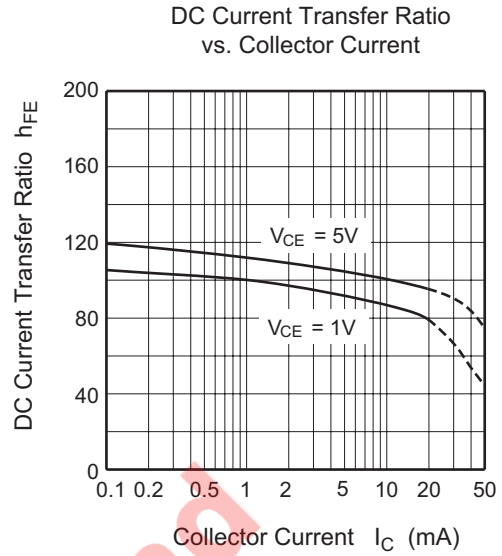
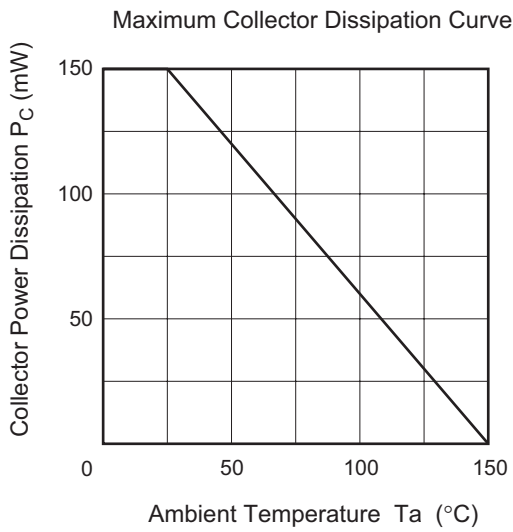
## Electrical Characteristics

(Ta = 25°C)

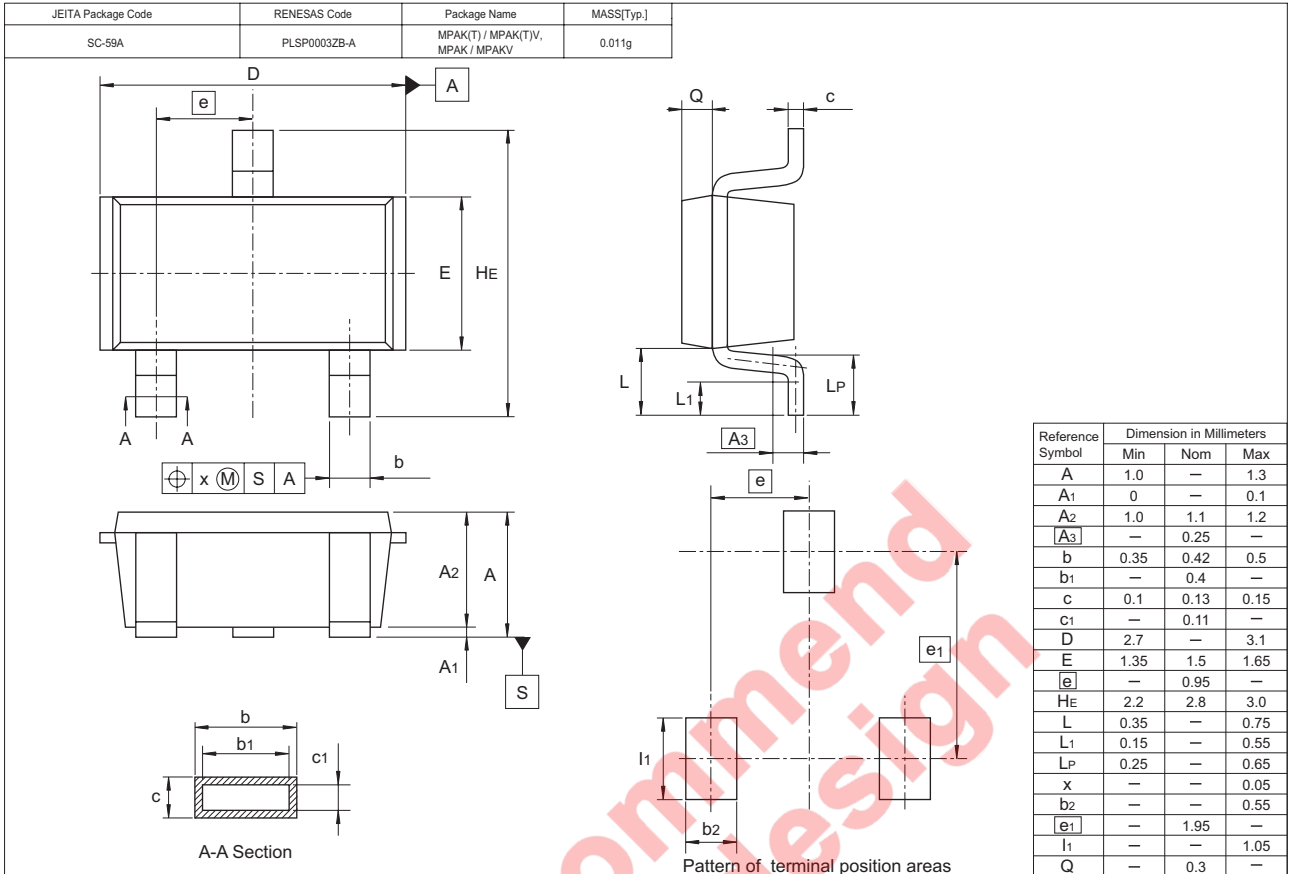
| Item                         | Symbol    | Min  | Typ  | Max | Unit          | Test conditions  |
|------------------------------|-----------|------|------|-----|---------------|--|
| Collector cutoff current     | $I_{CBO}$ | —    | —    | 10  | $\mu\text{A}$ | $V_{CB} = 15\text{ V}, I_E = 0$                                    |
|                              | $I_{CEO}$ | —    | —    | 1   | mA            | $V_{CE} = 8\text{ V}, R_{BE} = \infty$                             |
| Emitter cutoff current       | $I_{EBO}$ | —    | —    | 10  | $\mu\text{A}$ | $V_{EB} = 1.5\text{ V}, I_C = 0$                                   |
| DC current transfer ratio    | $h_{FE}$  | 50   | 120  | 250 |               | $V_{CE} = 5\text{ V}, I_C = 20\text{ mA}$                          |
| Collector output capacitance | $C_{ob}$  | —    | 0.45 | 0.8 | pF            | $V_{CB} = 5\text{ V}, I_E = 0, f = 1\text{ MHz}$                   |
| Gain bandwidth product       | $f_T$     | 7.0  | 10.0 | —   | GHz           | $V_{CE} = 5\text{ V}, I_C = 10\text{ mA}$                          |
| Power gain                   | PG        | 12.0 | 15.0 | —   | dB            | $V_{CE} = 5\text{ V}, I_C = 10\text{ mA},$<br>$f = 900\text{ MHz}$ |
| Noise figure                 | NF        | —    | 1.2  | 2.5 | dB            | $V_{CE} = 5\text{ V}, I_C = 5\text{ mA},$<br>$f = 900\text{ MHz}$  |

Not recommend  
for new design

Main Characteristics



### Package Dimensions



### Ordering Information

| Part Name      | Quantity | Shipping Container                |
|----------------|----------|-----------------------------------|
| 2SC5049YA-TL-E | 3000     | φ 178 mm Reel, 8 mm Emboss 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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