



SANYO Semiconductors

## DATA SHEET

# MCH6001 — NPN Epitaxial Planar Silicon Composite Transistor

## High Frequency Low-Noise Amplifier

### Features

- Low-noise use :  $NF=1.2\text{dB}$  typ ( $f=1\text{GHz}$ ).
- High cut-off frequency :  $f_T=16\text{GHz}$  typ ( $V_{CE}=5\text{V}$ ).
- High gain :  $|S_{21e}|^2=16\text{dB}$  typ ( $f=1\text{GHz}$ ).
- 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	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=1\text{V}, I_C=0\text{A}$			1.0	$\mu\text{A}$
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

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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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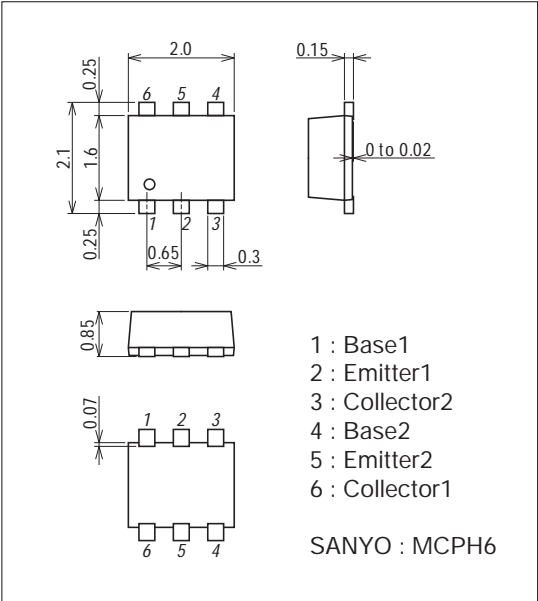
MCH6001

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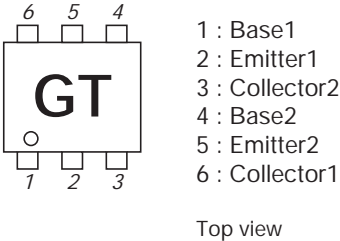
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Forward Transfer Gain	$ S_{21e} ^2$	$V_{CE}=5V, I_C=50mA, f=1GHz$		16		dB
Noise Figure	NF	$V_{CE}=1V, I_C=10mA, f=1GHz$		1.2	1.8	dB

Package Dimensions

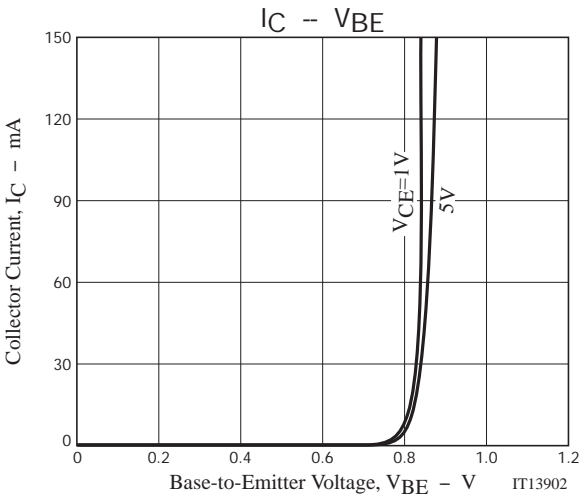
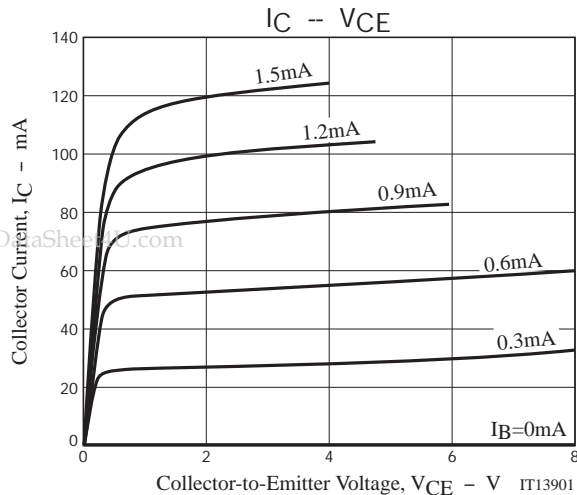
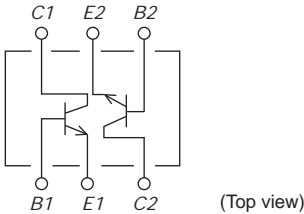
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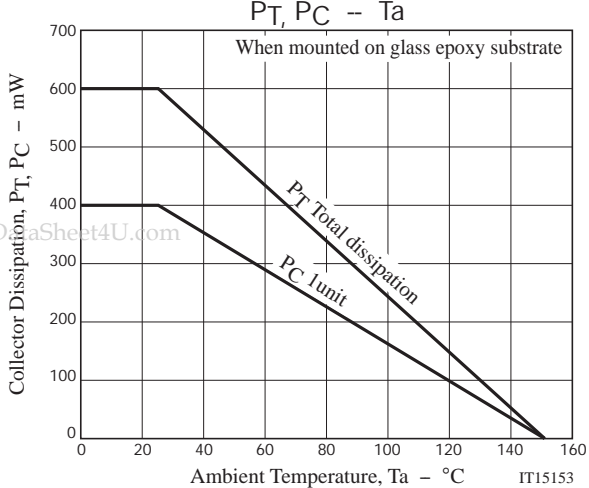
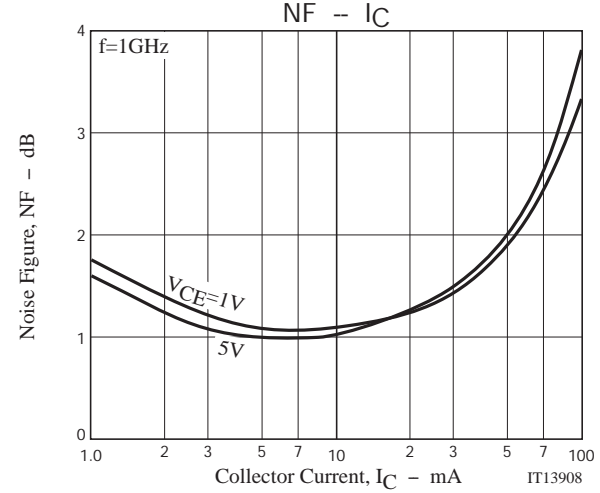
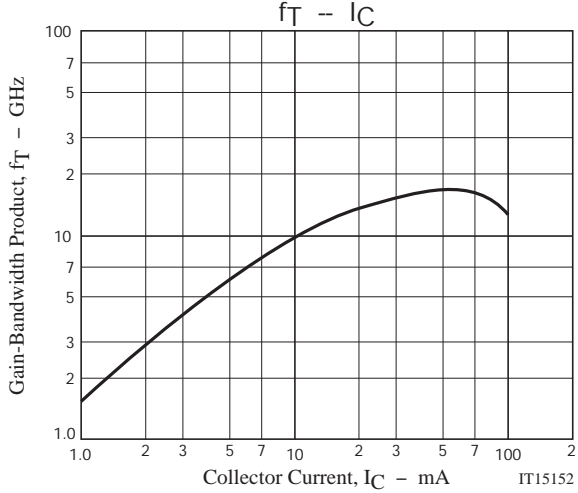
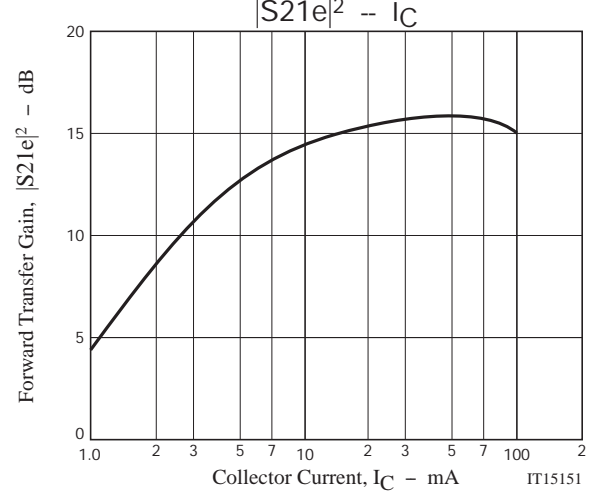
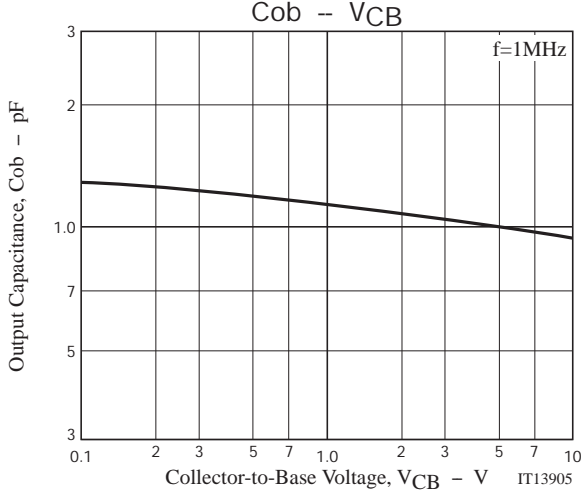
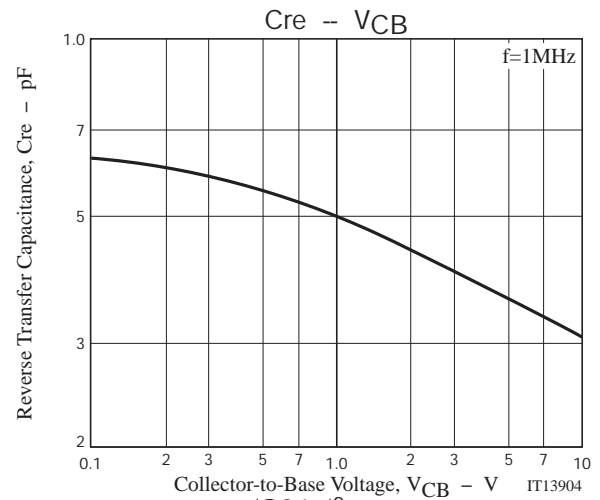
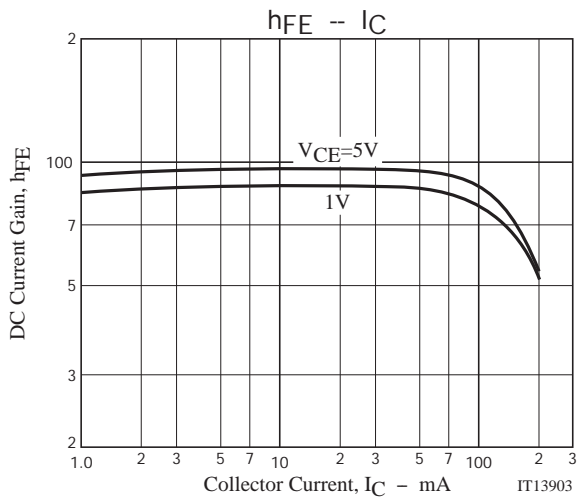


Marking



Electrical Connection





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