



MCH6001

 — NPN Epitaxial Planar Silicon Composite Transistor

High Frequency Low-Noise Amplifier

Features

- Low-noise use : NF=1.2dB typ (f=1GHz).
- High cut-off frequency : $f_T=16\text{GHz}$ typ ($V_{CE}=5\text{V}$).
- High gain : $|S_{21e}|^2=16\text{dB}$ typ (f=1GHz).
- Composite type with 2 RF transistor MCH4020 in one package facilitating high-density mounting.

Specifications

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

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|-----------|---|-------------|------------------|
| Collector-to-Base Voltage | V_{CBO} | | 15 | V |
| Collector-to-Emitter Voltage | V_{CEO} | | 8 | V |
| Emitter-to-Base Voltage | V_{EBO} | | 2 | V |
| Collector Current | I_C | | 150 | mA |
| Collector Dissipation | P_C | When mounted on glass epoxy substrate 1unit | 400 | mW |
| Total Dissipation | P_T | When mounted on glass epoxy substrate | 600 | 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} | $V_{CB}=5\text{V}, I_E=0\text{A}$ | | | 1.0 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=1\text{V}, I_C=0\text{A}$ | | | 1.0 | μA |
| DC Current Gain | h_{FE} | $V_{CE}=5\text{V}, I_C=50\text{mA}$ | 60 | | 150 | |
| Gain-Bandwidth Product | f_T | $V_{CE}=5\text{V}, I_C=50\text{mA}$ | 13 | 16 | | GHz |

Marking : GT

Continued on next page.

Note) 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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MCH6001

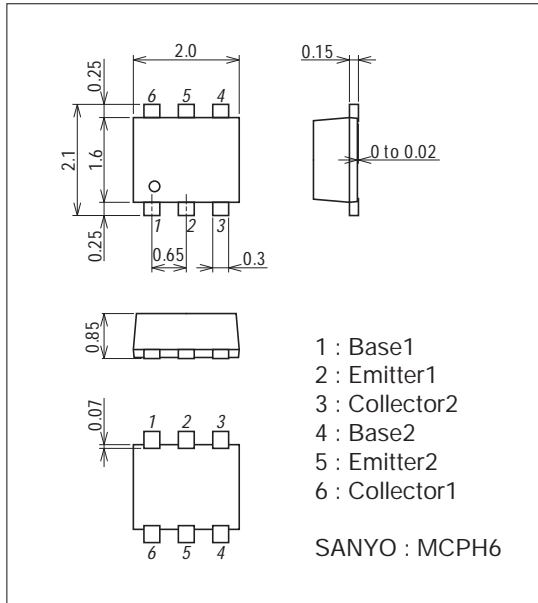
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| Parameter | Symbol | Conditions | Ratings | | | Unit |
|-----------------------|---------------|-------------------------------|---------|-----|-----|------|
| | | | min | typ | max | |
| Forward Transfer Gain | $ S_{21e} ^2$ | $V_{CE}=5V, I_C=50mA, f=1GHz$ | | 16 | | dB |
| Noise Figure | NF | $V_{CE}=1V, I_C=10mA, f=1GHz$ | | 1.2 | 1.8 | dB |

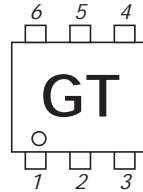
Package Dimensions

unit : mm (typ)

7022A-019



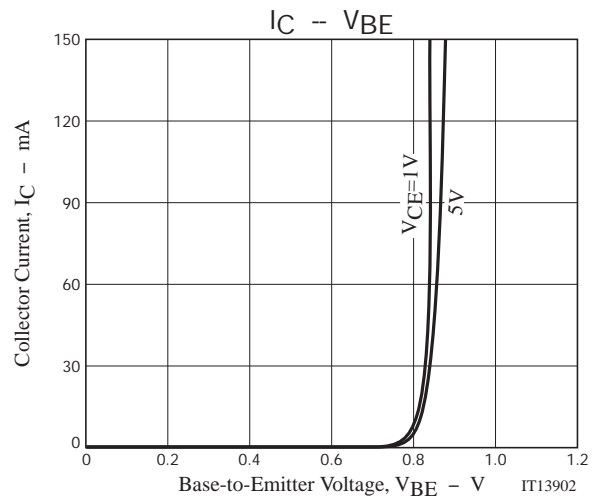
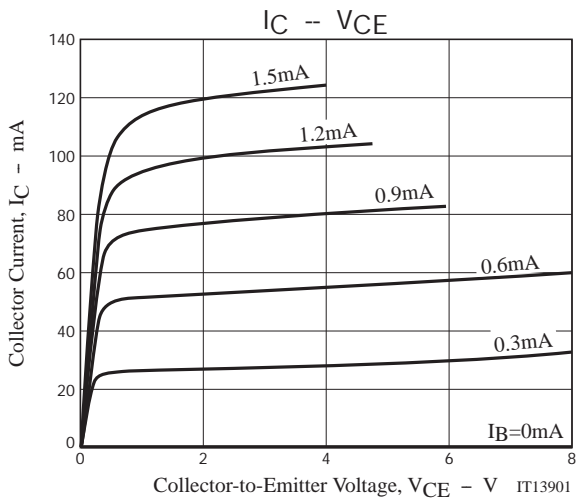
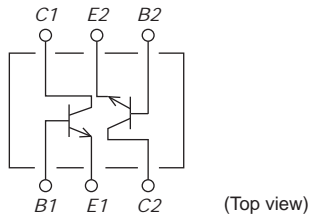
Marking

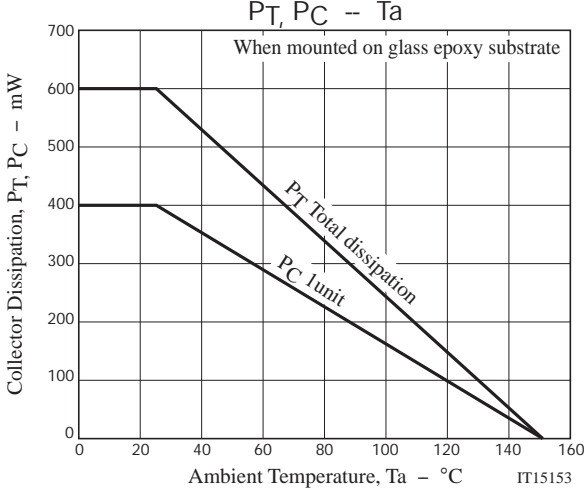
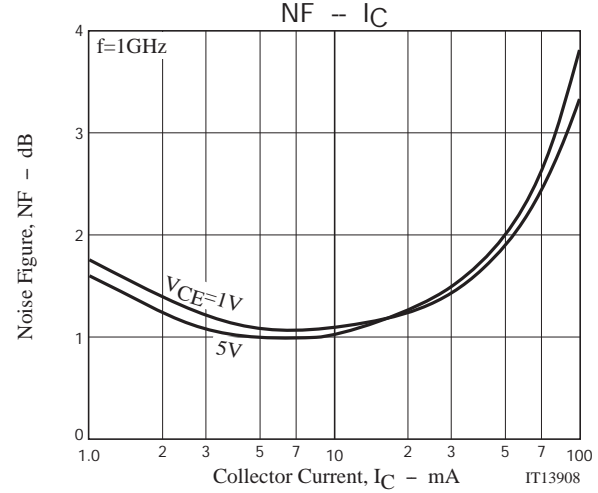
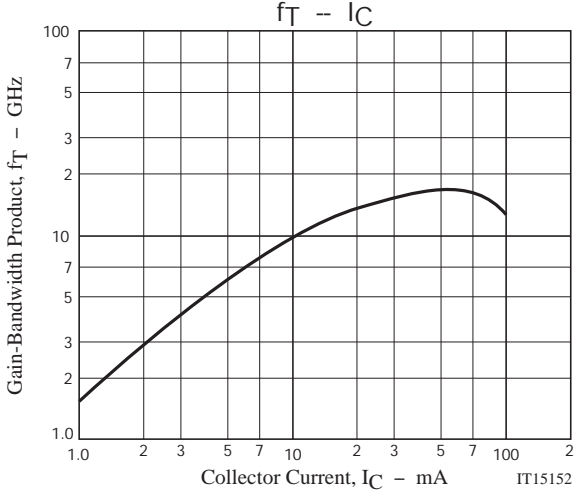
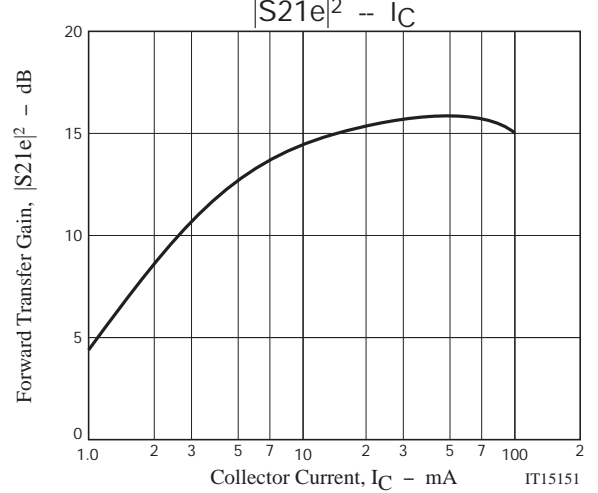
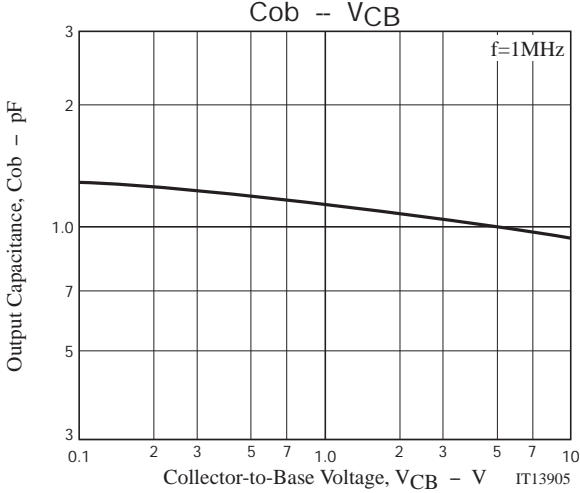
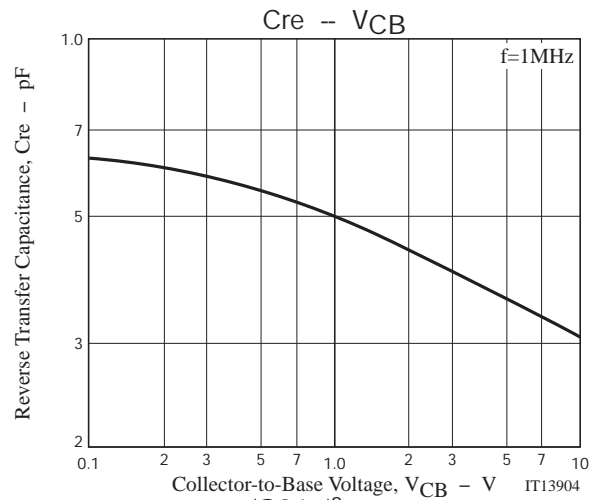
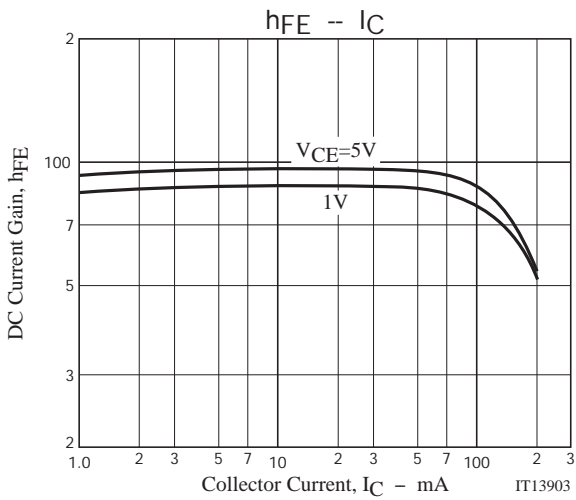


- 1 : Base1
- 2 : Emitter1
- 3 : Collector2
- 4 : Base2
- 5 : Emitter2
- 6 : Collector1

Top view

Electrical Connection





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