

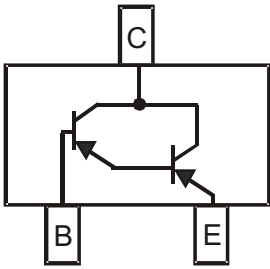


# MMBTA63 MMBTA64 PNP Darlington Transistor

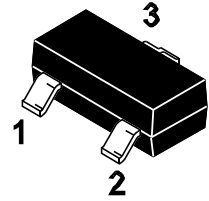
## Features

- For Switching and AF Amplifier Applications.

## Equivalent Circuit



## SOT-23



1.Base 2.Emitter 3.Collector

## Marking Code:

MMBTA63 : A63

MMBTA64 : A64

## Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter                 | Symbol     | Value       | Unit |
|---------------------------|------------|-------------|------|
| Collector Base Voltage    | $-V_{CBO}$ | 30          | V    |
| Collector Emitter Voltage | $-V_{CEO}$ | 30          | V    |
| Emitter Base Voltage      | $-V_{EBO}$ | 10          | V    |
| Collector Current         | $-I_C$     | 500         | mA   |
| Maximum Power Dissipation | $P_D$      | 300         | mW   |
| Junction Temperature      | $T_J$      | 150         | °C   |
| Storage Temperature Range | $T_{STG}$  | -55 to +150 | °C   |



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## Electrical Characteristics

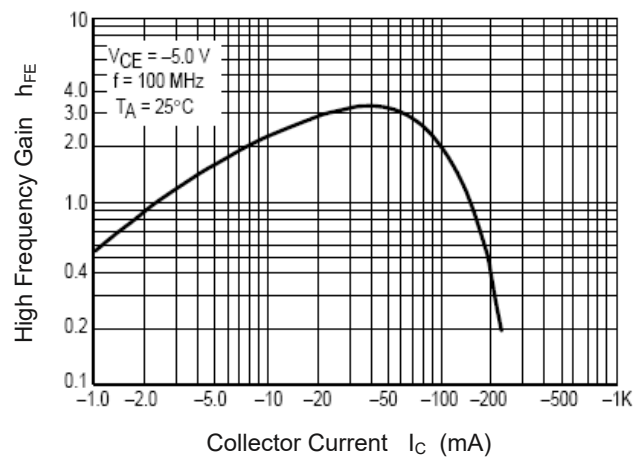
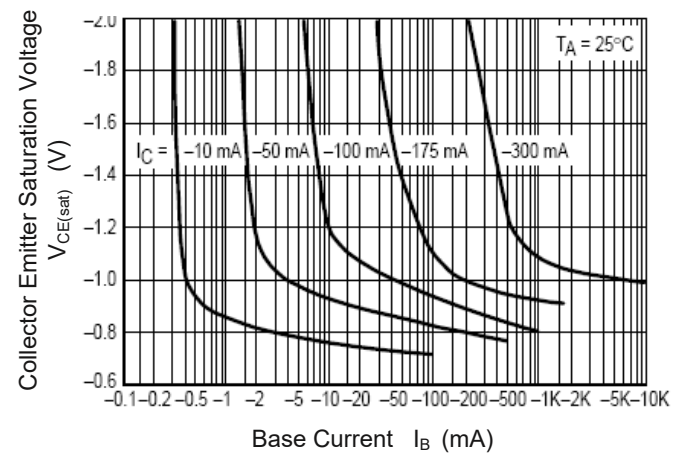
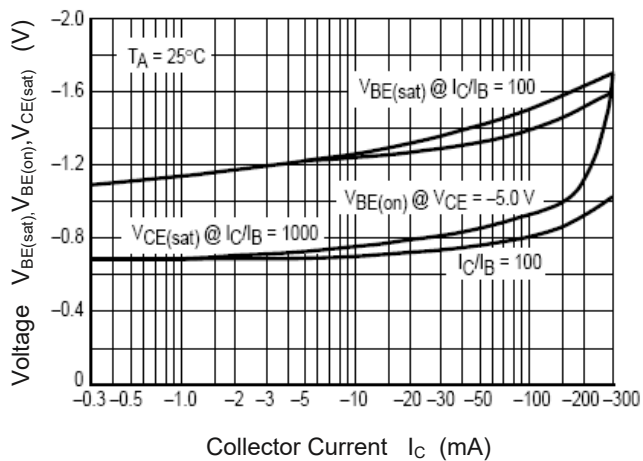
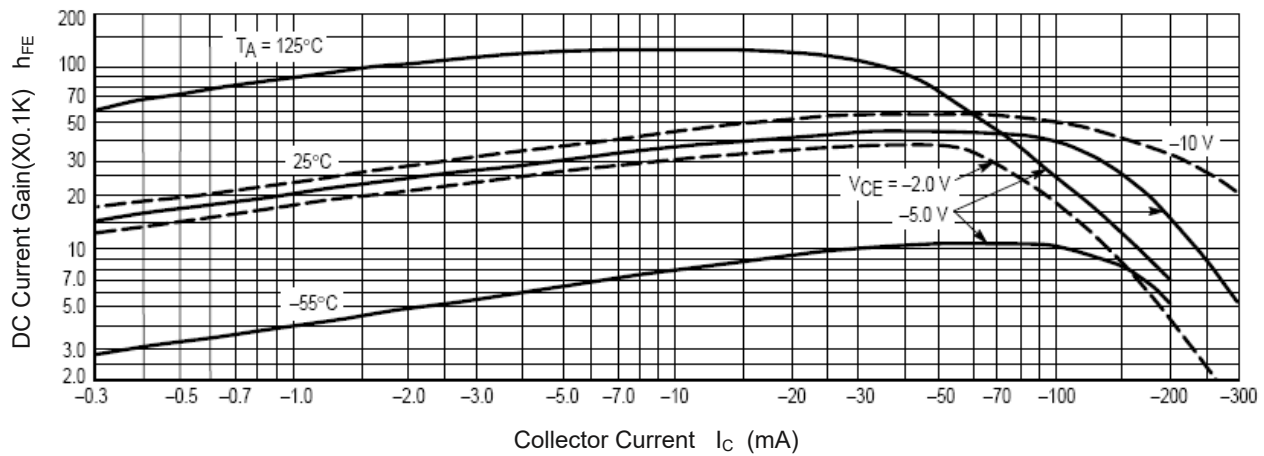
Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter                                                                                                                                                              | Symbol         | Min.                            | Max.                 | Unit |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------------|----------------------|------|
| DC Current Gain<br>at $V_{CE} = -5\text{ V}$ , $I_C = -10\text{ mA}$<br>MMBTA63<br>MMBTA64<br>at $V_{CE} = -5\text{ V}$ , $I_C = -100\text{ mA}$<br>MMBTA63<br>MMBTA64 | $H_{FE}$       | 5000<br>10000<br>10000<br>20000 | --<br>--<br>--<br>-- | --   |
| Collector Base Cutoff Current<br>at $V_{CB} = -30\text{ V}$                                                                                                            | $-I_{CBO}$     | --                              | 100                  | nA   |
| Emitter Base Cutoff Current<br>at $V_{EB} = -10\text{ V}$                                                                                                              | $-I_{EBO}$     | --                              | 100                  | nA   |
| Collector Base Breakdown Voltage<br>at $I_C = -100\text{ }\mu\text{A}$                                                                                                 | $-V_{(BR)CBO}$ | 30                              | --                   | V    |
| Collector Emitter Breakdown Voltage<br>at $I_C = -1\text{ mA}$                                                                                                         | $-V_{(BR)CEO}$ | 30                              | --                   | V    |
| Emitter Base Breakdown Voltage<br>at $I_E = -100\text{ }\mu\text{A}$                                                                                                   | $-V_{(BR)EBO}$ | 10                              | --                   | V    |
| Collector Emitter Saturation Voltage<br>at $I_C = -100\text{ mA}$ , $I_B = -0.1\text{ mA}$                                                                             | $-V_{CE(sat)}$ | --                              | 1.5                  | V    |
| Base Emitter On Voltage<br>at $V_{CE} = -5\text{ V}$ , $I_C = -100\text{ mA}$                                                                                          | $-V_{BE(on)}$  | --                              | 2                    | V    |
| Transition Frequency<br>at $V_{CE} = -5\text{ V}$ , $I_C = -10\text{ mA}$ , $f = 100\text{ MHz}$                                                                       | $F_T$          | 125                             | --                   | MHz  |



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## Typical Characteristic Curves



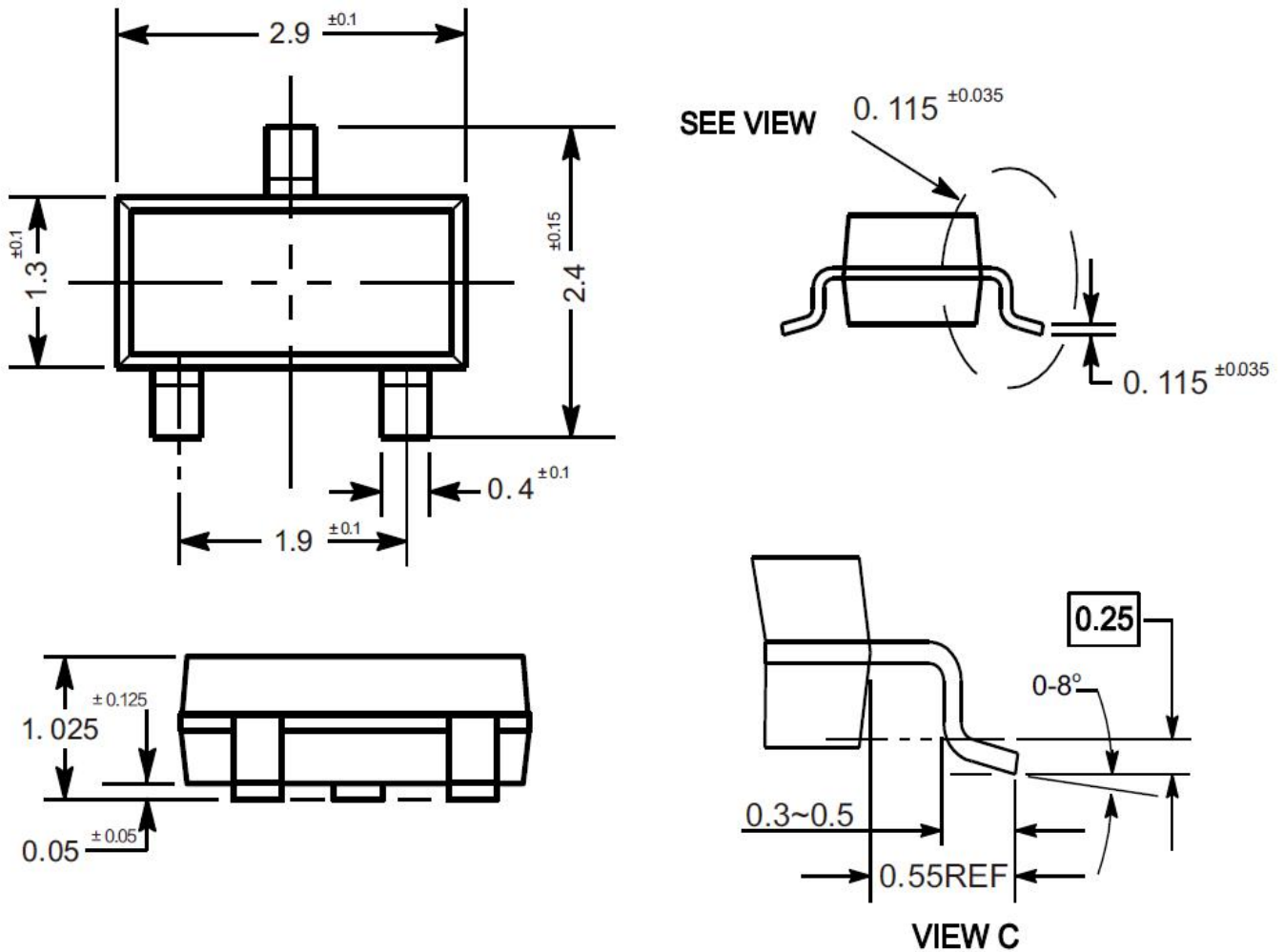


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## Package Outline

SOT-23

Dimensions in mm



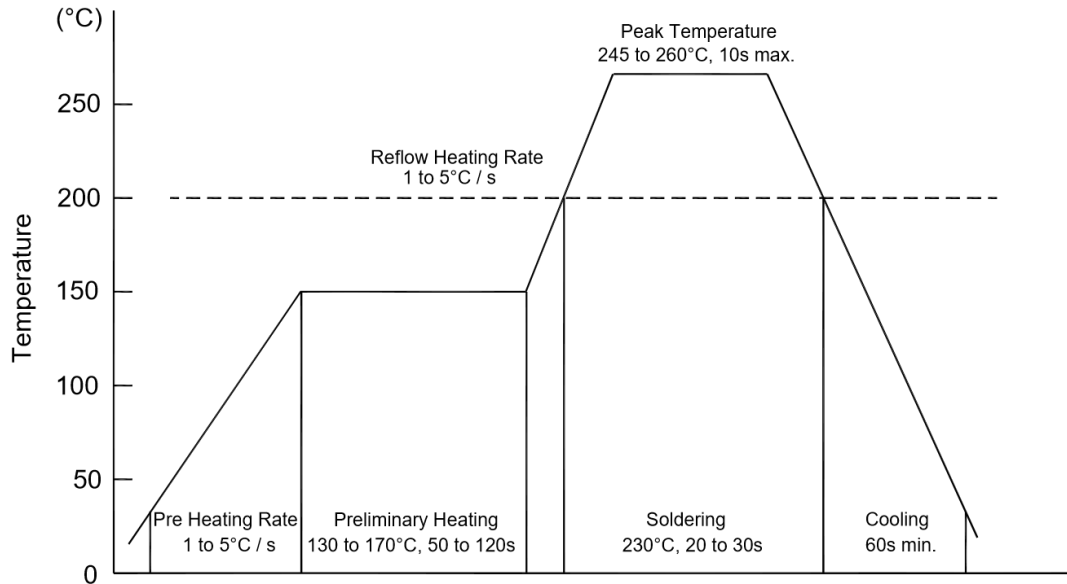
## Ordering Information

| Device          | Package | Shipping              |
|-----------------|---------|-----------------------|
| MMBTA63,MMBTA64 | SOT-23  | 3,000PCS/Reel&7inches |



## Conditions of Soldering and Storage

### ◆ Recommended condition of reflow soldering



Recommended peak temperature is over 245 °C. If peak temperature is below 245 °C, you may adjust the following parameters:

- Time length of peak temperature (longer)
- Time length of soldering (longer)
- Thickness of solder paste (thicker)

### ◆ Conditions of hand soldering

- Temperature: 370 °C
- Time: 3s max.
- Times: one time

### ◆ Storage conditions

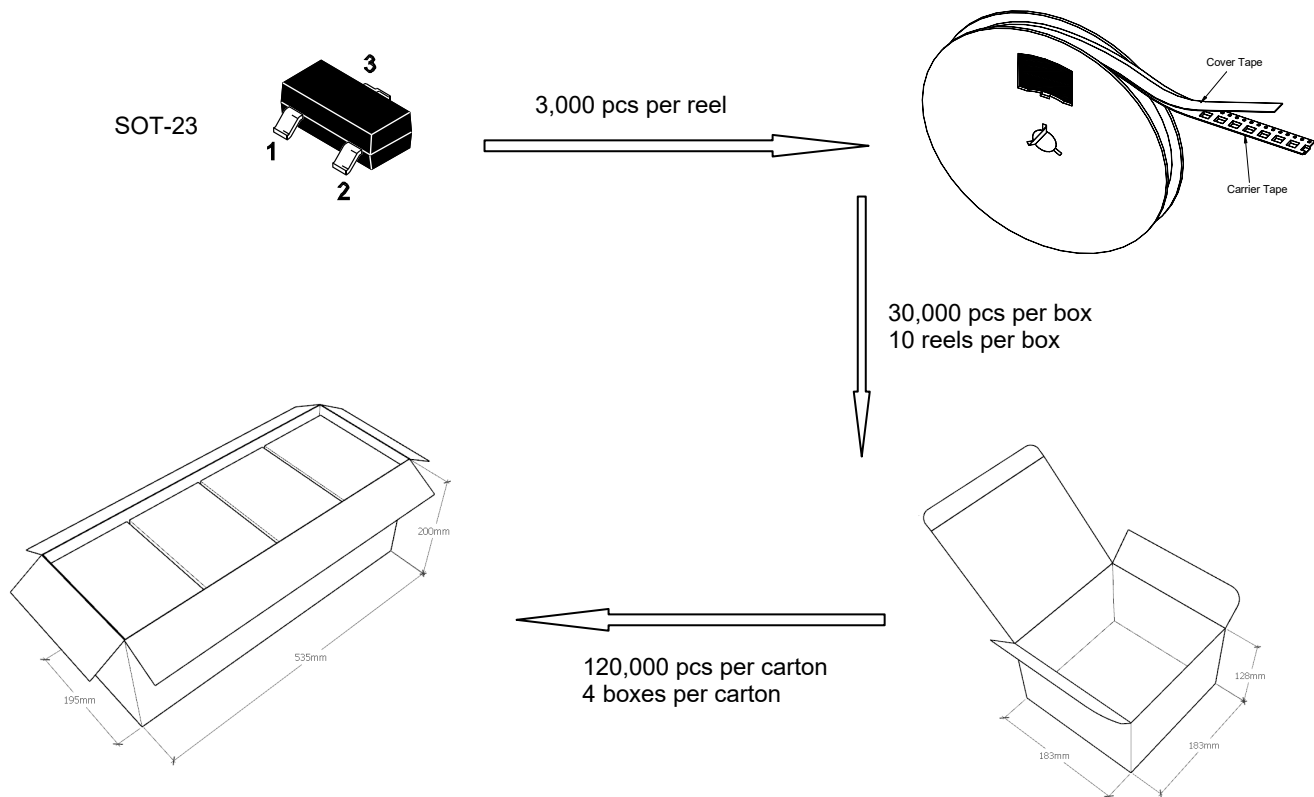
- **Temperature**  
5 to 40 °C
- **Humidity**  
30 to 80% RH
- **Recommended period**  
One year after manufacturing



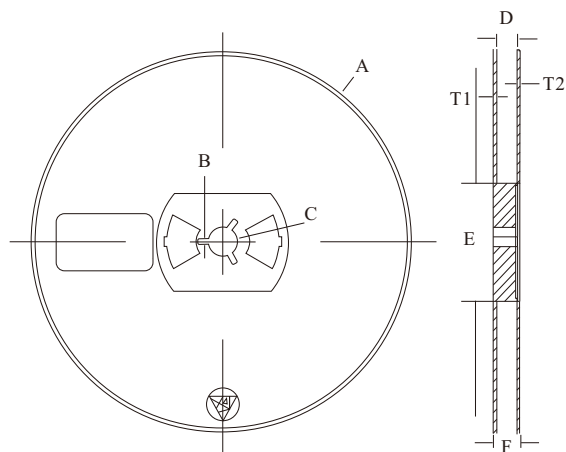
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## Package Specifications

- The method of packaging



## ◆ Embossed tape and reel data



| Symbol | Value (unit: mm)           |
|--------|----------------------------|
| A      | $\varnothing 177.8 \pm 1$  |
| B      | $2.7 \pm 0.2$              |
| C      | $\varnothing 13.5 \pm 0.2$ |
| E      | $\varnothing 54.5 \pm 0.2$ |
| F      | $12.3 \pm 0.3$             |
| D      | $9.6 + 2/-0.3$             |
| T1     | $1.0 \pm 0.2$              |
| T2     | $1.2 \pm 0.2$              |

Reel (7")

