Ordering number : ENA1548A

CPH6020

RF Transistor
8V, 150mA, fT=16GHz, NPN Single CPH6

ON Semiconductor®
http://onsemi.com

Features

- Low-noise use : NF=1.2dB typ (f=1GHz)
- High cut-off frequency : f_T=16GHz typ (V_{CE}=5V)
- High gain : $|S21e|^2$=13.5dB typ (f=1GHz)

Specifications

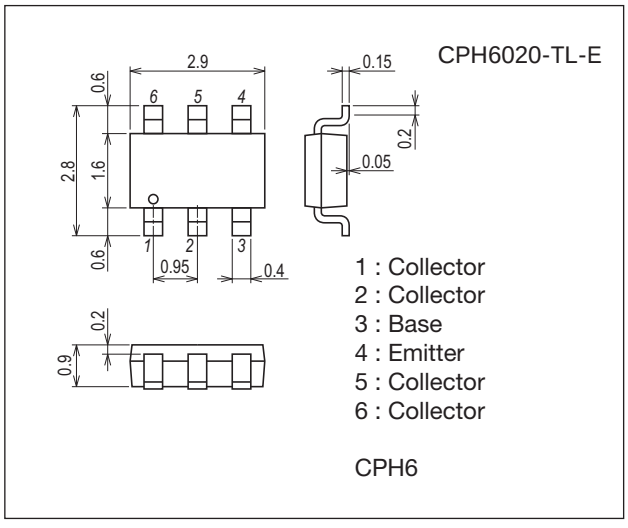
Absolute Maximum Ratings at Ta=25°C

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 ceramic substrate (250mm²×0.8mm)	700	mW
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−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

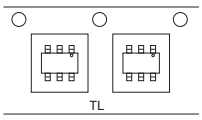
unit : mm (typ)
7018A-002



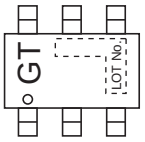
Product & Package Information

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

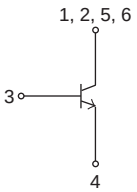
Packing Type: TL



Marking



Electrical Connection



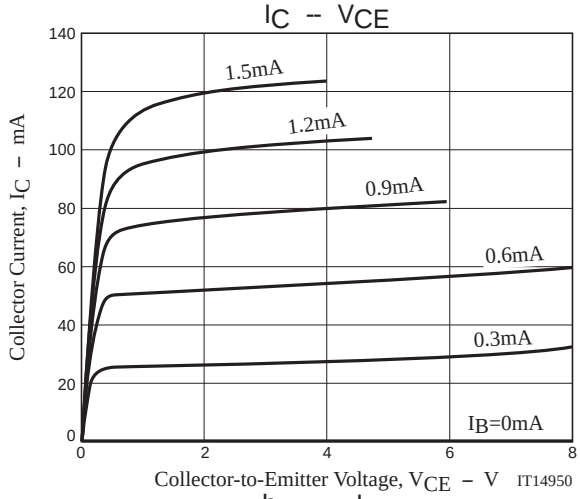
Electrical Characteristics at Ta=25°C

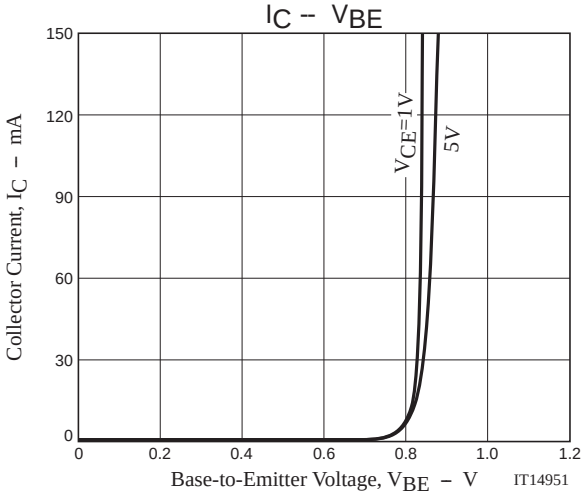
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=5V, I_E=0A			1.0	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=1V, I_C=0A			1.0	μA
DC Current Gain	h_{FE}	V_{CE}=5V, I_C=50mA	60		150	
Gain-Bandwidth Product	f_T	V_{CE}=5V, I_C=50mA	13	16		GHz
Forward Transfer Gain	$\|S21e\|^2$	V_{CE}=5V, I_C=50mA, f=1GHz	10	13.5		dB
Noise Figure	NF	V_{CE}=1V, I_C=10mA, f=1GHz		1.2	1.8	dB

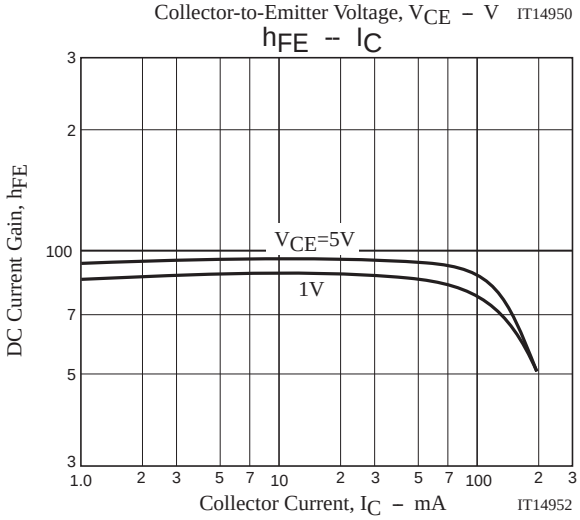
Notre) Pay attention to handling since it is liable to be affected by static electricity due to the high-frequency process adopted.

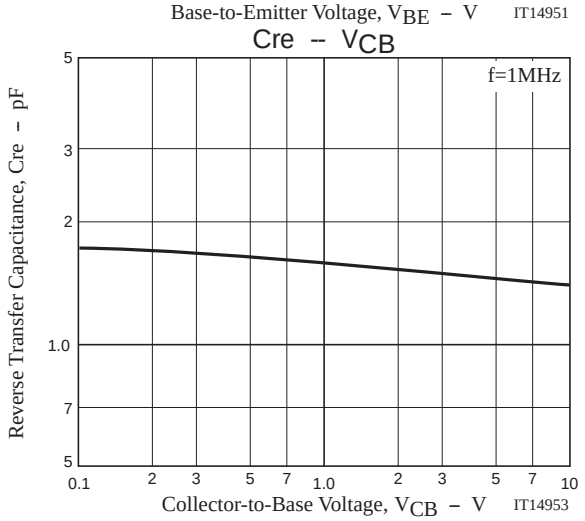
Ordering Information

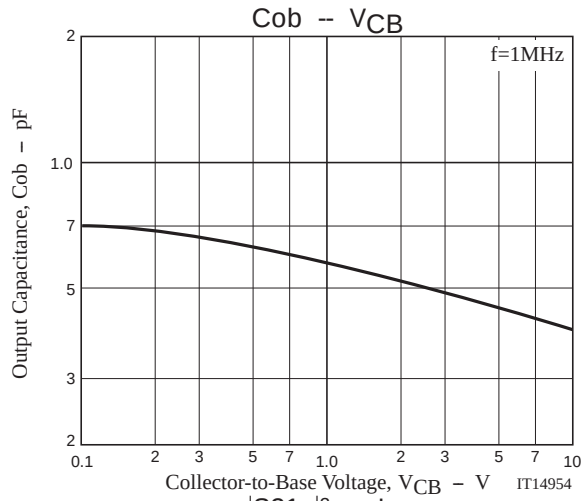
Device	Package	Shipping	memo
CPH6020-TL-E	CPH6	3,000pcs./reel	Pb Free

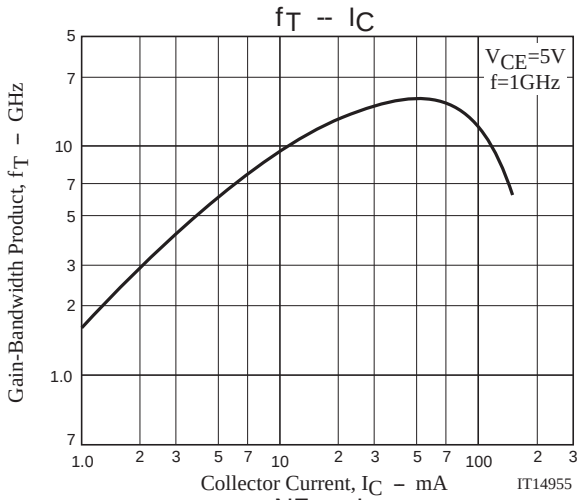


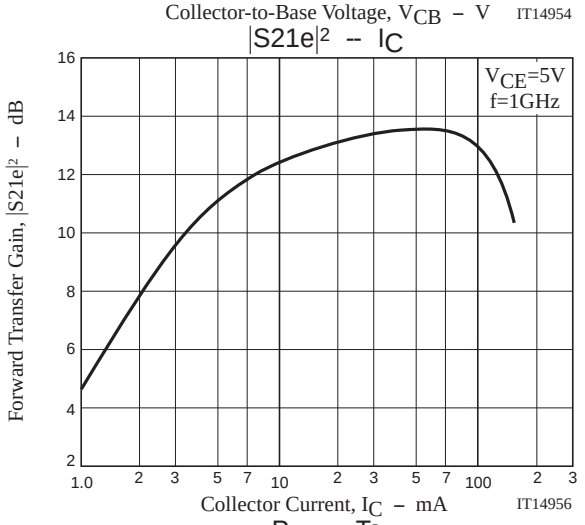


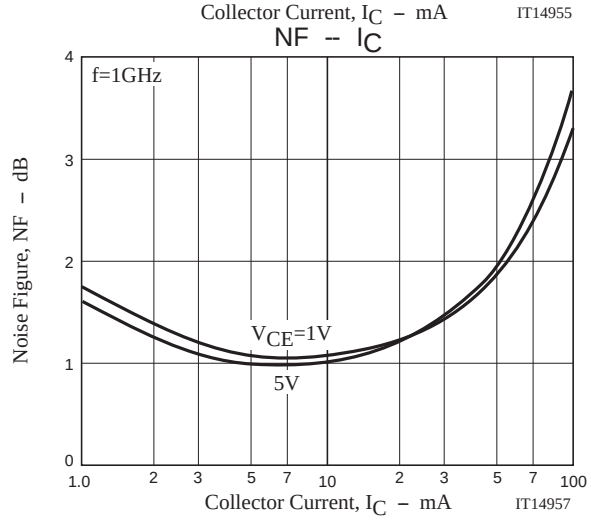


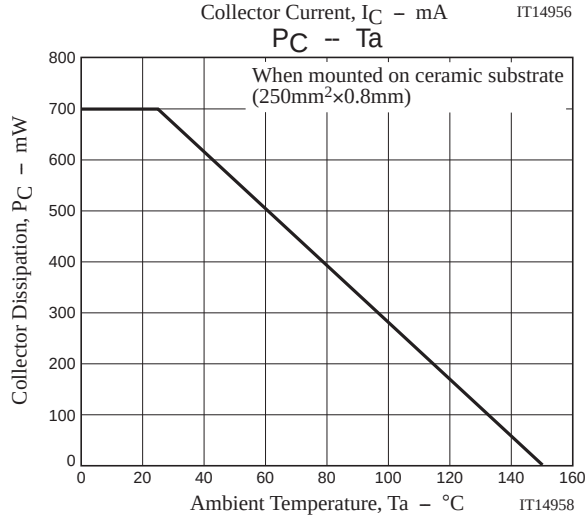



Cob -- VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT14954


fT -- IC
VCE=5V
f=1GHz
Gain-Bandwidth Product, fT – GHz
Collector Current, IC – mA
IT14955


|S21e|2 -- IC
VCE=5V
f=1GHz
Forward Transfer Gain, |S21e|2 – dB
Collector Current, IC – mA
IT14956


NF -- IC
f=1GHz
VCE=1V
5V
Noise Figure, NF – dB
Collector Current, IC – mA
IT14957


PC -- Ta
When mounted on ceramic substrate
(250mm2×0.8mm)
Collector Dissipation, PC – mW
Ambient Temperature, Ta – °C
IT14958

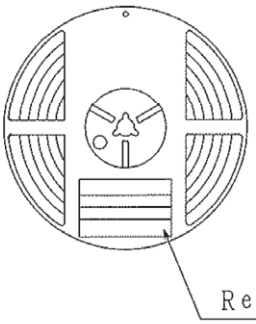
Embossed Taping Specification

CPH6020-TL-E

1. Packing Format

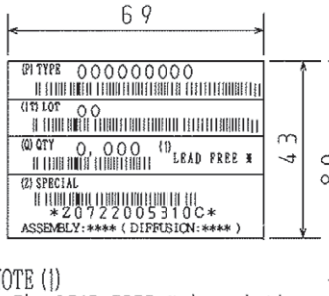
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
CPH6	CPH6	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Packing method



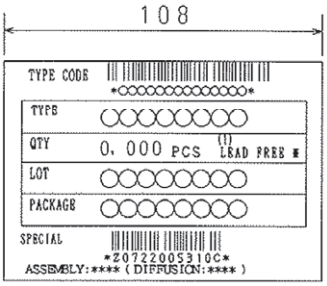
Reel label

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.

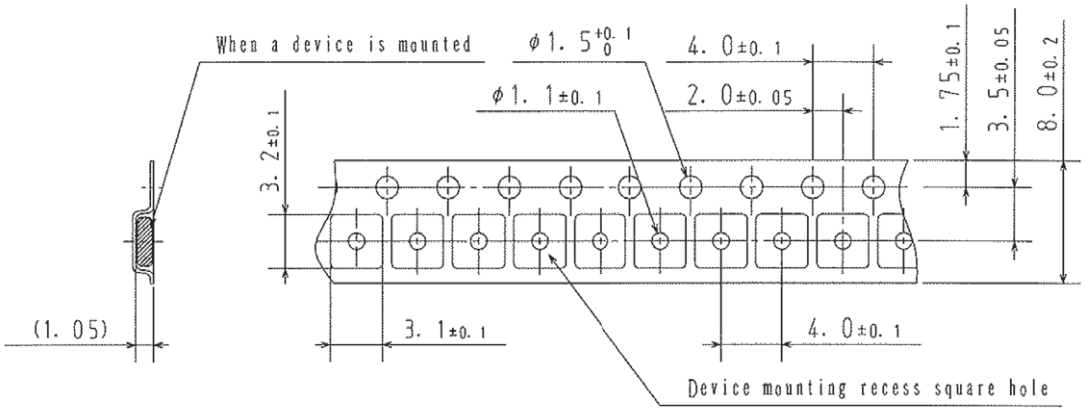


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

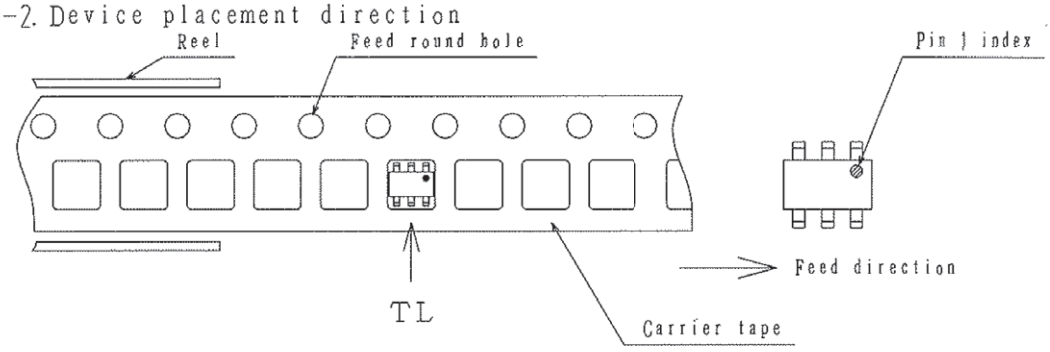
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



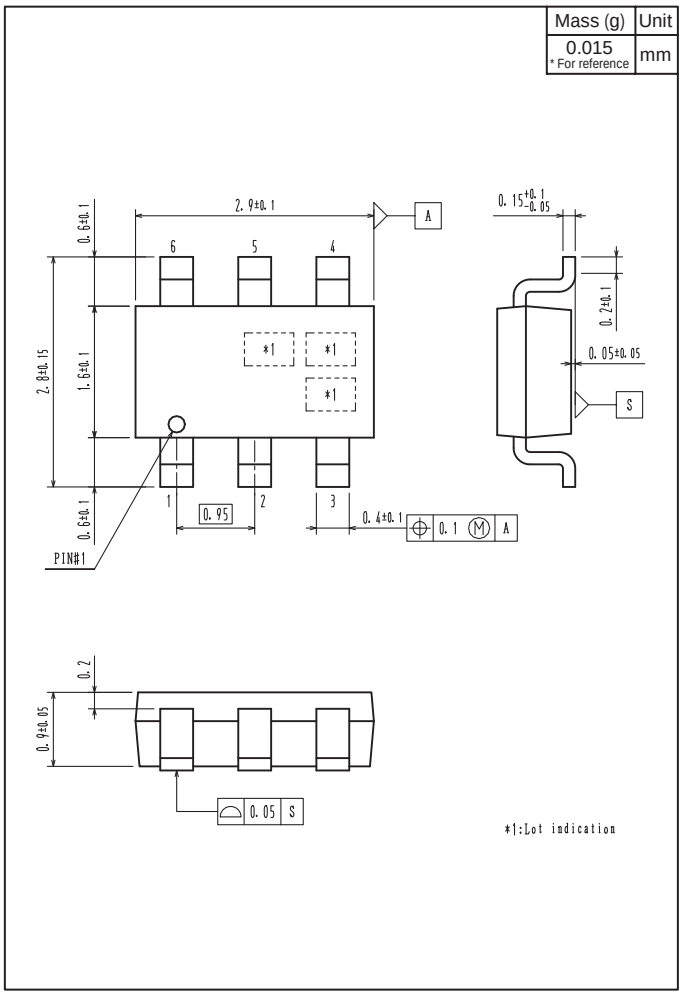
2-2. Device placement direction



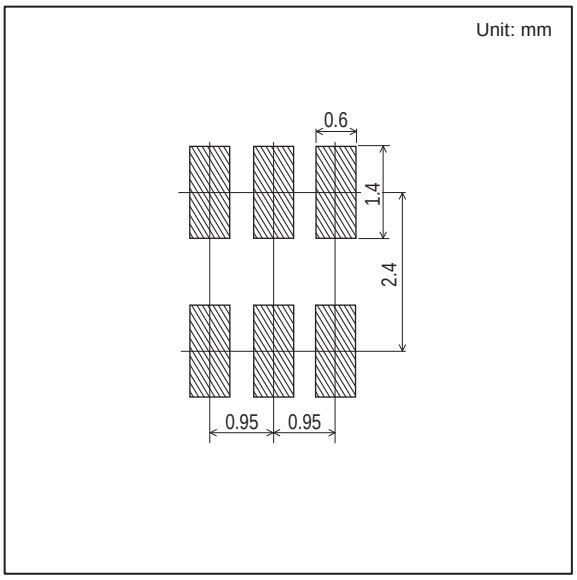
Those with pin 1 index on the feed hole side·····TL

Outline Drawing

CPH6020-TL-E



Land Pattern Example



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