



CPH5517

Bipolar Transistor (-50V, (-)3A, Low VCE(sat) Complementary Dual CPH5

ON Semiconductor®

<http://onsemi.com>

Applications

- relay drivers, lamp drivers, motor drivers

Features

- Composite type with a PNP/NPN transistor contained in package, facilitating high-density mounting
- The CPH5517 consists of two chips which are equivalent to the CPH3116 and the CPH3216, respectively
- Ultrasmall package permitting applied sets to be small and slim (mounting height : 0.9mm)

Specifications () : PNP

Absolute Maximum Ratings at Ta=25°C

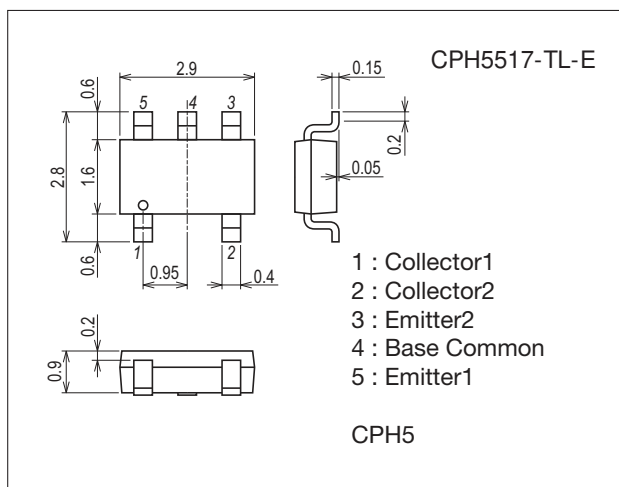
| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|------------------|--|-------------|------|
| Collector-to-Base Voltage | V _{CBO} | | (-50)60 | V |
| Collector-to-Emitter Voltage | V _{CEO} | | (-50) | V |
| Emitter-to-Base Voltage | V _{EBO} | | (-5) | V |
| Collector Current | I _C | | (-)1.0 | A |
| Collector Current (Pulse) | I _{CP} | | (-3) | A |
| Base Current | I _B | | (-)200 | mA |
| Collector Dissipation | P _C | Mounted on a ceramic board (600mm ² ×0.8mm) 1unit | 0.9 | W |
| Junction Temperature | T _j | | 150 | °C |
| Storage Temperature | T _{stg} | | -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)

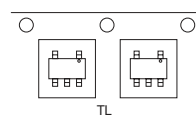
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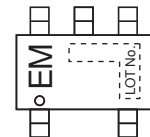
Product & Package Information

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

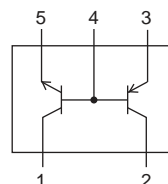
Packing Type : TL



Marking



Electrical Connection

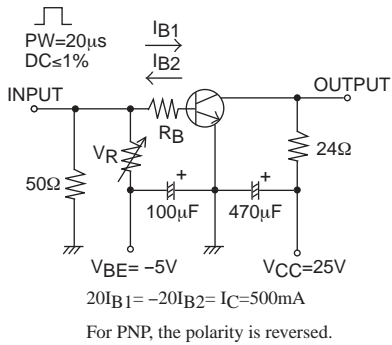


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Electrical Characteristics at Ta=25°C

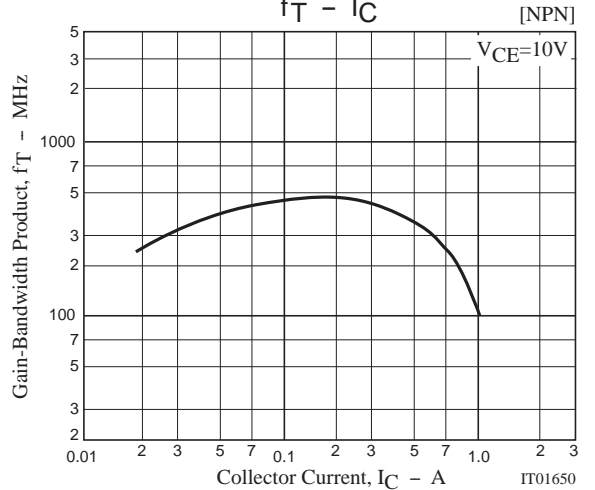
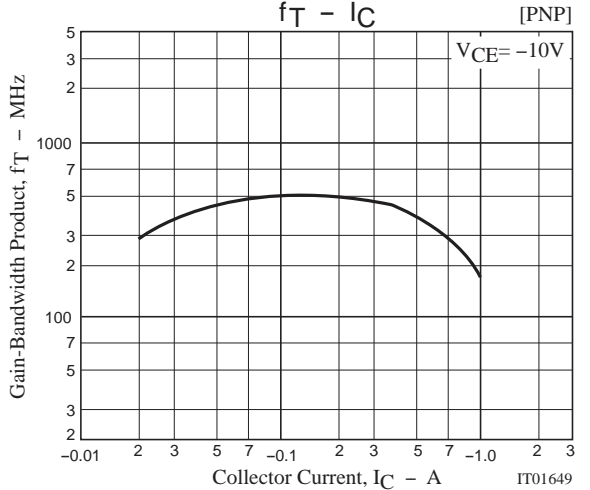
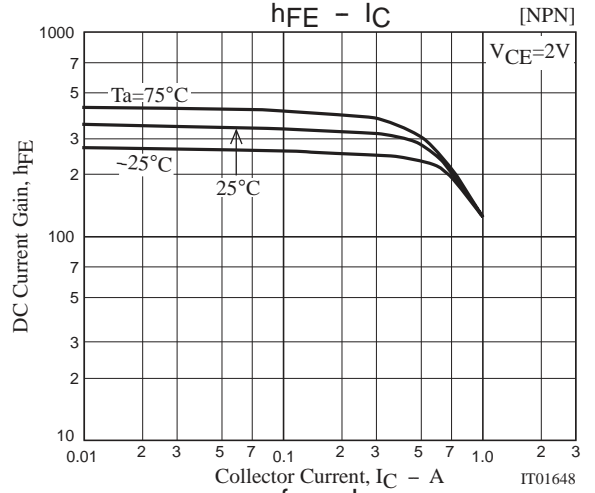
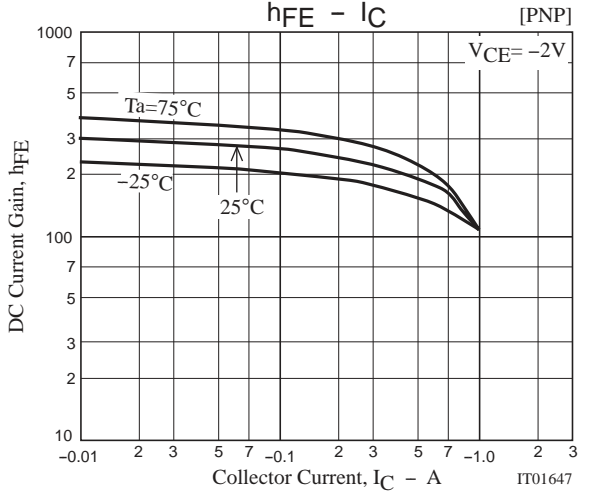
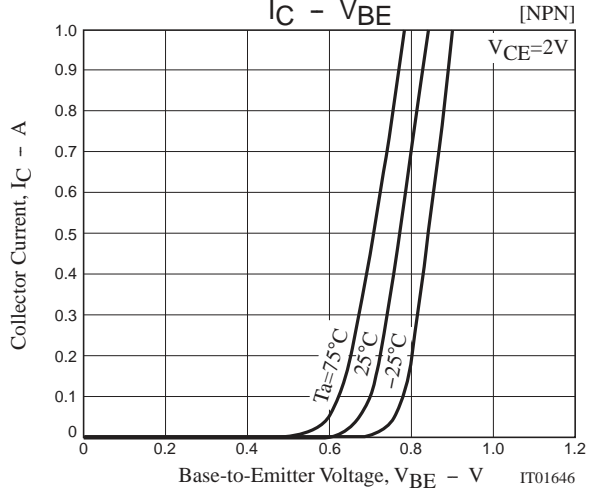
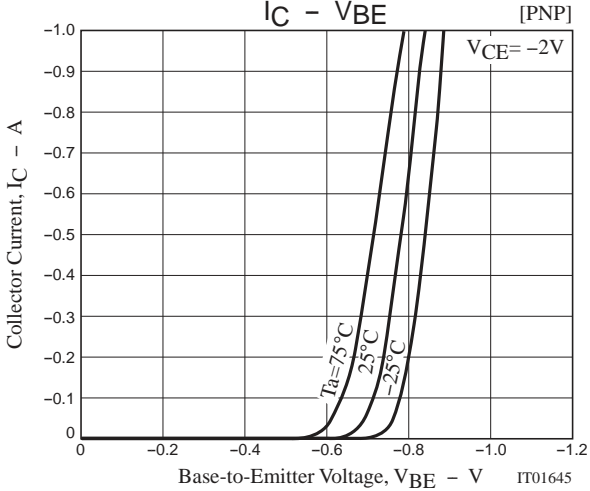
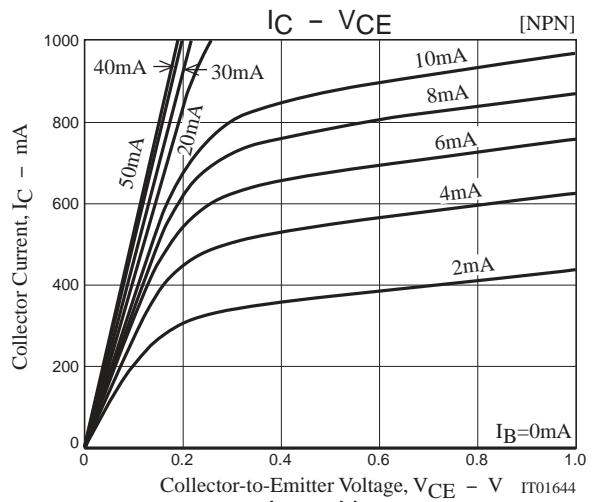
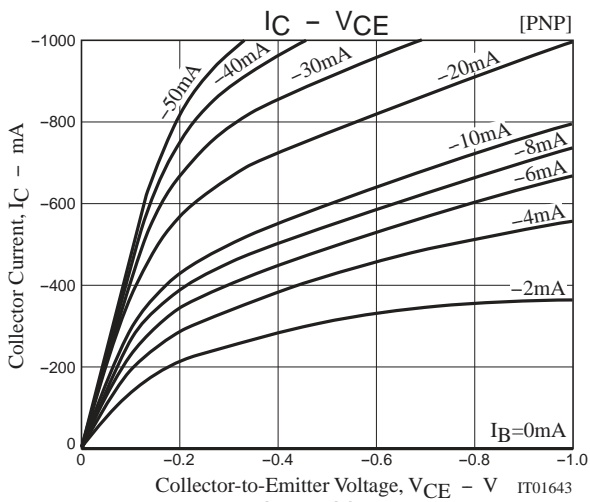
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|-----------------------------------|---------|----------|--------|---------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB} = (-)40V, I_E = 0A$ | | | (-)0.1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = (-)4V, I_C = 0A$ | | | (-)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 | $V_{CE(sat)}$ | $I_C = (-)500mA, I_B = (-)10mA$ | | (-280) | (-430) | mV |
| | | $I_C = (-)300mA, I_B = (-)6mA$ | | 130 | 190 | 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)60 | | | 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 |

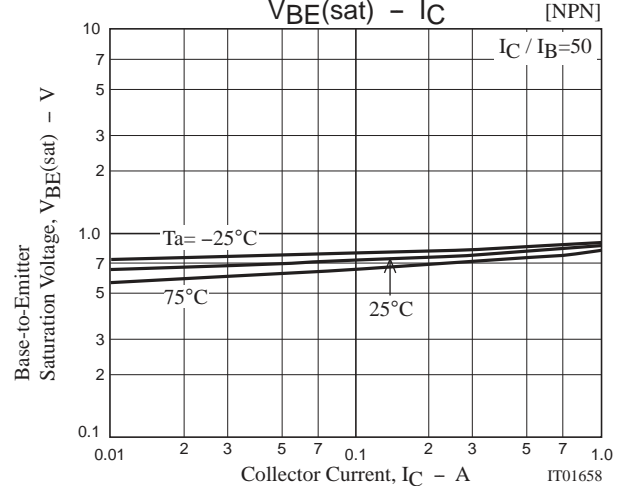
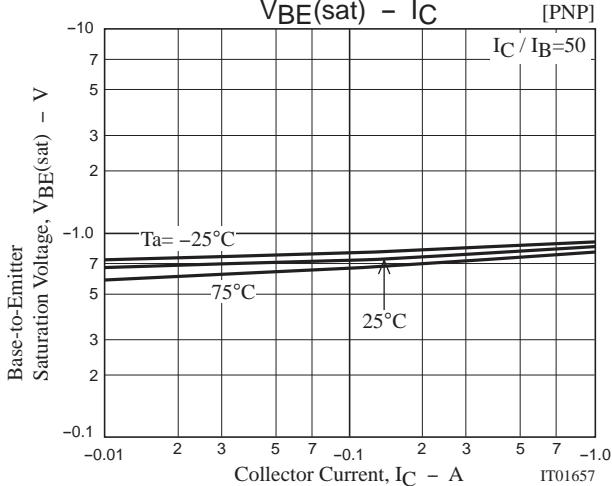
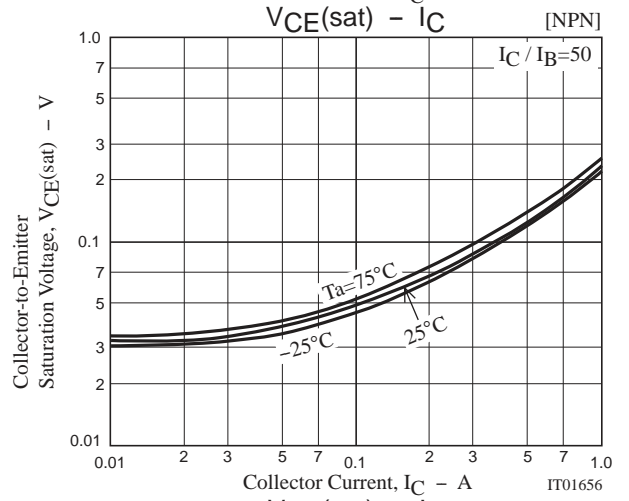
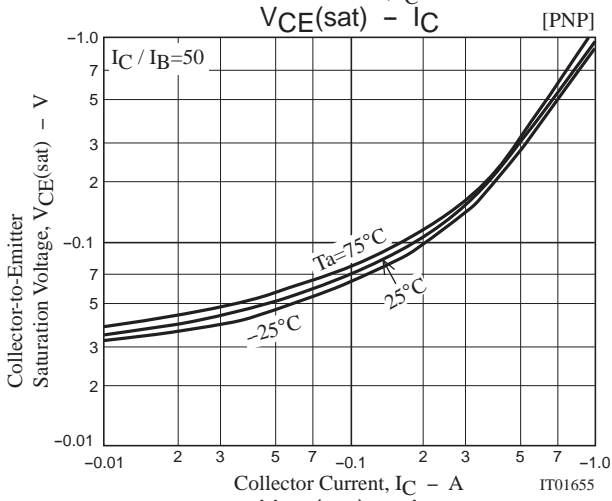
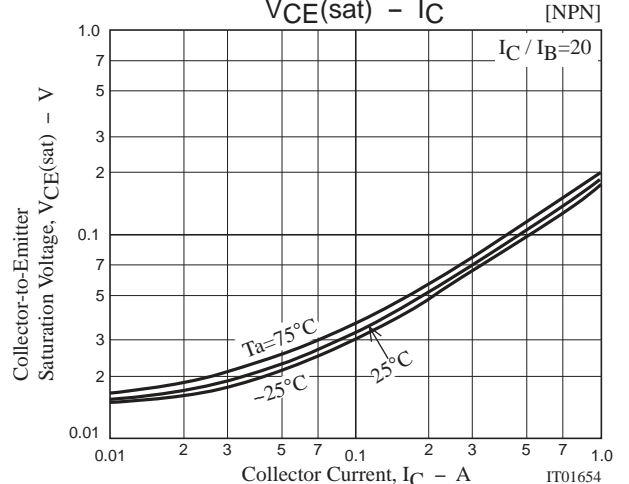
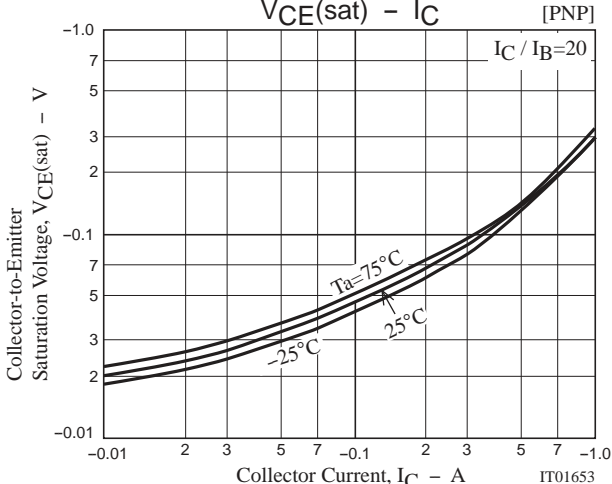
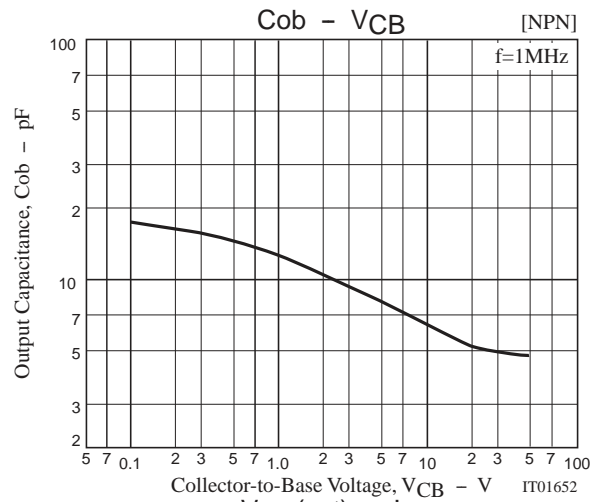
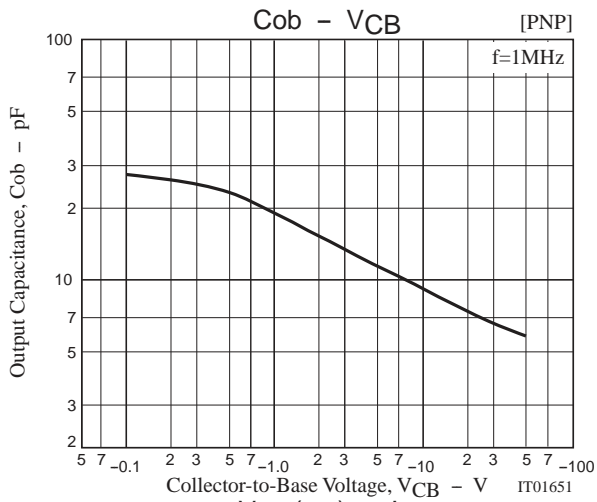
Switching Time Test Circuit



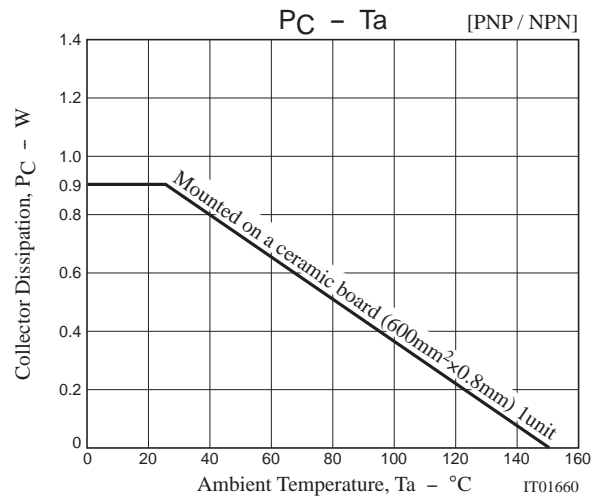
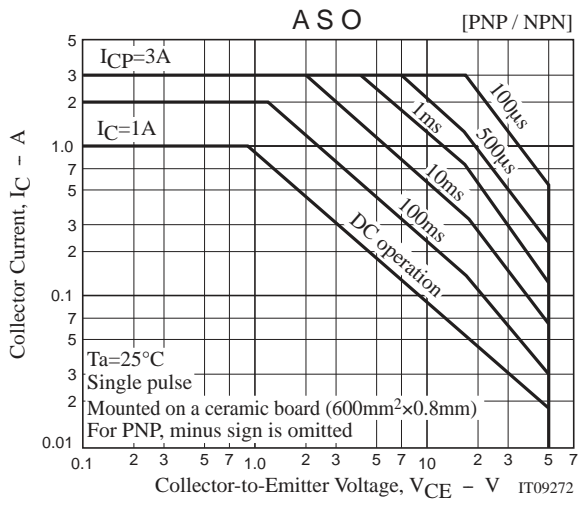
Ordering Information

| Device | Package | Shipping | memo |
|--------------|---------|----------------|---------|
| CPH5517-TL-E | CPH5 | 3,000pcs./reel | Pb Free |





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Embossed Taping Specification

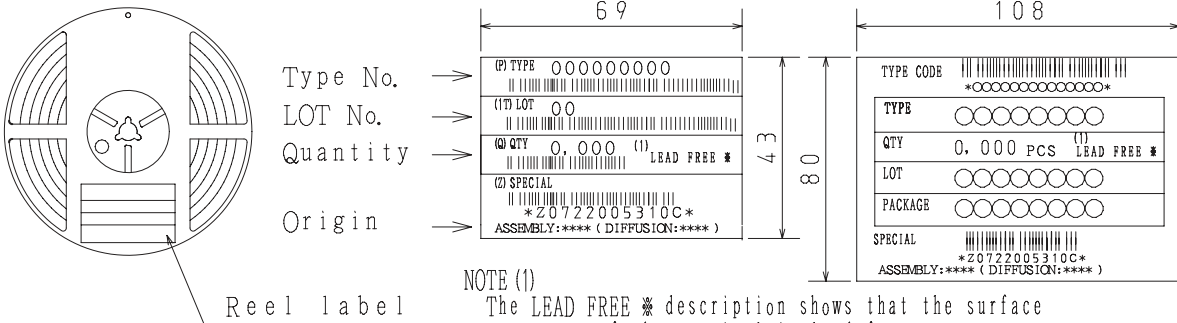
CPH5517-TL-E

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.]

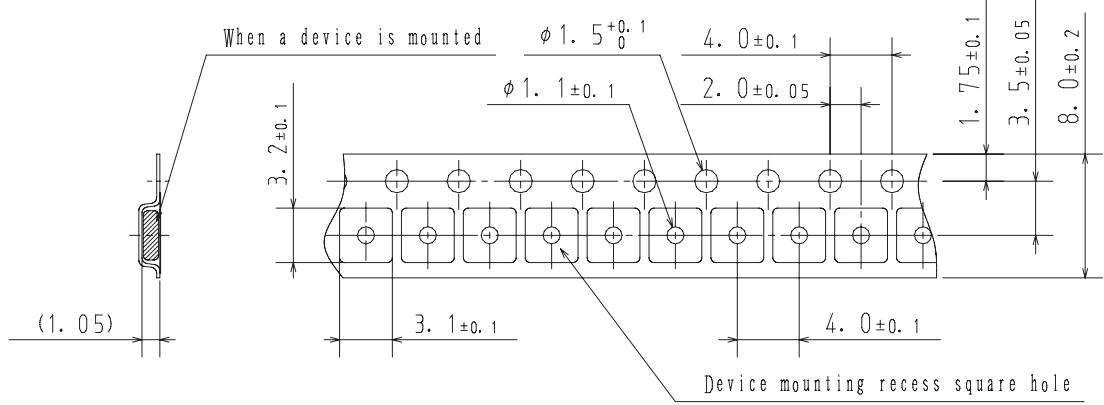


NOTE (1)
 The LEAD FREE * description shows that the surface treatment of the terminal is lead free.

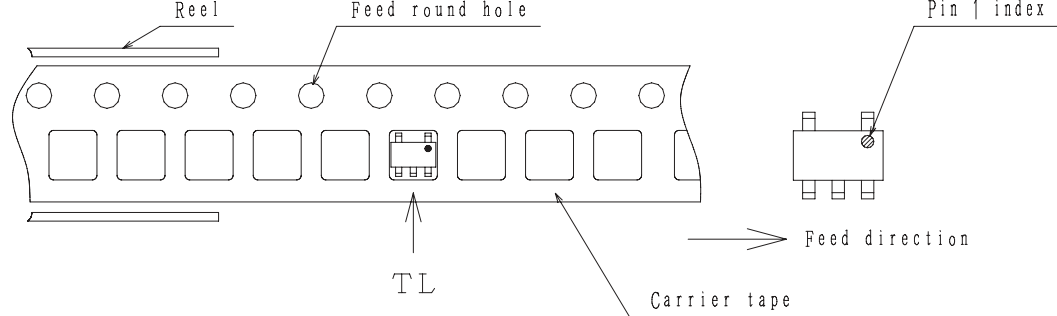
| Label | JEITA Phase |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3 |

2. Taping configuration

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



2-2. Device placement direction

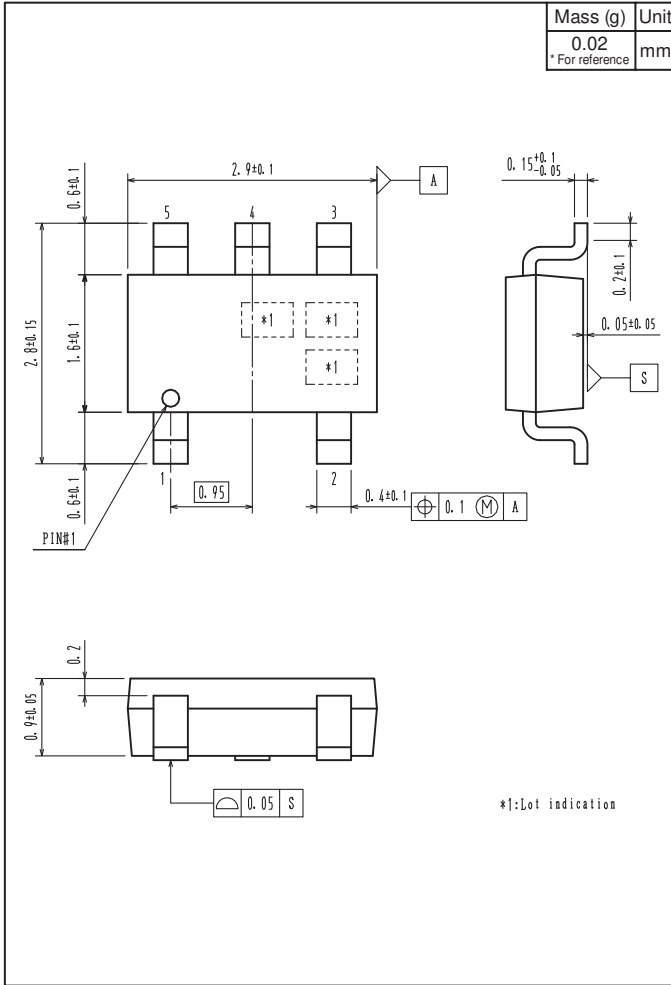


Those with pin 1 index on the feed hole side.....TL

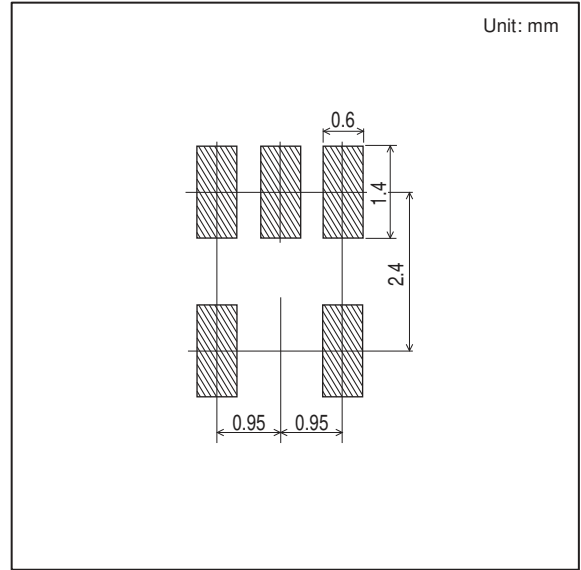
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Outline Drawing

CPH5517-TL-E



Land Pattern Example



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