



MCH6121

Bipolar Transistor -12V, -3A, Low VCE(sat), PNP Single MCPH6

ON Semiconductor®

<http://onsemi.com>

Applications

- Relay drivers, lamp drivers, motor drivers, line switch

Features

- Adoption of MBIT process
- Low collector-to-emitter saturation voltage
- Ultrasmall-sized package permitting applied sets to be made small and slim (0.85mm)
- High allowable power dissipation
- Large current capacity
- High speed switching
- Halogen free compliance

Specifications

Absolute Maximum Ratings at Ta=25°C

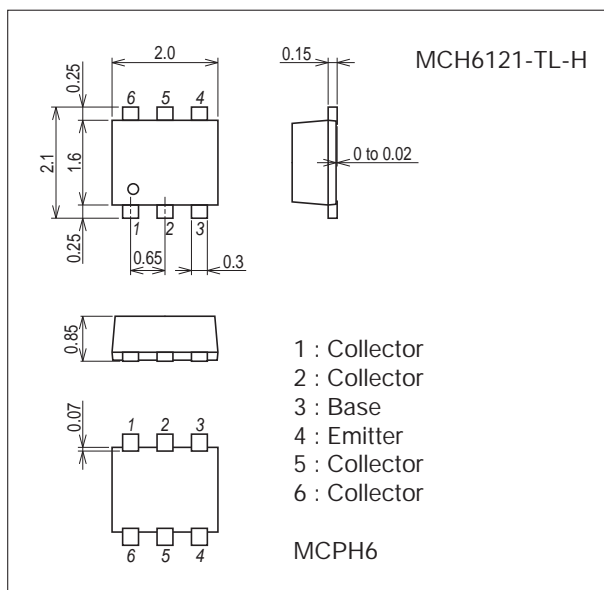
| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|------------------|---|-------------|------|
| Collector-to-Base Voltage | V _{CBO} | | -15 | V |
| Collector-to-Emitter Voltage | V _{CEO} | | -12 | V |
| Emitter-to-Base Voltage | V _{EB0} | | -5 | V |
| Collector 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) | 1 | 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)

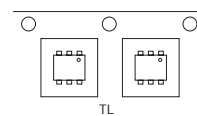
7022A-007



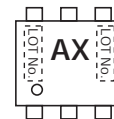
Product & Package Information

- Package : MCPH6
- JEITA, JEDEC : SC-88, SC-70-6, SOT-363
- Minimum Packing Quantity : 3,000 pcs./reel

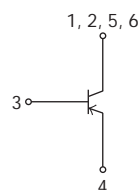
Packing Type : TL



Marking



Electrical Connection

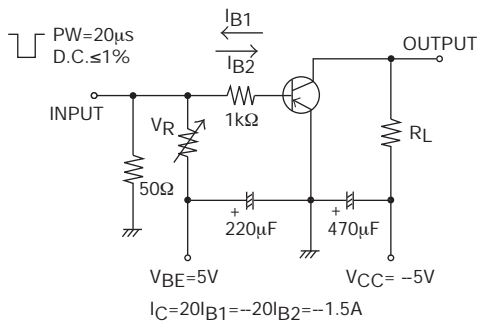


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Electrical Characteristics at $T_a=25^\circ\text{C}$

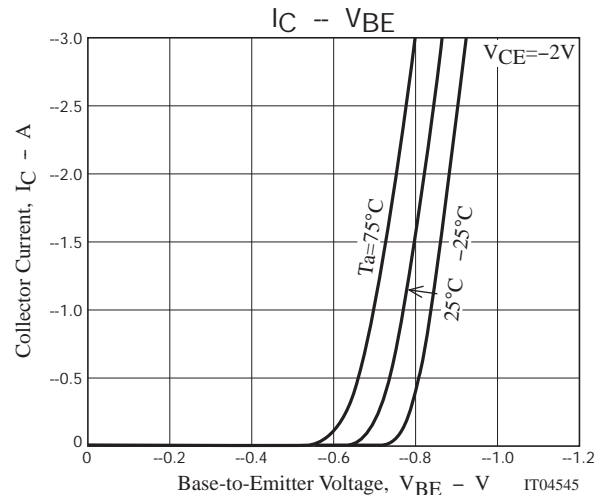
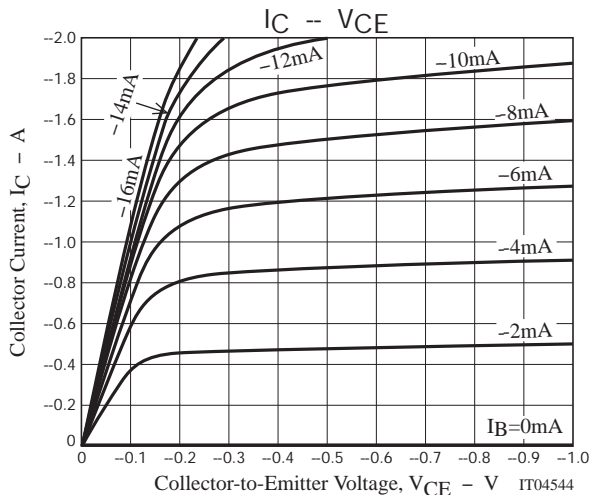
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---------------|--|---------|-------|------|---------------|
| | | | min | typ | max | |
| Collector Cutoff Current | I_{CBO} | $V_{CB} = -12\text{V}, I_E = 0\text{A}$ | | | -0.1 | μA |
| Emitter Cutoff Current | I_{EBO} | $V_{EB} = -4\text{V},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

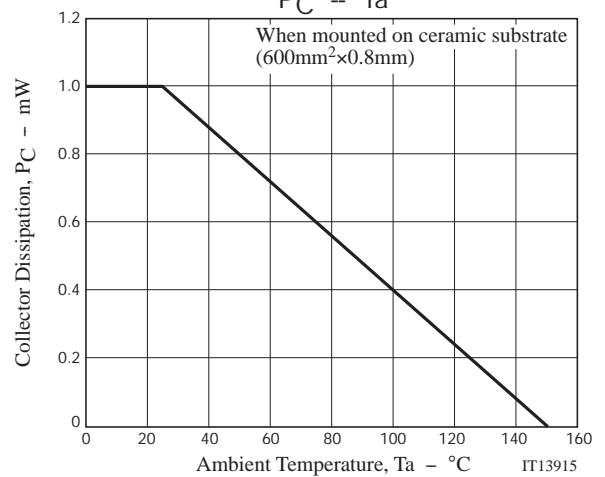
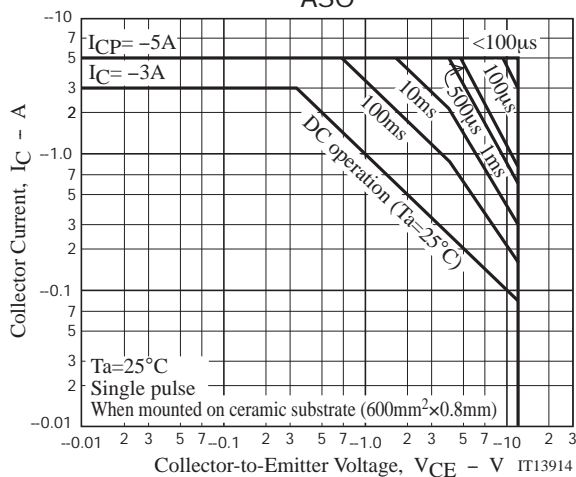
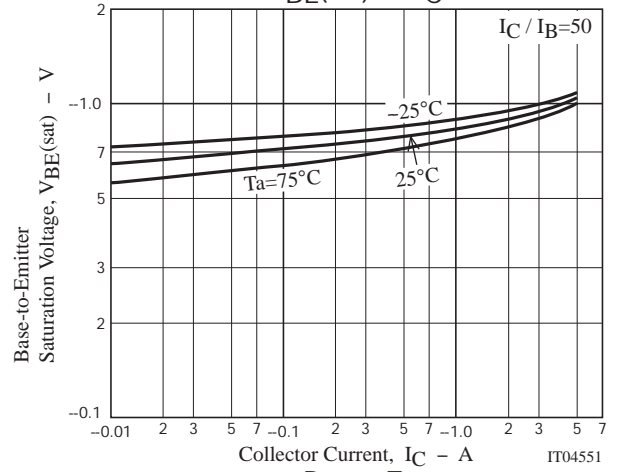
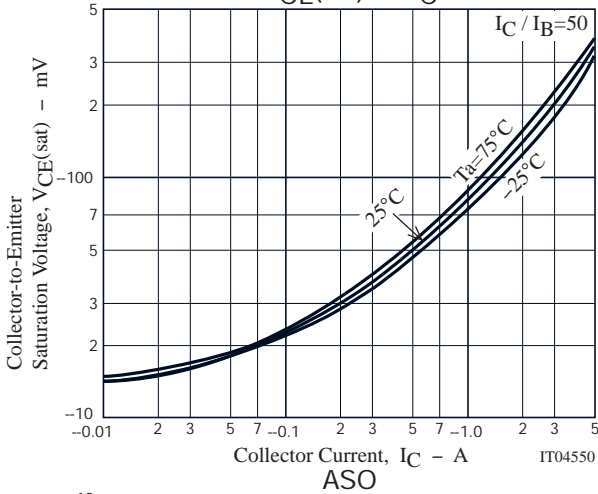
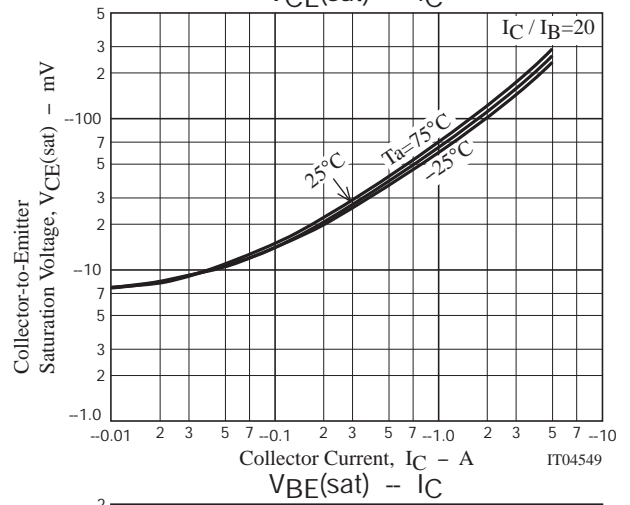
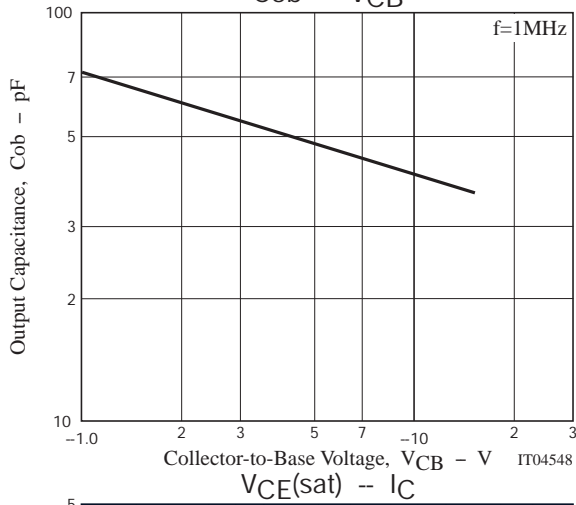
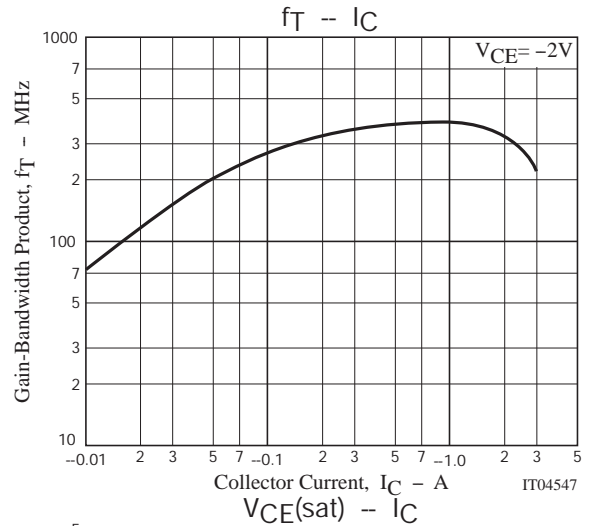
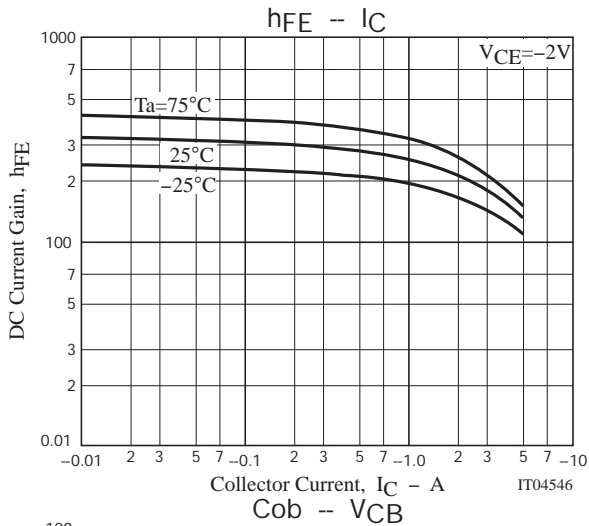
Switching Time Test Circuit



Ordering Information

| Device | Package | Shipping | memo |
|--------------|---------|----------------|--------------------------|
| MCH6121-TL-H | MCPH6 | 3,000pcs./reel | Pb Free and Halogen Free |





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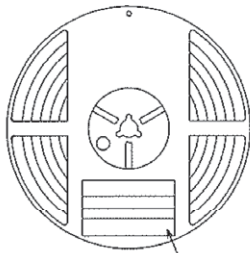
Embossed Taping Specification

MCH6121-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) |
| MCPH6 | MCP4 | 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 |

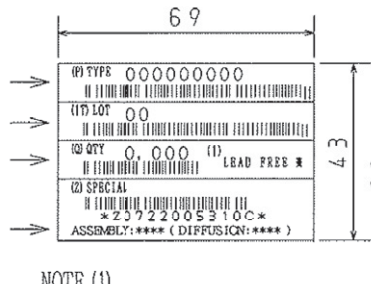
Packing method



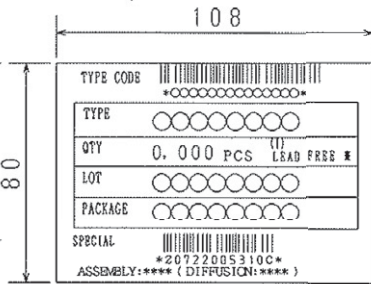
Reel label

Type No.
LOT No.
Quantity
Origin

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.



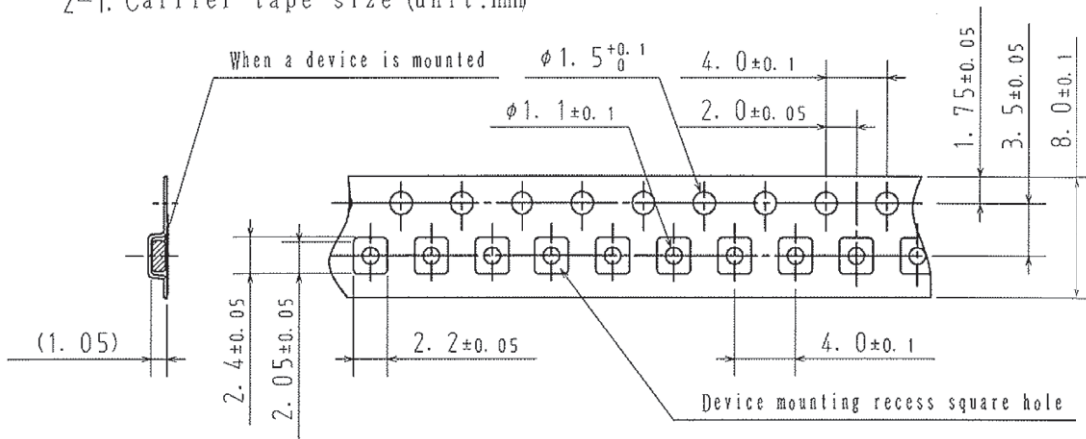
NOTE (1)

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

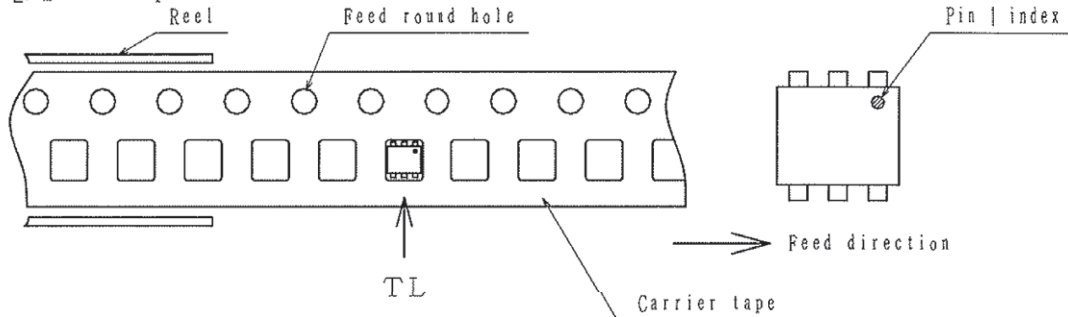
| Label | JEITA Phase |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3 |

2. Taping configuration

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



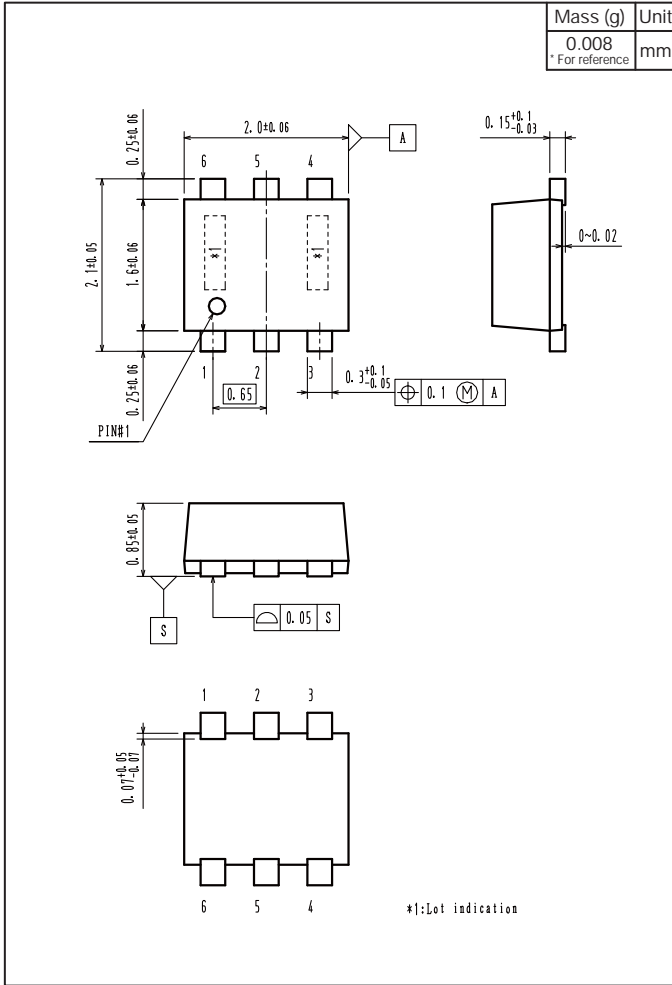
2-2. Device placement direction



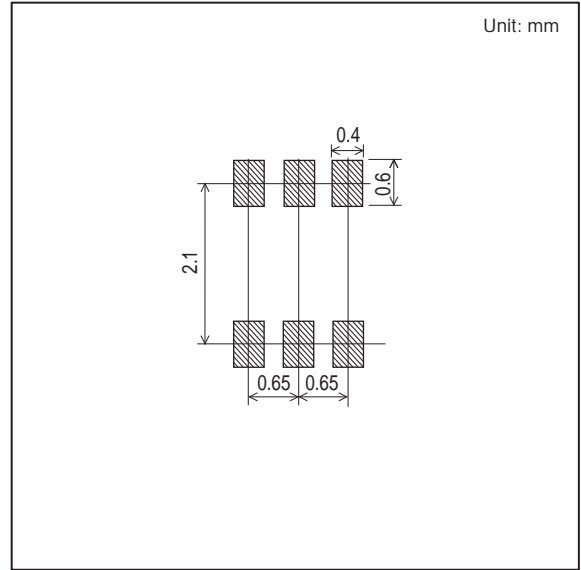
Those with pin | index on the feed hole side.....TL

MCH6121

Outline Drawing MCH6121-TL-H



Land Pattern Example



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