



# CPH5518 — PNP / NPN Epitaxial Planar Silicon Transistor

## High-Current Switching Applications

### Applications

- Relay drivers, lamp drivers, motor drivers

### Features

- Composite type with a PNP transistor and an NPN transistor contained in one package, facilitating high-density mounting
- The CPH5518 consists of two chips encapsulated in a package which are equivalent to the CPH3116 and the CPH3216, respectively
- Ultrasmall package facilitate miniaturization in end products (0.9mm mounting height)

### Specifications ( ) : PNP

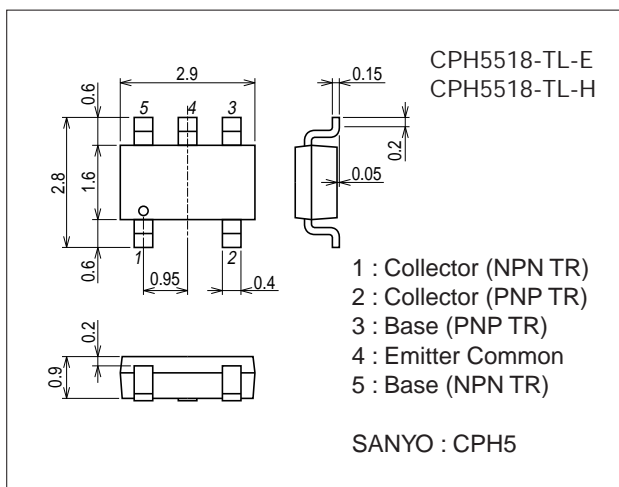
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		(-50)80	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		(-)50	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		(-)5	V
Collector Current	I <sub>C</sub>		(-)1.0	A
Collector Current (Pulse)	I <sub>CP</sub>		(-)3.0	A
Base Current	I <sub>B</sub>		(-)200	mA
Collector Dissipation	P <sub>C</sub>	When mounted on ceramic substrate (600mm <sup>2</sup> ×0.8mm)1unit	0.9	W
Total Power Dissipation	P <sub>T</sub>	When mounted on ceramic substrate (600mm <sup>2</sup> ×0.8mm)	1.2	W
Junction Temperature	T <sub>j</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

### Package Dimensions

unit : mm (typ)

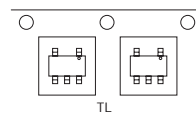
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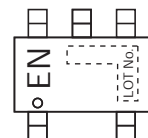
### Product & Package Information

- Package : CPH5
- JEITA, JEDEC : SC-74A, SOT-25
- Minimum Packing Quantity : 3,000 pcs./reel

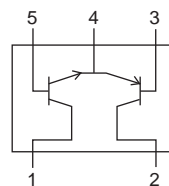
### Packing Type : TL



### Marking



### Electrical Connection

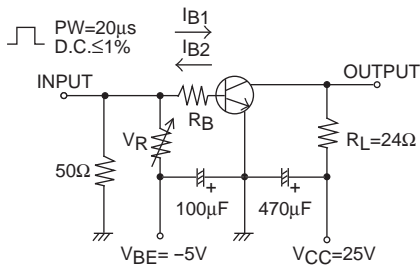


# CPH5518

## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=(-)40V, I_E=0A$			(-)0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=(-)4V, I_C=0A$			(-)0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=(-)2V, I_C=(-)100mA$	200		560	
Gain-Bandwidth Product	$f_T$	$V_{CE}=(-)10V, I_C=(-)300mA$		420		MHz
Output Capacitance	Cob	$V_{CB}=(-)10V, f=1MHz$		(9)6		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)500mA, I_B=(-)10mA$		(-230)130	(-380)190	mV
		$I_C=(-)300A, I_B=(-)6mA$		(-125)90	(-200)135	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)500mA, I_B=(-)10mA$		(-)0.81	(-)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0A$	(-50)80			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0A$	(-)5			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		(36)38		ns
Storage Time	$t_{stg}$			(173)332		ns
Fall Time	$t_f$			(28)40		ns

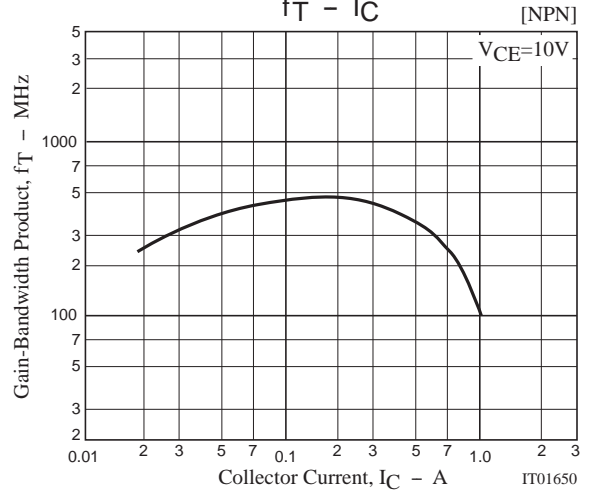
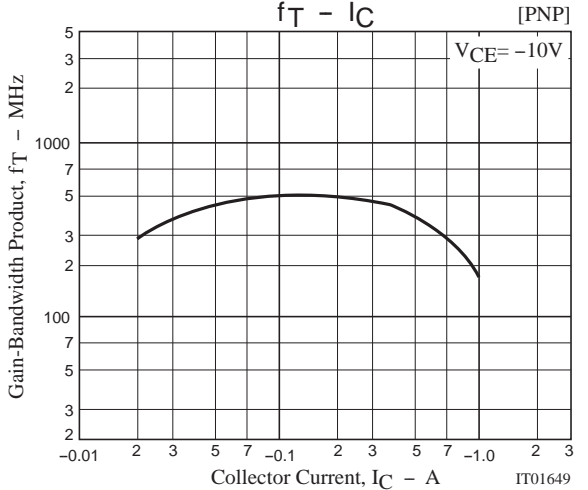
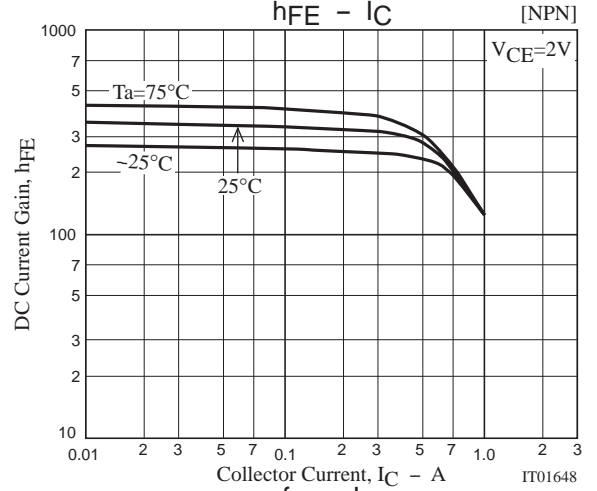
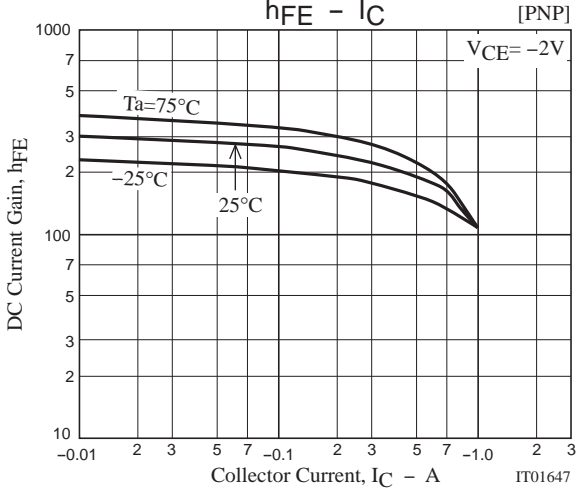
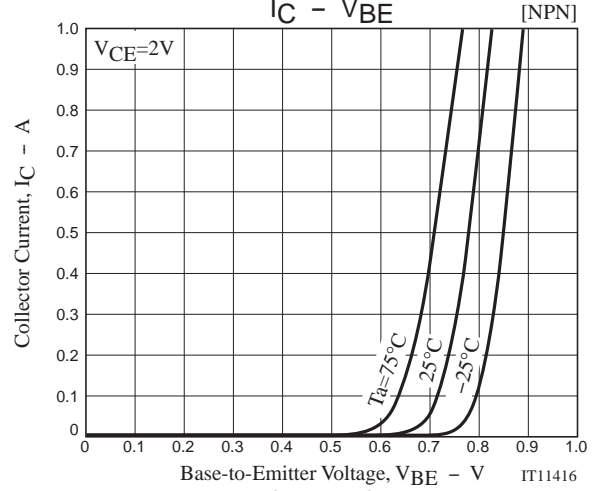
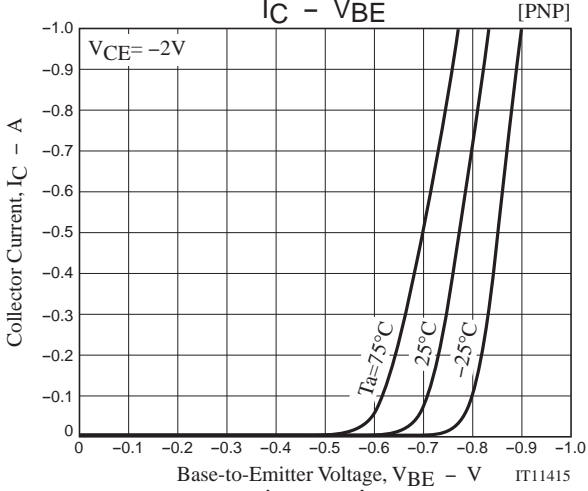
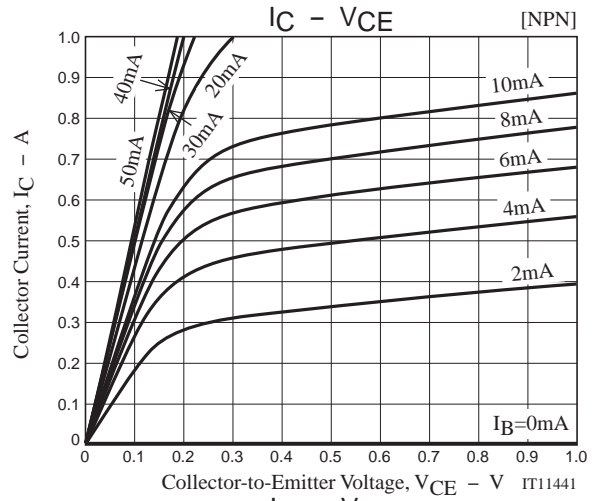
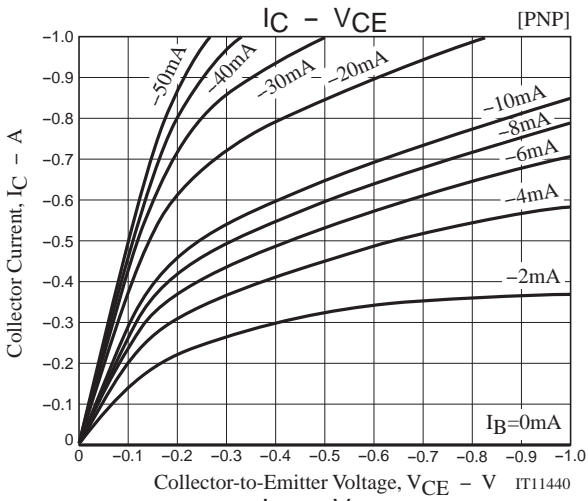
## Switching Time Test Circuit

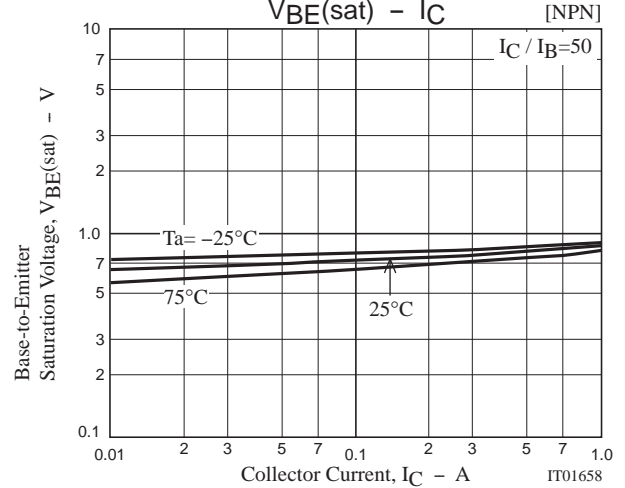
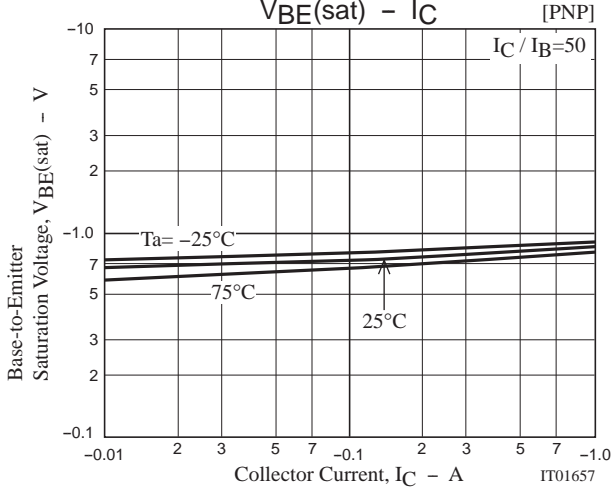
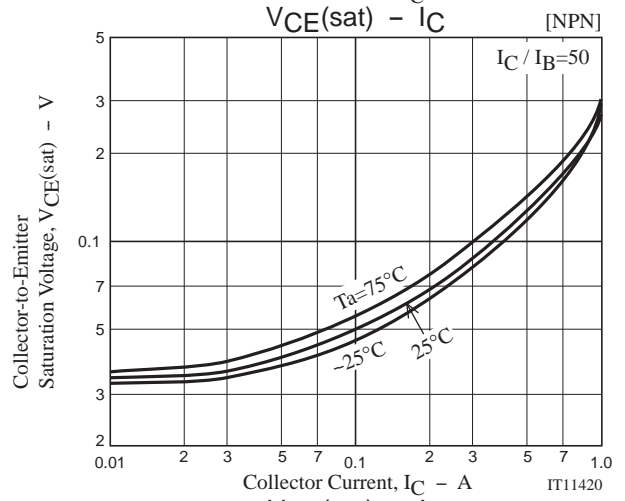
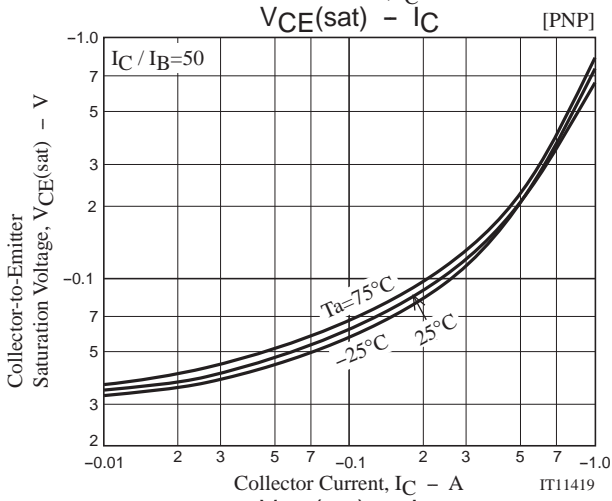
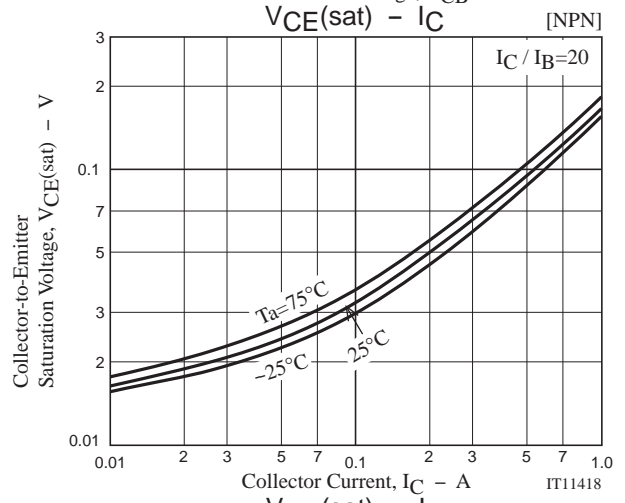
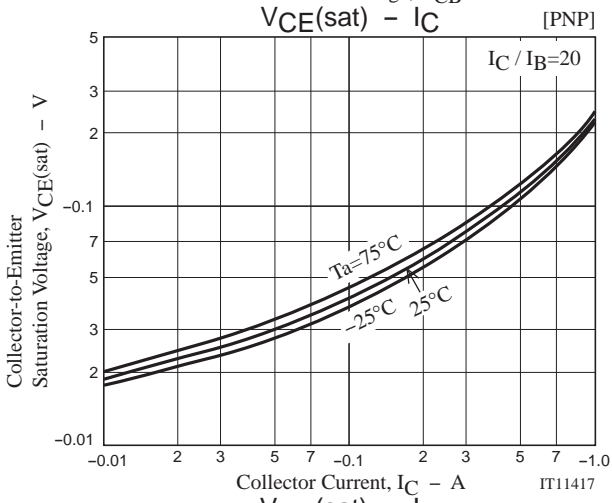
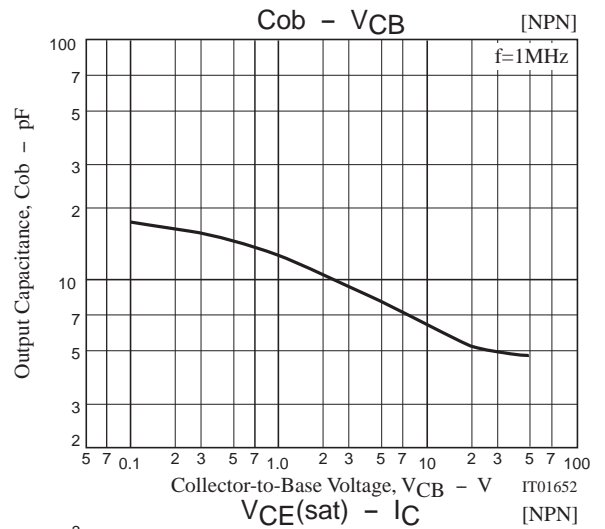
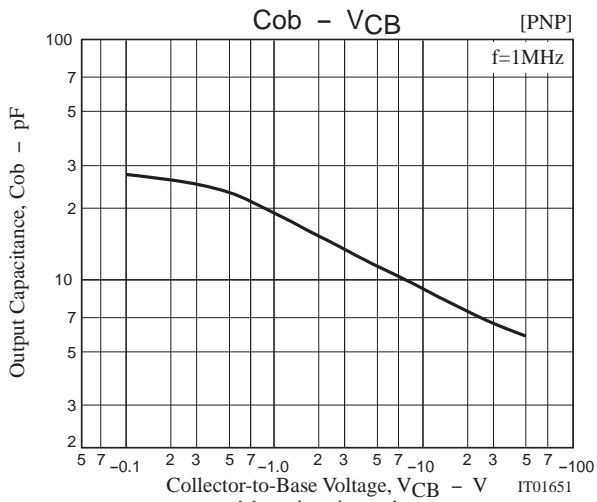


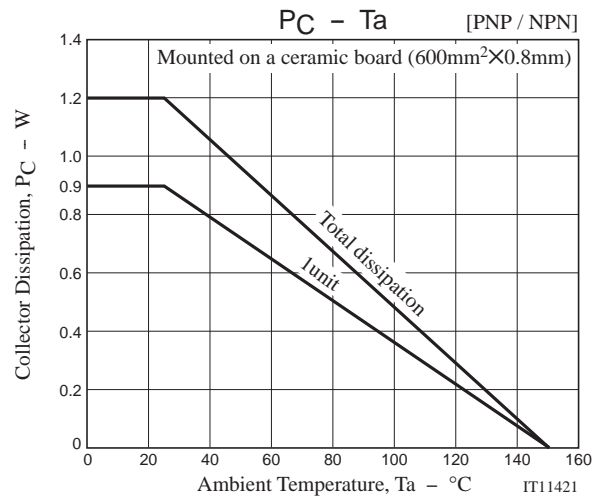
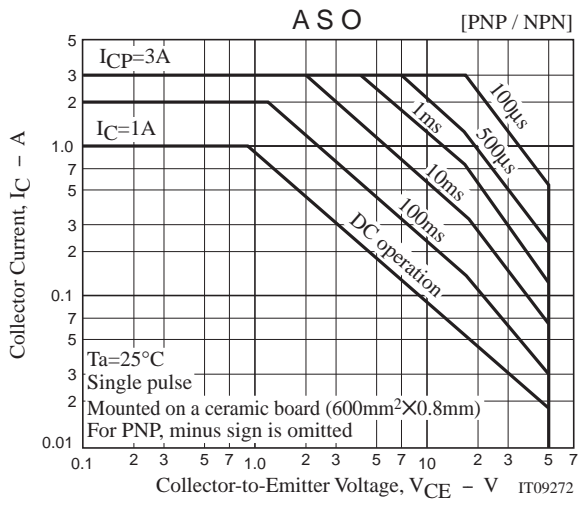
$I_C=20I_{B1} = -20I_{B2}=500mA$   
 (For PNP, the polarity is reversed.)

## Ordering Information

Device	Package	Shipping	memo
CPH5518-TL-E	CPH5	3,000pcs./reel	Pb Free
CPH5518-TL-H	CPH5	3,000pcs./reel	Pb Free and Halogen Free







Embossed Taping Specification

CPH5518-TL-E, CPH5518-TL-H

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)
CPH5	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

Reel label, Inner box label  
(unit:mm)

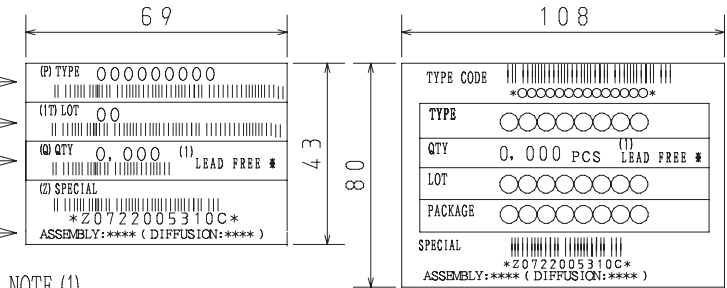
Outer box label  
It is a label at the time of factory shipments.  
The form of a label may change in physical distribution process.

Packing method



Reel label

Type No.  
LOT No.  
Quantity  
Origin



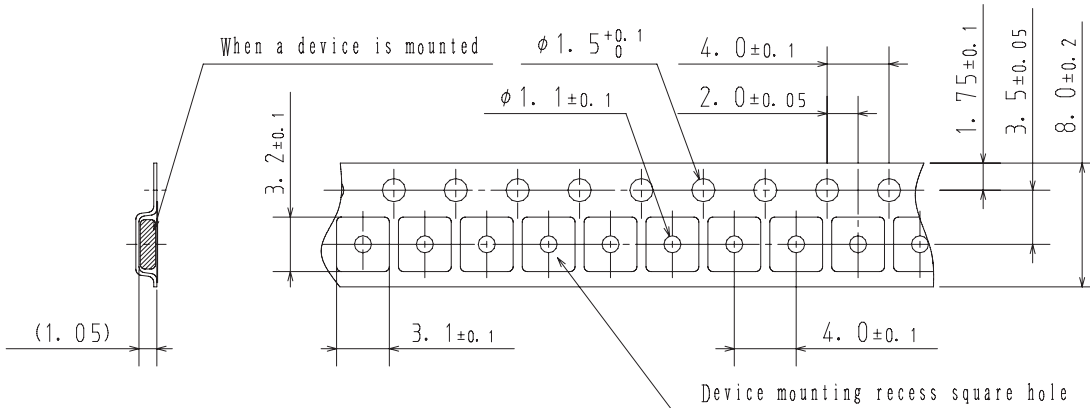
NOTE (1)

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

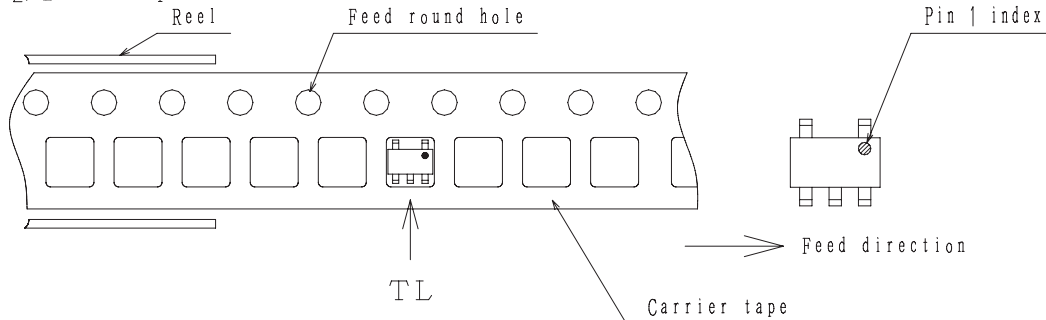
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

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

# CPH5518

## Outline Drawing

CPH5518-TL-E, CPH5518-TL-H



## Land Pattern Example



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