



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

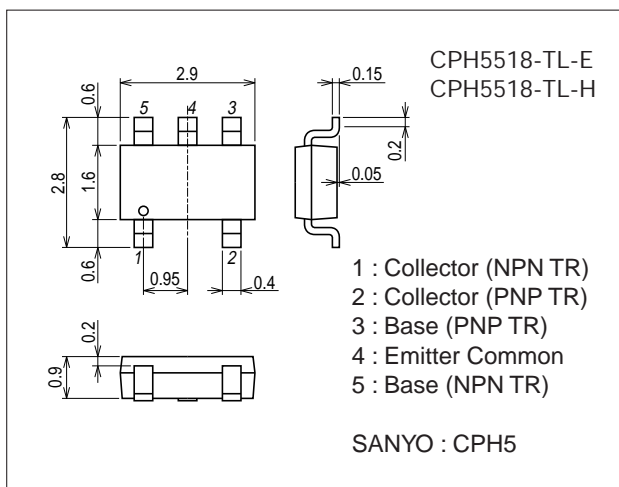
Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|------------------|--------------------------------------------------------------------|-------------|------|
| Collector-to-Base Voltage | V _{CBO} | | (-50)80 | V |
| Collector-to-Emitter Voltage | V _{CEO} | | (-)50 | V |
| Emitter-to-Base Voltage | V _{EBO} | | (-)5 | V |
| Collector Current | I _C | | (-)1.0 | A |
| Collector Current (Pulse) | I _{CP} | | (-)3.0 | A |
| Base Current | I _B | | (-)200 | mA |
| Collector Dissipation | P _C | When mounted on ceramic substrate (600mm ² ×0.8mm)1unit | 0.9 | W |
| Total Power Dissipation | P _T | When mounted on ceramic substrate (600mm ² ×0.8mm) | 1.2 | W |
| Junction Temperature | T _j | | 150 | °C |
| Storage Temperature | T _{stg} | | -55 to +150 | °C |

Package Dimensions

unit : mm (typ)

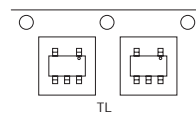
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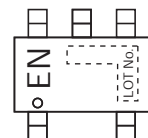
Product & Package Information

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

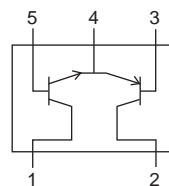
Packing Type : TL



Marking



Electrical Connection

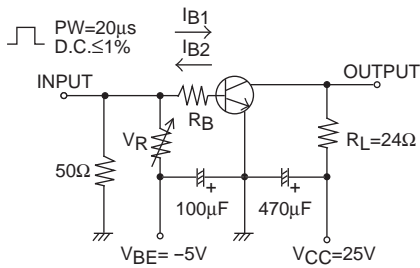


CPH5518

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 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = (-)4V, I_C = 0A$ | | | (-)0.1 | μA |
| DC Current Gain | h_{FE} | $V_{CE} = (-)2V, I_C = (-)100mA$ | 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

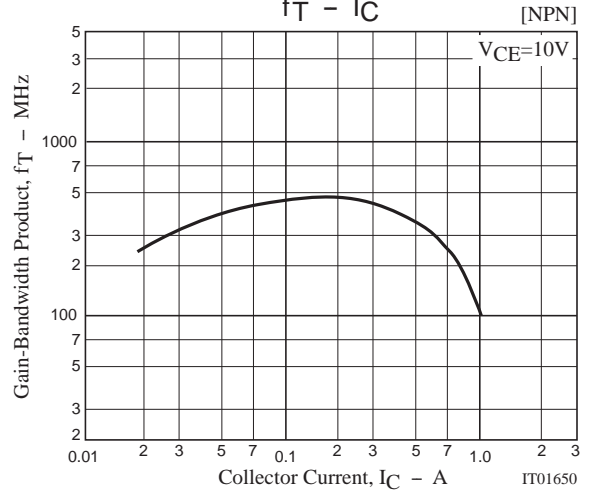
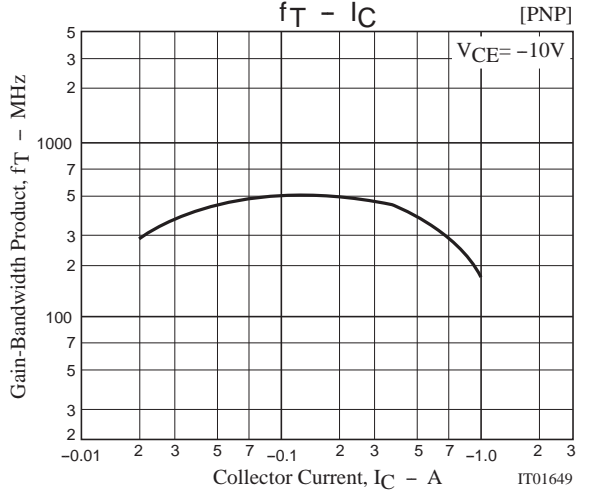
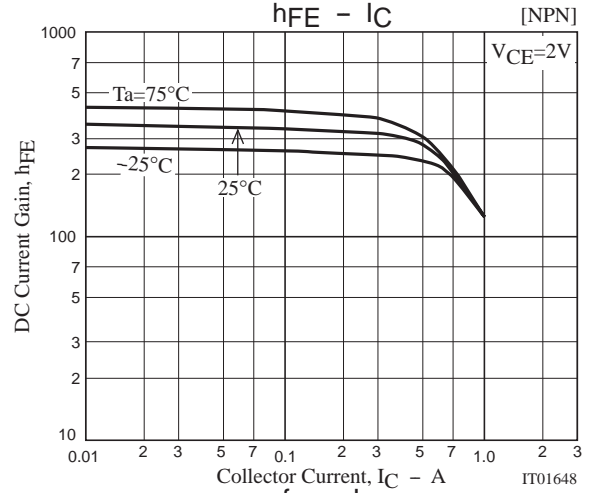
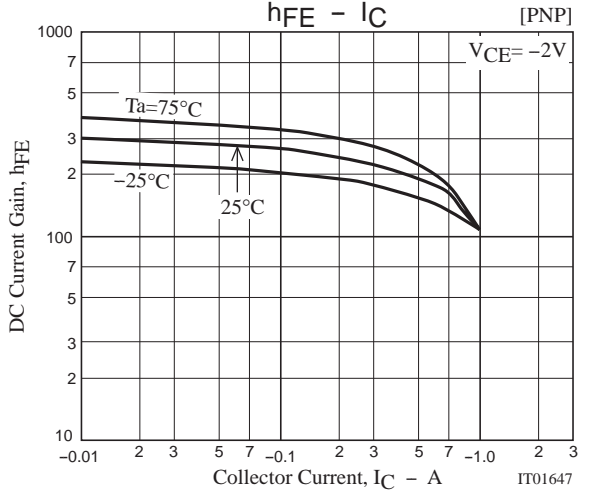
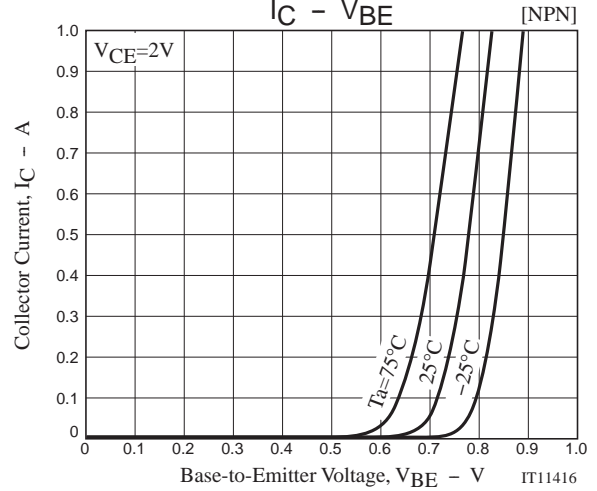
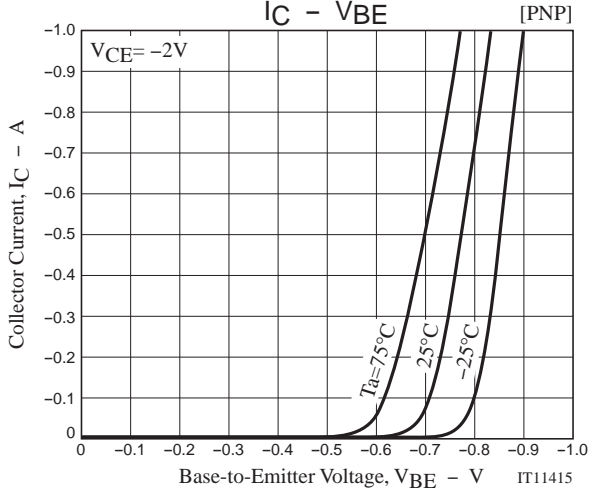
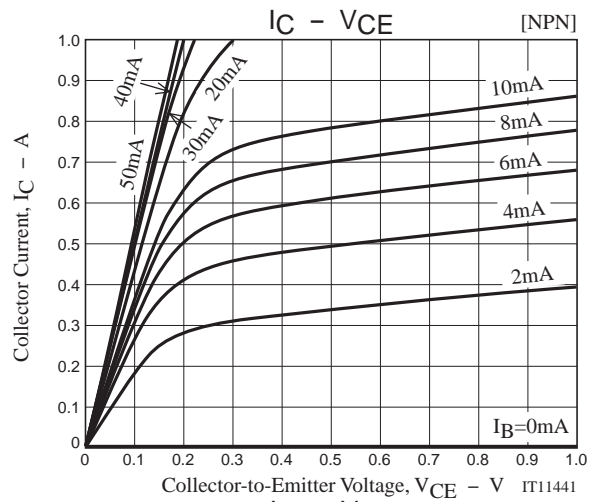
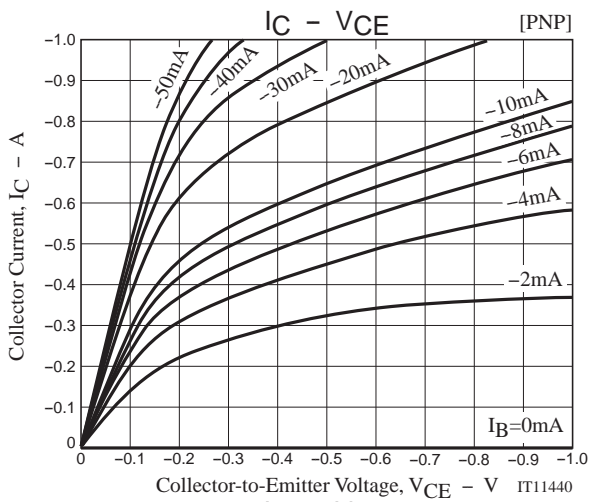


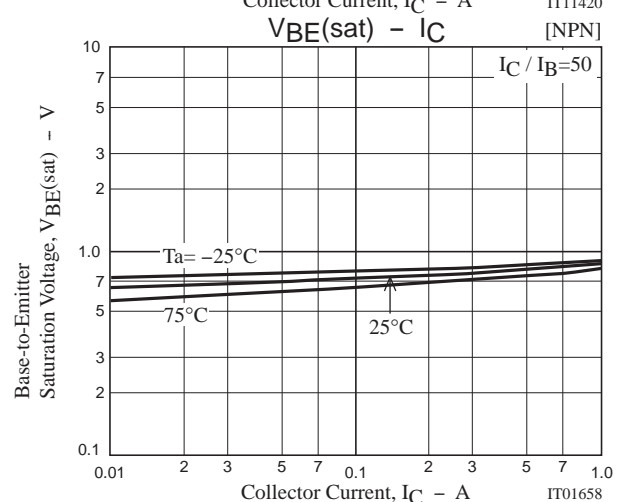
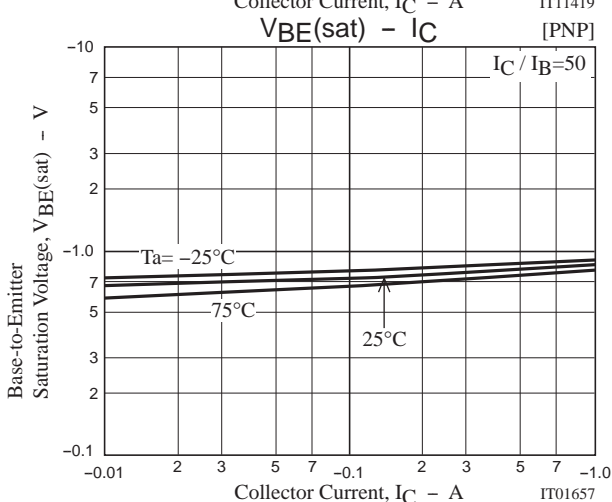
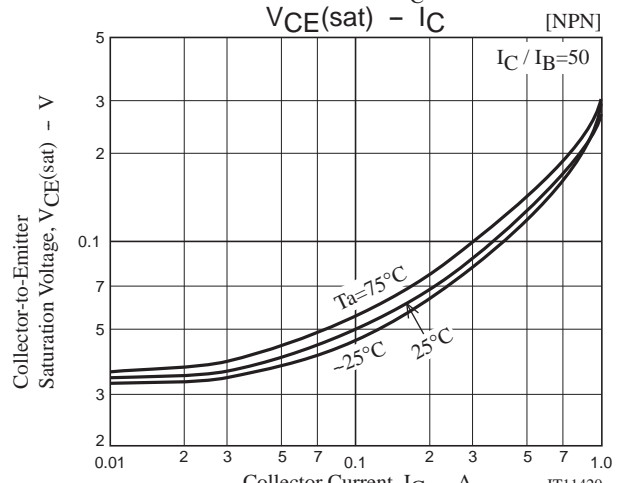
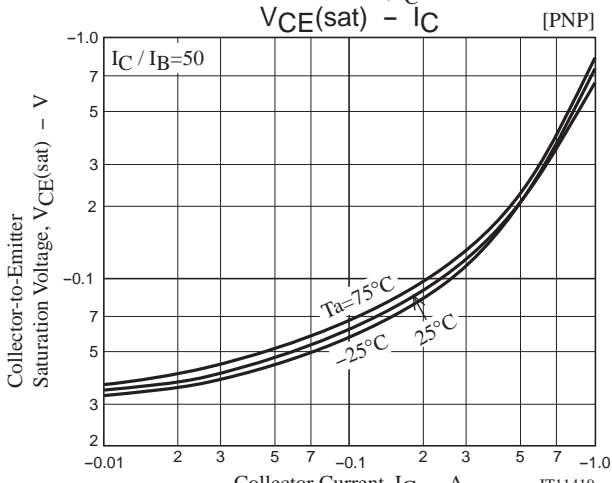
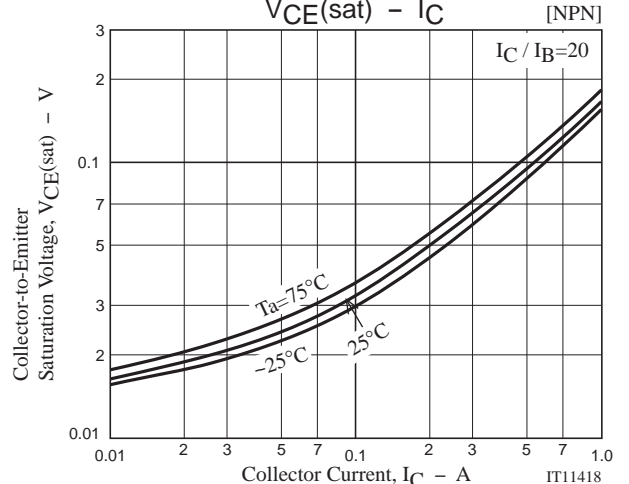
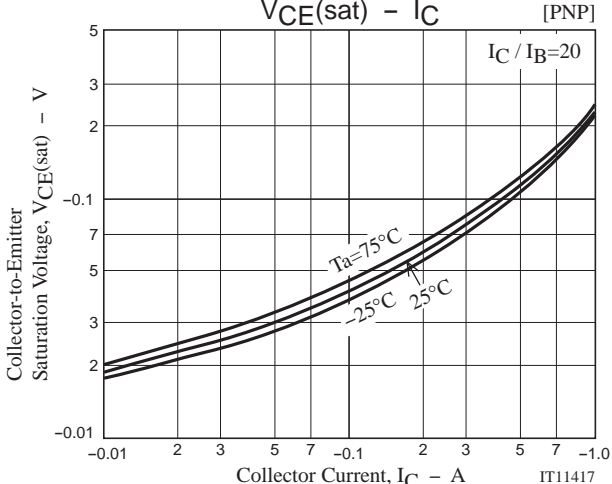
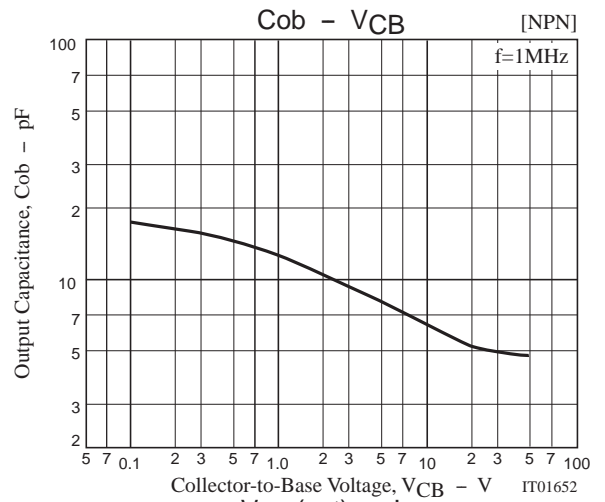
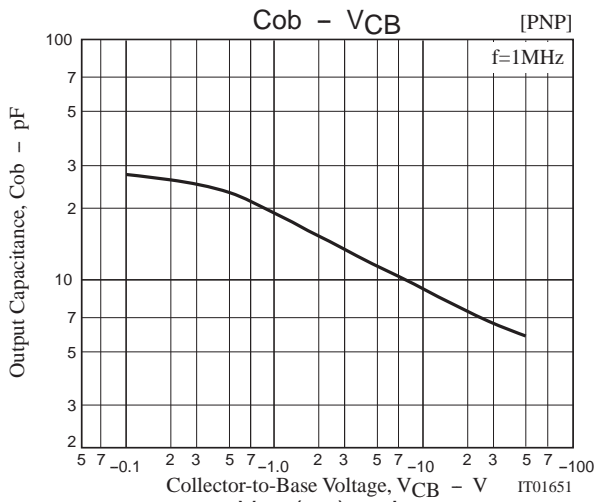
$$I_C = 20I_{B1} = -20I_{B2} = 500mA$$

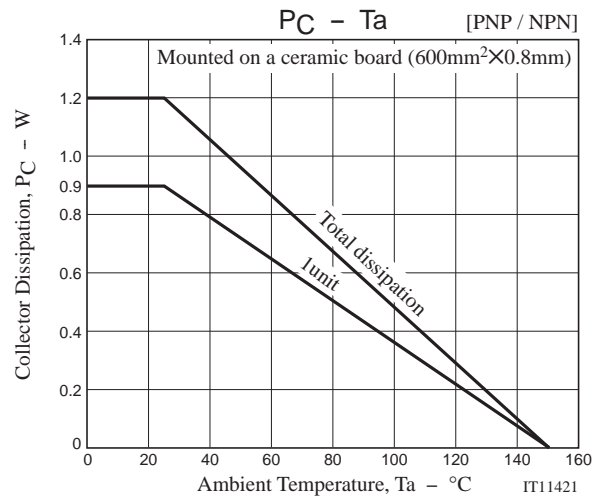
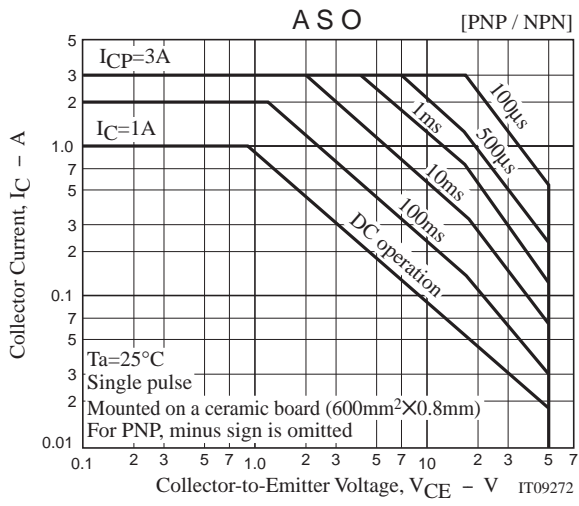
(For PNP, the polarity is reversed.)

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)

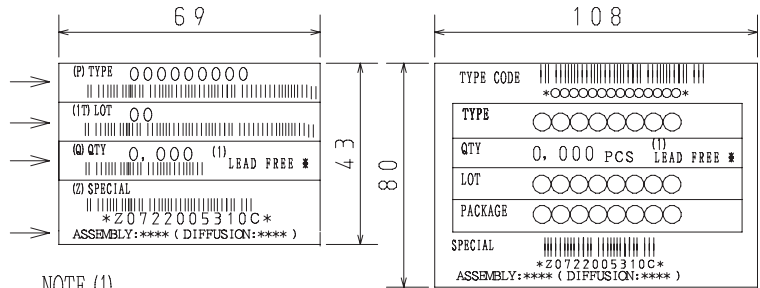
Outer box label
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

Packing method



Reel label

Type No.
LOT No.
Quantity
Origin



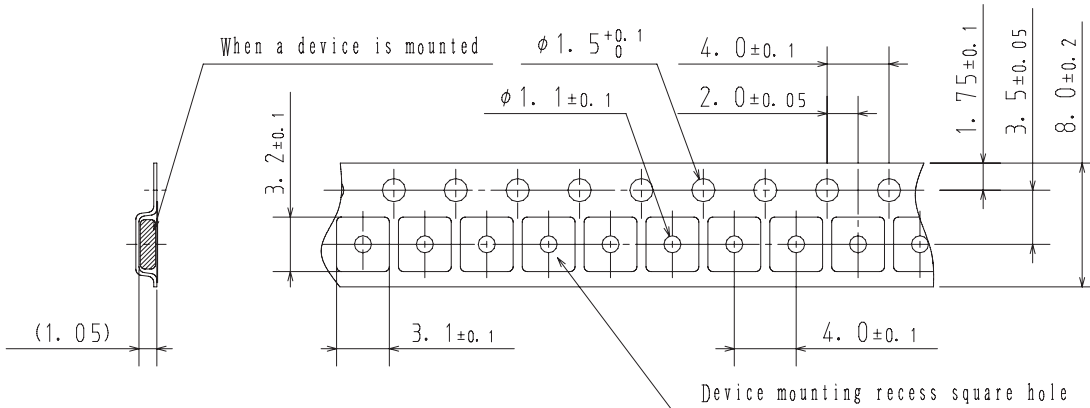
NOTE (1)

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

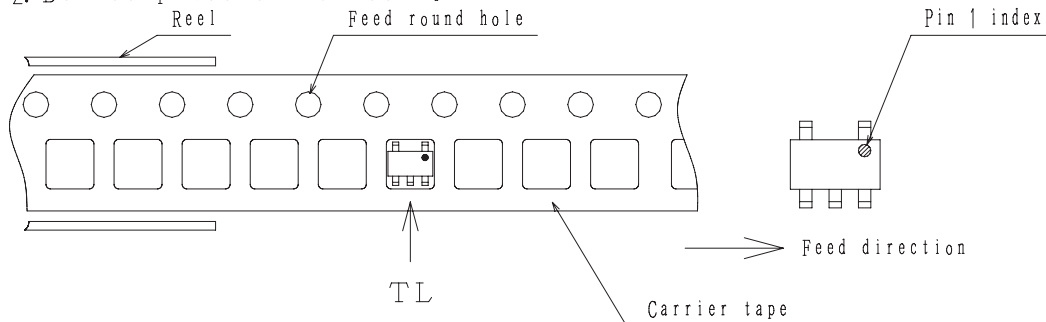
| Label | JEITA Phase |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3 |

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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