



# CPH6020

## RF Transistor

8V, 150mA,  $f_T=16\text{GHz}$ , NPN Single CPH6

ON Semiconductor®

<http://onsemi.com>

### 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 :  $|S_{21e}|^2=13.5\text{dB typ (}f=1\text{GHz)}$

### Specifications

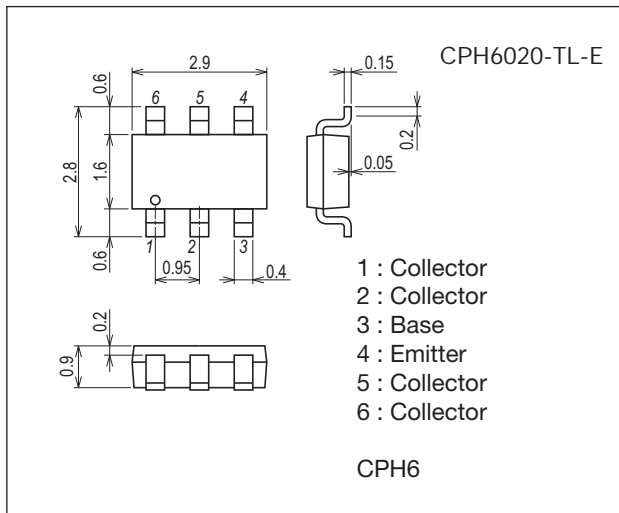
Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$

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 ceramic substrate (250mm <sup>2</sup> ×0.8mm)	700	mW
Junction Temperature	$T_j$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

### Package Dimensions

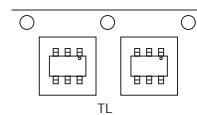
unit : mm (typ)  
7018A-002



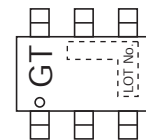
### Product & Package Information

- Package : CPH6
- JEITA, JEDEC : SC-74, SOT-26, SOT-457
- Minimum Packing Quantity : 3,000 pcs./reel

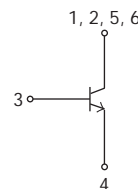
### Packing Type: TL



### Marking



### Electrical Connection



# CPH6020

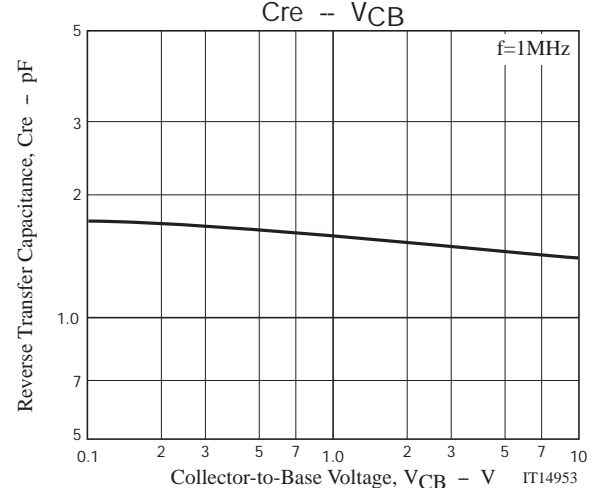
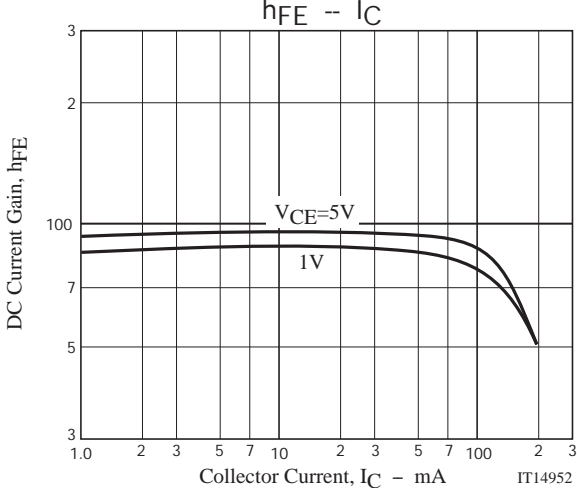
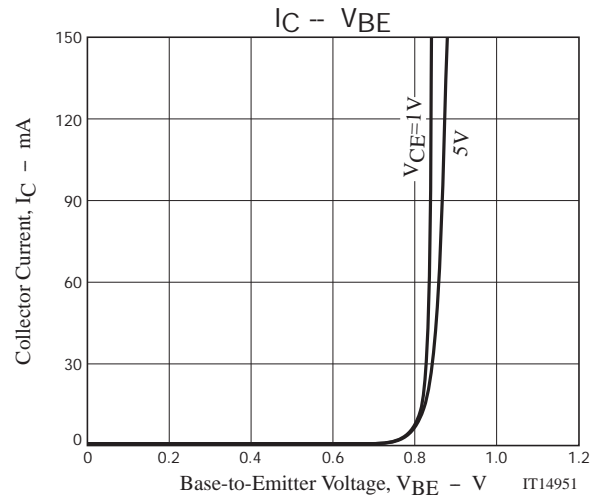
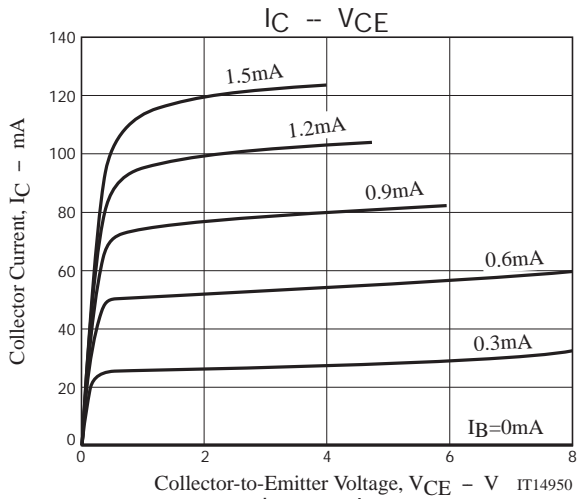
## Electrical Characteristics at Ta=25°C

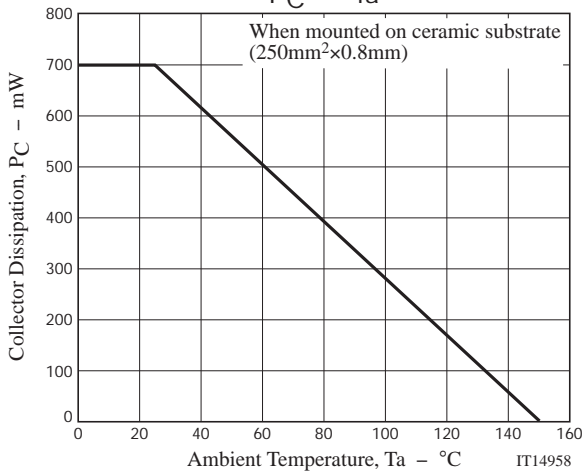
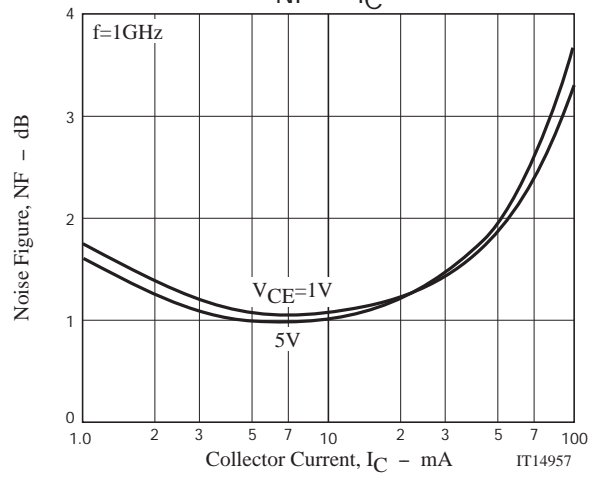
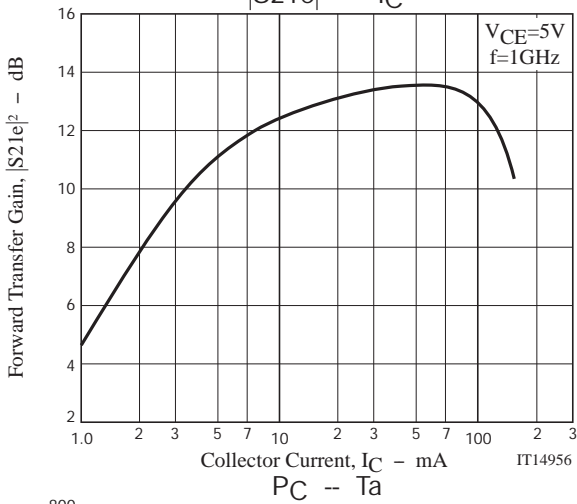
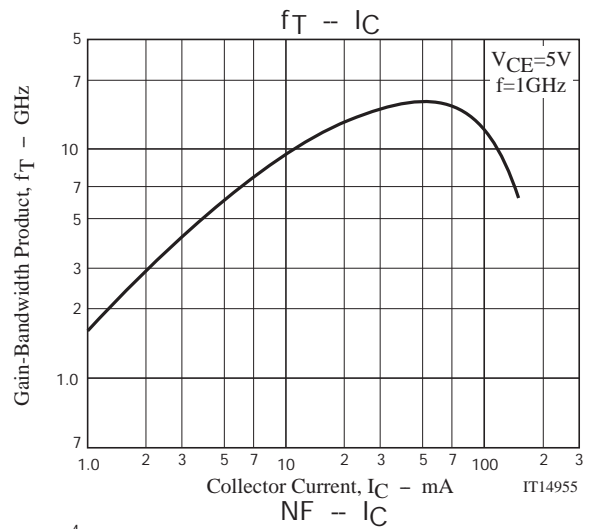
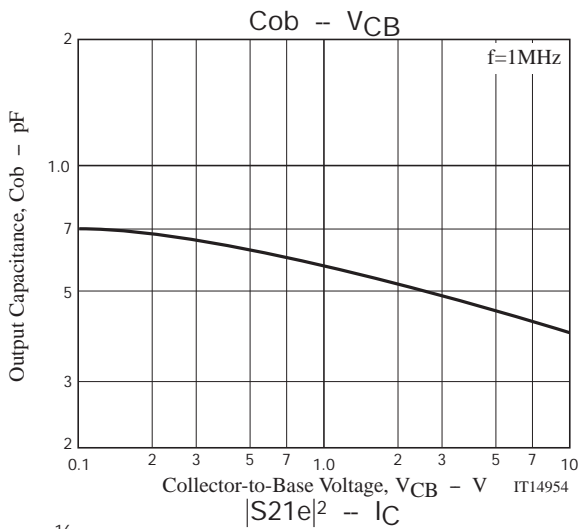
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	V <sub>CB</sub> =5V, I <sub>E</sub> =0A			1.0	μA
Emitter Cutoff Current	IEBO	V <sub>EB</sub> =1V, I <sub>C</sub> =0A			1.0	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =50mA	60		150	
Gain-Bandwidth 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	10	13.5		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
CPH6020-TL-E	CPH6	3,000pcs./reel	Pb Free





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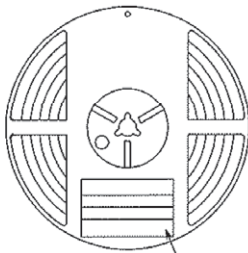
## Embossed Taping Specification

CPH6020-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)
CPH6	CPH6	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.

Reel label dimensions: 69mm width, 43mm height, 80mm total height.

Inner box label dimensions: 69mm width, 43mm height, 80mm total height.

Outer box label dimensions: 108mm width, 80mm height.

Reel label content: Type No., LOT No., Quantity, Origin.

Inner box label content: TYPE CODE, TYPE, QTY, LOT, PACKAGE, SPECIAL.

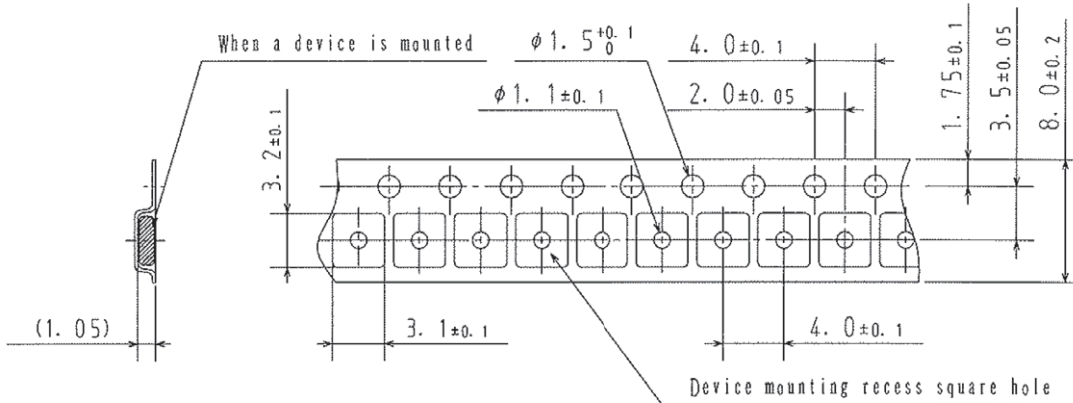
Outer box label content: TYPE CODE, TYPE, QTY, LOT, PACKAGE, SPECIAL.

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

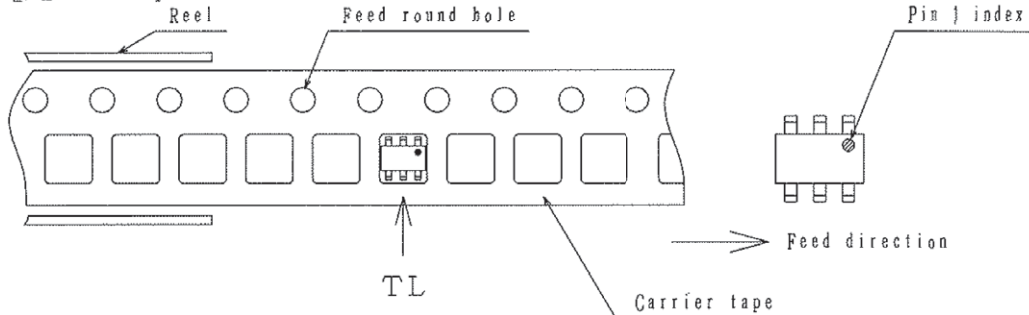
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

### 2. Taping configuration

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



#### 2-2. Device placement direction

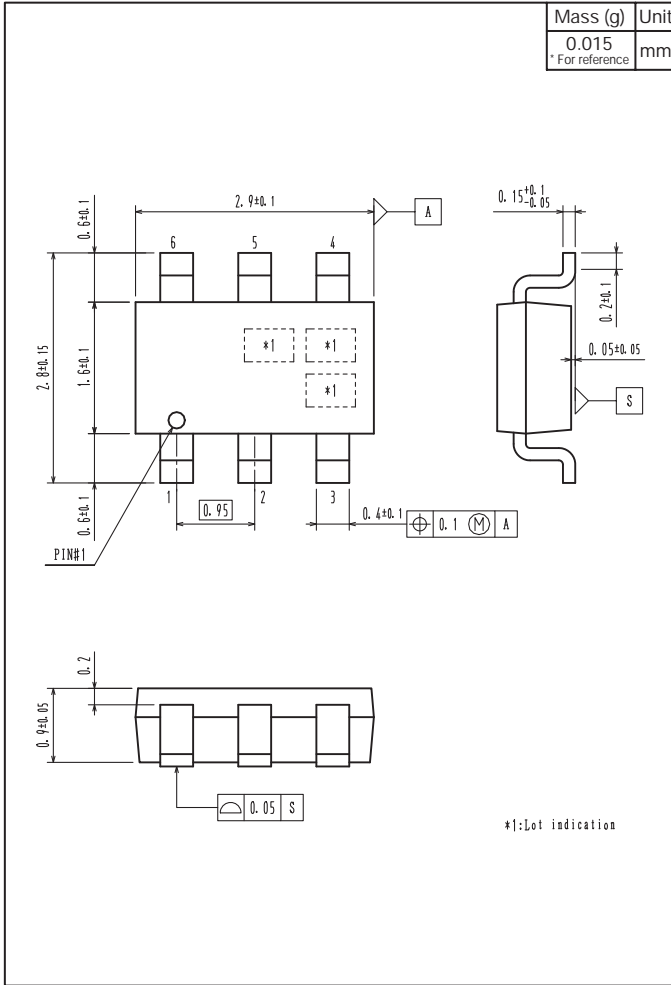


Those with pin 1 index on the feed hole side.....TL

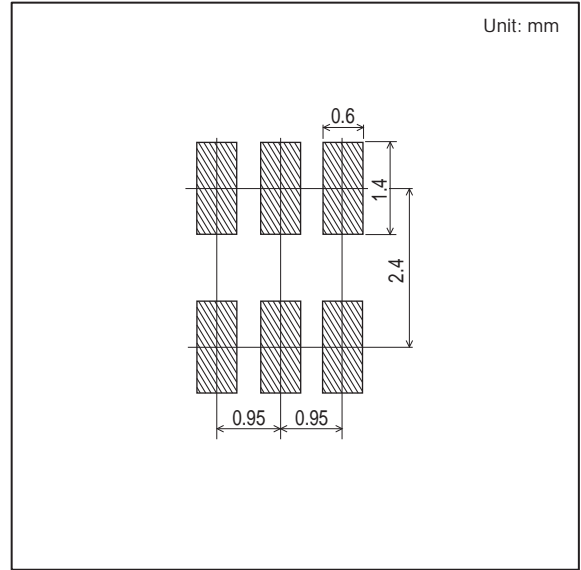
# CPH6020

## Outline Drawing

CPH6020-TL-E



## Land Pattern Example



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