

# 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 : fT=16GHz typ (VCE=5V).
- High gain :  $|S21e|^2 = 16dB$  typ (f=1GHz).
- · Composite type with 2 RF transistor MCH4020 in one package facilitating high-density mounting.

### **Specifications**

#### Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CBO</sub>		15	V
Collector-to-Emitter Voltage	VCEO		8	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		2	V
Collector Current	IC		150	mA
Collector Dissipation	PC	When mounted on glass epoxy substrate 1unit	400	mW
Total Dissipation	PT	When mounted on glass epoxy substrate	600	mW
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

#### Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
	Syllibol		min	typ	max	Uniit
Collector Cutoff Current	ICBO	V <sub>CB</sub> =5V, I <sub>E</sub> =0A			1.0	μΑ
Emitter Cutoff Current	IEBO	VEB=1V, IC=0A			1.0	μΑ
DC Current Gain	hFE	V <sub>CE</sub> =5V, I <sub>C</sub> =50mA	60		150	
Gain-Bandwidth Product	fT	V <sub>CE</sub> =5V, I <sub>C</sub> =50mA	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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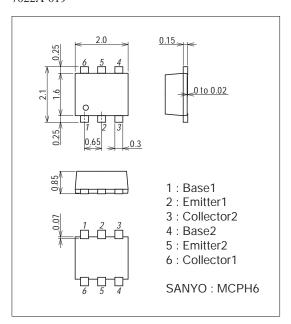
### MCH6001

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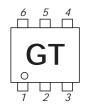
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	l Utilit
Forward Transfer Gain	S21e  <sup>2</sup>	V <sub>CE</sub> =5V, I <sub>C</sub> =50mA, f=1GHz		16		dB
Noise Figure	NF	V <sub>CE</sub> =1V, I <sub>C</sub> =10mA, f=1GHz		1.2	1.8	dB

### **Package Dimensions**

unit : mm (typ) 7022A-019



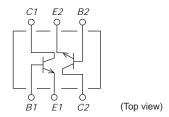
### Marking

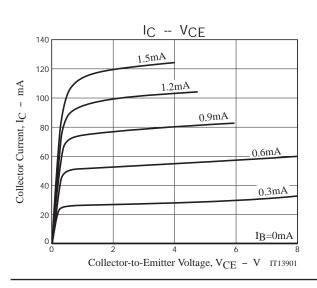


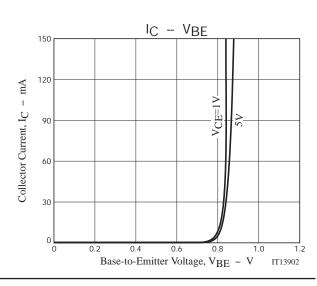
1 : Base1
2 : Emitter1
3 : Collector2
4 : Base2
5 : Emitter2
6 : Collector1

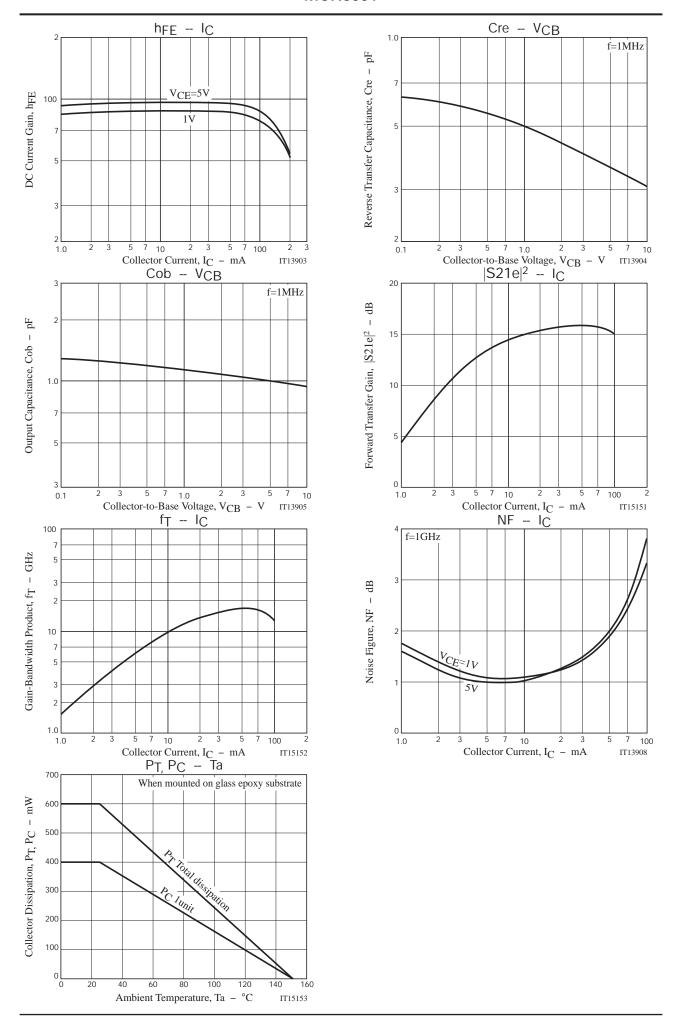
Top view

#### **Electrical Connection**









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