



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

EC4H09C — NPN Epitaxial Planar Silicon Transistor UHF to X Band Low-Noise Amplifier and OSC Applications

Features

- High cut-off frequency : $f_T=26\text{GHz}$ typ ($V_{CE}=3\text{V}$).
- Low operating voltage.
- High gain : $|S_{21e}|^2=16.5\text{dB}$ typ ($f=2\text{GHz}$).
- Halogen free compliance (UL94 HB).

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|------------|-------------|------------------|
| Collector-to- Base Voltage | V_{CBO} | | 10 | V |
| Collector-to-Emitter Voltage | V_{CEO} | | 3.5 | V |
| Emitter-to-Base Voltage | V_{EBO} | | 2.5 | V |
| Collector Current | I_C | | 40 | mA |
| Collector Dissipation | P_C | | 120 | mW |
| Junction Temperature | T_J | | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | | -55 to +150 | $^\circ\text{C}$ |

Electrical Characteristics at $T_a=25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|------------------------------|-----------|-------------------------------------|---------|------|-----|---------------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=5\text{V}, I_E=0\text{A}$ | | | 1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=1\text{V}, I_C=0\text{A}$ | | | 1 | μA |
| DC Current Gain | h_{FE} | $V_{CE}=1\text{V}, I_C=5\text{mA}$ | 70 | | 150 | |
| Gain-Bandwidth Product | f_T | $V_{CE}=3\text{V}, I_C=20\text{mA}$ | 20 | 26 | | GHz |
| Reverse Transfer Capacitance | C_{re} | $V_{CB}=1\text{V}, f=1\text{MHz}$ | | 0.12 | | pF |

Marking : M

Continued on next page.

Notre) Pay attention to handling since it is liable to be affected by static electricity due to the high-frequency process adopted.

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SANYO Semiconductor Co., Ltd.

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EC4H09C

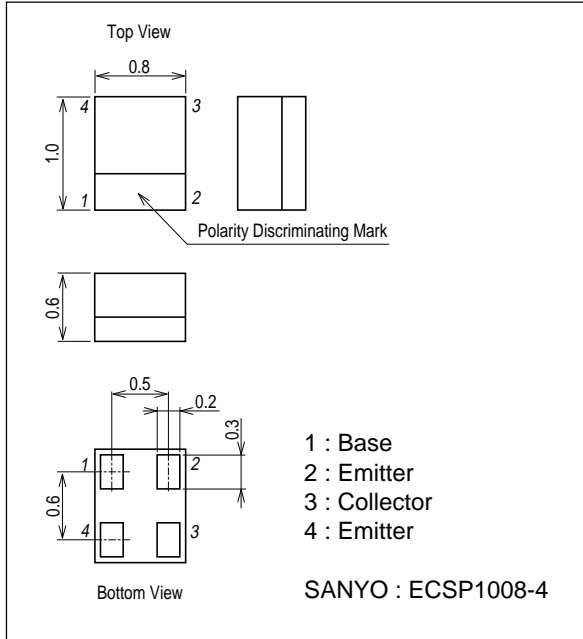
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|-----------------------|-----------------|-------------------------------|---------|------|-----|------|
| | | | min | typ | max | |
| Forward Transfer Gain | $ S_{21e} ^2_1$ | $V_{CE}=1V, I_C=10mA, f=2GHz$ | | 15 | | dB |
| | $ S_{21e} ^2_2$ | $V_{CE}=3V, I_C=20mA, f=2GHz$ | 13 | 16.5 | | dB |
| Noise Figure | NF | $V_{CE}=1V, I_C=5mA, f=2GHz$ | | 1.3 | 1.8 | dB |

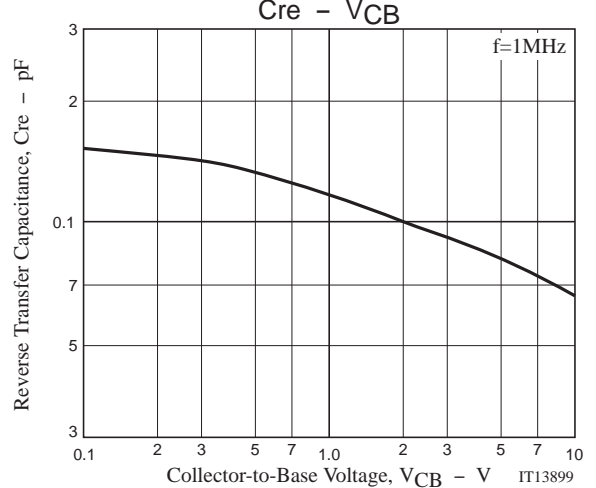
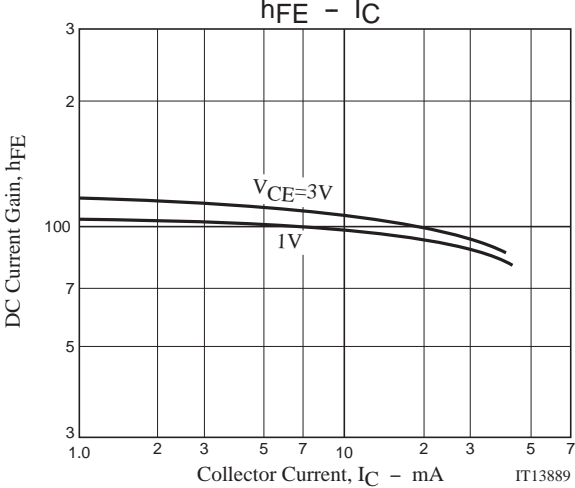
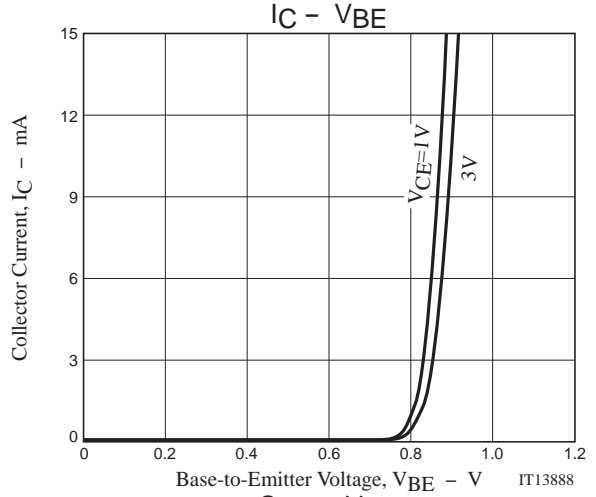
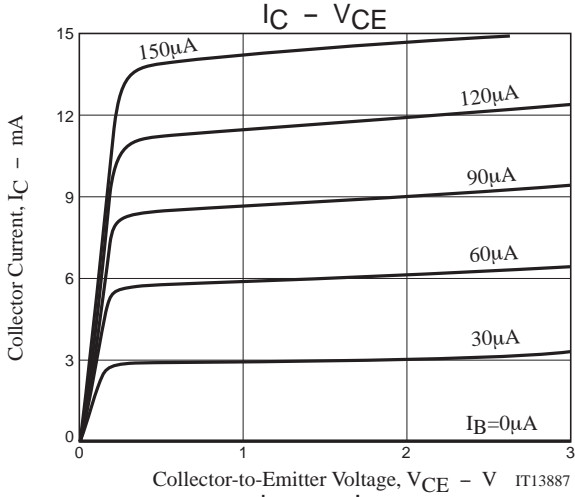
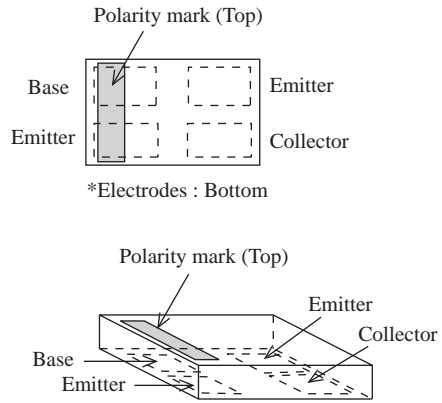
Package Dimensions

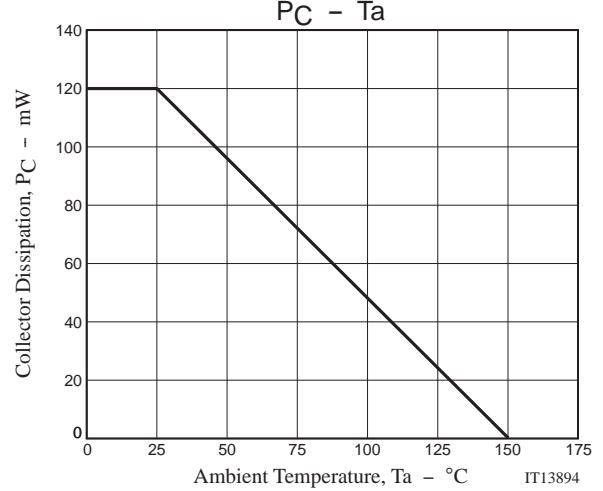
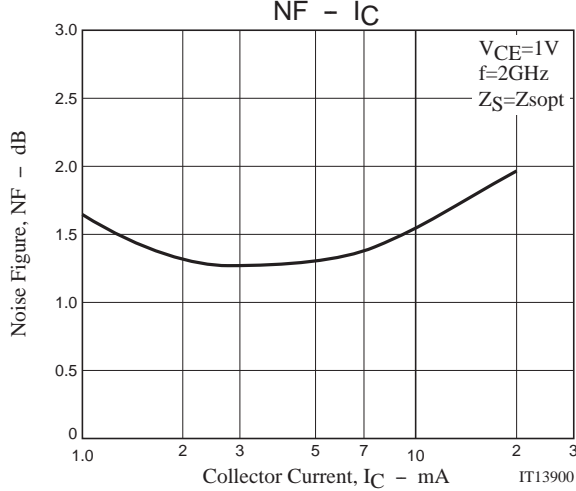
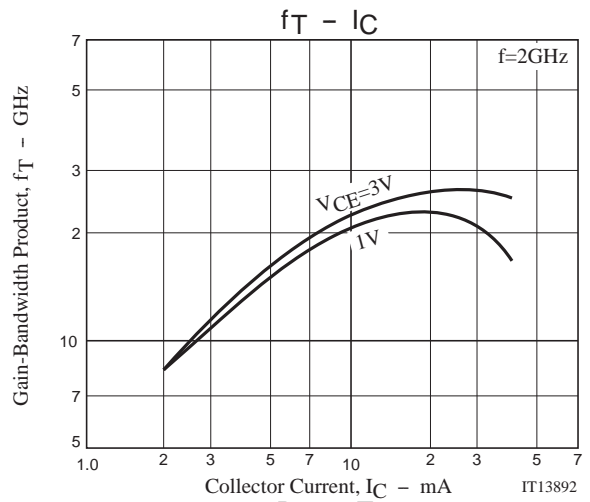
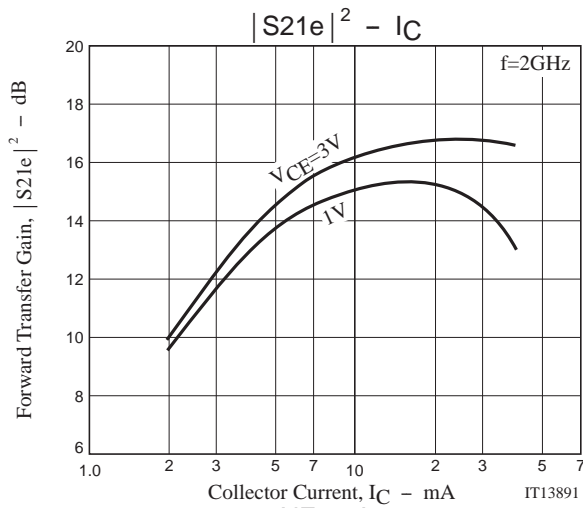
unit : mm (typ)

7036-002



Electrical Connection (Top view)





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