



CPH3122

Bipolar Transistor -30V, -3A, Low VCE(sat) PNP Single CPH3

ON Semiconductor®

<http://onsemi.com>

Applications

- Relay drivers, lamp drivers, motor drivers, flash

Features

- Adoption of MBIT processes
- Large current capacity
- Low collector to emitter saturation voltage
- High-speed switching
- Ultrasmall package facilitates miniaturization in end products (mounting height : 0.9mm)
- High allowable power dissipation

Specifications

Absolute Maximum Ratings at Ta=25°C

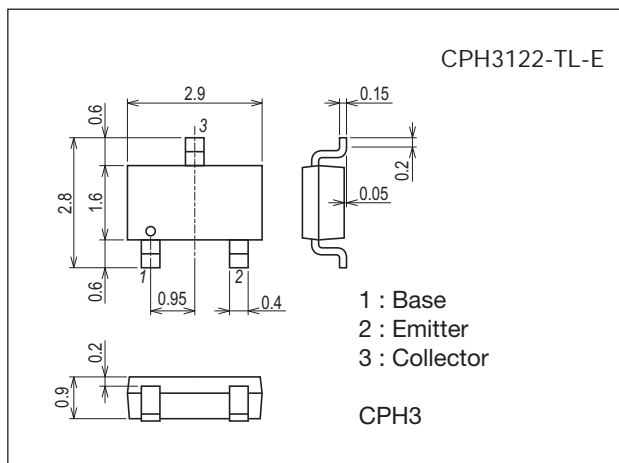
| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|------------------|---|-------------|------|
| Collector to Base Voltage | V _{CBO} | | -30 | V |
| Collector to Emitter Voltage | V _{CEO} | | -30 | V |
| Emitter to Base Voltage | V _{EB0} | | -5 | V |
| Collector Current | I _C | | -3 | A |
| Collector Current (Pulse) | I _{CP} | | -5 | A |
| Base Current | I _B | | -600 | mA |
| Collector Dissipation | P _C | When mounted on ceramic substrate (600mm ² ×0.8mm) | 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)

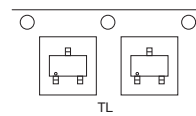
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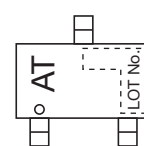
Product & Package Information

- Package : CPH3
- JEITA, JEDEC : SC-59, TO-236, SOT-23
- Minimum Packing Quantity : 3,000 pcs./reel

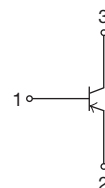
Packing Type: TL



Marking



Electrical Connection

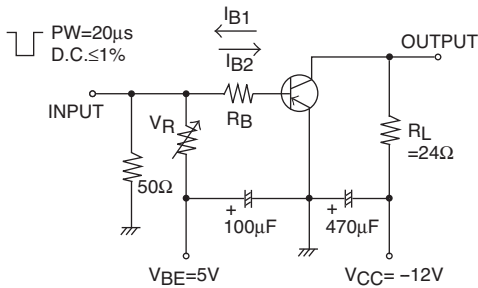


CPH3122

Electrical Characteristics at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|----------------|-------------------------------|---------|-------|------|---------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB} = -30V, I_E = 0A$ | | | -0.1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = -4V, I_C = 0A$ | | | -0.1 | μA |
| DC Current Gain | h_{FE} | $V_{CE} = -2V, I_C = -500mA$ | 200 | | 560 | |
| Gain-Bandwidth Product | f_T | $V_{CE} = -10V, I_C = -500mA$ | | 400 | | MHz |
| Output Capacitance | C_{ob} | $V_{CB} = -10V, f = 1MHz$ | | 25 | | pF |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)1}$ | $I_C = -1.5A, I_B = -30mA$ | | -180 | -270 | mV |
| | $V_{CE(sat)2}$ | $I_C = -1.5A, I_B = -75mA$ | | -120 | -180 | mV |
| Base to Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C = -1.5A, I_B = -30mA$ | | -0.83 | -1.2 | V |
| Collector to Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = -10\mu A, I_E = 0A$ | -30 | | | V |
| Collector to Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = -1mA, R_{BE} = \infty$ | -30 | | | 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. | | 50 | | ns |
| Storage Time | t_{stg} | | | 270 | | ns |
| Fall Time | t_f | | | 27 | | ns |

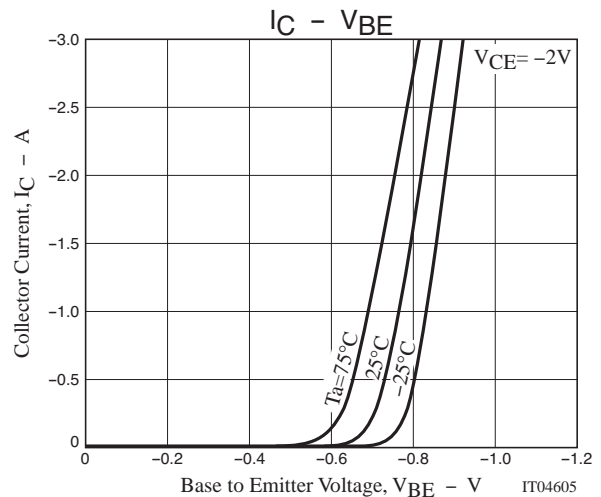
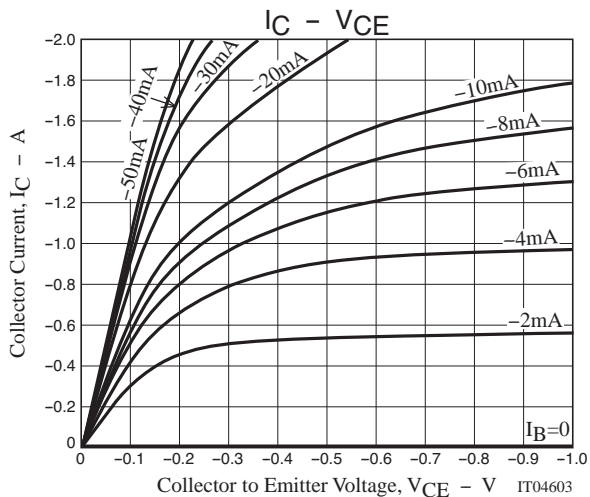
Switching Time Test Circuit

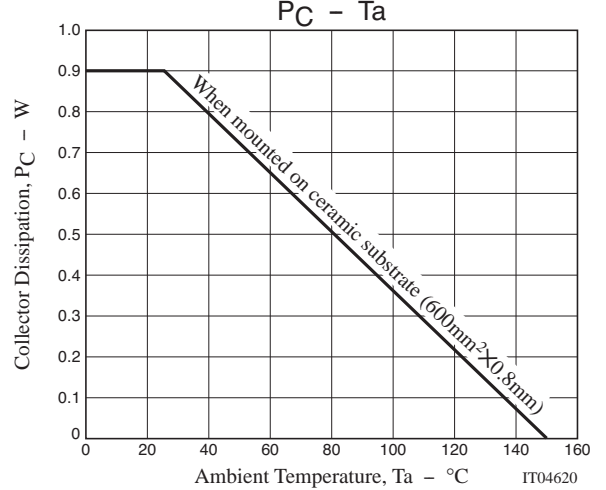
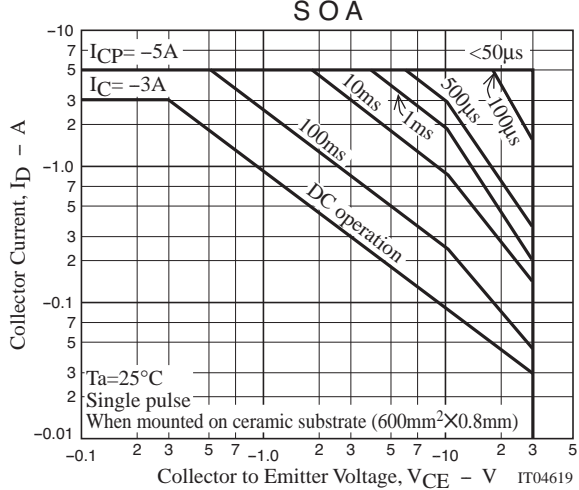
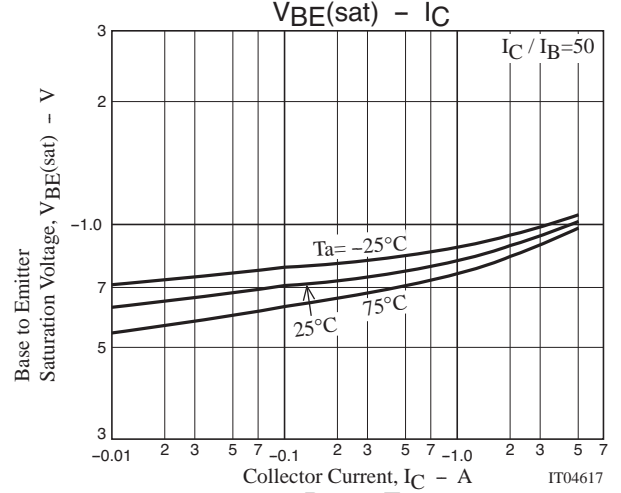
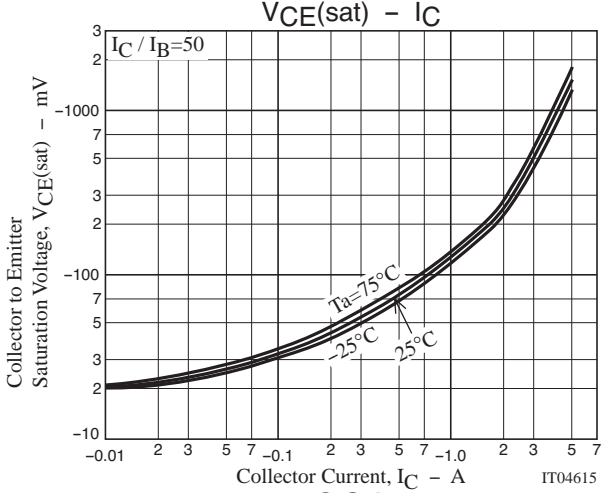
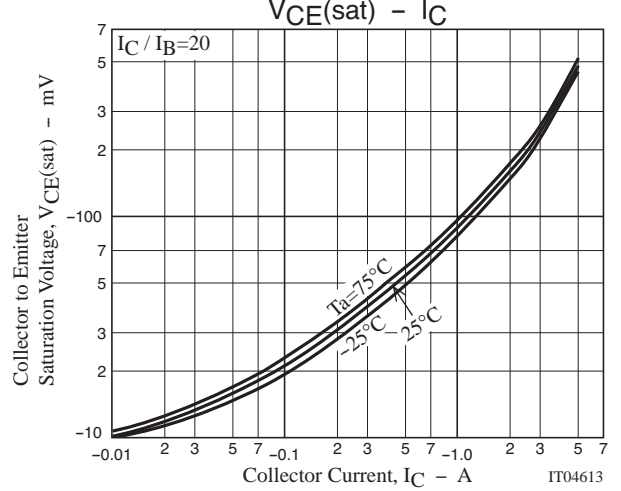
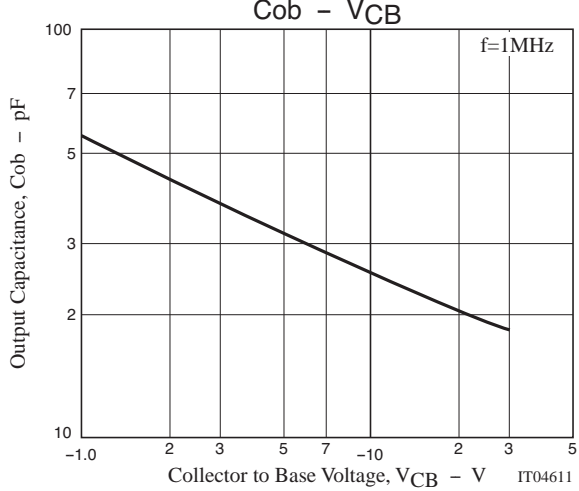
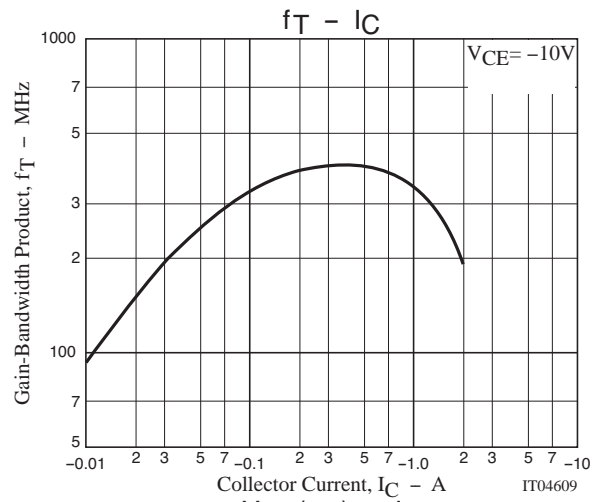
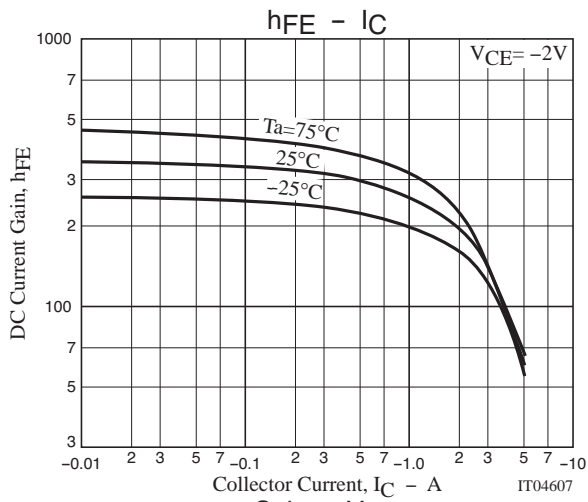


$$I_C = 20I_{B1} = -20I_{B2} = -500mA$$

Ordering Information

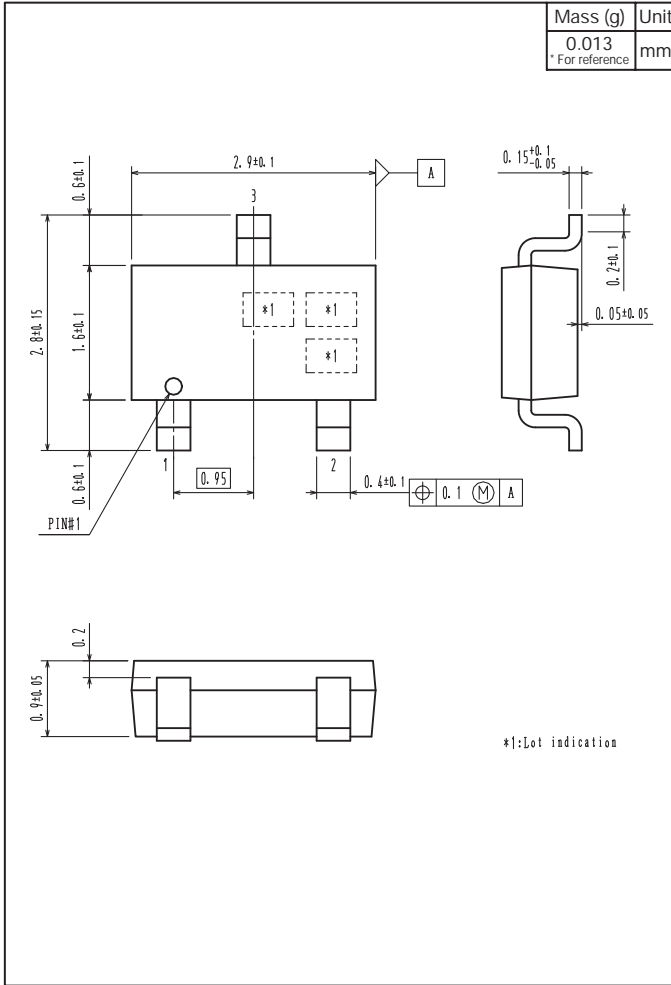
| Device | Package | Shipping | memo |
|--------------|---------|----------------|---------|
| CPH3122-TL-E | CPH3 | 3,000pcs./reel | Pb Free |



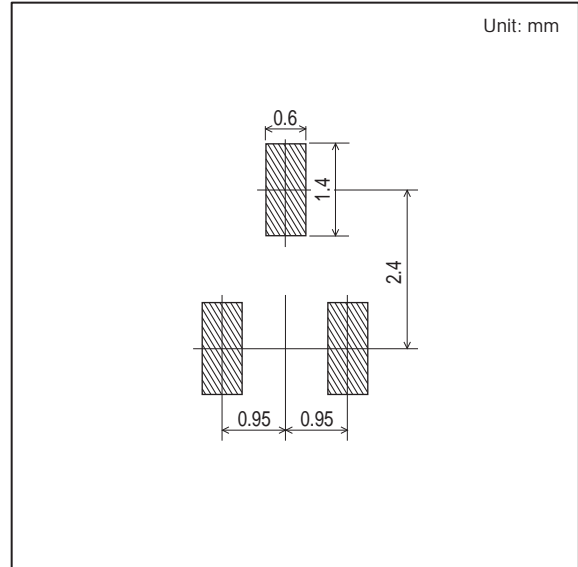


Outline Drawing

CPH3122-TL-E



Land Pattern Example



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