



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## CPH6121 — PNP Epitaxial Planar Silicon Transistor

### DC / DC Converter Applications

#### Applications

- Relay drivers, lamp drivers, motor drivers, strobes

#### Features

- Adoption of MBIT process
- High current capacitance
- Low collector-to-emitter saturation voltage
- High speed switching
- Ultrasmall-sized package permitting applied sets to be made small and slim (0.9mm)
- High allowable power dissipation

#### Specifications

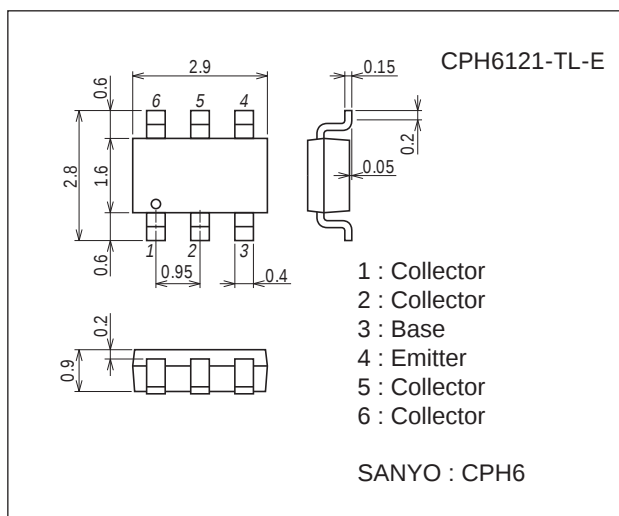
Absolute Maximum Ratings at Ta=25°C

| Parameter                    | Symbol           | Conditions                                             | Ratings     | Unit |
|------------------------------|------------------|--------------------------------------------------------|-------------|------|
| Collector-to-Base Voltage    | V <sub>CBO</sub> |                                                        | -15         | V    |
| Collector-to-Emitter Voltage | V <sub>CEO</sub> |                                                        | -12         | V    |
| Emitter-to-Base Voltage      | V <sub>EBO</sub> |                                                        | -5          | V    |
| Collector Current            | I <sub>C</sub>   |                                                        | -3          | A    |
| Collector Current (Pulse)    | I <sub>CP</sub>  |                                                        | -5          | A    |
| Base Current                 | I <sub>B</sub>   |                                                        | -600        | mA   |
| Collector Dissipation        | P <sub>C</sub>   | Mounted on a ceramic board (600mm <sup>2</sup> ×0.8mm) | 1.3         | W    |
| Junction Temperature         | T <sub>j</sub>   |                                                        | 150         | °C   |
| Storage Temperature          | T <sub>stg</sub> |                                                        | -55 to +150 | °C   |

#### Package Dimensions

unit : mm (typ)

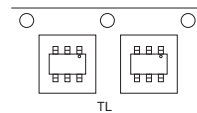
7018A-002



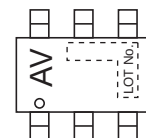
#### Product & Package Information

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

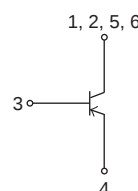
#### Packing Type: TL



#### Marking



#### Electrical Connection



SANYO Semiconductor Co., Ltd.

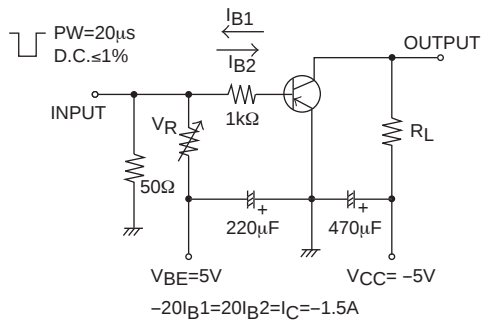
<http://semicon.sanyo.com/en/network>

# CPH6121

## Electrical Characteristics at Ta=25°C

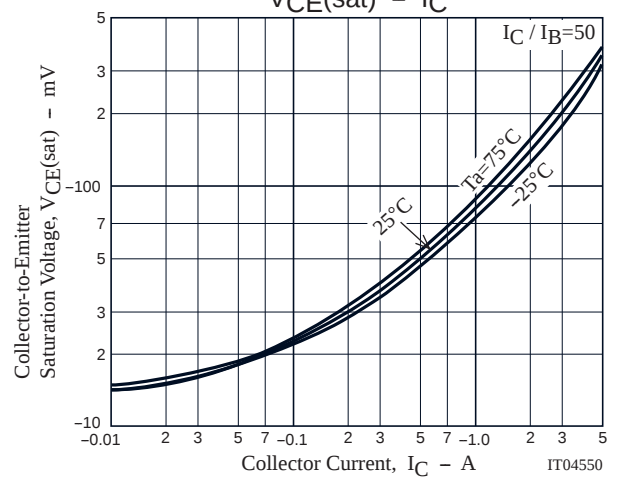
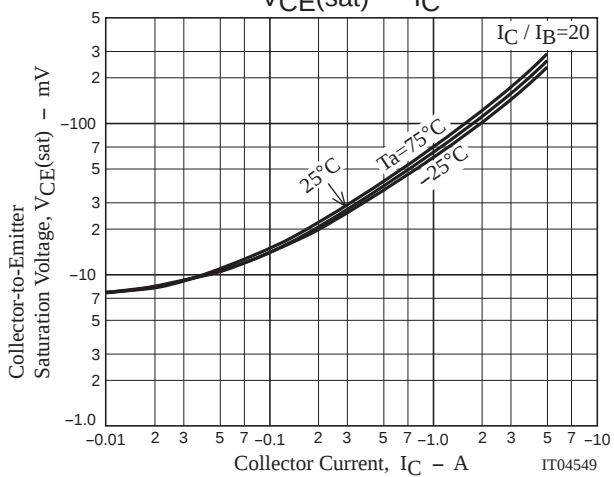
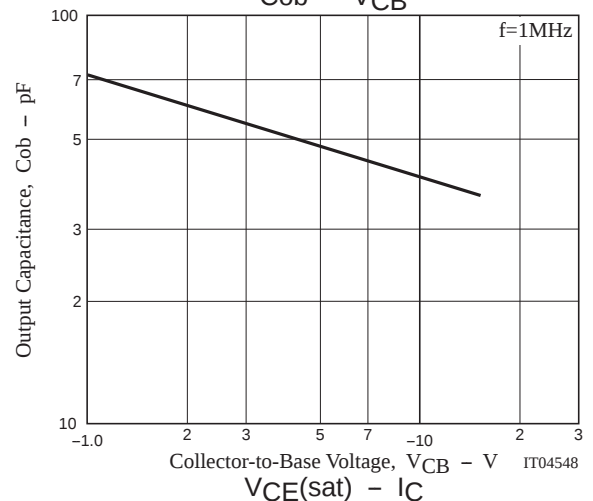
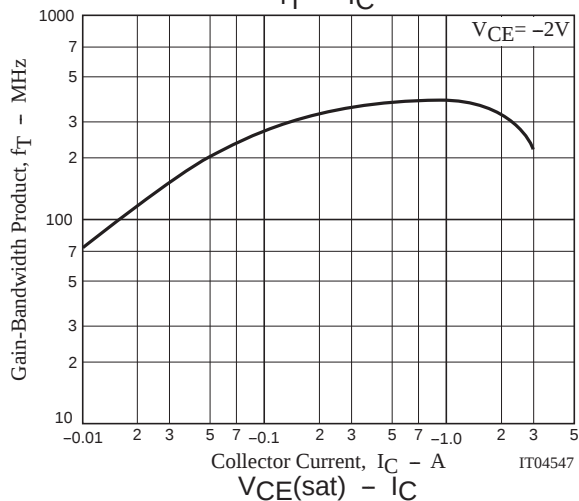
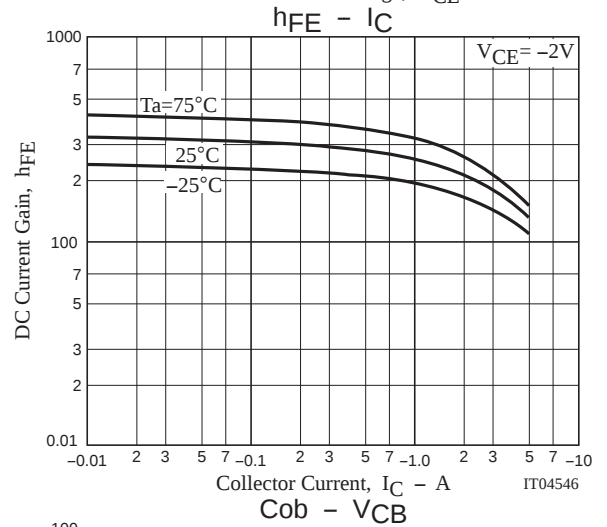
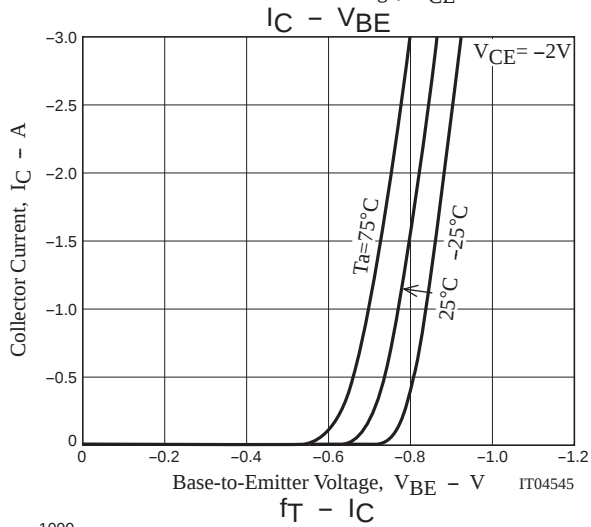
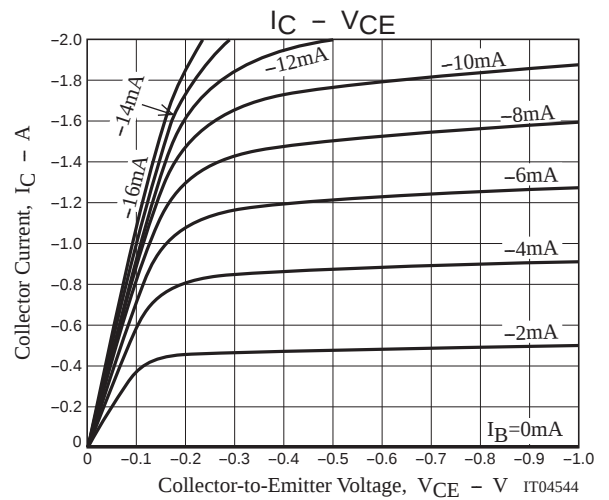
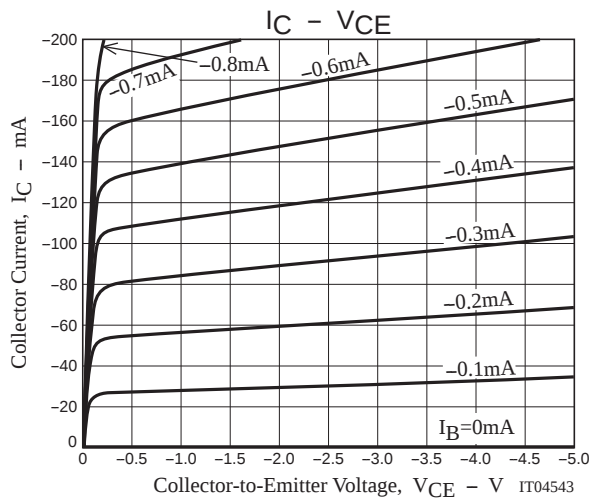
| Parameter                               | Symbol        | Conditions                    | Ratings |       |      | Unit    |
|-----------------------------------------|---------------|-------------------------------|---------|-------|------|---------|
|                                         |               |                               | min     | typ   | max  |         |
| Collector Cutoff Current                | $I_{CBO}$     | $V_{CB} = -12V, I_E = 0A$     |         |       | -0.1 | $\mu A$ |
| Emitter Cutoff Current                  | $I_{EBO}$     | $V_{EB} = -4V, I_C = 0A$      |         |       | -0.1 | $\mu A$ |
| DC Current Gain                         | $h_{FE}$      | $V_{CE} = -2V, I_C = -500mA$  | 200     |       | 560  |         |
| Gain-Bandwidth Product                  | $f_T$         | $V_{CE} = -2V, I_C = -500mA$  |         | 380   |      | MHz     |
| Output Capacitance                      | $C_{ob}$      | $V_{CB} = -10V, f = 1MHz$     |         | 40    |      | pF      |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = -1.5A, I_B = -30mA$    |         | -110  | -165 | mV      |
| Base-to-Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C = -1.5A, I_B = -30mA$    |         | -0.85 | -1.2 | V       |
| Collector-to-Base Breakdown Voltage     | $V_{(BR)CBO}$ | $I_C = -10\mu A, I_E = 0A$    | -15     |       |      | V       |
| Collector-to-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C = -1mA, R_{BE} = \infty$ | -12     |       |      | 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.   |         | 30    |      | ns      |
| Storage Time                            | $t_{stg}$     |                               |         | 90    |      | ns      |
| Fall Time                               | $t_f$         |                               |         | 14    |      | ns      |

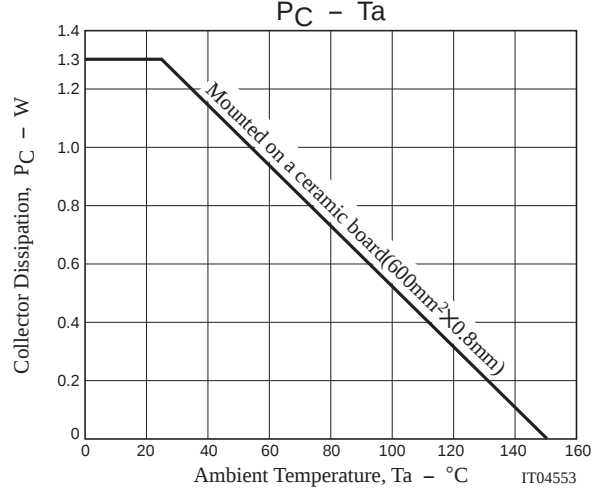
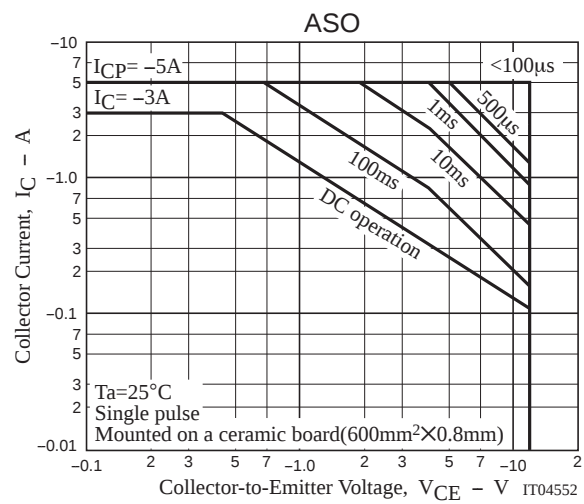
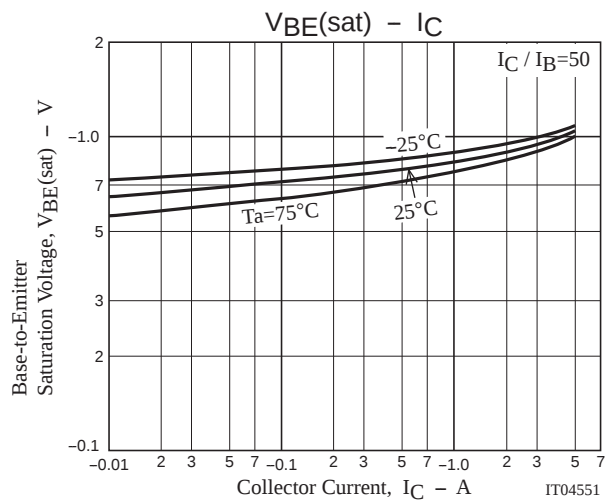
## Switching Time Test Circuit



## Ordering Information

| Device       | Package | Shipping       | memo    |
|--------------|---------|----------------|---------|
| CPH6121-TL-E | CPH6    | 3,000pcs./reel | Pb Free |





## Embossed Taping Specification

CPH6121-TL-E

## 1. Packing Format

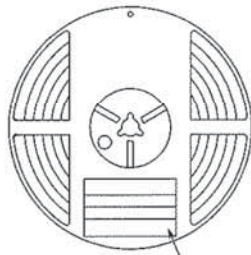
| Package Name | Carrier Tape Type | Maximum Number of devices contained (pcs) |           |           | Packing format                                              |                                                                    |
|--------------|-------------------|-------------------------------------------|-----------|-----------|------------------------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

|          |                       |
|----------|-----------------------|
| TYPE     | 000000000             |
| LOT      | 00                    |
| QTY      | 0,000 (1) LEAD FREE # |
| SPECIAL  | *20722005310C*        |
| ASSEMBLY | **** (DIFFUSION:****) |

NOTE (1)

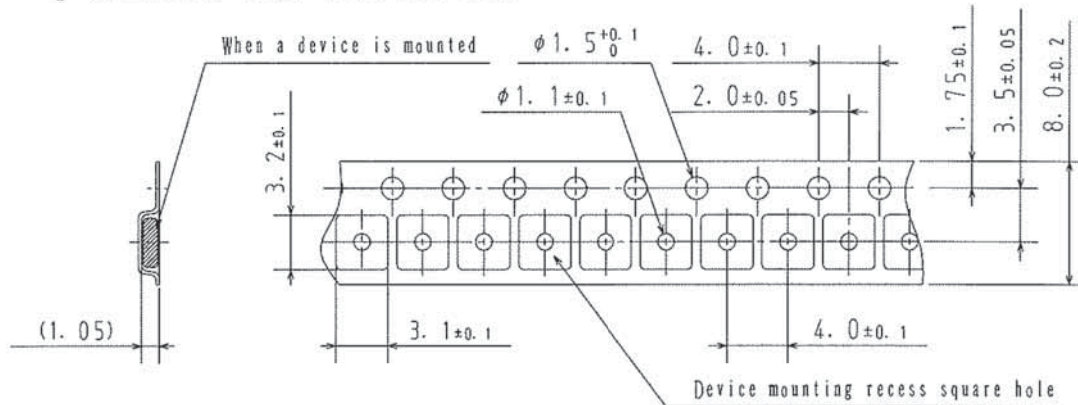
The LEAD FREE # description shows that the surface treatment of the terminal is lead free.

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

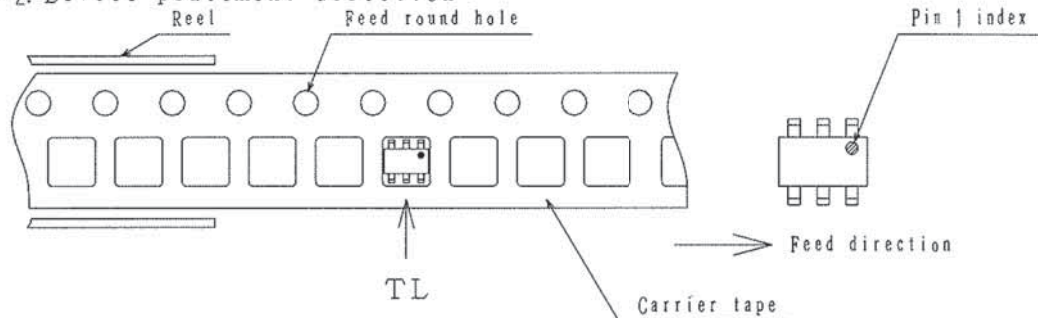
|           |                           |
|-----------|---------------------------|
| TYPE CODE | *****0*****               |
| TYPE      | 00000000                  |
| QTY       | 0,000 PCS (1) LEAD FREE # |
| LOT       | 00000000                  |
| PACKAGE   | 00000000                  |
| SPECIAL   | *20722005310C*            |
| ASSEMBLY  | **** (DIFFUSION:****)     |

## 2. Taping configuration

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

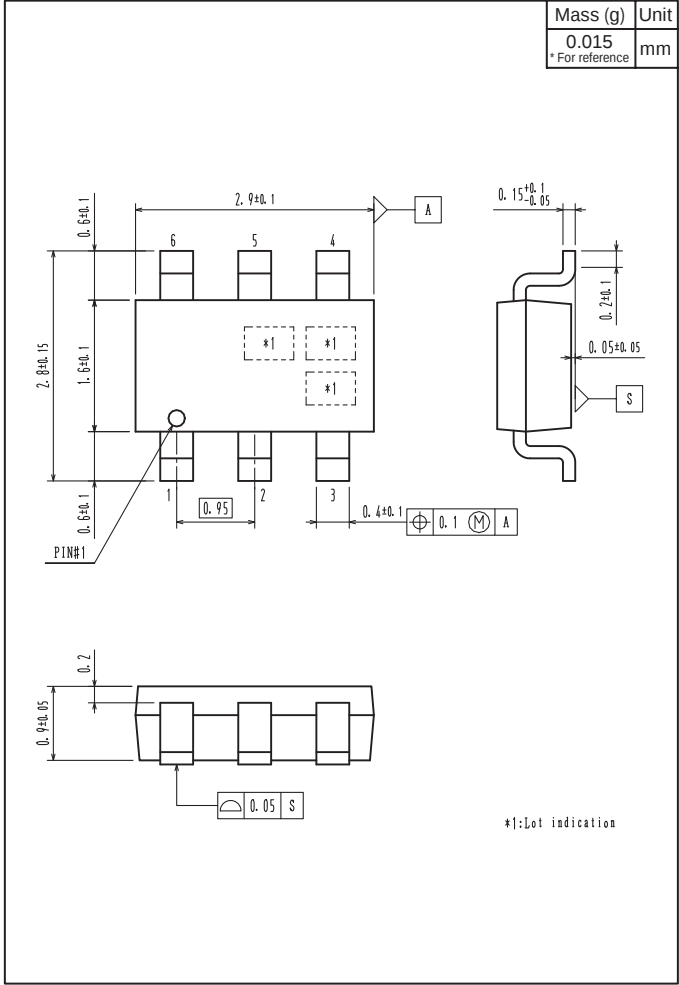


## 2-2. Device placement direction

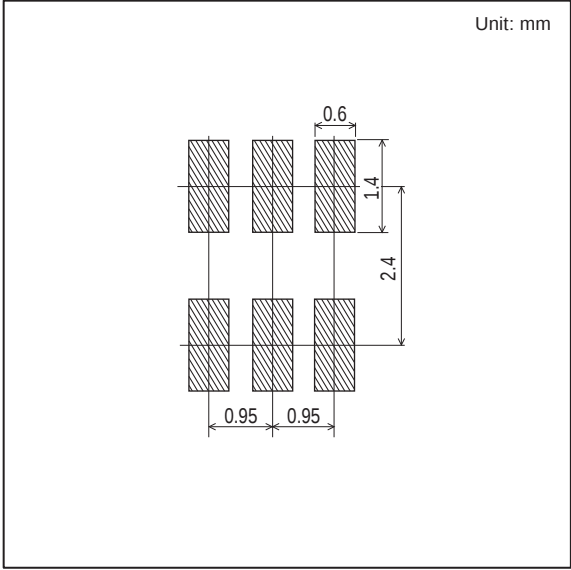


Those with pin 1 index on the feed hole side.....TL

Outline Drawing  
CPH6121-TL-E



Land Pattern Example



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