



# CPH5520 — PNP/NPN Epitaxial Planar Silicon Transistors

## High-Current Switching Applications

### Applications

- Relay drivers, lamp drivers, motor drivers, gate drivers

### Features

- Composite type with a PNP transistor and an NPN transistor contained in one package, facilitating high-density mounting
- Ultrasmall package facilitate miniaturization in end products. (0.9mm mounting height)

### Specifications ( ) : PNP

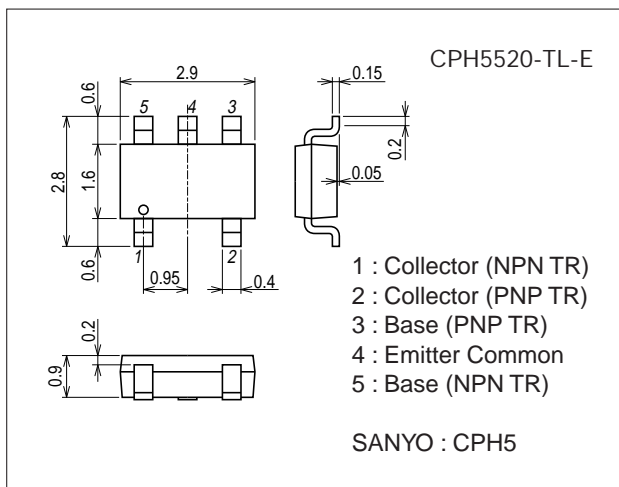
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		(-50)80	V
Collector-to-Emitter Voltage	VCEO		(-50)50	V
Emitter-to-Base Voltage	VEBO		(-)6	V
Collector Current	IC		(-)2	A
Collector Current (Pulse)	ICP		(-)5	A
Base Current	IB		(-)400	mA
Collector Dissipation	PC	Mounted on a ceramic board (600mm <sup>2</sup> ×0.8mm) 1unit	0.9	W
Total Power Dissipation	PT	Mounted on a ceramic board (600mm <sup>2</sup> ×0.8mm)	1.2	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

### Package Dimensions

unit : mm (typ)

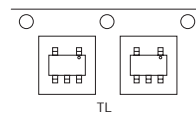
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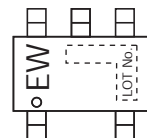
### Product & Package Information

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

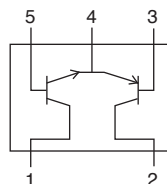
### Packing Type : TL



### Marking



### Electrical Connection

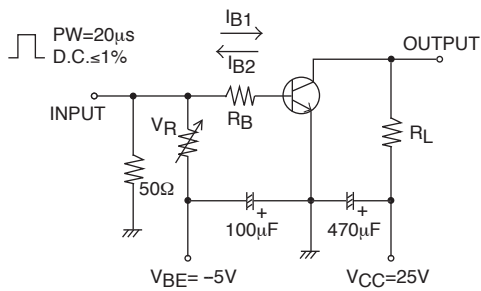


# CPH5520

## Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=(-)40\text{V}, I_E=0\text{A}$			(-) $1$	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=(-)4\text{V}, I_C=0\text{A}$			(-) $1$	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE}=(-)2\text{V}, I_C=(-)100\text{mA}$	200		560	
Gain-Bandwidth Product	$f_T$	$V_{CE}=(-)10\text{V}, I_C=(-)300\text{mA}$		420		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=(-)10\text{V}, f=1\text{MHz}$		(16) $8$		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)1\text{A}, I_B=(-)50\text{mA}$		(-165) $130$	(-330) $260$	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)1\text{A}, I_B=(-)50\text{mA}$		(-) $0.9$	(-) $1.2$	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu\text{A}, I_E=0\text{A}$	(-50) $80$			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1\text{mA}, R_{BE}=\infty$	(-50) $50$			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu\text{A}, I_C=0\text{A}$	(-) $6$			V
Turn-On Time	$t_{on}$	See specified Test Circuit.		(35) $35$		ns
Storage Time	$t_{stg}$			(200) $330$		ns
Fall Time	$t_f$			(24) $40$		ns

## Switching Time Test Circuit

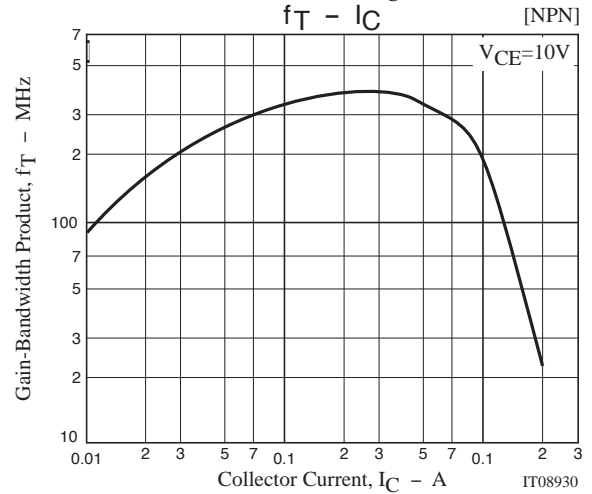
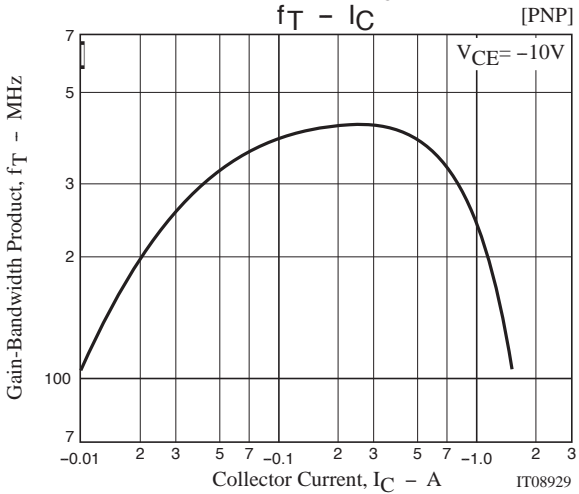
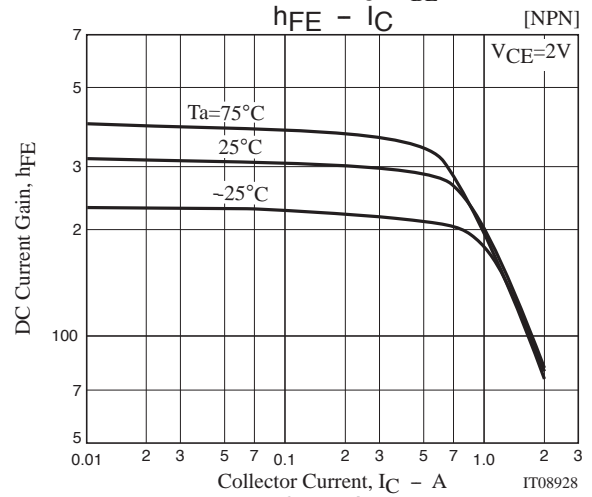
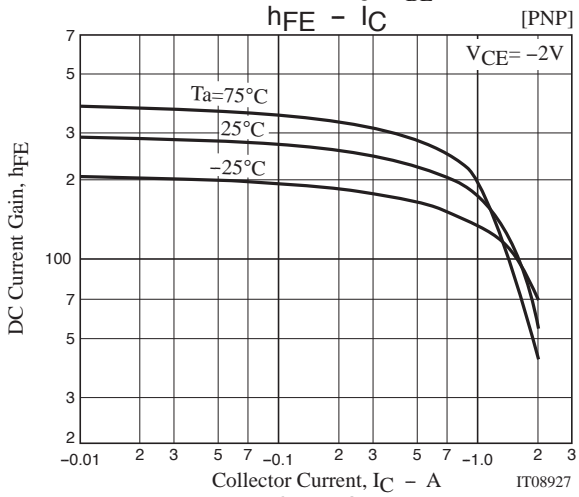
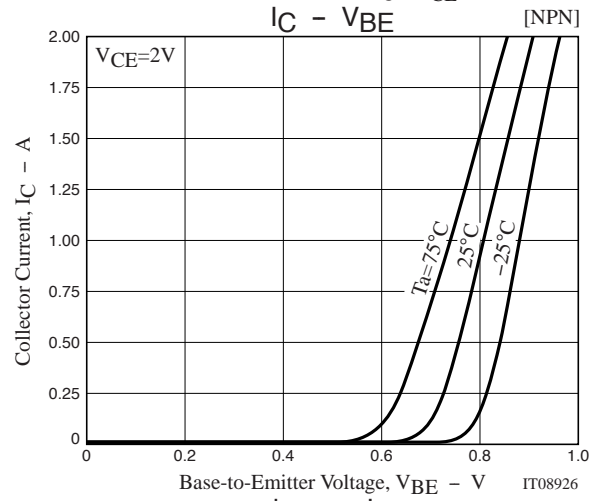
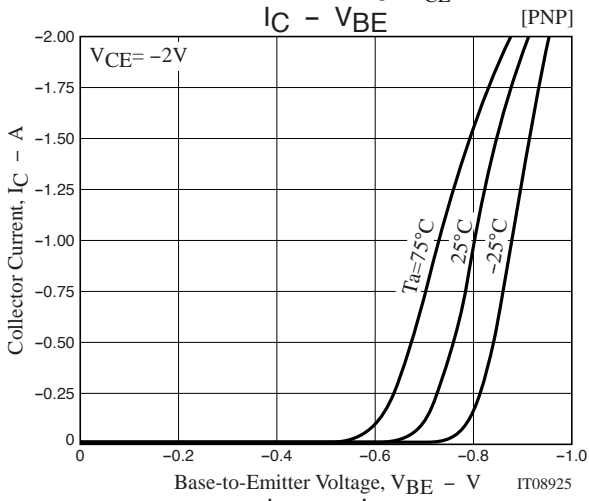
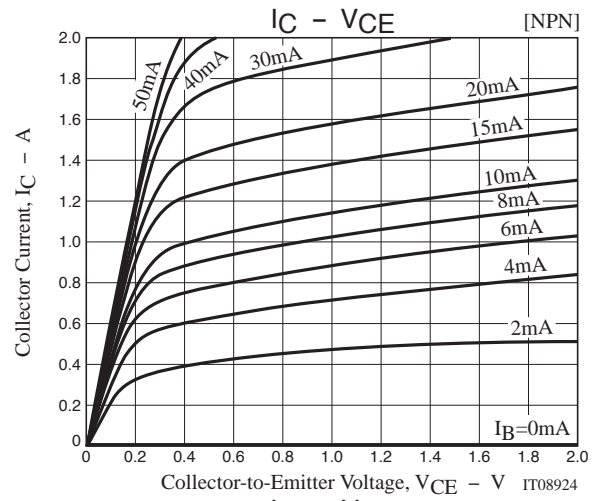
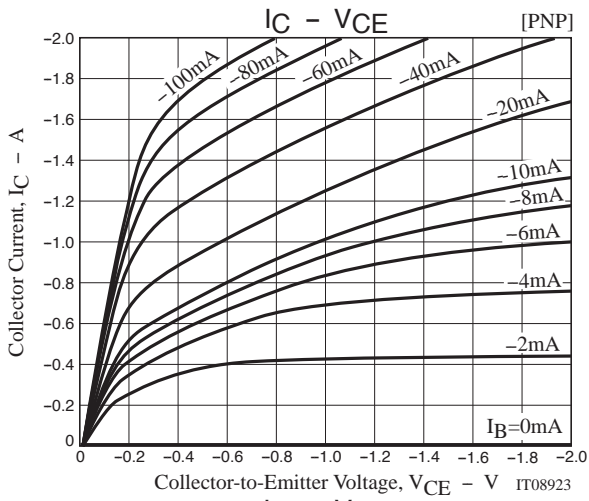


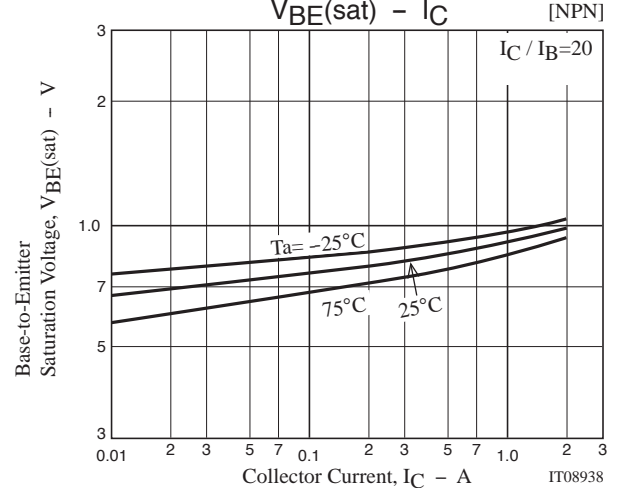
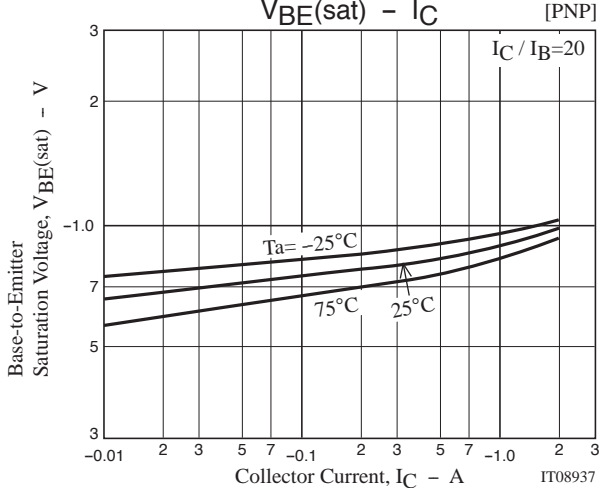
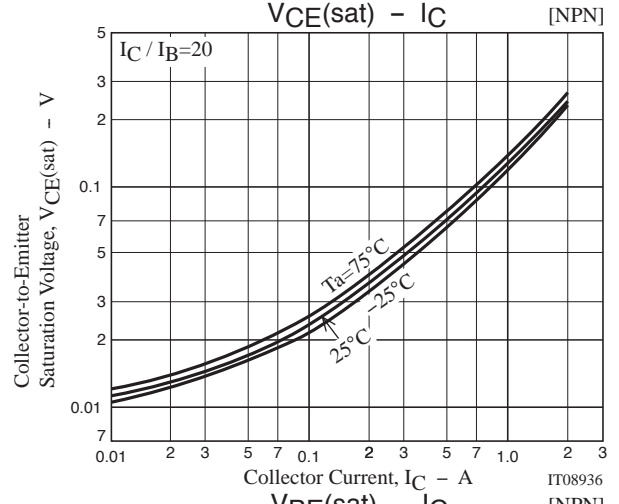
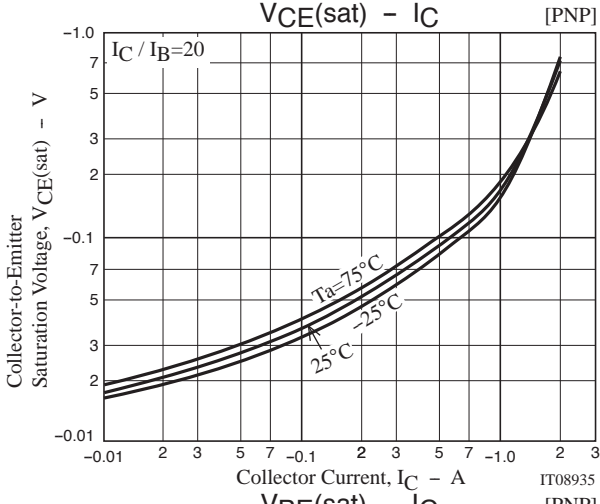
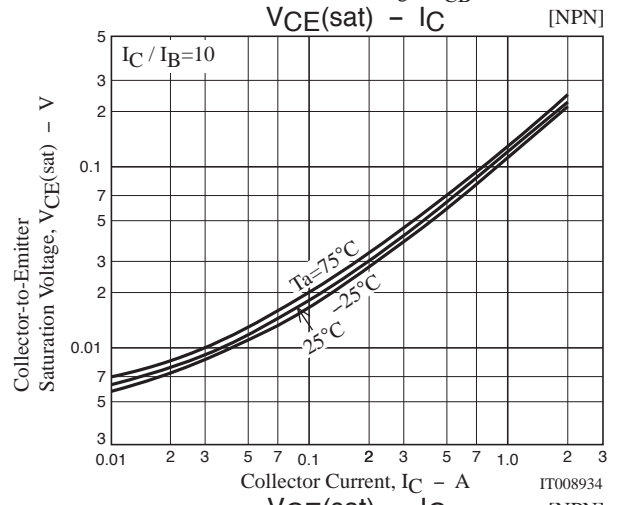
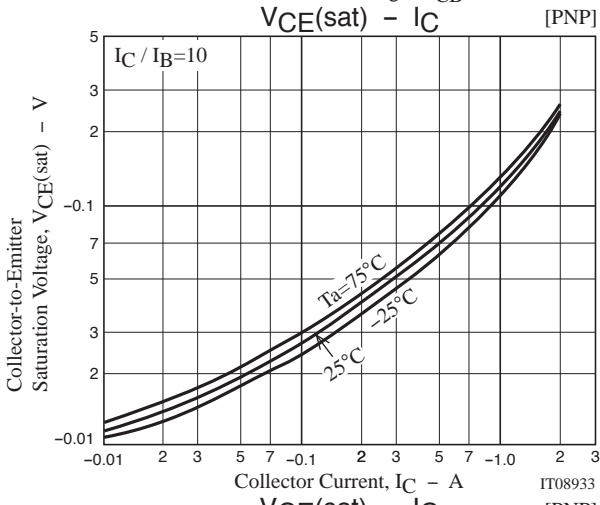
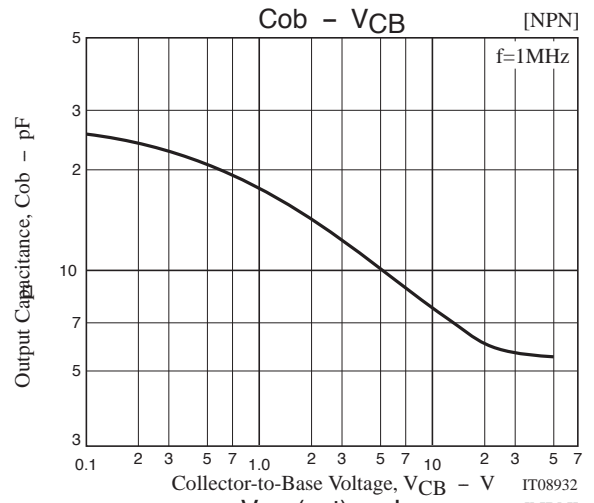
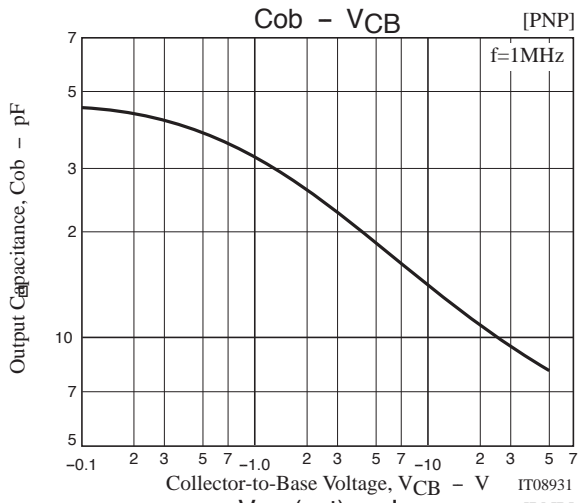
$$I_C=10I_{B1}=-10I_{B2}=0.7\text{A}$$

For PNP, the polarity is reversed.

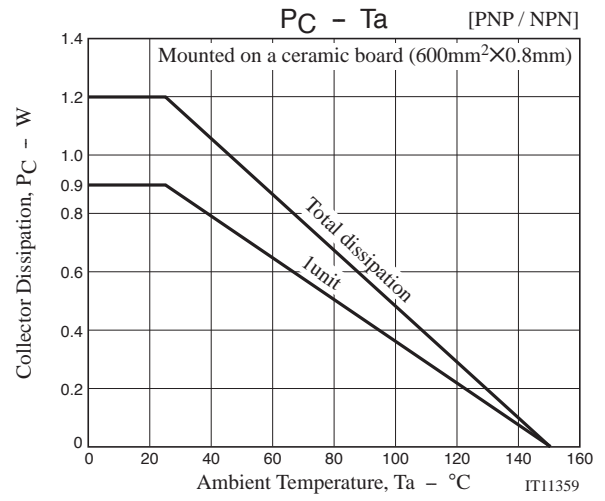
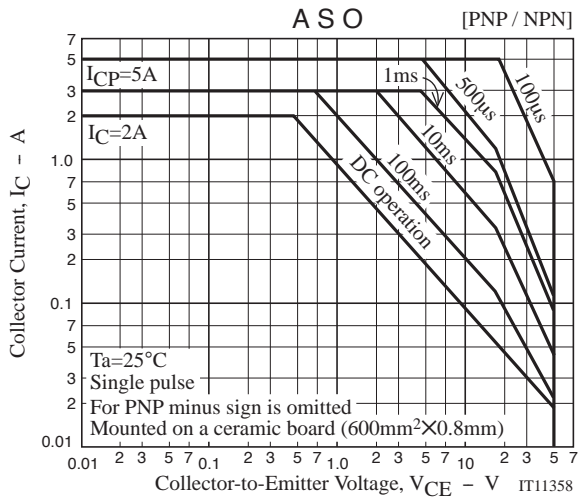
## Ordering Information

Device	Package	Shipping	memo
CPH5520-TL-E	CPH5	3,000pcs./reel	Pb Free





# CPH5520



Embossed Taping Specification

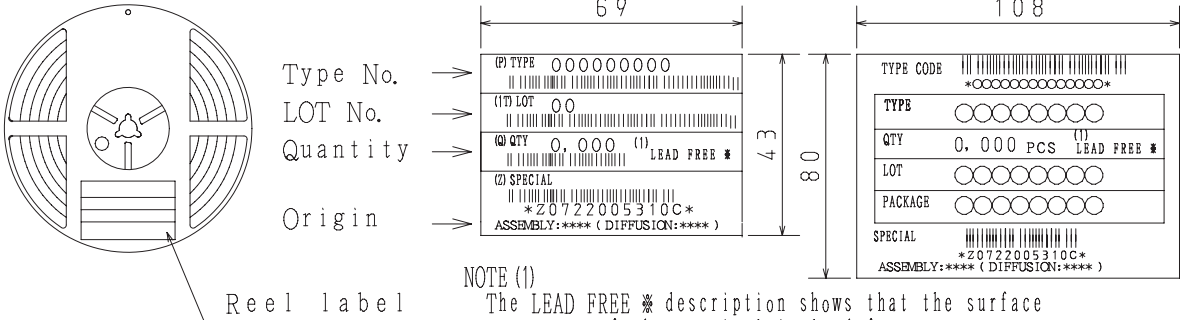
CPH5520-TL-E

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)
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

Packing method

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.]

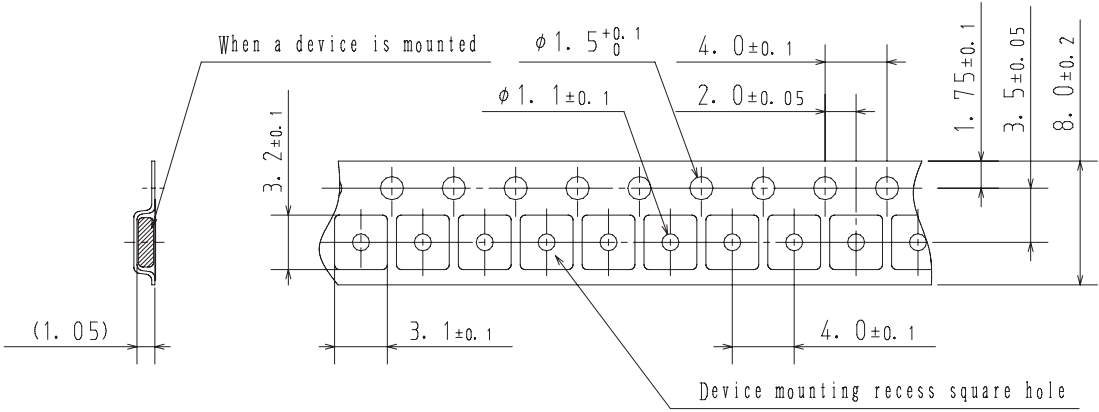


NOTE (1)  
 The LEAD FREE \* description shows that the surface treatment of the terminal is lead free.

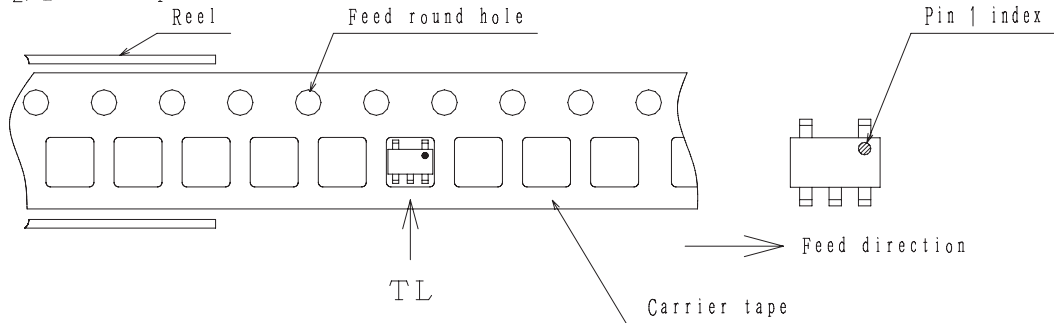
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



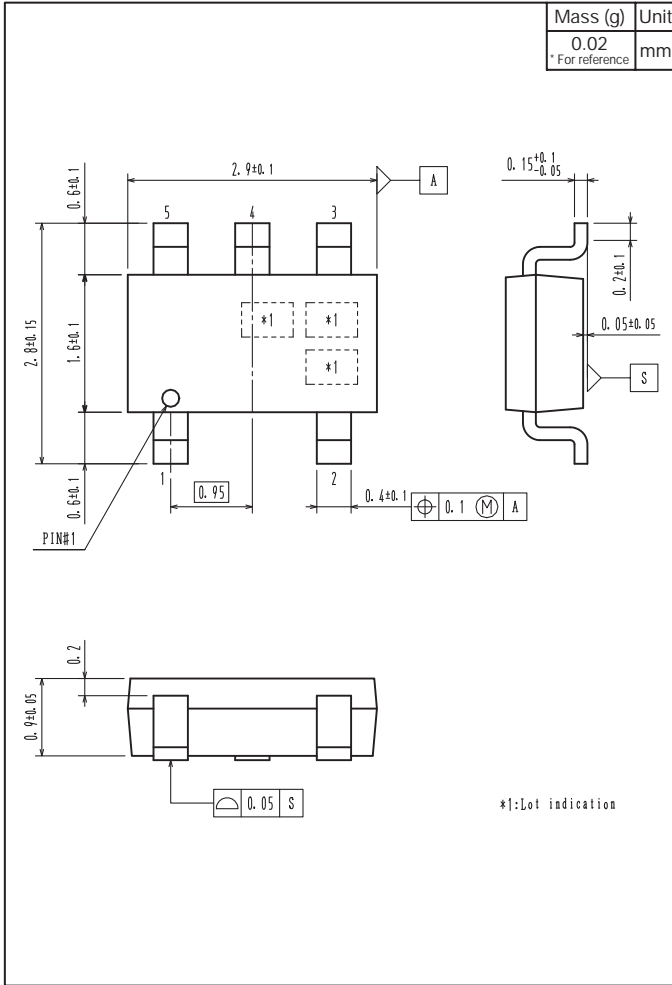
2-2. Device placement direction



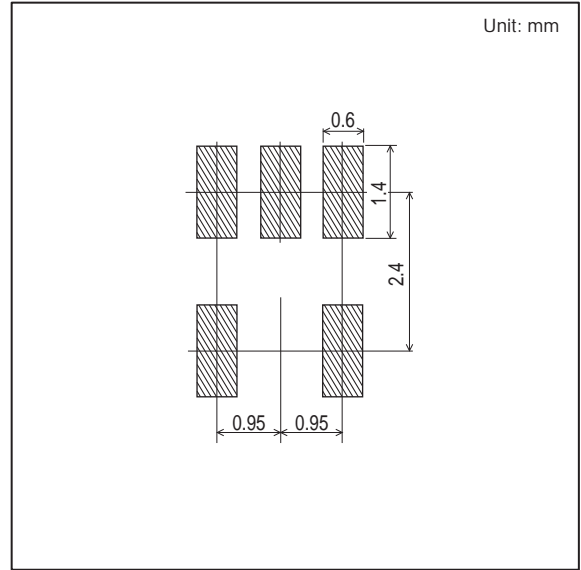
Those with pin 1 index on the feed hole side.....TL

# CPH5520

## Outline Drawing CPH5520-TL-E



## Land Pattern Example



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