



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## MCH6534 — NPN Epitaxial Planar Silicon Transistor

### Switching, Driver Applications

#### Applicaitions

- Low-frequency power amplifier, high-speed switching motor drivers, muting

#### Features

- Composite type with 2 NPN transistors contained in a single package, facilitating high-density mounting
- Ultrasmall package permitting applied sets to be small and slim
- Small ON-resistance (Ron)

#### Specifications

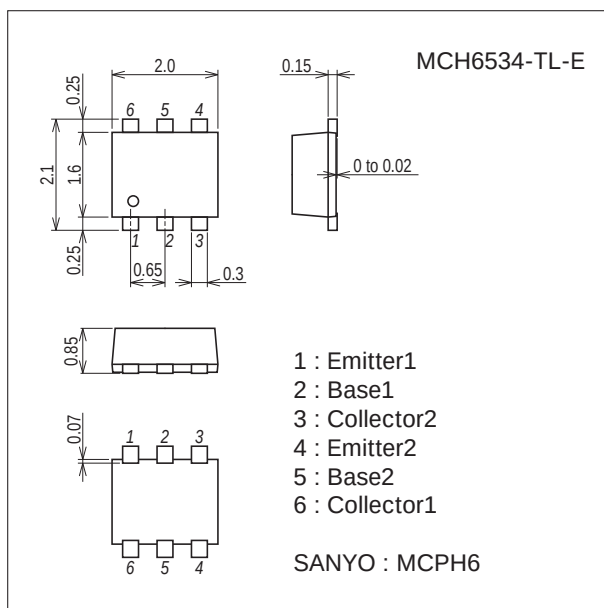
Absolute Maximum Ratings at Ta=25°C

| Parameter                    | Symbol    | Conditions                                                    | Ratings     | Unit |
|------------------------------|-----------|---------------------------------------------------------------|-------------|------|
| Collector-to-Base Voltage    | $V_{CBO}$ |                                                               | 20          | V    |
| Collector-to-Emitter Voltage | $V_{CEO}$ |                                                               | 15          | V    |
| Emitter-to-Base Voltage      | $V_{EBO}$ |                                                               | 5           | V    |
| Collector Current            | $I_C$     |                                                               | 700         | mA   |
| Collector Current (Pulse)    | $I_{CP}$  |                                                               | 1.4         | A    |
| Collector Dissipation        | $P_C$     | When mounted on ceramic substrate (600mm <sup>2</sup> ×0.8mm) | 0.5         | W    |
| Total Power Dissipation      | $P_T$     | When mounted on ceramic substrate (600mm <sup>2</sup> ×0.8mm) | 0.55        | W    |
| Junction Temperature         | $T_j$     |                                                               | 150         | °C   |
| Storage Temperature          | $T_{stg}$ |                                                               | -55 to +150 | °C   |

#### Package Dimensions

unit : mm (typ)

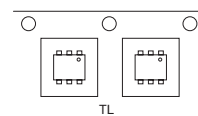
7022A-011



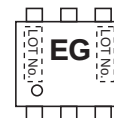
#### Product & Package Information

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

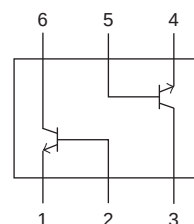
#### Packing Type : TL



#### Marking



#### Electrical Connection

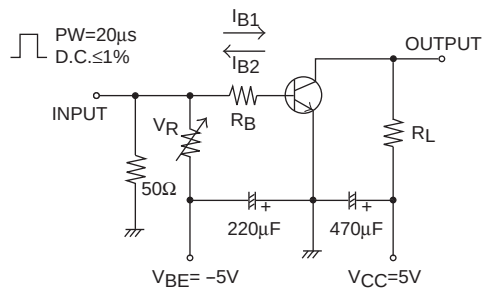


MCH6534

Electrical Characteristics at Ta=25°C

| Parameter                               | Symbol               | Conditions                                  | Ratings |     |     | Unit |
|-----------------------------------------|----------------------|---------------------------------------------|---------|-----|-----|------|
|                                         |                      |                                             | min     | typ | max |      |
| Collector Cutoff Current                | ICBO                 | V <sub>CB</sub> =15V, I <sub>E</sub> =0A    |         |     | 100 | nA   |
| Emitter Cutoff Current                  | IEBO                 | V <sub>EB</sub> =4V, I <sub>C</sub> =0A     |         |     | 100 | nA   |
| DC Current Gain                         | h <sub>FE</sub>      | V <sub>CE</sub> =2V, I <sub>C</sub> =10mA   | 300     |     | 800 |      |
| Gain-Bandwidth Product                  | f <sub>T</sub>       | V <sub>CE</sub> =2V, I <sub>C</sub> =50mA   |         | 330 |     | MHz  |
| Output Capacitance                      | Cob                  | V <sub>CB</sub> =10V, f=1MHz                |         | 3.2 |     | pF   |
| Collector-to-Emitter Saturation Voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =200mA, I <sub>B</sub> =10mA |         | 150 | 300 | mV   |
| Base-to-Emitter Saturation Voltage      | V <sub>BE(sat)</sub> | I <sub>C</sub> =200mA, I <sub>B</sub> =10mA |         | 0.9 | 1.2 | V    |
| Collector-to-Base Breakdown Voltage     | V <sub>(BR)CBO</sub> | I <sub>C</sub> =10μA, I <sub>E</sub> =0A    | 20      |     |     | V    |
| Collector-to-Emitter Breakdown Voltage  | V <sub>(BR)CEO</sub> | I <sub>C</sub> =1mA, R <sub>BE</sub> =∞     | 15      |     |     | V    |
| Emitter-to-Base Breakdown Voltage       | V <sub>(BR)EBO</sub> | I <sub>E</sub> =10μA, I <sub>C</sub> =0A    | 5       |     |     | V    |
| Turn-ON Time                            | t <sub>on</sub>      | See specified Test Circuit.                 |         | 30  |     | ns   |
| Storage Time                            | t <sub>stg</sub>     |                                             |         | 77  |     | ns   |
| Fall Time                               | t <sub>f</sub>       |                                             |         | 40  |     | ns   |

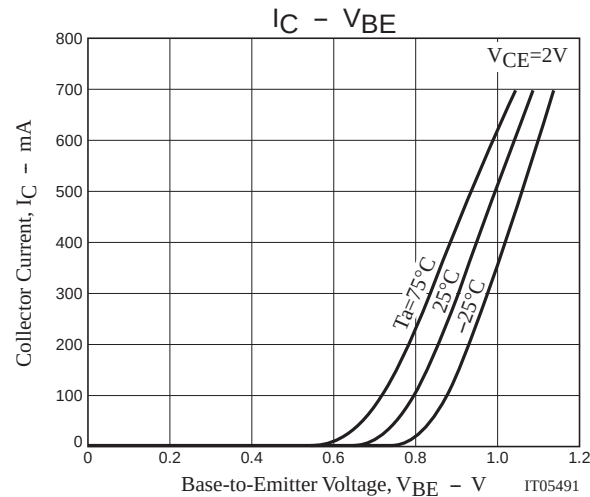
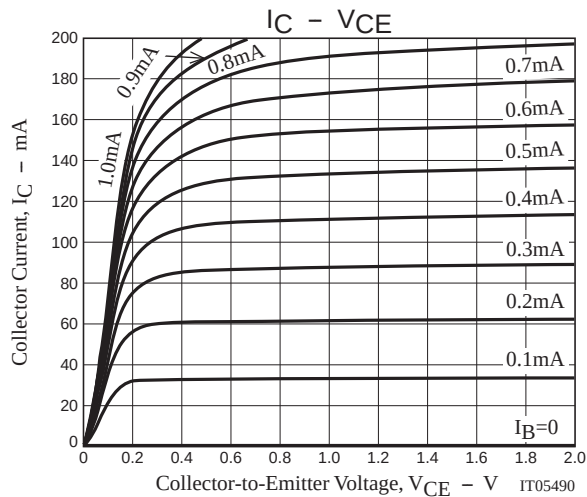
Switching Time Test Circuit

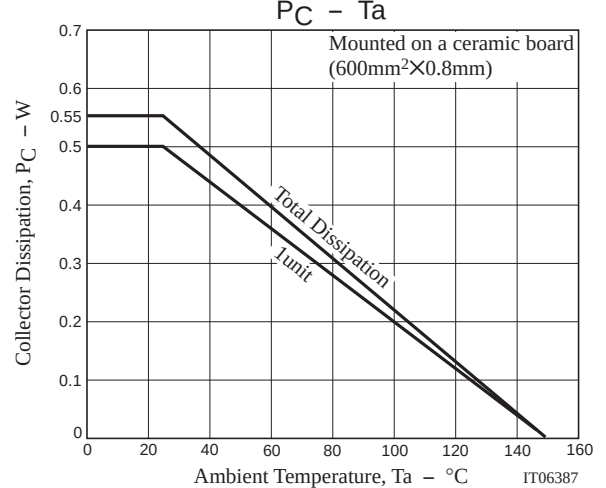
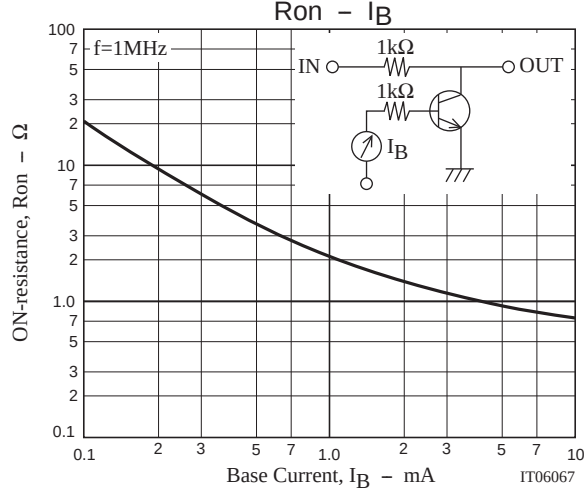
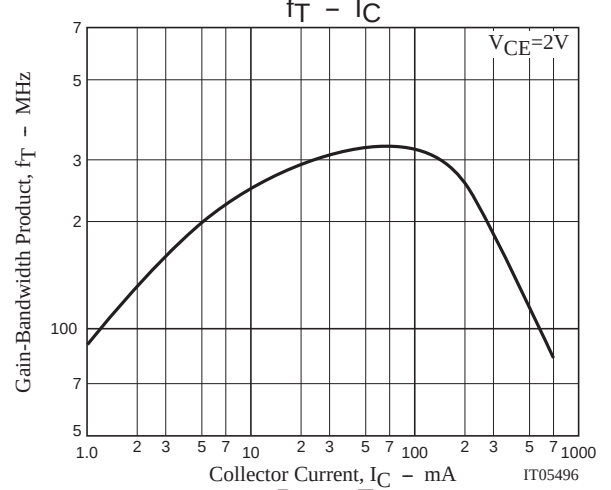
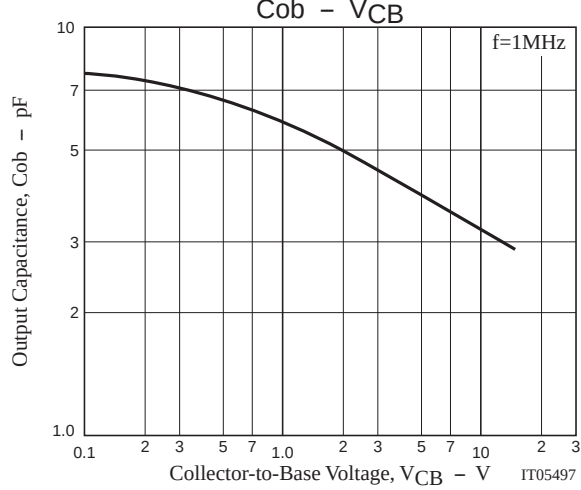
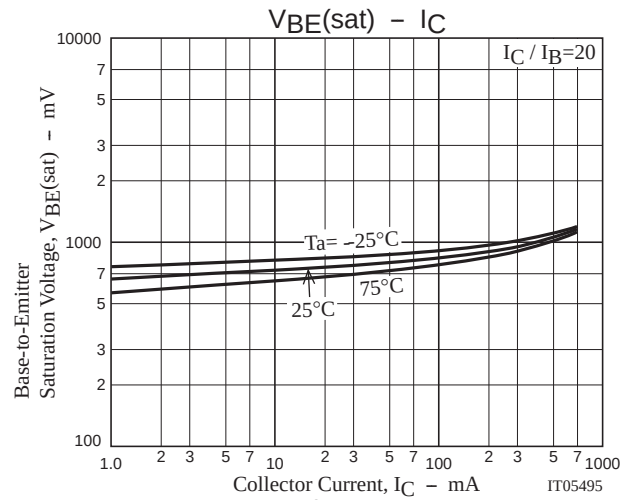
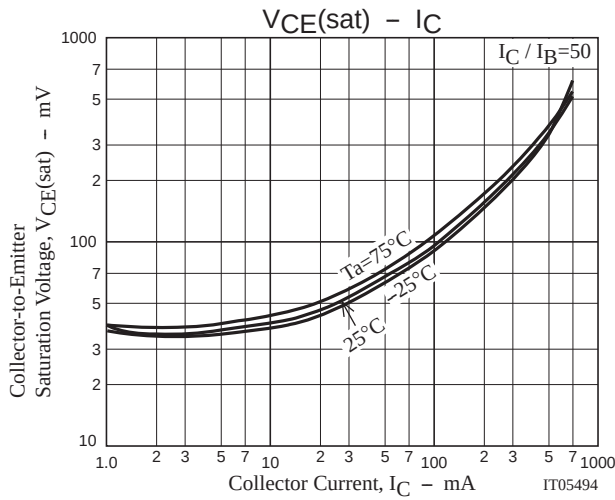
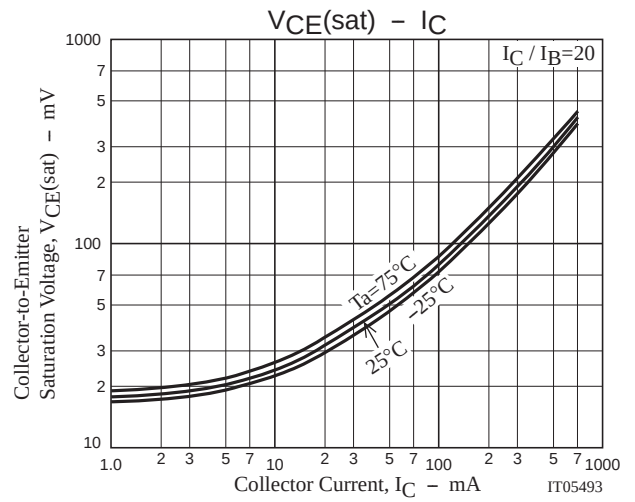
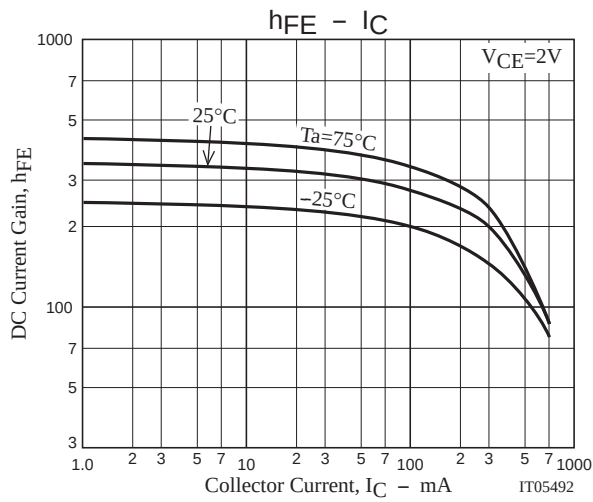


$I_C = 20I_{B1} = -20I_{B2} = 500\text{mA}$

Ordering Information

| Device       | Package | Shipping       | memo    |
|--------------|---------|----------------|---------|
| MCH6534-TL-E | MCPH6   | 3,000pcs./reel | Pb Free |





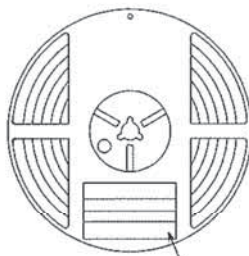
# Embossed Taping Specification

MCH6534-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<br>Dimensions:mm (external)<br>183×72×185 | 6 inner boxes contained<br>Dimensions:mm (external)<br>440×195×210 |

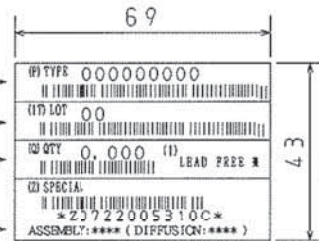
### Packing method



Reel label

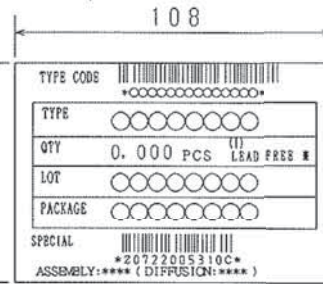
Type No.  
LOT No.  
Quantity  
Origin

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.



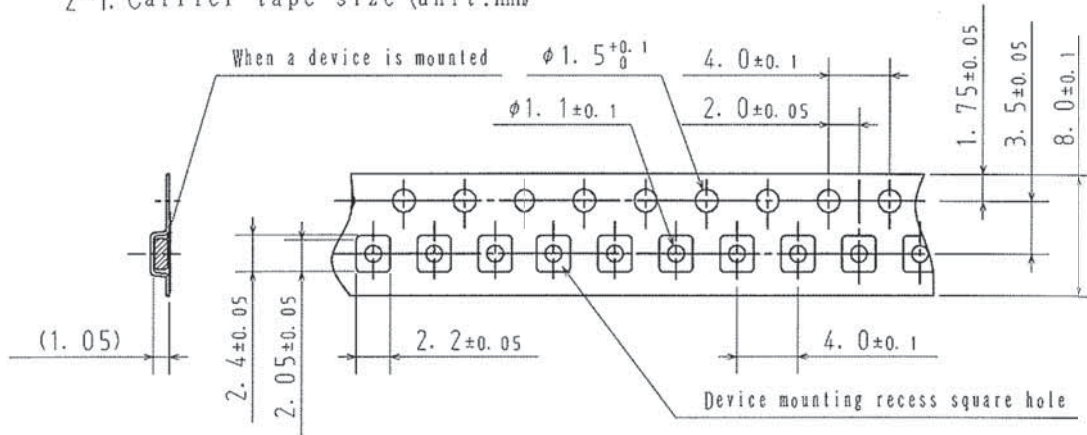
#### NOTE (1)

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

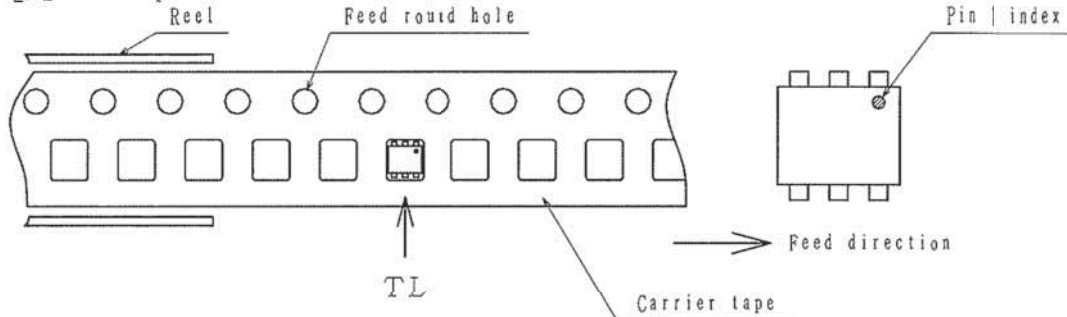
| Label       | JEITA Phase    |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3  |

## 2. Taping configuration

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



### 2-2. Device placement direction



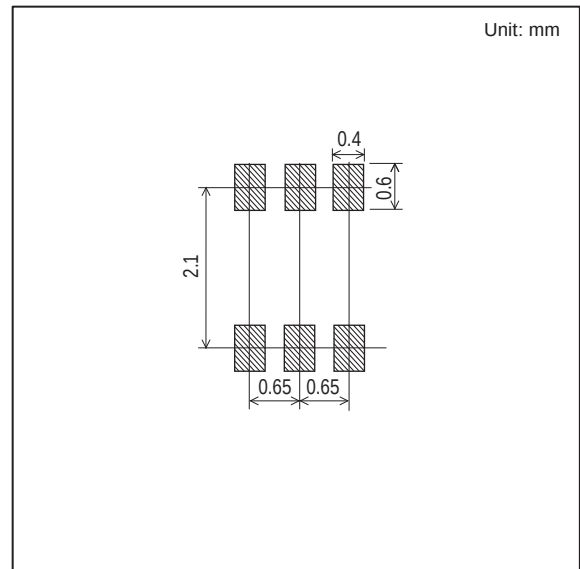
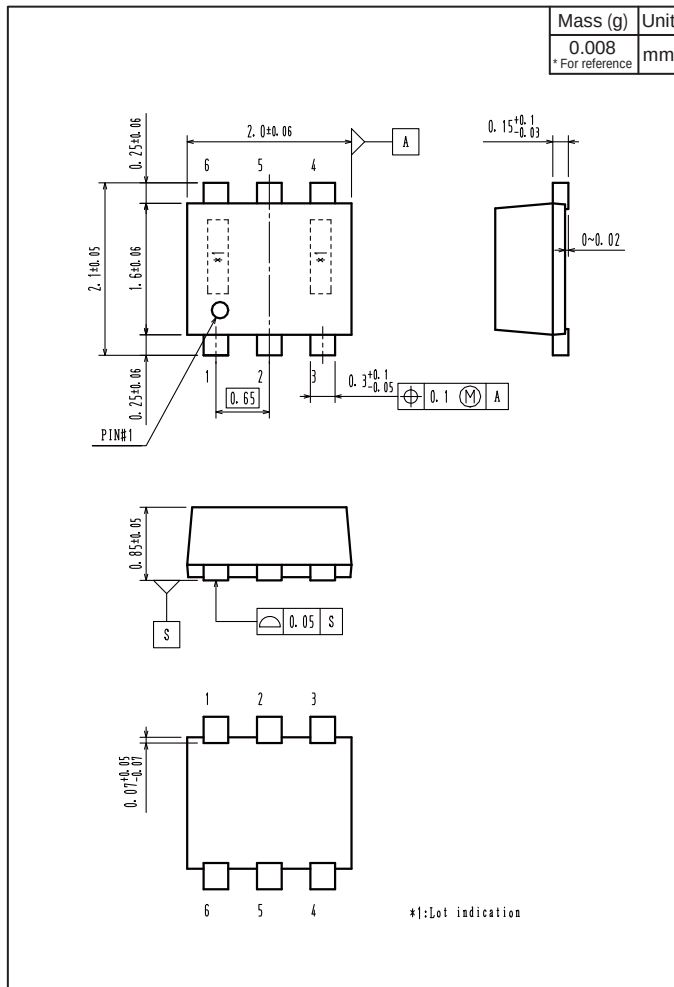
Those with pin | index on the feed hole side.....TL

**MCH6534**

## Outline Drawing

MCH6534-TL-E

### Land Pattern Example



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