



ON Semiconductor®

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# 15C01M

## Bipolar Transistor 15V, 0.7A, Low $V_{CE(sat)}$ NPN Single MCP

### Applications

- Low-frequency Amplifier, muting circuit

### Features

- Large current capacity
- Low collector-to-emitter saturation voltage (resistance)  $R_{CE(sat)}$  typ.= $0.58\Omega$  [ $I_C=0.7A$ ,  $I_B=35mA$ ]
- Ultrasmall package facilitates miniaturization in end products
- Small ON-resistance ( $R_{on}$ )

### Specifications

Absolute Maximum Ratings at  $T_a=25^\circ C$ 

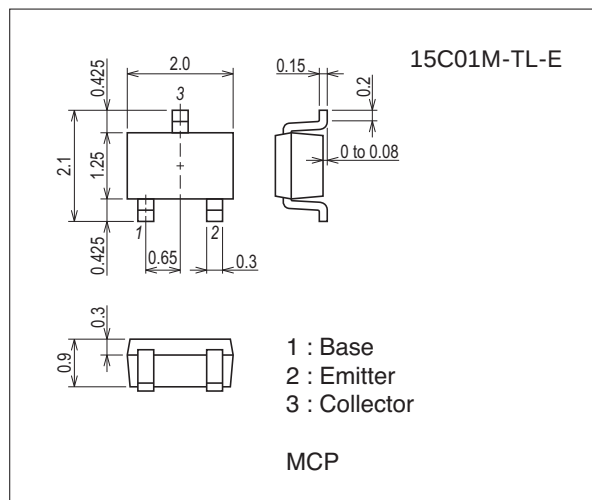
| Parameter                    | Symbol    | Conditions                                   | Ratings     | Unit       |
|------------------------------|-----------|----------------------------------------------|-------------|------------|
| Collector-to-Base Voltage    | $V_{CBO}$ |                                              | 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        | $P_C$     | Mounted on a glass epoxy board (20×30×1.6mm) | 300         | mW         |
| Junction Temperature         | $T_j$     |                                              | 150         | $^\circ C$ |
| Storage Temperature          | $T_{stg}$ |                                              | -55 to +150 | $^\circ C$ |

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)

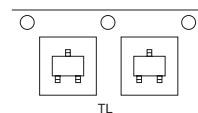
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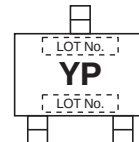
### Product & Package Information

- Package : MCP
- JEITA, JEDEC : SC-70, SOT-323
- Minimum Packing Quantity : 3,000 pcs./reel

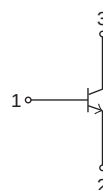
### Packing Type: TL



### Marking



### Electrical Connection



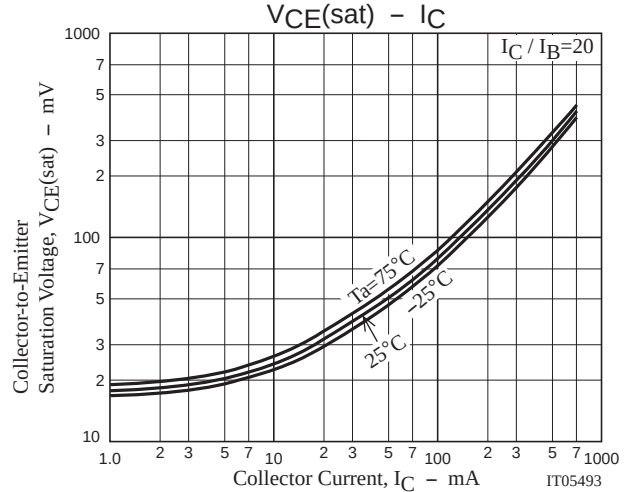
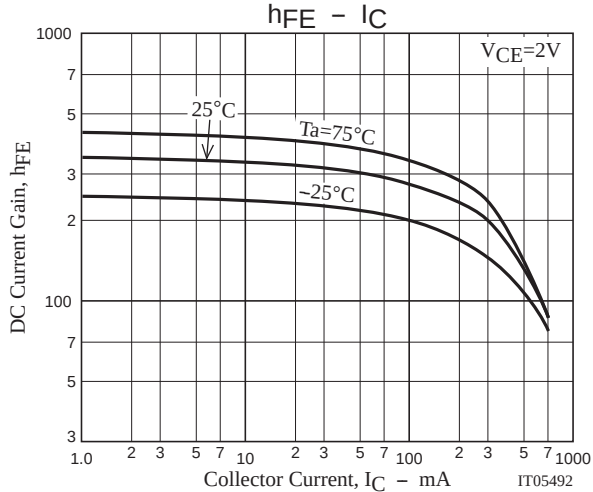
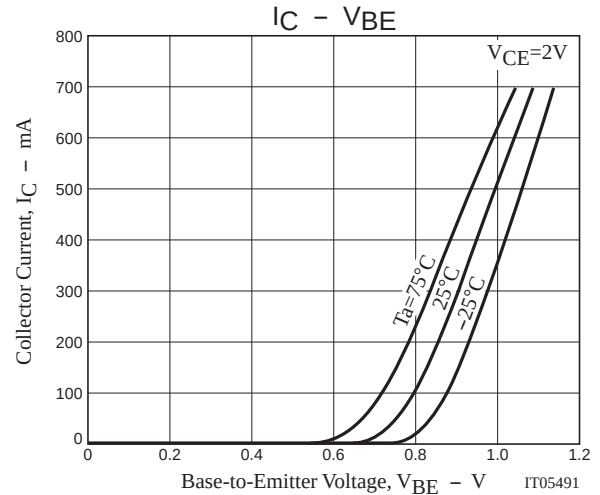
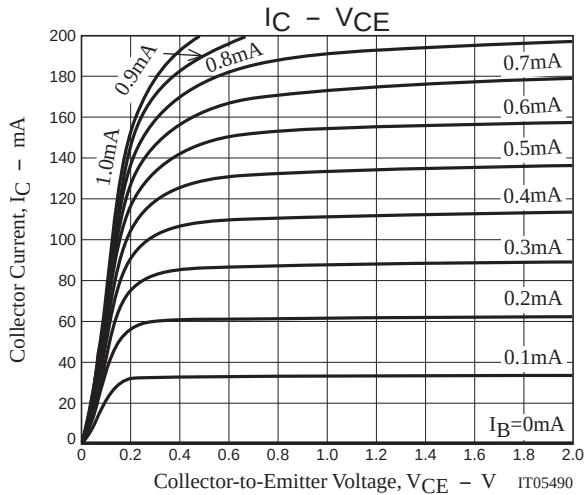
# 15C01M

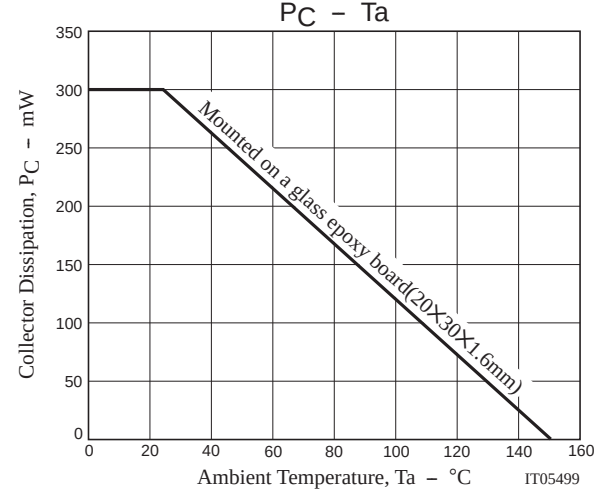
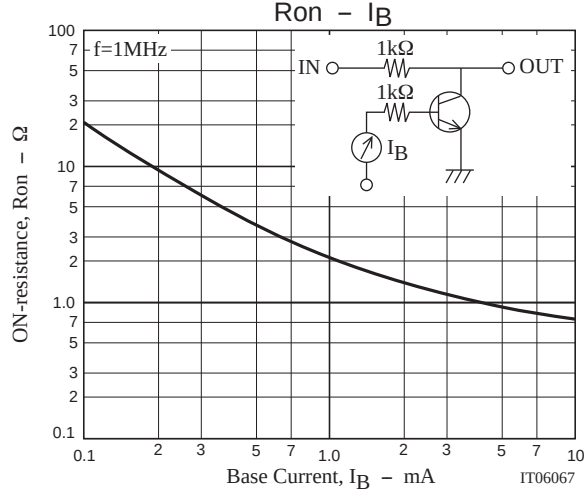
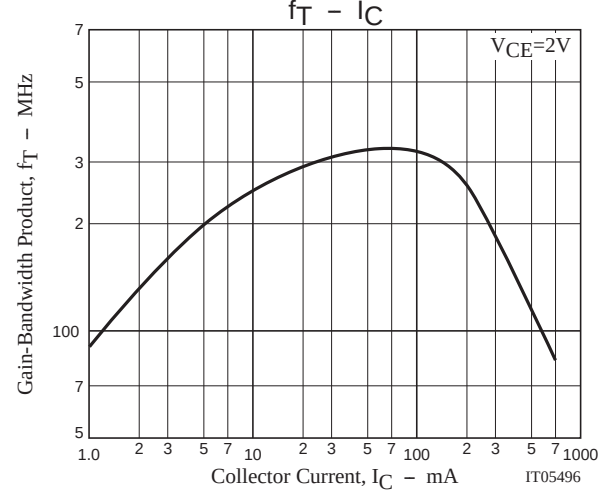
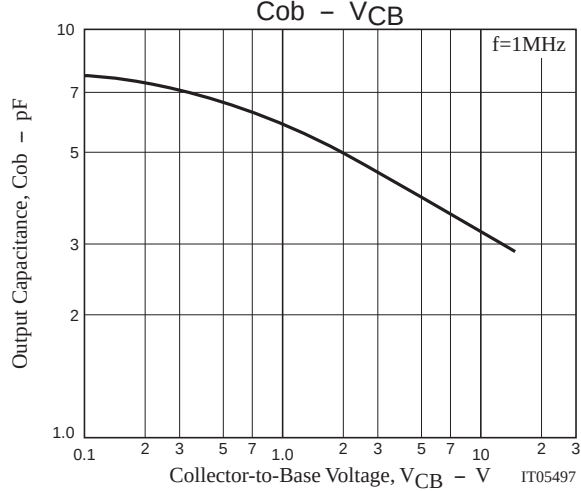
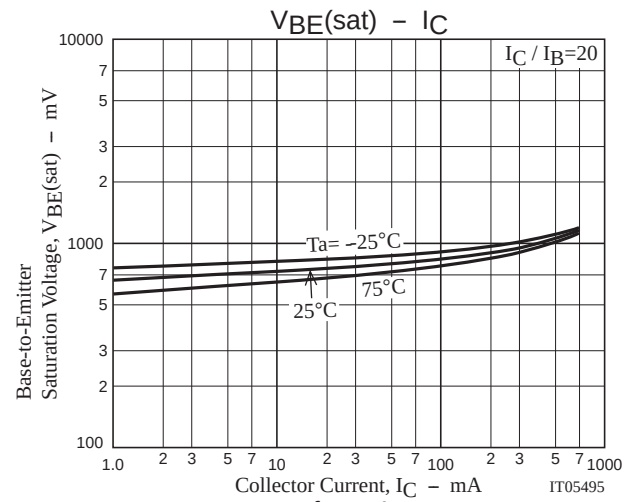
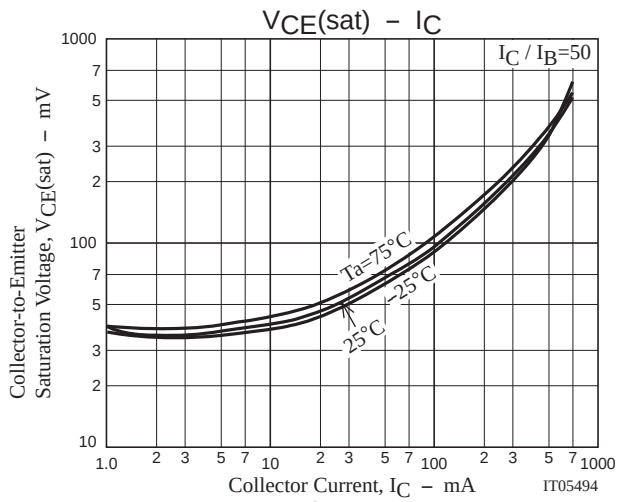
## Electrical Characteristics at Ta=25°C

| Parameter                               | Symbol        | Conditions                  | Ratings |     |     | Unit    |
|-----------------------------------------|---------------|-----------------------------|---------|-----|-----|---------|
|                                         |               |                             | min     | typ | max |         |
| Collector Cutoff Current                | $I_{CBO}$     | $V_{CB}=15V, I_E=0A$        |         |     | 0.1 | $\mu A$ |
| Emitter Cutoff Current                  | $I_{EBO}$     | $V_{EB}=4V, I_C=0A$         |         |     | 0.1 | $\mu A$ |
| DC Current Gain                         | $h_{FE}$      | $V_{CE}=2V, I_C=10mA$       | 300     |     | 800 |         |
| Gain-Bandwidth Product                  | $f_T$         | $V_{CE}=2V, I_C=50mA$       |         | 330 |     | MHz     |
| Output Capacitance                      | $C_{ob}$      | $V_{CB}=10V, f=1MHz$        |         | 3.2 |     | pF      |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=200mA, I_B=10mA$       |         | 150 | 300 | 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     | $V_{(BR)CBO}$ | $I_C=10\mu A, I_E=0A$       | 20      |     |     | V       |
| Collector-to-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C=1mA, R_{BE}=\infty$    | 15      |     |     | 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. |         | 30  |     | ns      |
| Storage Time                            | $t_{stg}$     |                             |         | 77  |     | ns      |
| Fall Time                               | $t_f$         |                             |         | 40  |     | ns      |

## Ordering Information

| Device      | Package | Shipping       | memo    |
|-------------|---------|----------------|---------|
| 15C01M-TL-E | MCP     | 3,000pcs./reel | Pb Free |





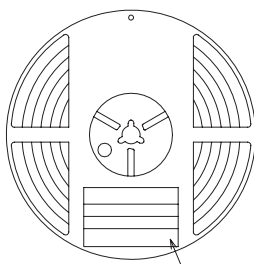
## Embossed Taping Specification

15C01M-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)                                                    |
| MCP          | MCP               | 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)

|                                |                       |
|--------------------------------|-----------------------|
| (P) TYPE                       | 000000000             |
| (1) LOT                        | 00                    |
| (Q) QTY                        | 0,000 (1) LEAD FREE * |
| (2) SPECIAL                    | *Z0722005310C*        |
| ASSEMBLY:**** (DIFFUSION:****) |                       |

Outer box label

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

|                                |                           |
|--------------------------------|---------------------------|
| TYPE CODE                      |                           |
| TYPE                           |                           |
| QTY                            | 0,000 PCS (1) LEAD FREE * |
| LOT                            |                           |
| PACKAGE                        |                           |
| SPECIAL                        | *Z0722005310C*            |
| ASSEMBLY:**** (DIFFUSION:****) |                           |

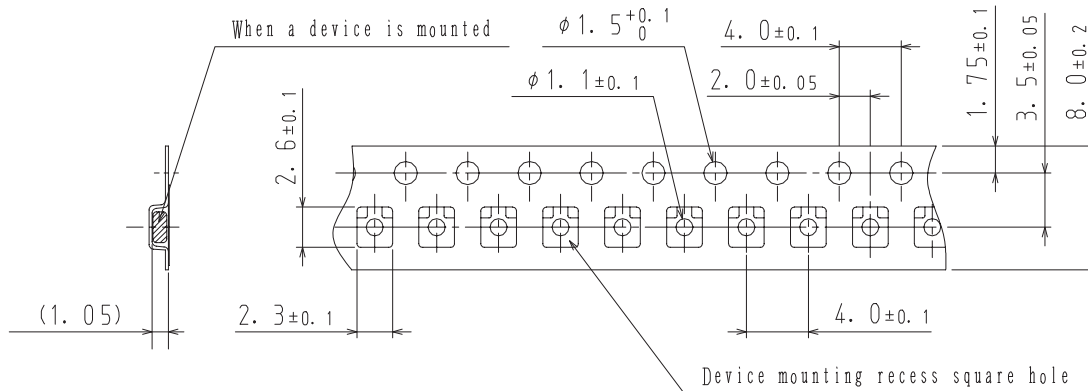
#### NOTE (1)

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

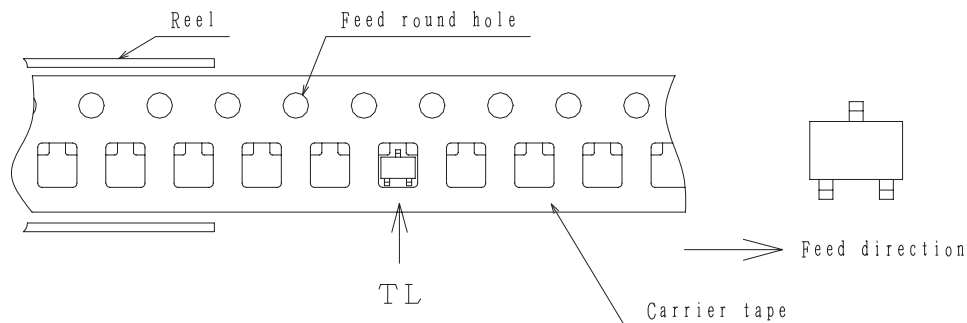
| Label       | JEITA Phase    |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3  |

### 2. Taping configuration

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

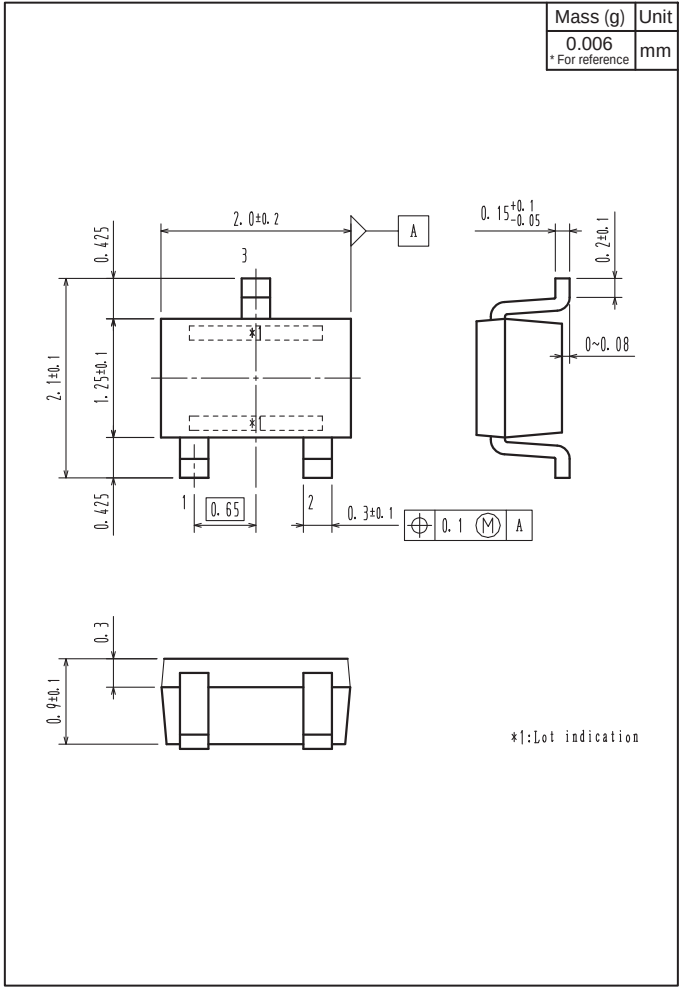


#### 2-2. Device placement direction

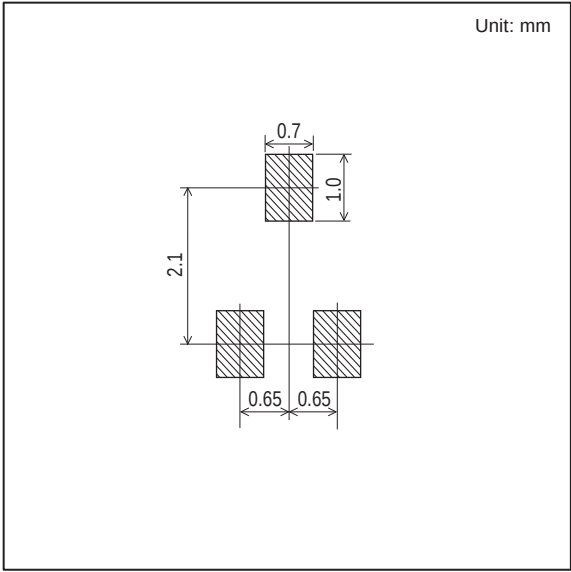


Those with oen electrode terminal on the feed hole side.....TL

Outline Drawing  
15C01M-TL-E



Land Pattern Example



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