Ordering number : ENA1601A

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=1.2dB typ (f=1GHz)
- High cut-off frequency : f_T=16GHz typ (V_{CE}=5V)
- High gain : $|S21e|^2$=16dB typ (f=1GHz)
- Composite type with 2 RF transistor MCH4020 in one package facilitating high-density mounting

Specifications

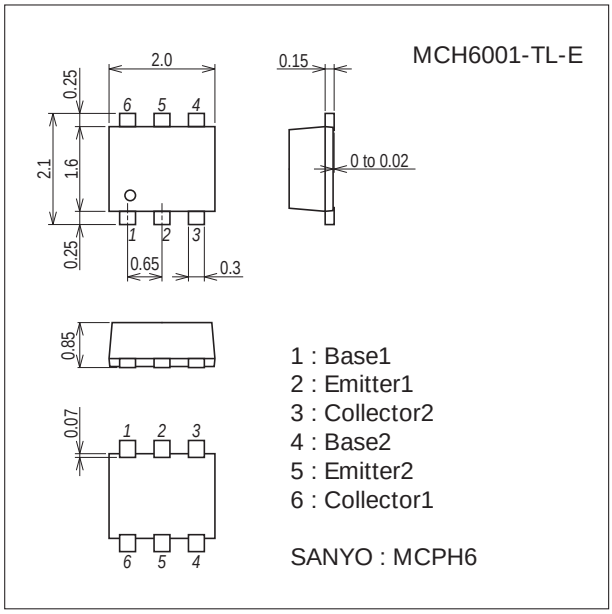
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{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	Tj		150	℃
Storage Temperature	Tstg		−55 to +150	℃

Package Dimensions

unit : mm (typ)

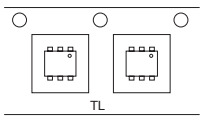
7022A-019



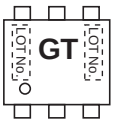
Product & Package Information

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

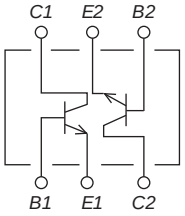
Packing Type : TL



Marking



Electrical Connection



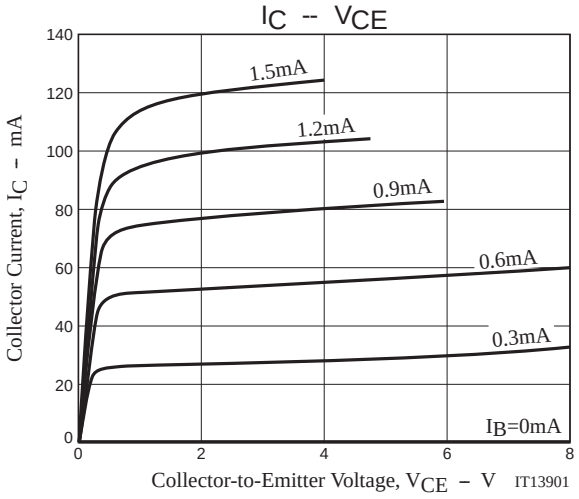
Electrical Characteristics at Ta=25°C

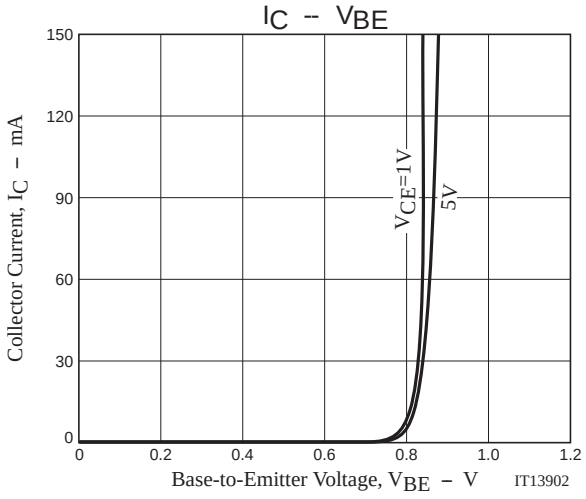
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=5V, I_E=0A			1.0	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=1V, I_C=0A			1.0	μA
DC Current Gain	h_{FE}	V_{CE}=5V, I_C=50mA	60		150	
Gain-Bandwidth Product	f_T	V_{CE}=5V, I_C=50mA	13	16		GHz
Forward Transfer Gain	$\|S21e\|^2$	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

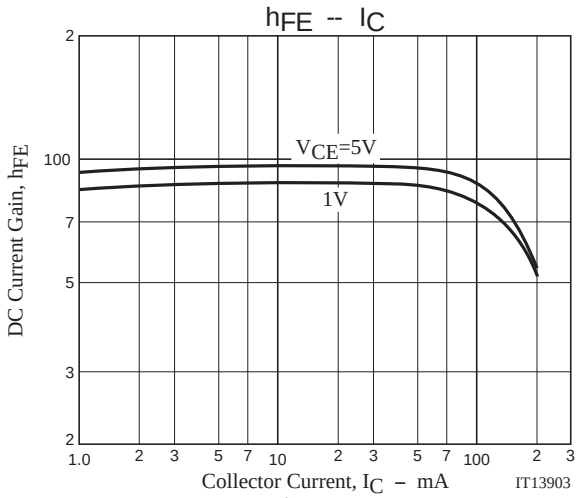
Note) Pay attention to handling since it is liable to be affected by static electricity due to the high-frequency process adopted.

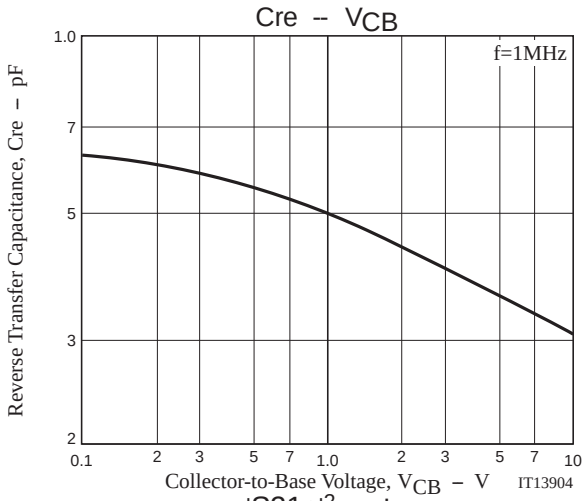
Ordering Information

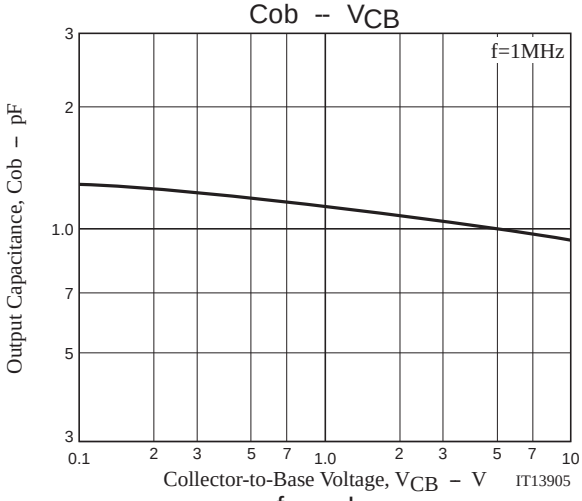
Device	Package	Shipping	memo
MCH6001-TL-E	MCPH6	3,000pcs./reel	Pb Free

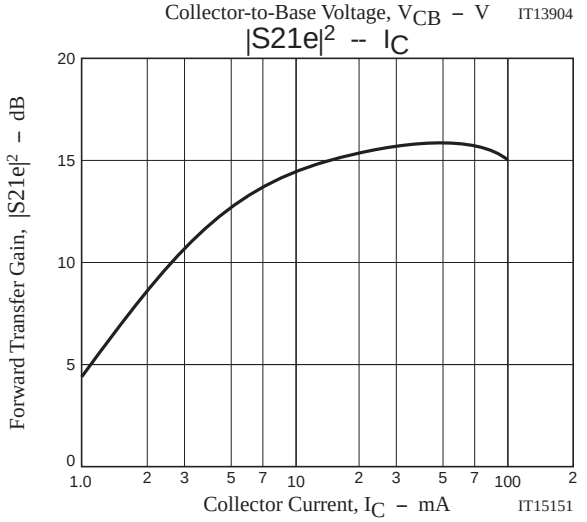


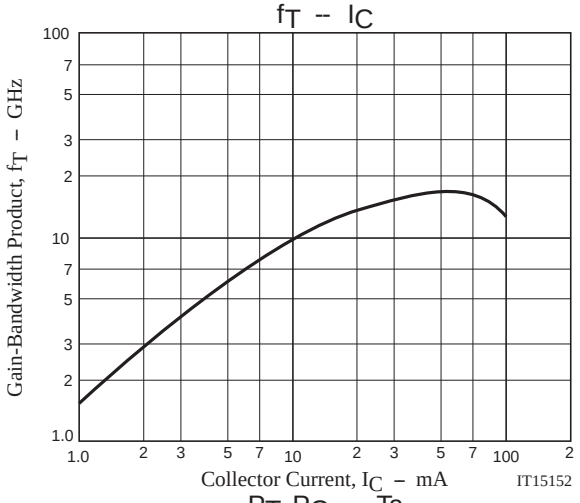


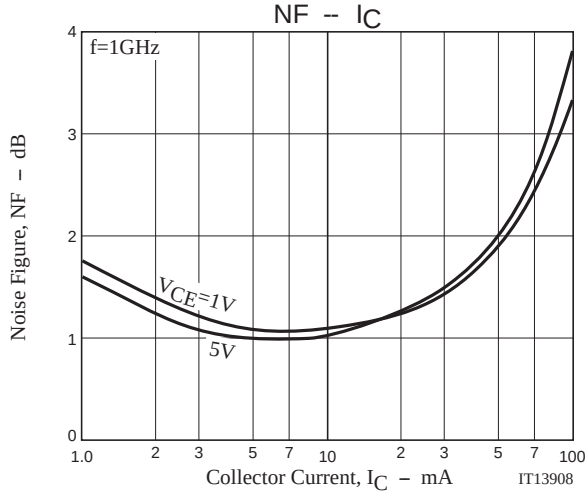

hFE -- IC
DC Current Gain, hFE
VCE=5V
1V
Collector Current, IC – mA
IT13903

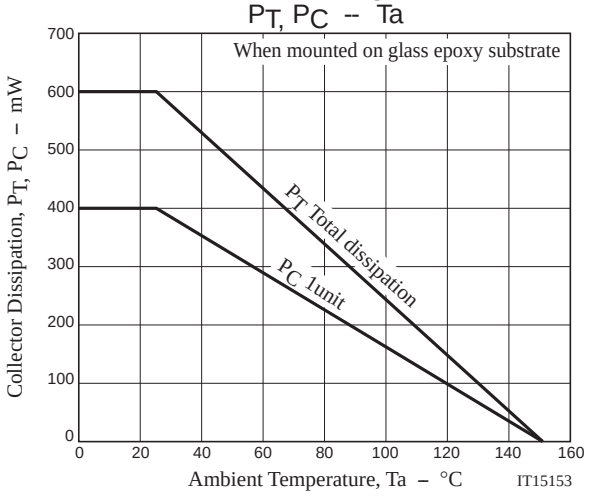

Cre -- VCB
f=1MHz
Reverse Transfer Capacitance, Cre – pF
Collector-to-Base Voltage, VCB – V
IT13904


Cob -- VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT13905


|S21e|2 -- IC
Forward Transfer Gain, |S21e|2 – dB
Collector Current, IC – mA
IT15151


fT -- IC
Gain-Bandwidth Product, fT – GHz
Collector Current, IC – mA
IT15152


NF -- IC
f=1GHz
VCE=1V
5V
Noise Figure, NF – dB
Collector Current, IC – mA
IT13908


PT, PC -- Ta
When mounted on glass epoxy substrate
PT Total dissipation
PC 1unit
Collector Dissipation, PT, PC – mW
Ambient Temperature, Ta – °C
IT15153

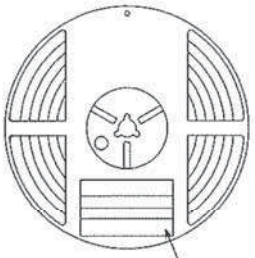
Embossed Taping Specification

MCH6001-TL-E

1. Packing Format

Package Name	Carrier Tape Type	Maximun 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

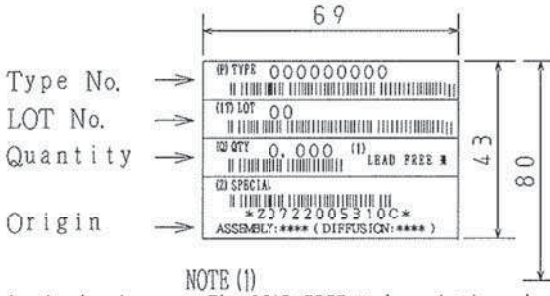
Packing method



Reel label

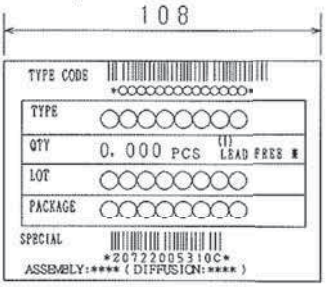
Reel label, Inner box label

(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.

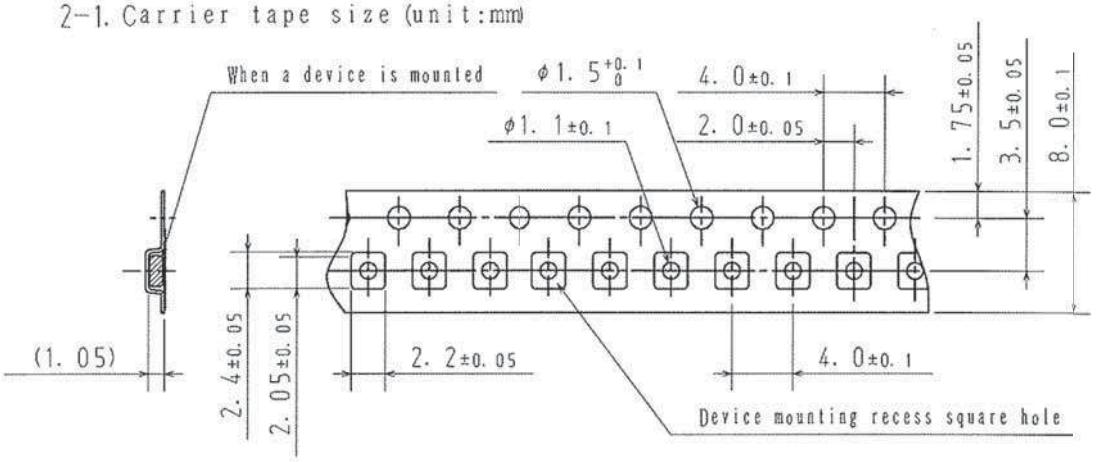


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

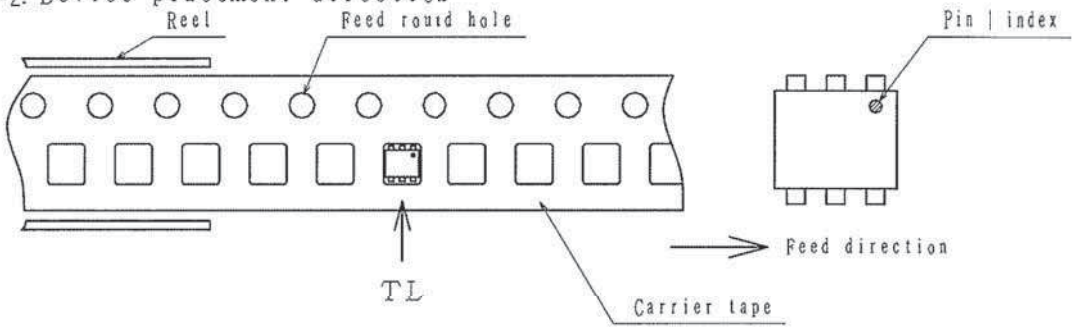
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



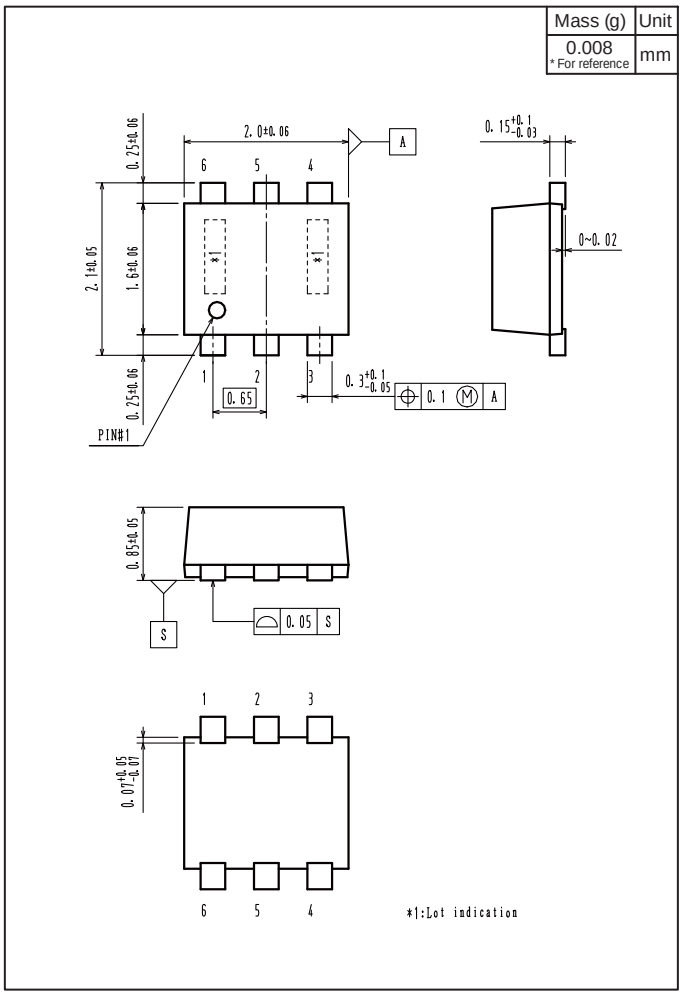
2-2. Device placement direction



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

Outline Drawing

MCH6001-TL-E



Land Pattern Example