



SANYO Semiconductors

DATA SHEET

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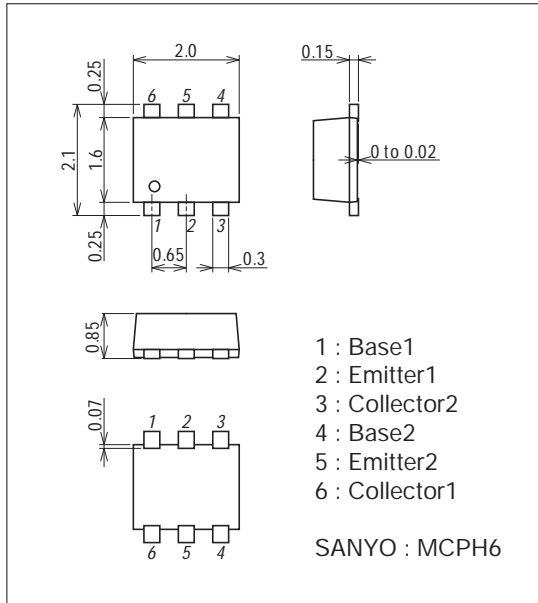
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Forward Transfer Gain	$ S_{21e} ^2$	$V_{CE}=5V, I_C=50mA, f=1GHz$		16		dB
Noise Figure	NF	$V_{CE}=1V, I_C=10mA, f=1GHz$		1.2	1.8	dB

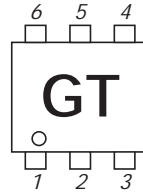
Package Dimensions

unit : mm (typ)

7022A-019



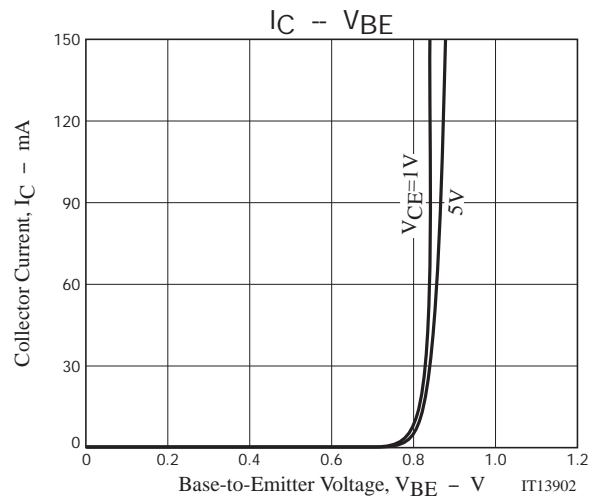
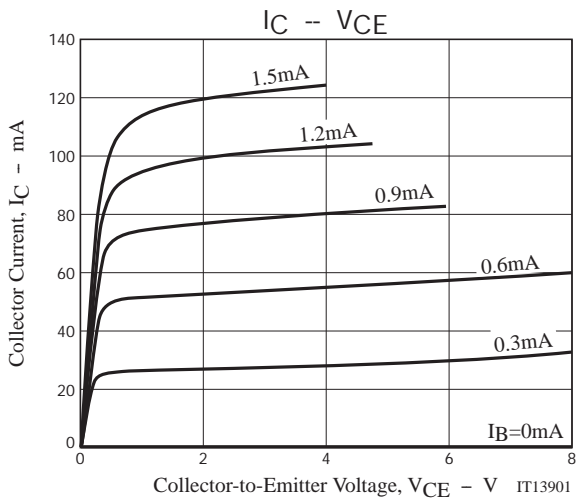
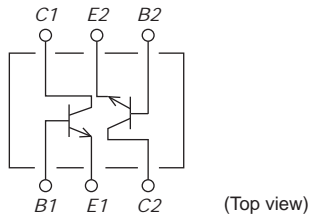
Marking



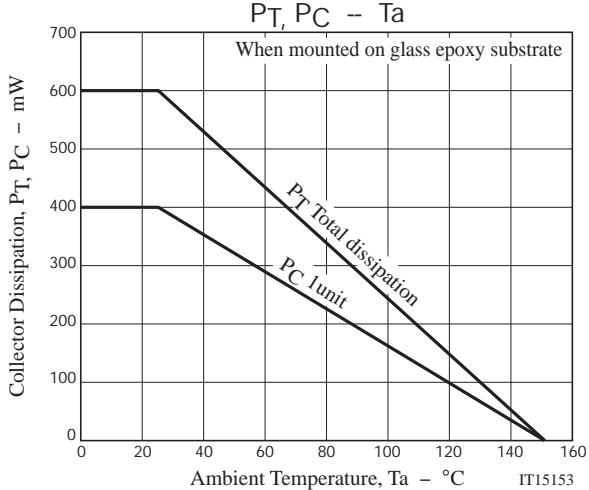
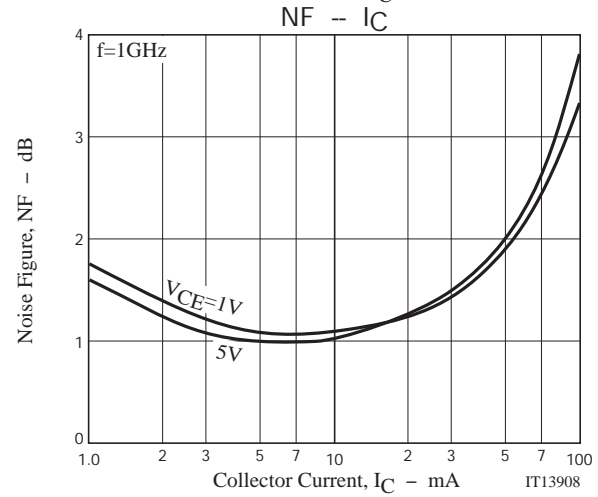
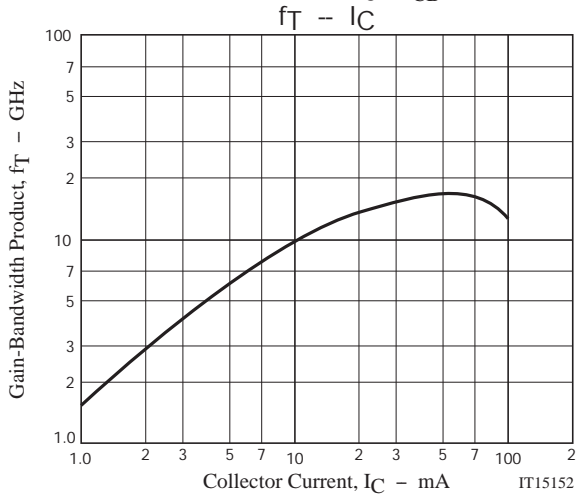
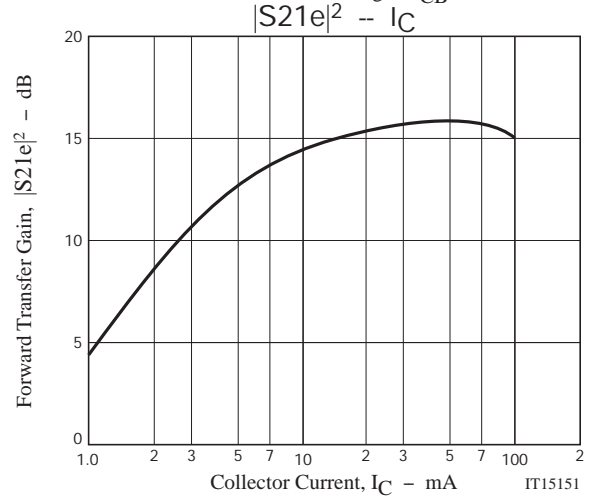
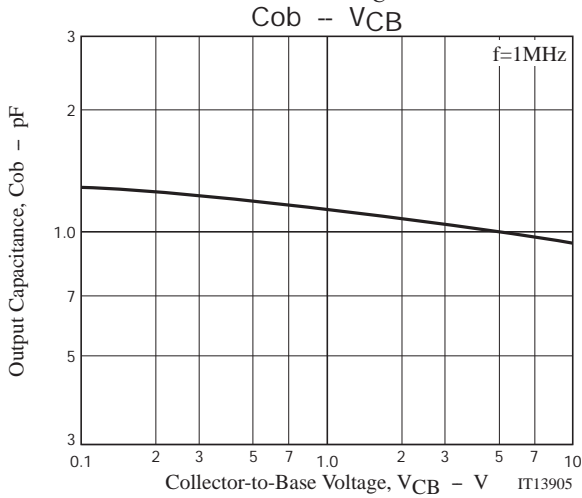
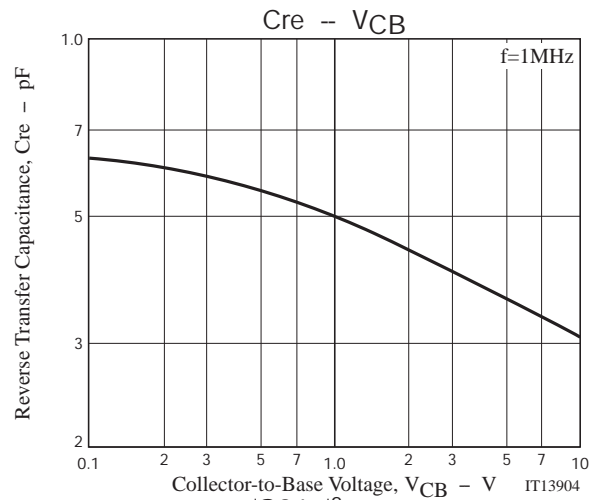
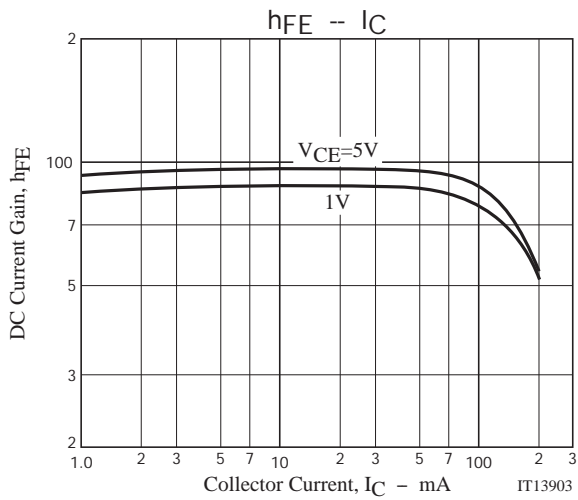
- 1 : Base1
- 2 : Emitter1
- 3 : Collector2
- 4 : Base2
- 5 : Emitter2
- 6 : Collector1

Top view

Electrical Connection



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