



CPH5504

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

ON Semiconductor®

<http://onsemi.com>

Applications

- DC-DC converter, relay drivers, lamp drivers, motor drivers, flash

Features

- Composite type with 2 NPN transistors in one package facilitating high-density mounting
- The CPH5504 is composed of 2 chips each equivalent to the CPH3205
- Ultrasmall package facilitates miniaturization in end products. (mounting height : 0.9mm)

Specifications

Absolute Maximum Ratings at Ta=25°C

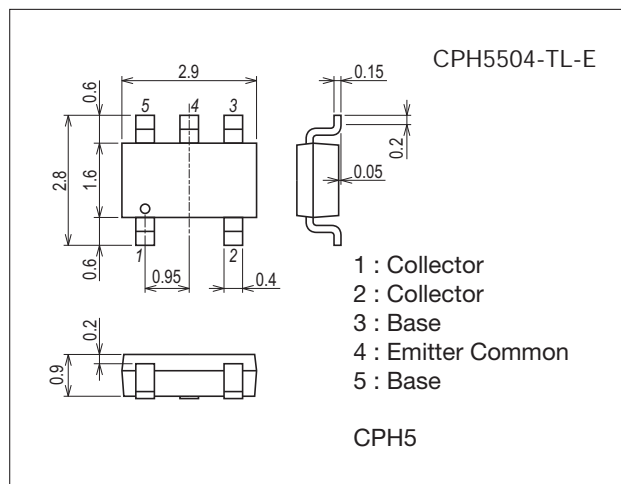
| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|------------------|--|-------------|------|
| Collector-to-Base Voltage | V _{CBO} | | 100 | V |
| Collector-to-Emitter Voltage | V _{CES} | | 100 | V |
| Collector-to-Emitter Voltage | V _{CEO} | | 50 | V |
| Emitter-to-Base Voltage | V _{EBO} | | 6 | V |
| Collector Current | I _C | | 3 | A |
| Collector Current (Pulse) | I _{CP} | | 6 | A |
| Base Current | I _B | | 600 | mA |
| Collector Dissipation | P _C | Mounted on a ceramic board (600mm ² ×0.8mm) | 0.9 | W |
| Total Power Dissipation | P _T | Mounted on a ceramic board (600mm ² ×0.8mm) | 1.2 | 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)

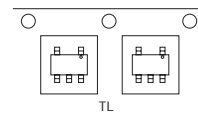
7017A-009



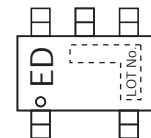
Product & Package Information

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

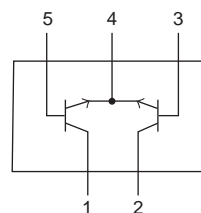
Packing Type : TL



Marking



Electrical Connection

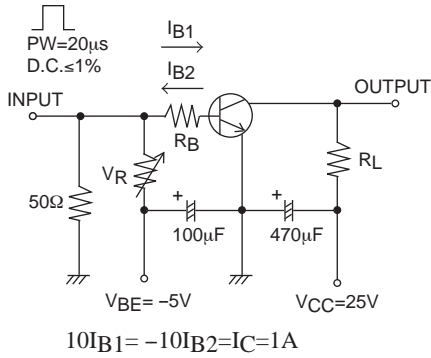


CPH5504

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

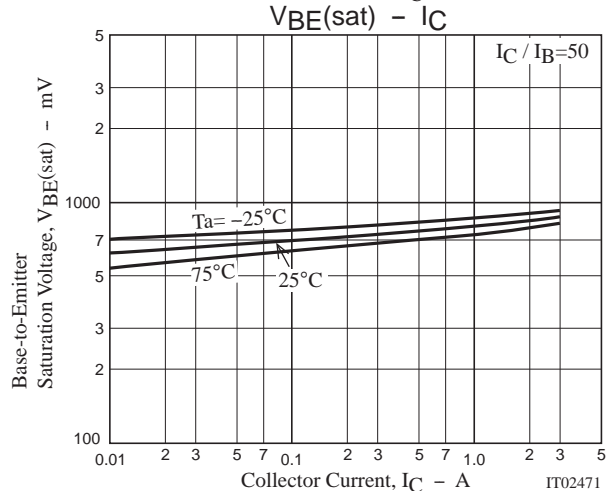
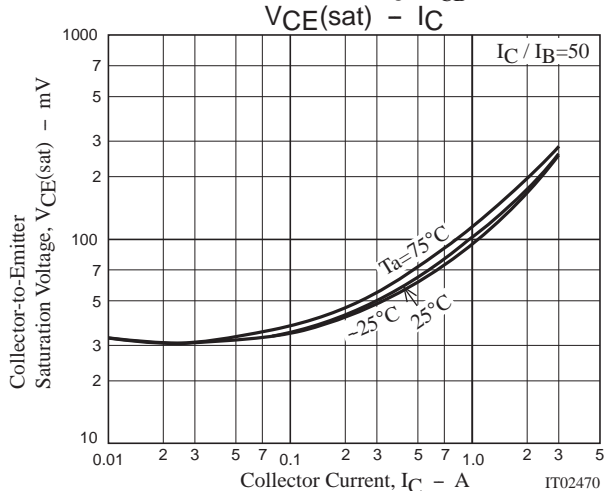
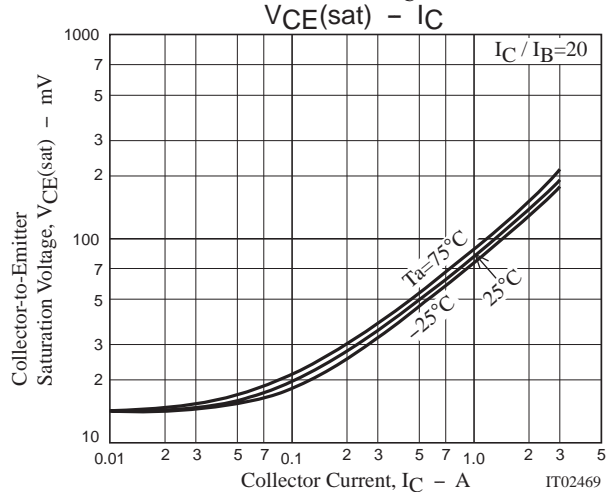
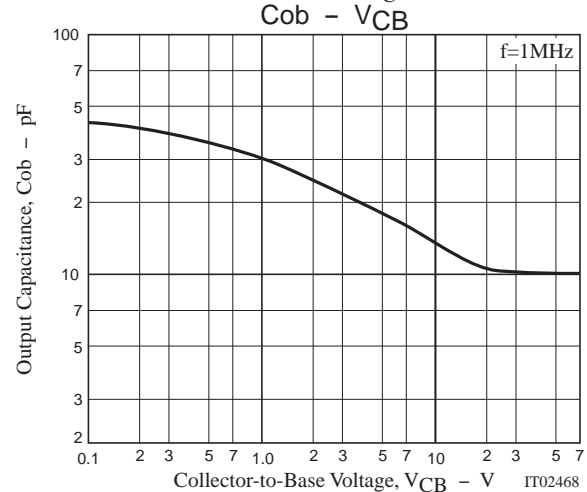
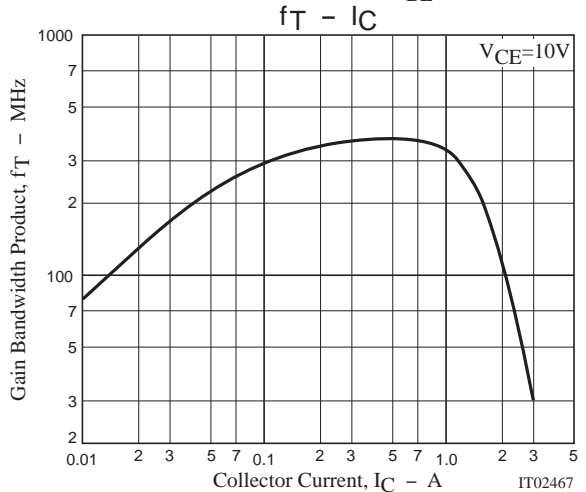
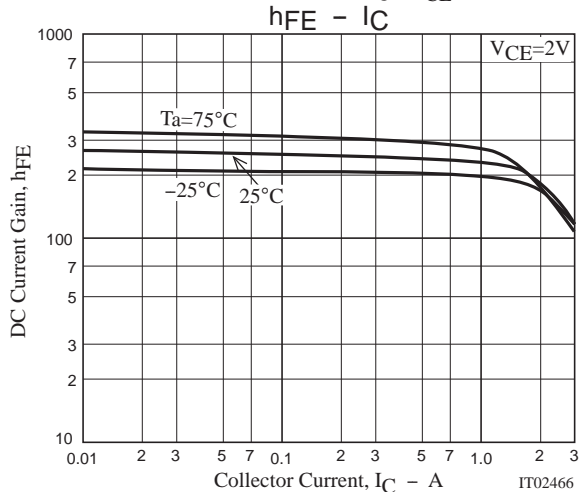
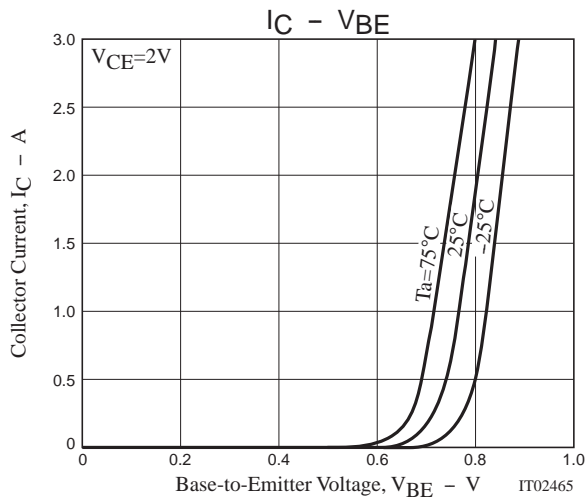
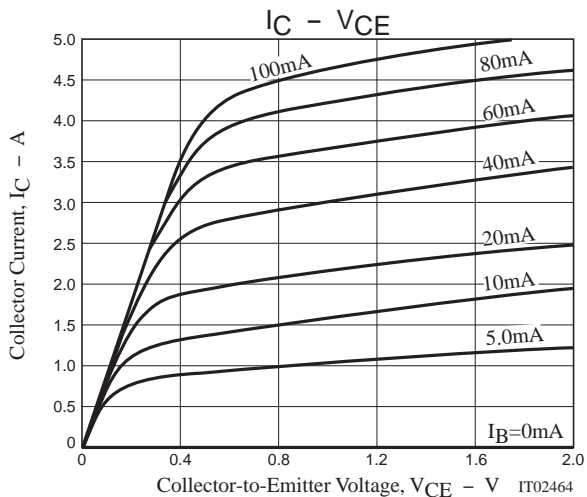
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|---------------------------------------|---------|------|-----|---------------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB}=40\text{V}, I_E=0\text{A}$ | | | 1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB}=4\text{V}, I_C=0\text{A}$ | | | 1 | μA |
| DC Current Gain | h_{FE1} | $V_{CE}=2\text{V}, I_C=100\text{mA}$ | 200 | | 560 | |
| | h_{FE2} | $V_{CE}=2\text{V}, I_C=3\text{A}$ | 70 | | | |
| Gain-Bandwidth Product | f_T | $V_{CE}=10\text{V}, I_C=500\text{mA}$ | | 380 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB}=10\text{V}, f=1\text{MHz}$ | | 13 | | pF |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=1\text{A}, I_B=50\text{mA}$ | | 80 | 120 | mV |
| | | $I_C=2\text{A}, I_B=100\text{mA}$ | | 140 | 210 | mV |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=2\text{A}, I_B=100\text{mA}$ | | 0.88 | 1.2 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C=10\mu\text{A}, I_E=0\text{A}$ | 100 | | | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CES}$ | $I_C=100\mu\text{A}, R_{BE}=0\Omega$ | 100 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C=1\text{mA}, R_{BE}=\infty$ | 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 | | ns |
| Storage Time | t_{stg} | | | 300 | | ns |
| Fall Time | t_f | | | 22 | | ns |

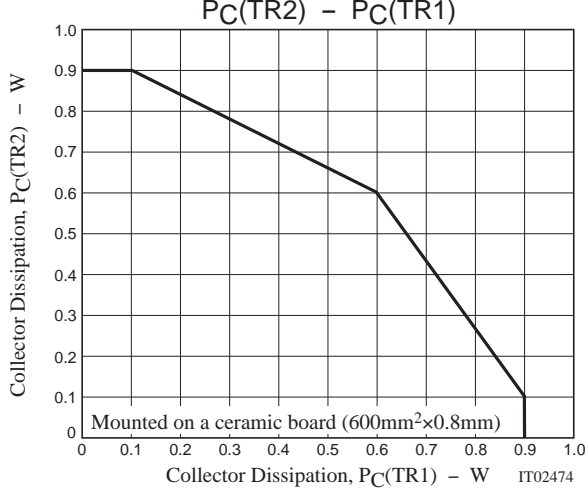
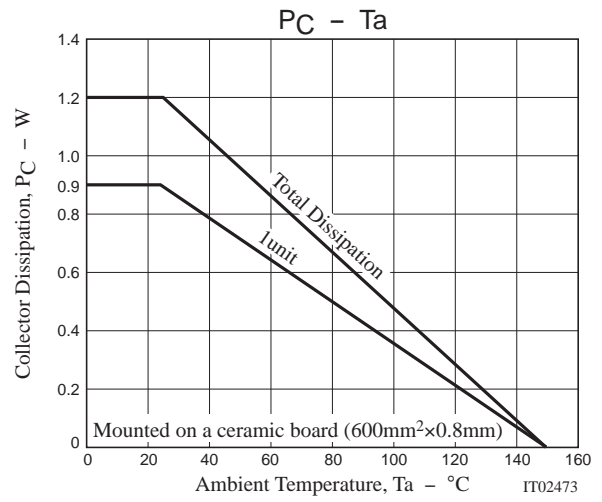
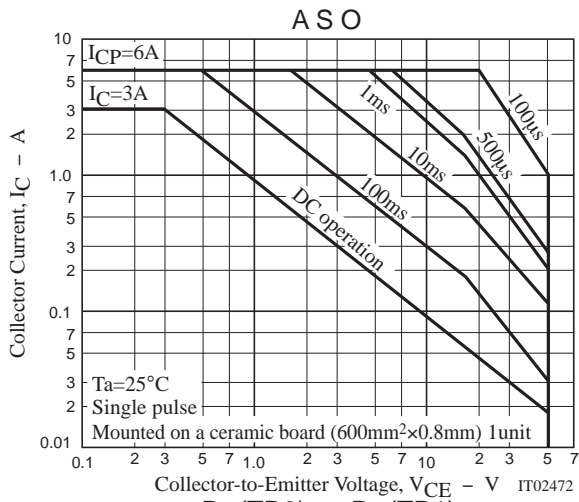
Switching Time Test Circuit



Ordering Information

| Device | Package | Shipping | memo |
|--------------|---------|----------------|---------|
| CPH5504-TL-E | CPH5 | 3,000pcs./reel | Pb Free |





Embossed Taping Specification

CPH5504-TL-E

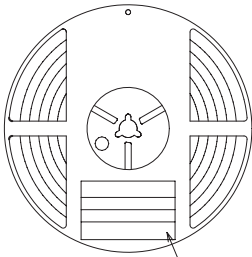
1. Packing Format

| 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 |

Reel label, Inner box label
(unit:mm)

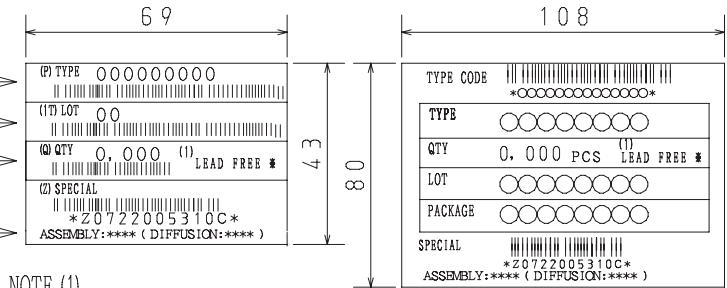
Outer box label
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

Packing method



Reel label

Type No.
LOT No.
Quantity
Origin



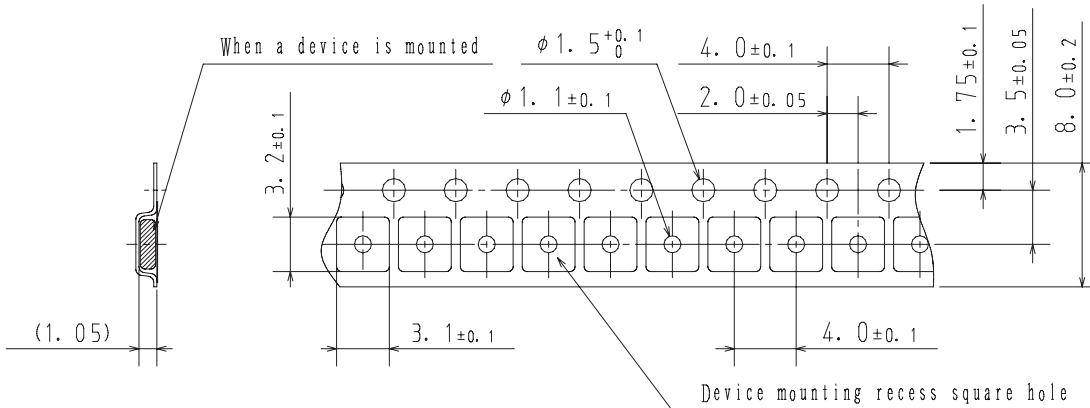
NOTE (1)

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

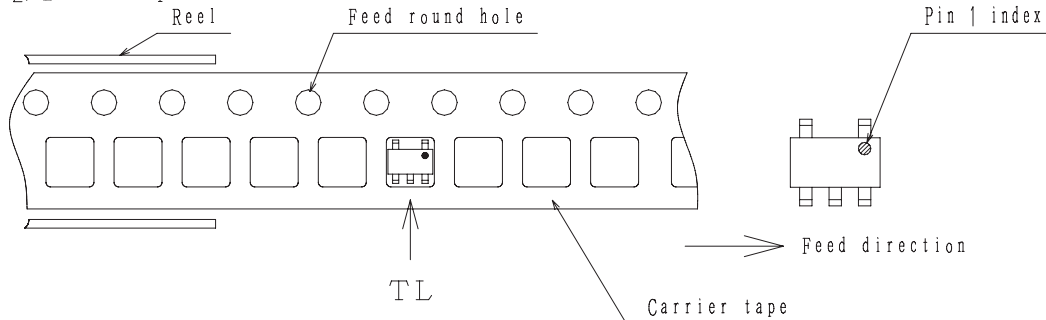
| Label | JEITA Phase |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3 |

2. Taping configuration

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

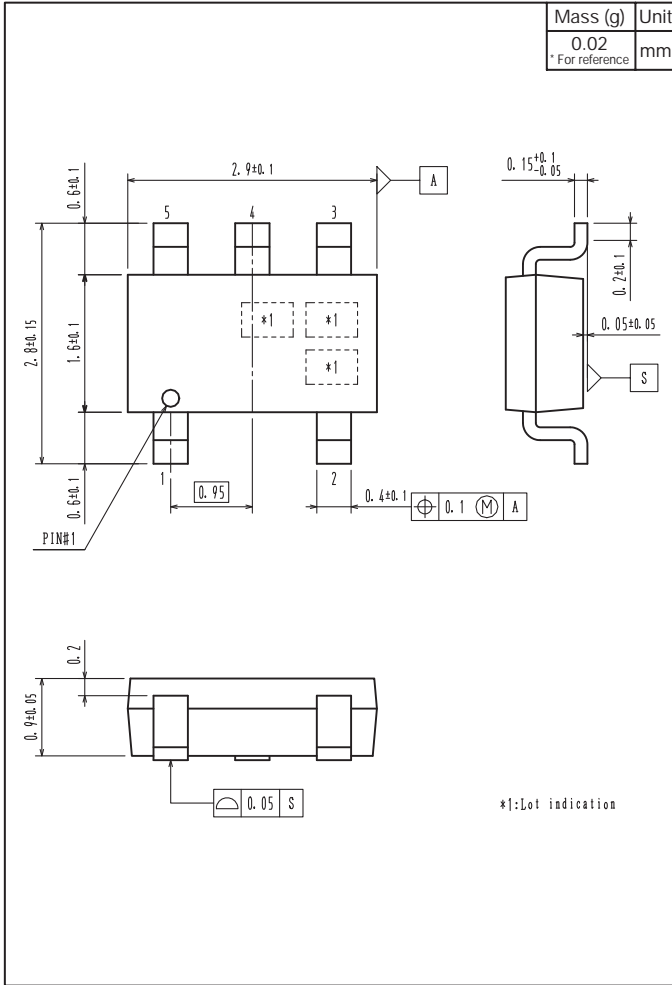


2-2. Device placement direction

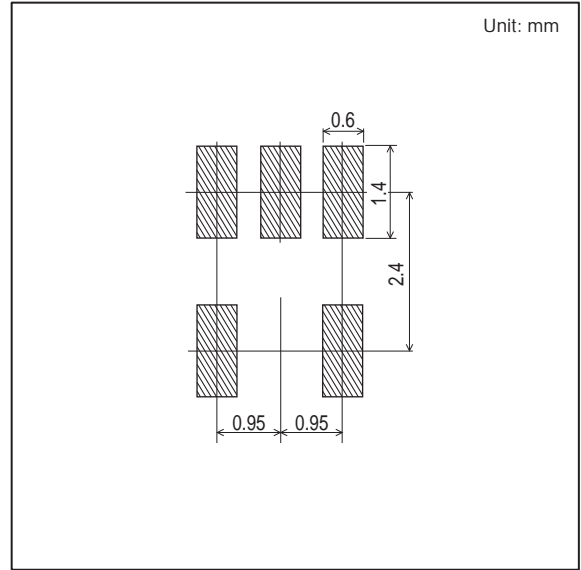


Those with pin 1 index on the feed hole side.....TL

Outline Drawing
CPH5504-TL-E





Land Pattern Example



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