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MCH6541

Bipolar Transistor (-30V, (-)3A, Low VCE(sat) Complementary Dual MCPH6

ON Semiconductor®

<http://onsemi.com>

Applications

- MOSFET gate drivers, 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
- Ultrasmall package permitting applied sets to be small and slim

Specifications () : PNP

Absolute Maximum Ratings at Ta=25°C

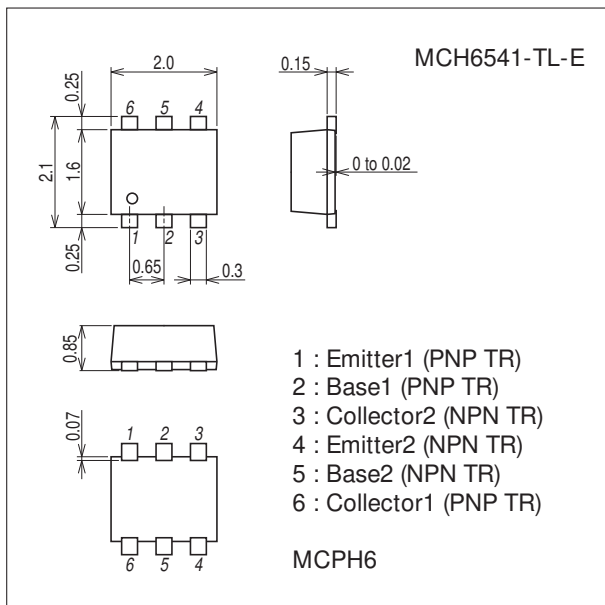
| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------|------------------|---|-------------|------|
| Collector-to-Base Voltage | V _{CB0} | | (-30)40 | V |
| Collector-to-Emitter Voltage | V _{CEO} | | (-)30 | V |
| Emitter-to-Base Voltage | V _{EB0} | | (-)5 | V |
| Collector Current | I _C | | (-)700 | mA |
| Collector Current (Pulse) | I _{CP} | | (-)3 | A |
| Collector Dissipation | P _C | When mounted on ceramic substrate (600mm ² ×0.8mm) 1unit | 0.5 | W |
| Total Power Dissipation | P _T | When mounted on ceramic substrate (600mm ² ×0.8mm) | 0.55 | 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)

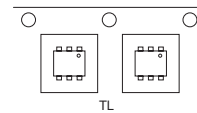
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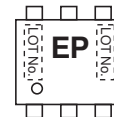
Product & Package Information

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

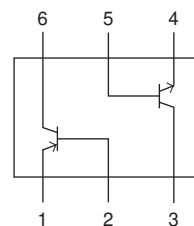
Packing Type : TL



Marking



Electrical Connection

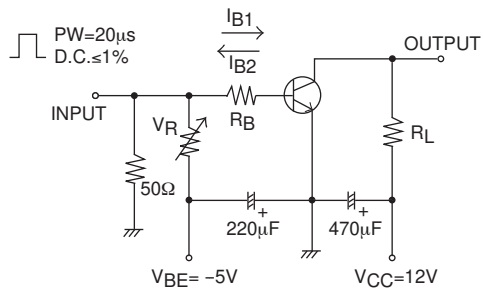


MCH6541

Electrical Characteristics at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|----------------------|---|----------|----------|-----------|------|
| | | | min | typ | max | |
| Collector Cutoff Current | ICBO | V _{CB} =(-)30V, I _E =0A | | | (-)100 | nA |
| Emitter Cutoff Current | IEBO | V _{EB} =(-)4V, I _C =0A | | | (-)100 | nA |
| DC Current Gain | h _{FE} | V _{CE} =(-)2V, I _C =(-)50mA | (200)300 | | (500)800 | |
| Gain-Bandwidth Product | f _T | V _{CE} =(-)2V, I _C =(-)50mA | | (520)540 | | MHz |
| Output Capacitance | Cob | V _{CB} =(-)10V, f=1MHz | | (4.7)3.3 | | pF |
| Collector-to-Emitter Saturation Voltage | V _{CE(sat)} | I _C =(-)200mA, I _B =(-)10mA | | (-110)85 | (-220)190 | mV |
| Base-to-Emitter Saturation Voltage | V _{BE(sat)} | I _C =(-)200mA, I _B =(-)10mA | | (-)0.9 | (-)1.2 | V |
| Collector-to-Base Breakdown Voltage | V _{(BR)CBO} | I _C =(-)10μA, I _E =0A | (-30)40 | | | V |
| Collector-to-Emitter Breakdown Voltage | V _{(BR)CEO} | I _C =(-)1mA, R _{BE} =∞ | (-)30 | | | V |
| Emitter-to-Base Breakdown Voltage | V _{(BR)EBO} | I _E =(-)10μA, I _C =0A | (-)5 | | | V |
| Turn-On Time | t _{on} | See specified Test Circuit. | | 35 | | ns |
| Storage Time | t _{stg} | | | (125)255 | | ns |
| Fall Time | t _f | | | (25)40 | | ns |

Switching Time Test Circuit



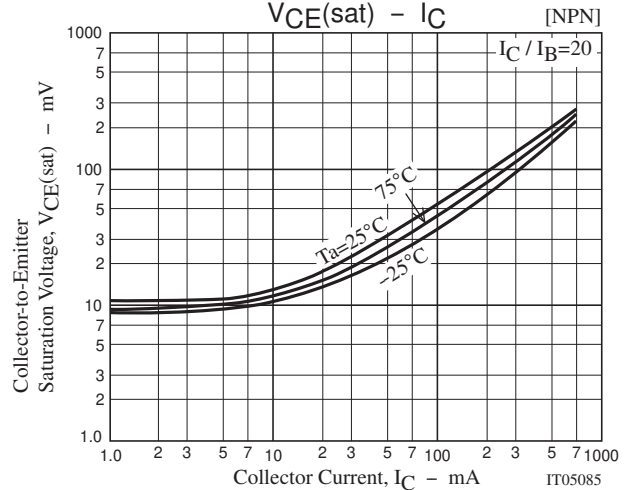
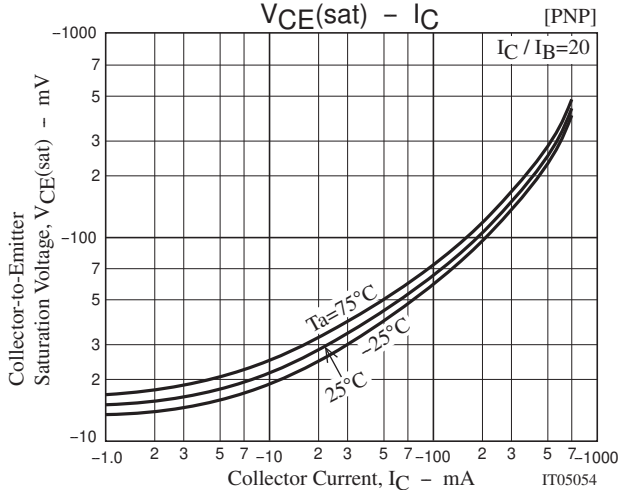
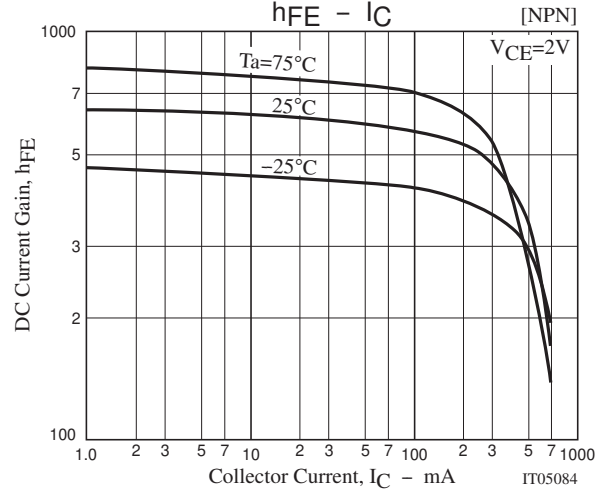
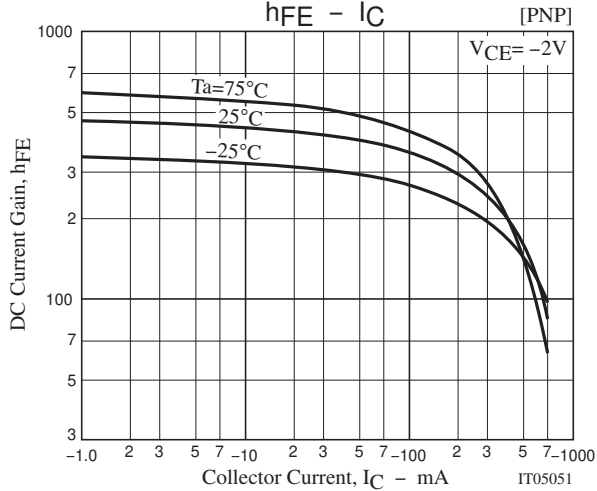
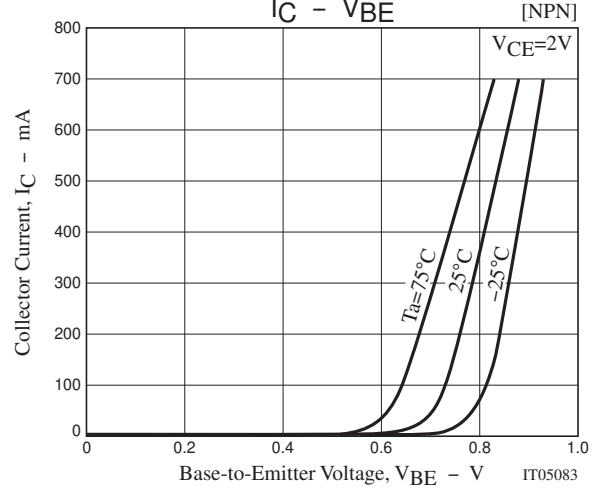
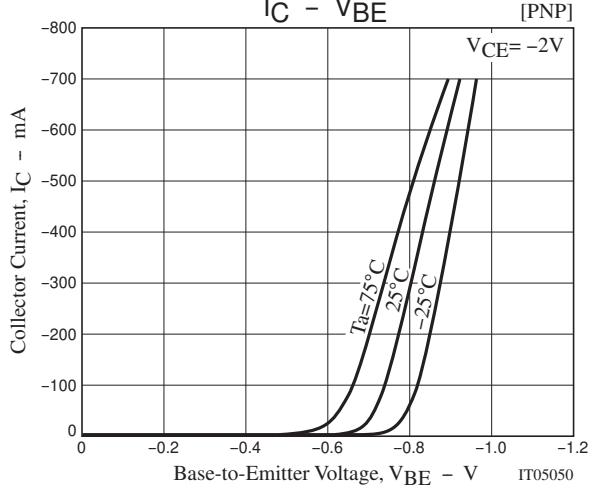
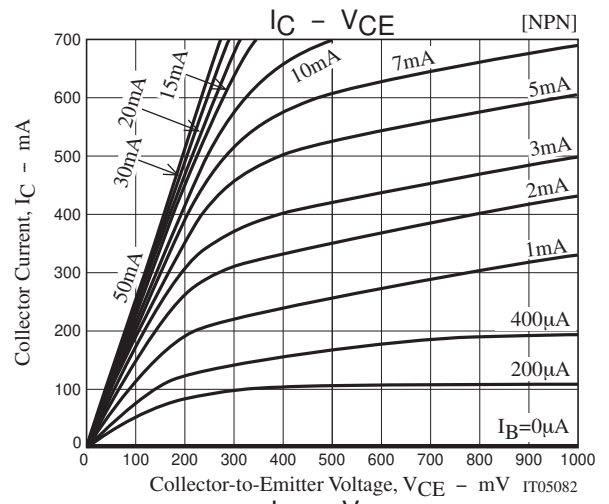
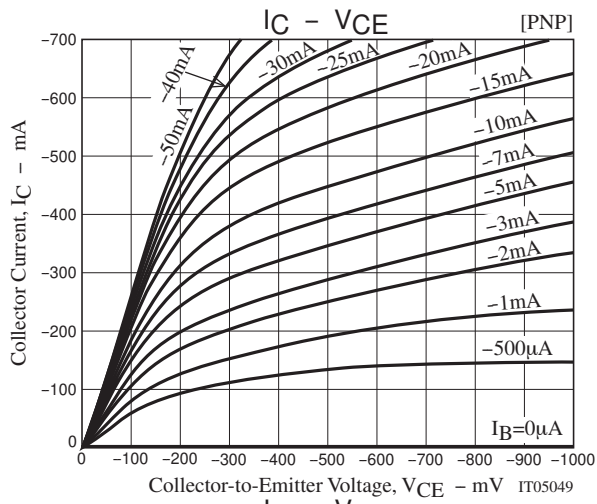
$$I_C = 20I_{B1} = -20I_{B2} = 300\text{mA}$$

For PNP, the polarity is reversed.

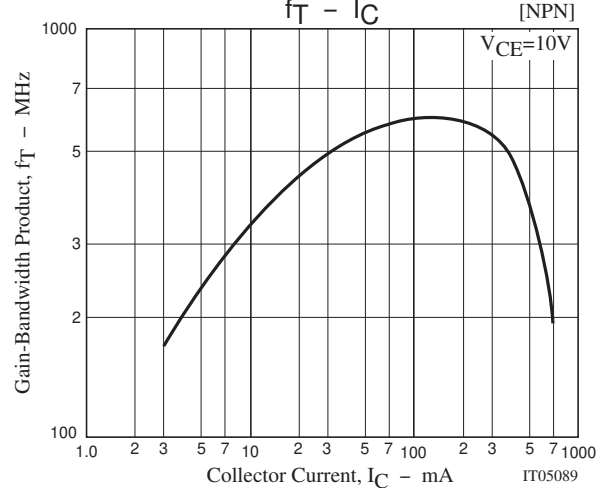
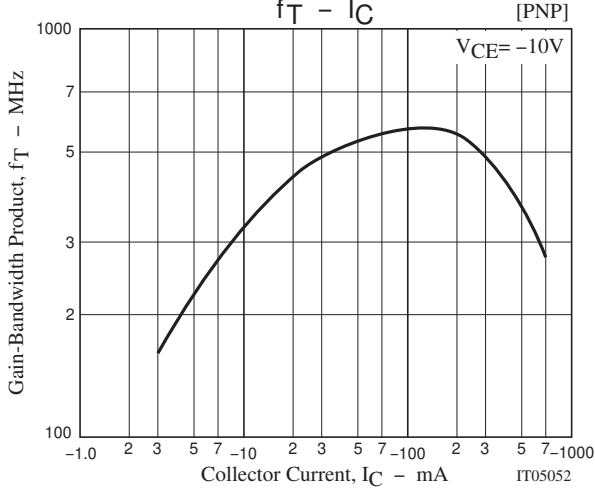
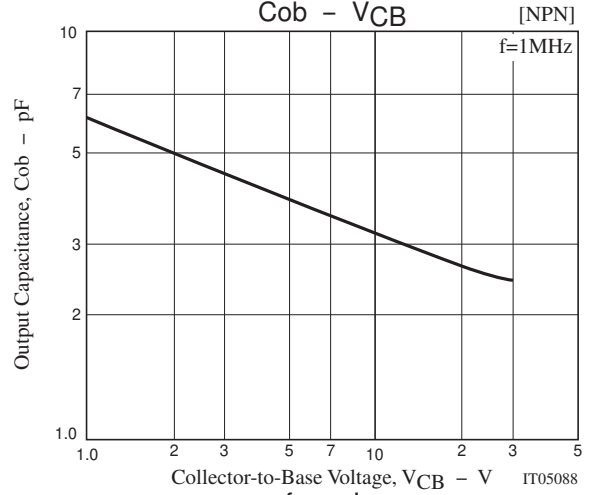
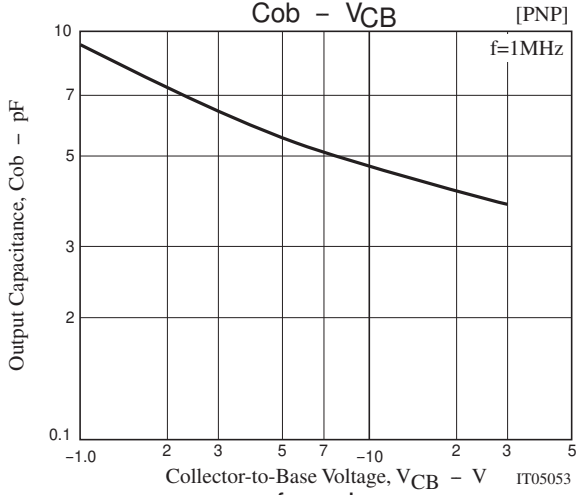
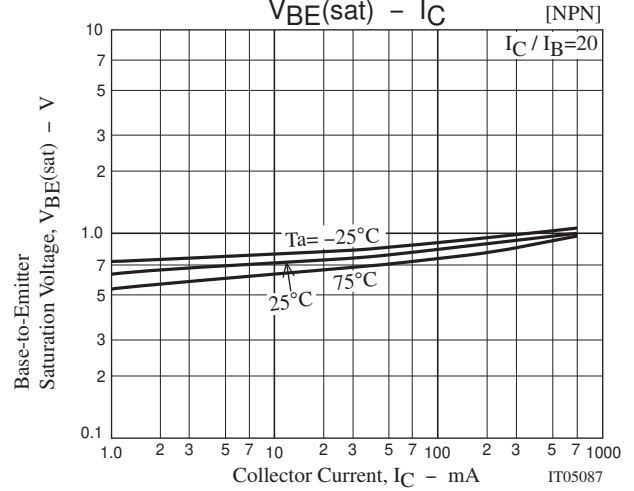
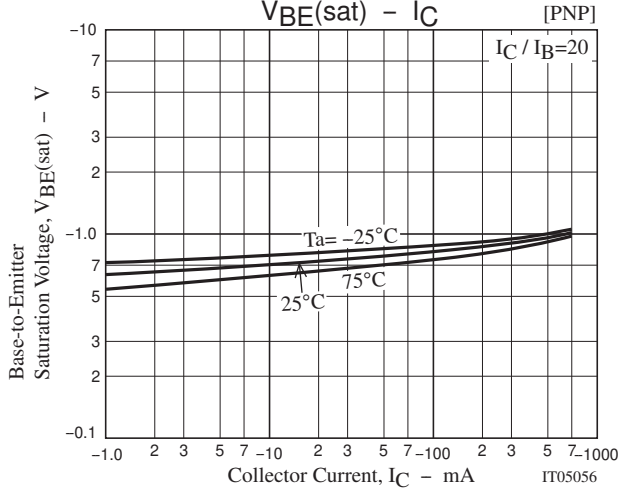
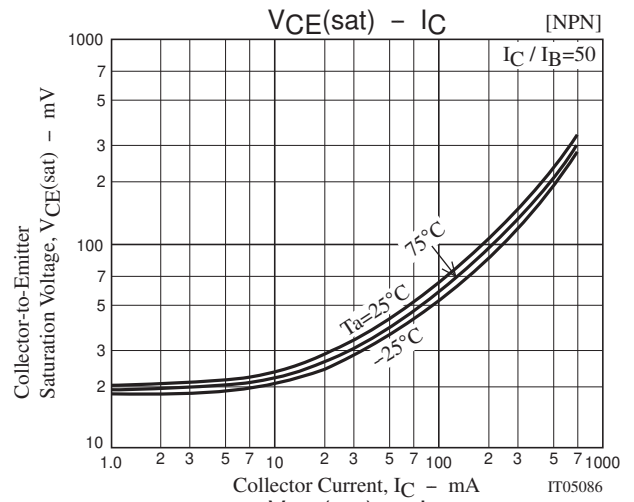
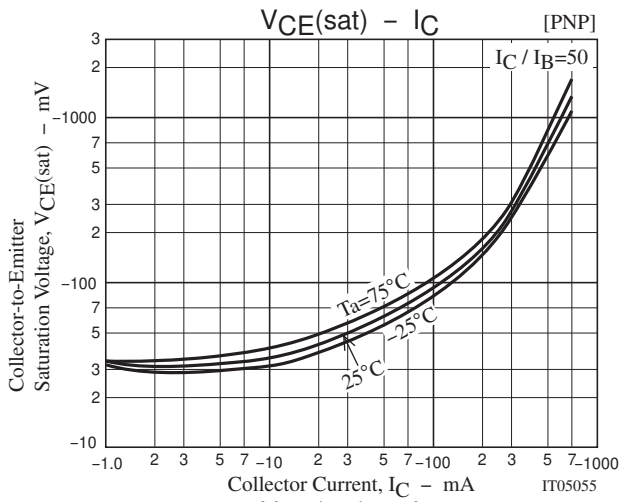
Ordering Information

| Device | Package | Shipping | memo |
|--------------|---------|----------------|---------|
| MCH6541-TL-E | MCPH6 | 3,000pcs./reel | Pb Free |

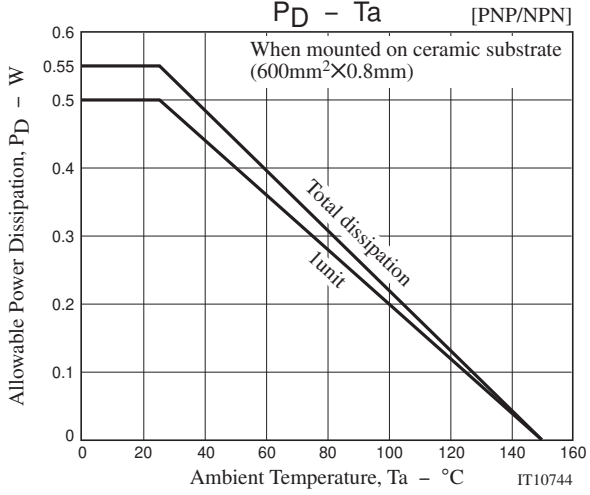
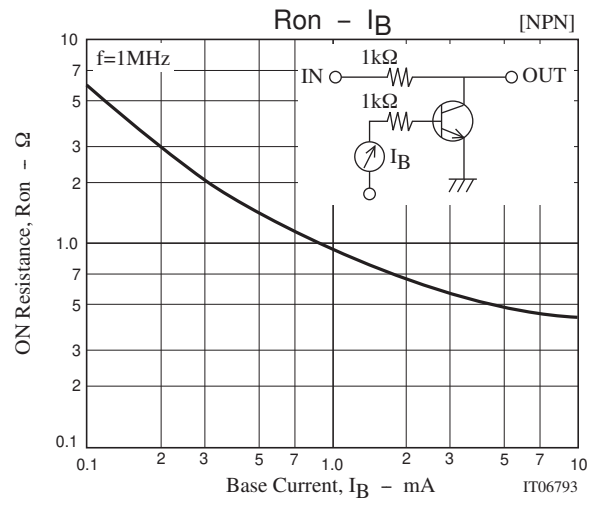
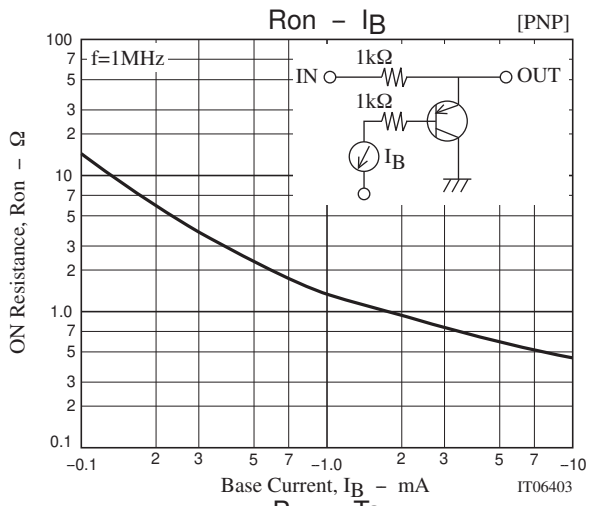
MCH6541



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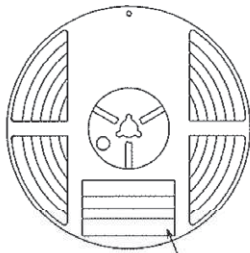
Embossed Taping Specification

MCH6541-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) |
| 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 |

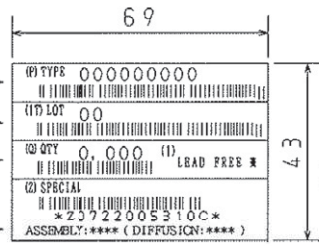
Packing method



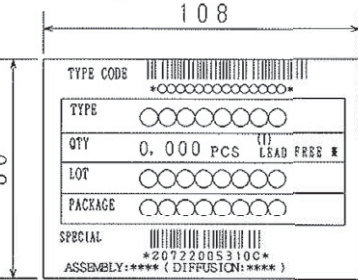
Type No.
LOT No.
Quantity
Origin

Reel label

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.



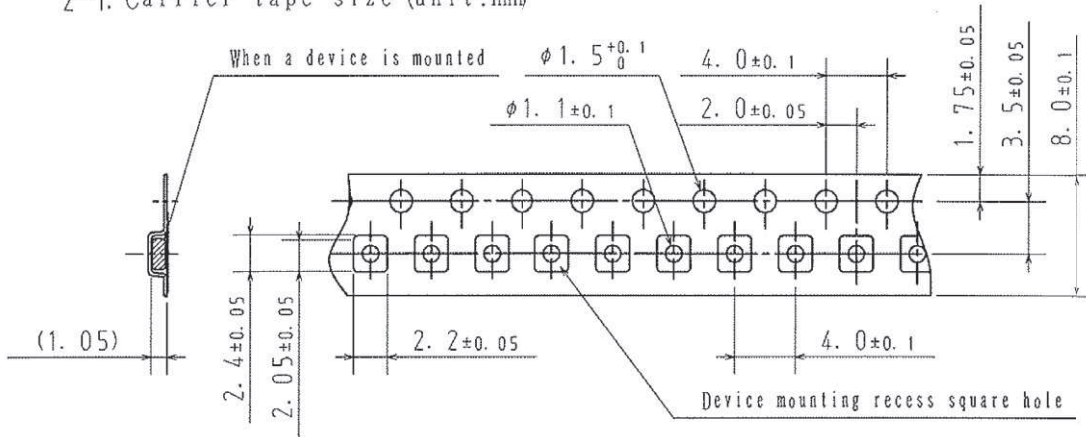
NOTE (1)

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

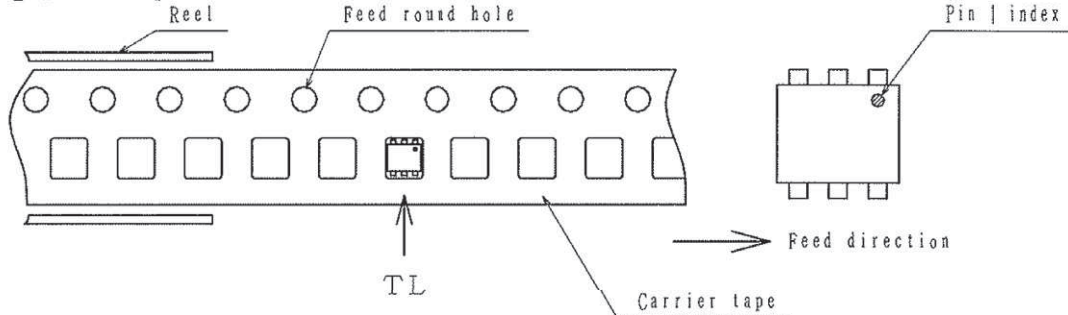
| Label | JEITA Phase |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3 |

2. Taping configuration

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



2-2. Device placement direction

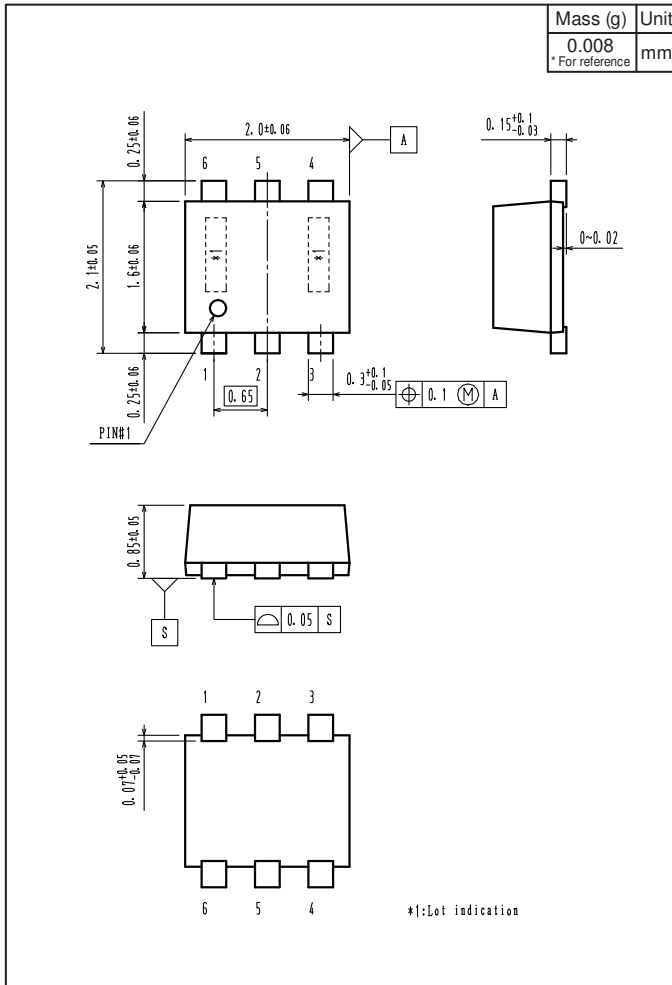


Those with pin | index on the feed hole side.....TL

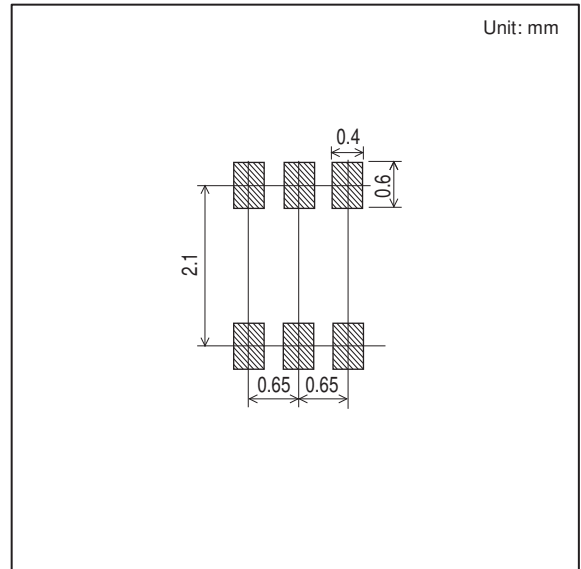
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Outline Drawing

MCH6541-TL-E



Land Pattern Example



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