



SANYO Semiconductors

## DATA SHEET

An ON Semiconductor Company

# 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

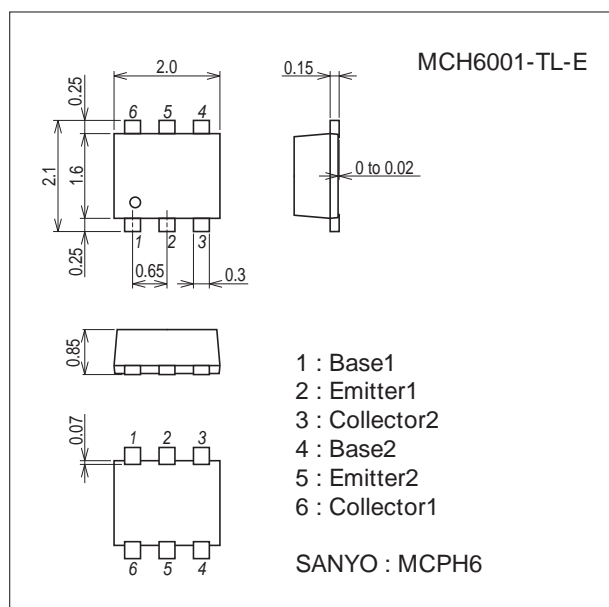
Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$ 

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 1 unit	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	$^\circ\text{C}$

### Package Dimensions

unit : mm (typ)

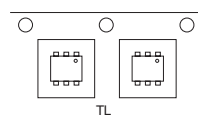
7022A-019



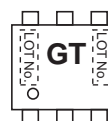
### Product & Package Information

- Package : MCPH6
- JEITA, JEDEC : SC-88, SC-70-6, SOT-363
- Minimum Packing Quantity : 3,000 pcs./reel

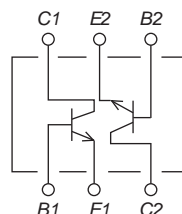
### Packing Type : TL



### Marking



### Electrical Connection



MCH6001

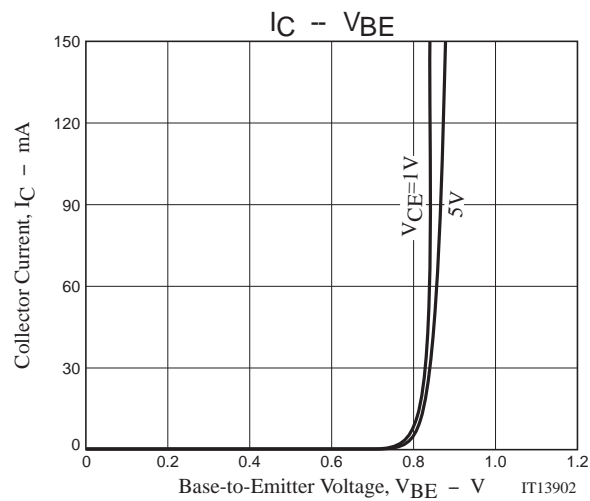
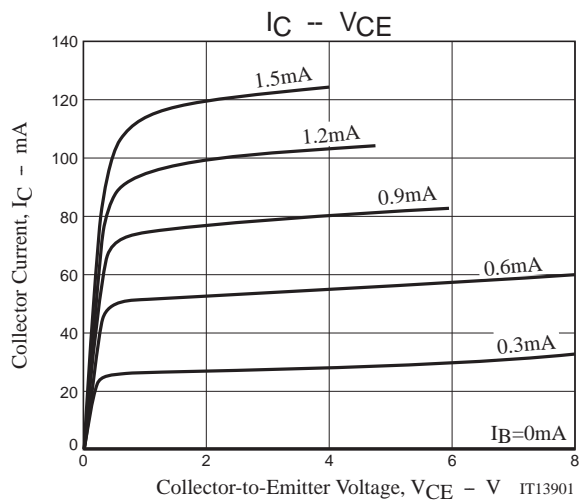
Electrical Characteristics at Ta=25°C

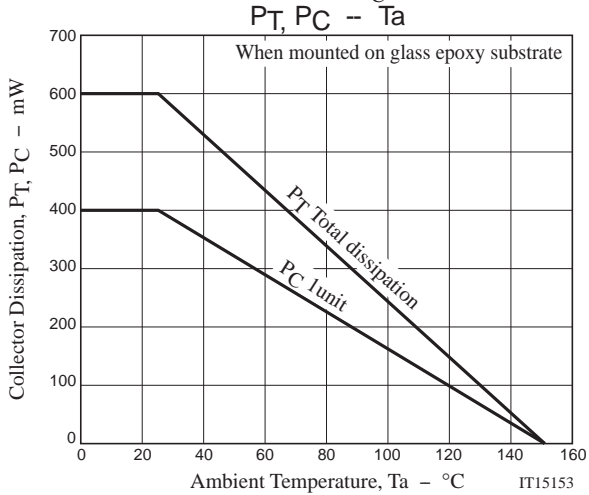
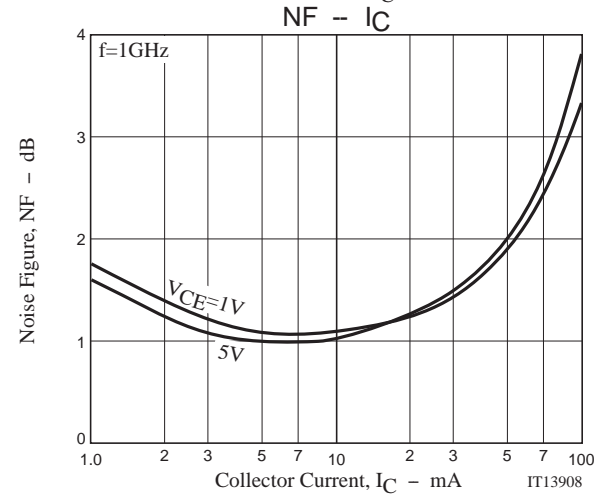
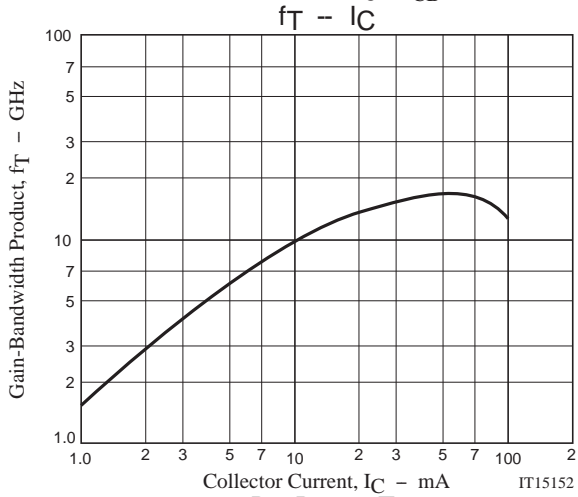
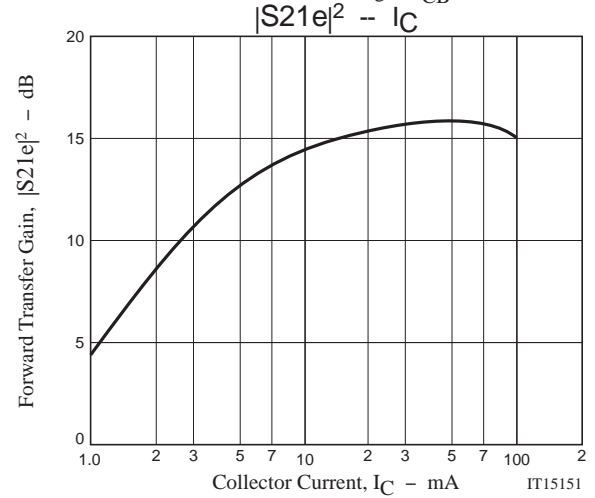
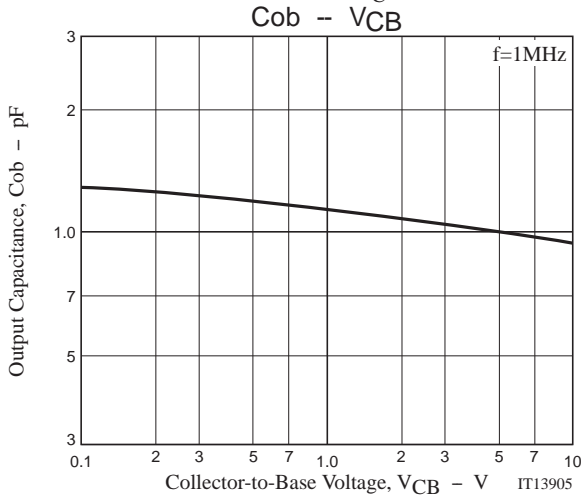
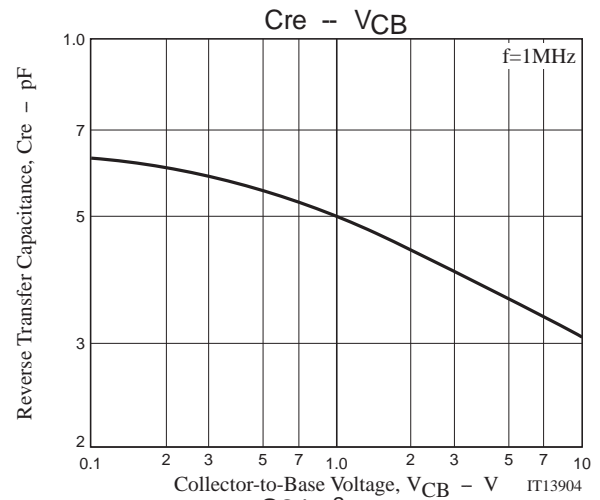
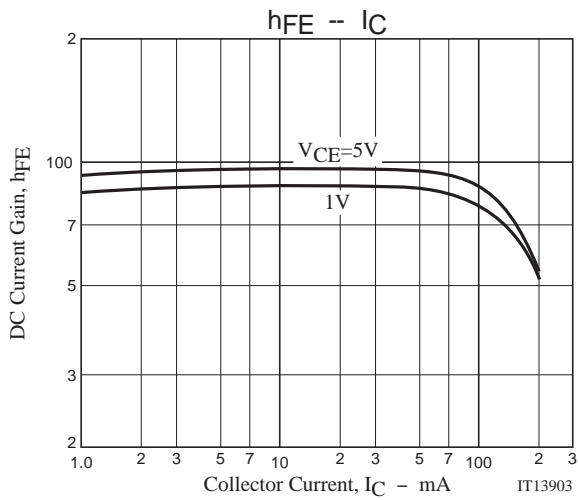
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	V <sub>CB</sub> =5V, I <sub>E</sub> =0A			1.0	μA
Emitter Cutoff Current	IEBO	V <sub>EB</sub> =1V, I <sub>C</sub> =0A			1.0	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =50mA	60		150	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =50mA	13	16		GHz
Forward Transfer Gain	S <sub>21e</sub>   <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

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

Ordering Information

Device	Package	Shipping	memo
MCH6001-TL-E	MCPH6	3,000pcs./reel	Pb Free





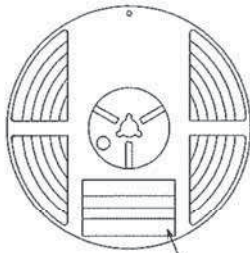
# Embossed Taping Specification

MCH6001-TL-E

## 1. Packing Format

Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
MCPH6	MCP4	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

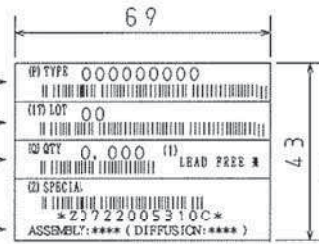
### Packing method



Reel label

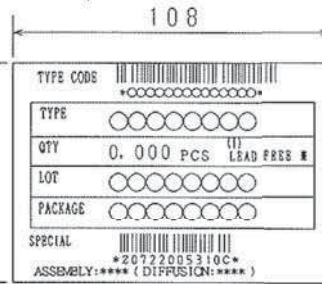
Type No.  
LOT No.  
Quantity  
Origin

Reel label, Inner box label  
(unit:mm)



Outer box label

(It is a label at the time of factory shipments. The form of a label may change in physical distribution process.)



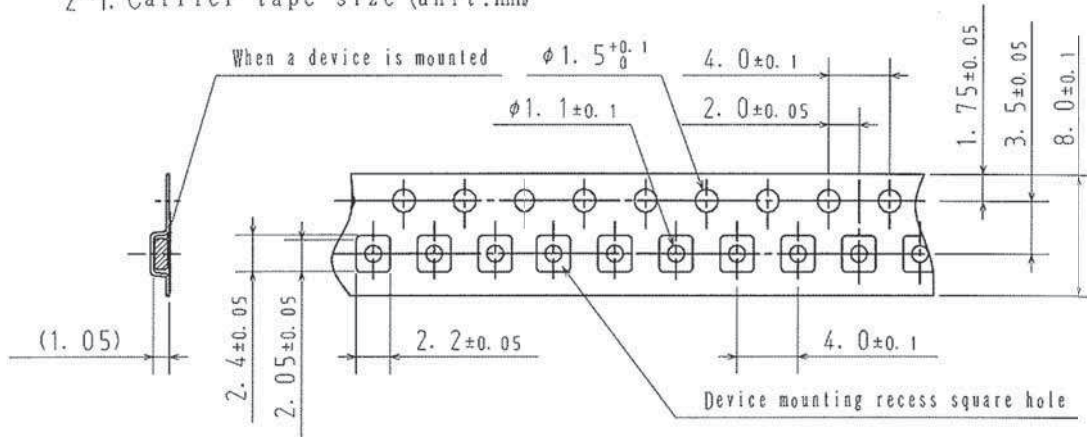
#### NOTE (1)

The LEAD FREE \* description shows that the surface treatment of the terminal is lead free.

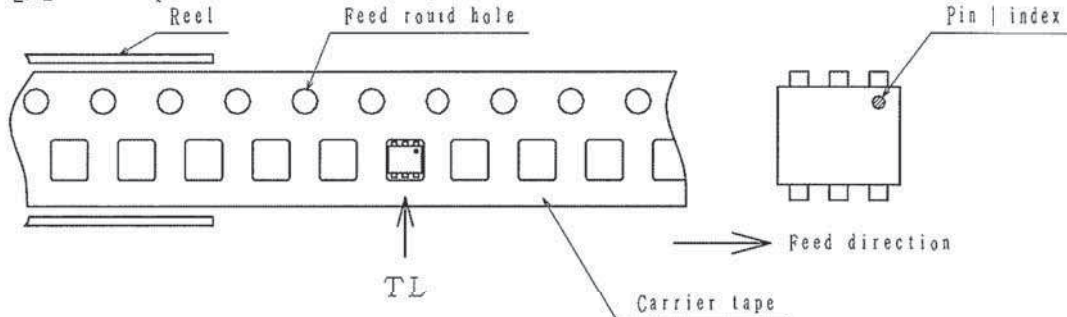
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

## 2. Taping configuration

### 2-1. Carrier tape size (unit:mm)



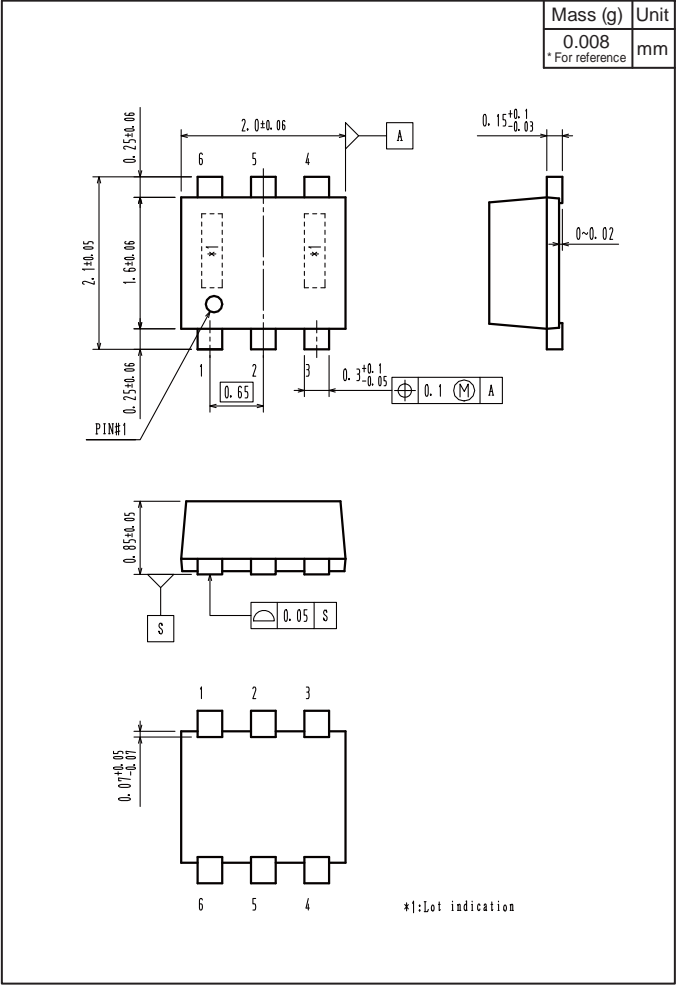
### 2-2. Device placement direction



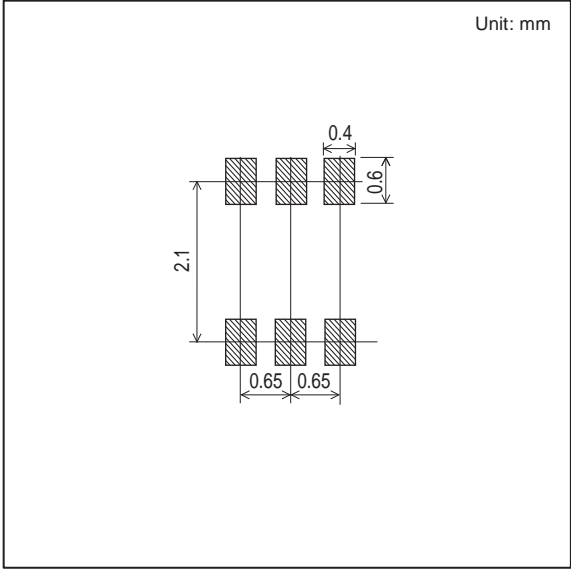
Those with pin 1 index on the feed hole side.....TL

MCH6001

Outline Drawing  
MCH6001-TL-E



Land Pattern Example



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