Ordering number : EN6077C

CPH3107

Bipolar Transistor
−15V, −6A, Low V_{CE}(sat), PNP Single CPH3

ON Semiconductor®
http://onsemi.com

Applications

- Relay drivers, lamp drivers, motor drivers, flash

Features

- Adoption of MBIT processes
- Large current capacity
- Low collector-to-emitter saturation voltage
- High-speed switching
- Ultrasmall package facilitates miniaturization in end products (mounting height : 0.9mm)
- High allowable power dissipation

Specifications

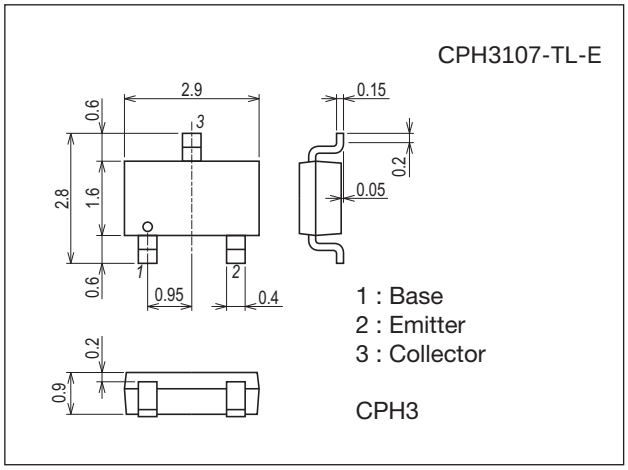
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		−15	V
Collector-to-Emitter Voltage	V_{CEO}		−15	V
Emitter-to-Base Voltage	V_{EBO}		−5	V
Collector Current	I_C		−6	A
Collector Current (Pulse)	I_{CP}		−9	A
Base Current	I_B		−1.2	A
Collector Dissipation	P_C	When mounted on ceramic substrate (600mm^2×0.8mm)	0.9	W
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

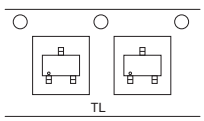
unit : mm (typ)
7015A-003



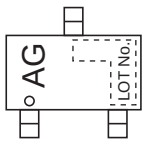
Product & Package Information

- Package : CPH3
- JEITA, JEDEC : SC-59, TO-236, SOT-23
- Minimum Packing Quantity : 3,000 pcs./reel

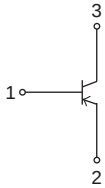
Packing Type: TL



Marking



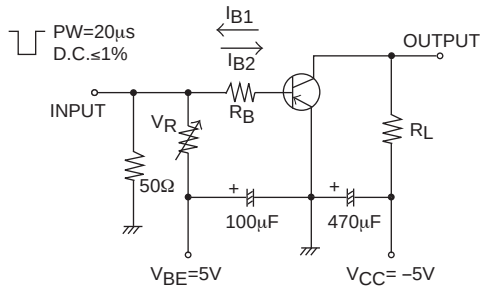
Electrical Connection



Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}= −12V, I_E=0A			−0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}= −4V, I_C=0A			−0.1	μA
DC Current Gain	h_{FE}	V_{CE}= −2V, I_C= −500mA	200		560	
Gain-Bandwidth Product	f_T	V_{CE}= −2V, I_C= −500mA		140		MHz
Output Capacitance	Cob	V_{CB}= −10V, f=1MHz		82		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C= −3A, I_B= −60mA		−100	−150	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C= −3A, I_B= −60mA		−0.85	−1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C= −10μA, I_E=0A	−15			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C= −1mA, R_{BE}=∞	−15			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E= −10μA, I_C=0A	−5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		30		ns
Storage Time	t_{stg}			120		ns
Fall Time	t_f			14		ns

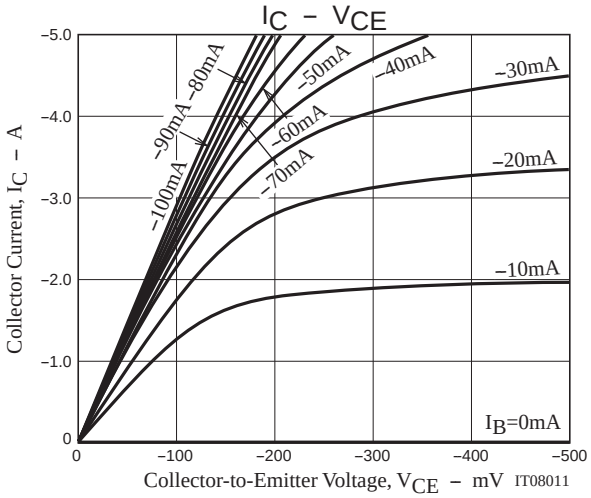
Switching Time Test Circuit

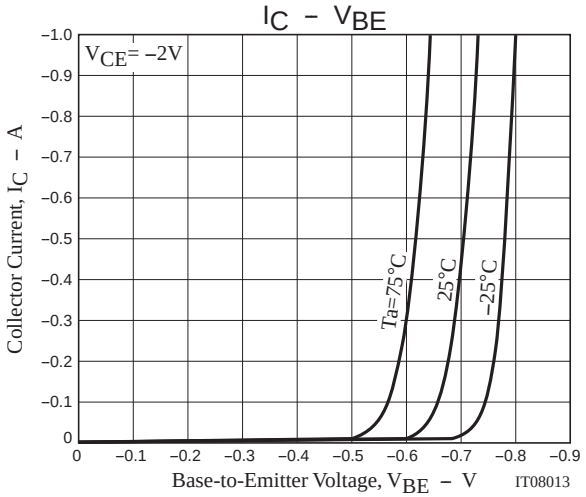


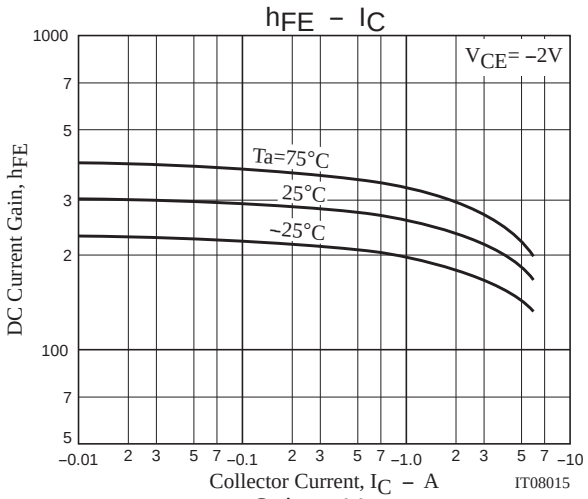
I_C=20I_{B1}= −20I_{B2}= −3A

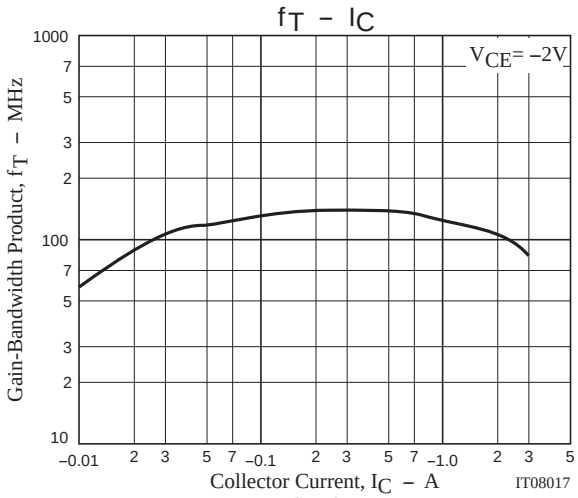
Ordering Information

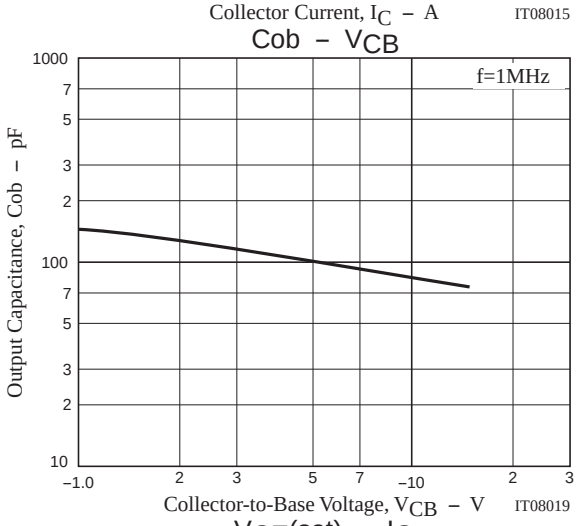
Device	Package	Shipping	memo
CPH3107-TL-E	CPH3	3,000pcs./reel	Pb Free

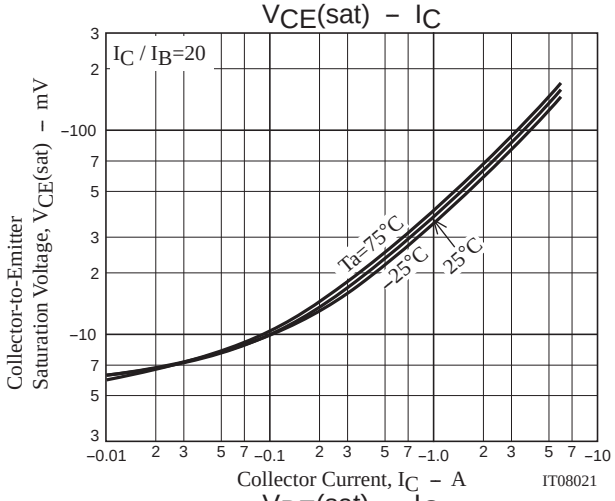


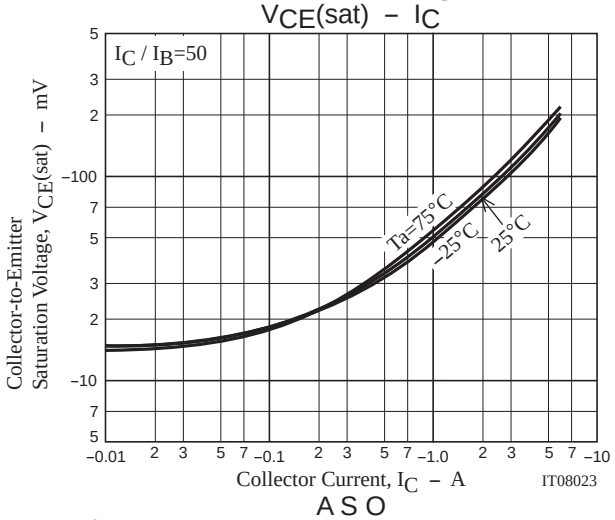


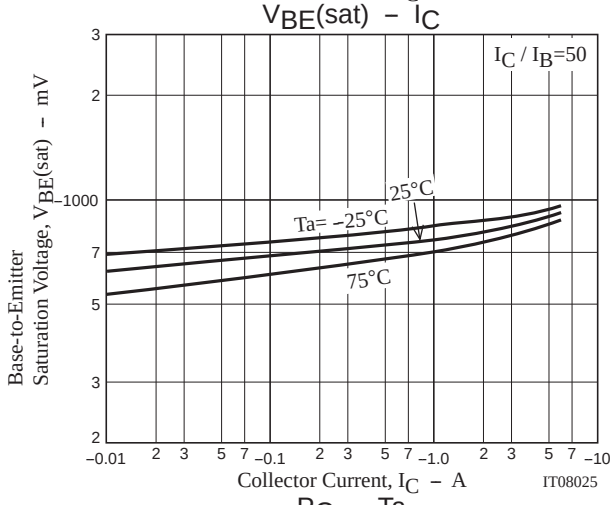

hFE – IC
VCE= –2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
IT08015

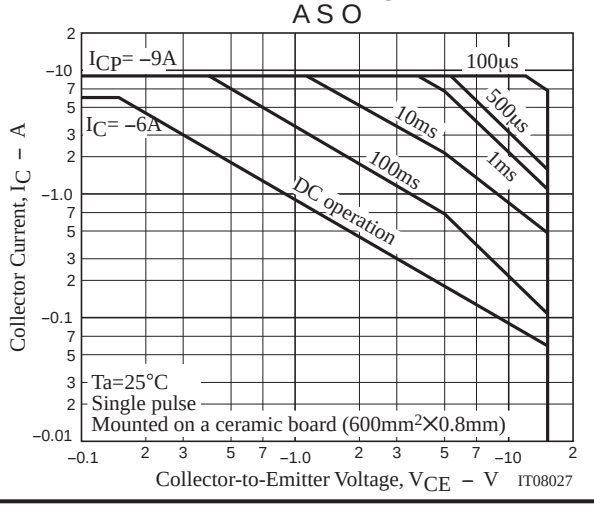

fT – IC
VCE= –2V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT08017

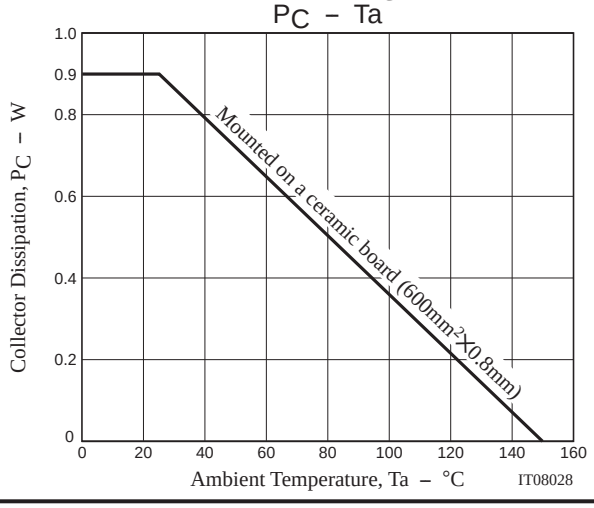

Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT08019


VCE(sat) – IC
IC / IB=20
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT08021


VCE(sat) – IC
IC / IB=50
Ta=75°C
–25°C
25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
IT08023


VBE(sat) – IC
IC / IB=50
25°C
Ta= –25°C
75°C
Base-to-Emitter Saturation Voltage, VBE(sat) – mV
Collector Current, IC – A
IT08025


A S O
ICP= –9A
IC= –6A
100µs
500µs
10ms
1ms
100ms
DC operation
Ta=25°C
Single pulse
Mounted on a ceramic board (600mm²×0.8mm)
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT08027


PC – Ta
Mounted on a ceramic board (600mm²×0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT08028

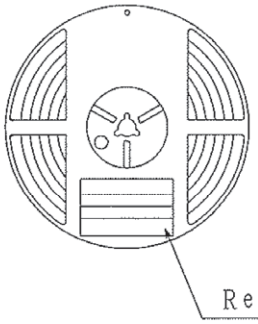
Embossed Taping Specification

CPH3107-TL-E

1. Packing Format

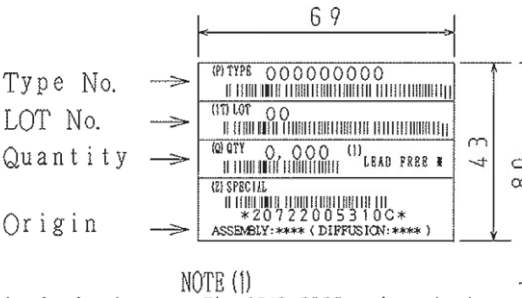
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
CPH3	CPH3	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Packing method



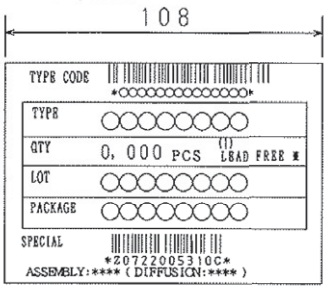
Reel label

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.

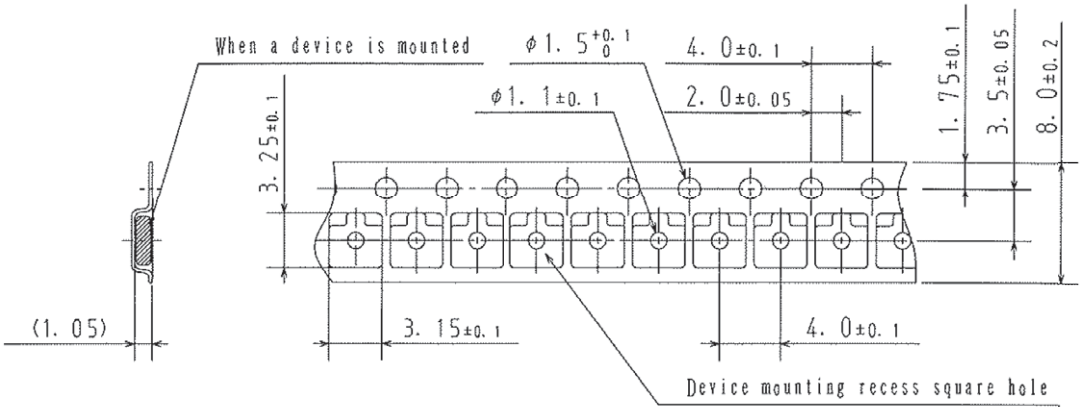


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

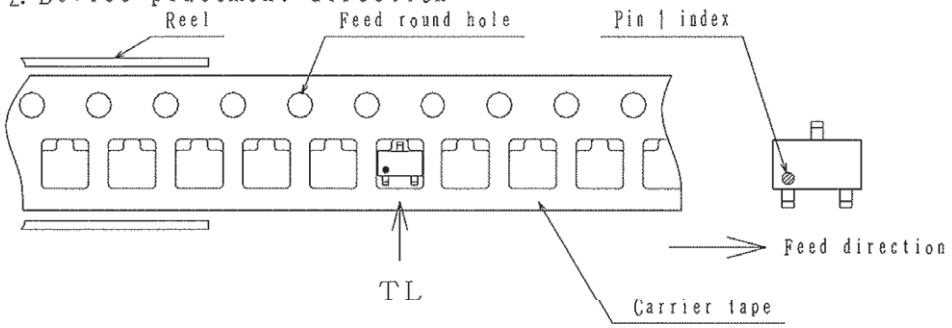
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



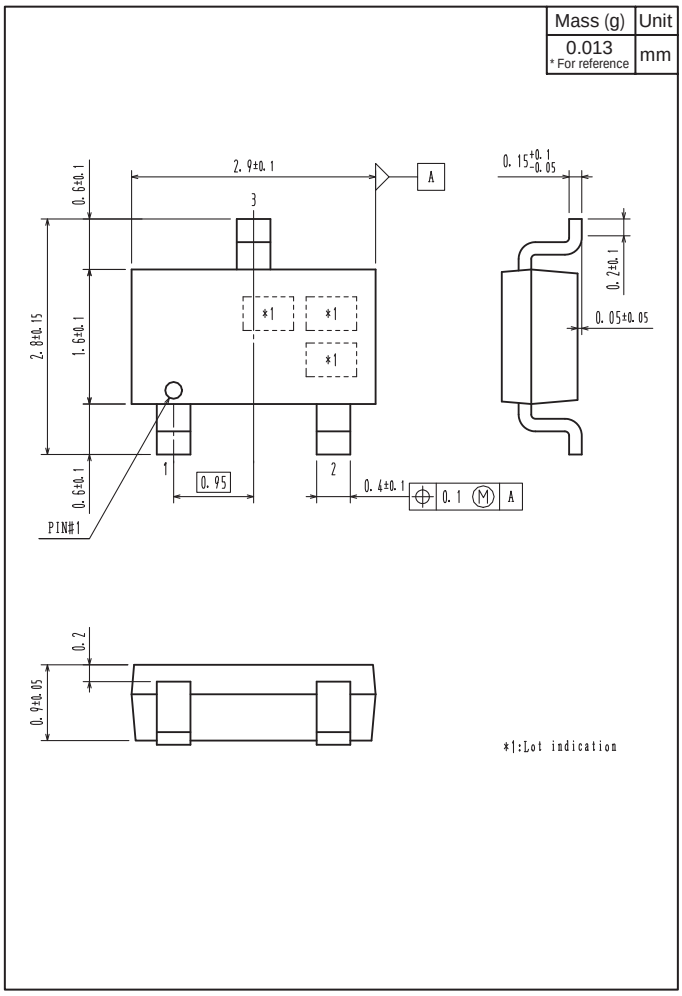
2-2. Device placement direction



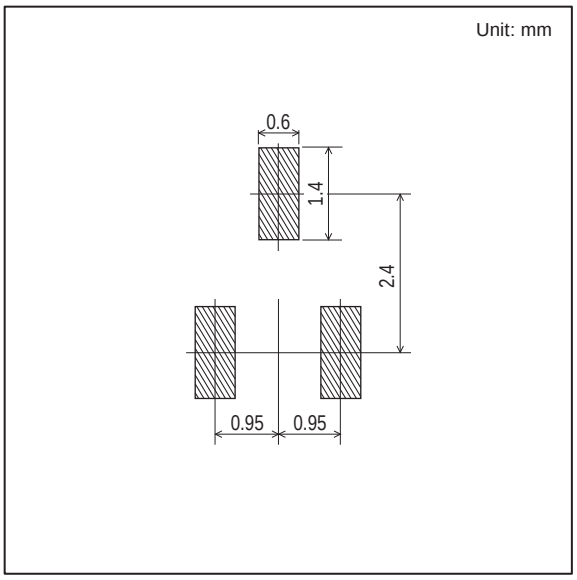
Those with one electrode terminal on the feed hole side·····TL

Outline Drawing

CPH3107-TL-E



Land Pattern Example



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