

**Plastic-Encapsulate Transistors**  
**TRANSISTOR(PNP)**

**Features**

- ◆Complementary to MMBTA44
- ◆Power Dissipation of 350mW
- ◆High Stability and High Reliability

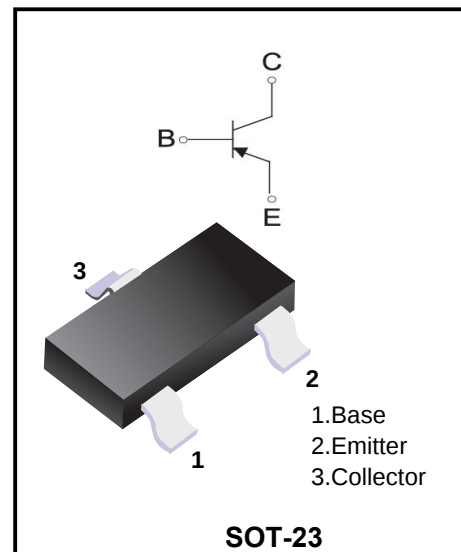
**Mechanical Data**

- ◆SOT-23 Small Outline Plastic Package.
- ◆Epoxy UL: 94V-0.
- ◆Mounting Position: Any.

**Marking Code**

MMBTA94

4D



**Maximum Ratings & Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)**

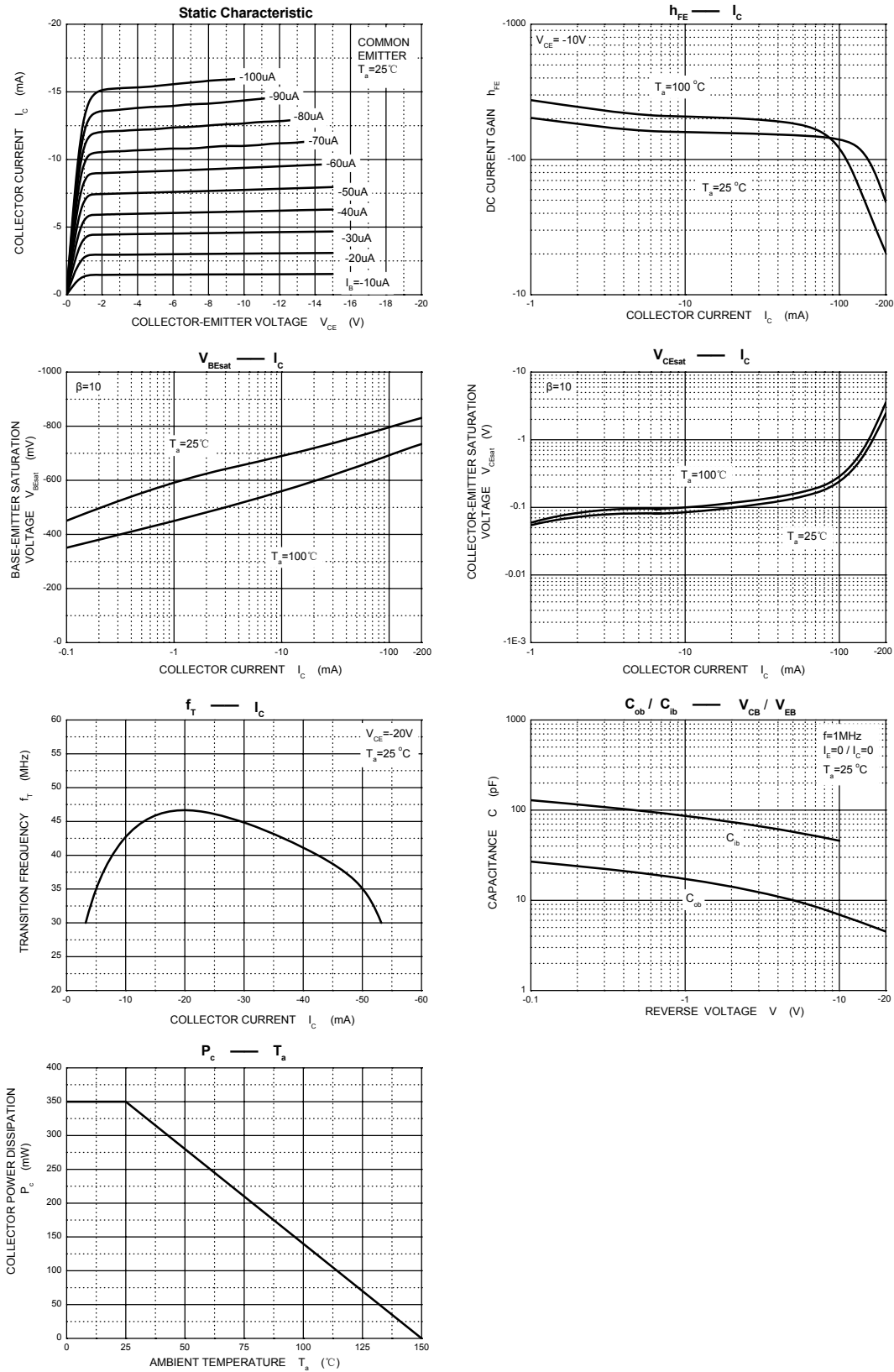
| Parameters                                  | Symbol          | Value    | Unit |
|---------------------------------------------|-----------------|----------|------|
| Collector-Base Voltage                      | $V_{CBO}$       | -400     | V    |
| Collector-Emitter Voltage                   | $V_{CEO}$       | -400     | V    |
| Emitter -Base Voltage                       | $V_{EBO}$       | -5       | V    |
| Collector Current-Continuous                | $I_C$           | -200     | mA   |
| Collector Power Dissipation                 | $P_C$           | 350      | mW   |
| Junction Temperature                        | $T_j$           | 150      | °C   |
| Storage Temperature                         | $T_{stg}$       | -50-+150 | °C   |
| Thermal resistance From junction to ambient | $R_{\theta JA}$ | 357      | °C/W |

**Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)**

| Parameter                            | Symbols         | Test Condition                         | Limits |     |       | Unit |
|--------------------------------------|-----------------|----------------------------------------|--------|-----|-------|------|
|                                      |                 |                                        | Min    | Typ | Max   |      |
| Collector-base breakdown voltage     | $V_{(BR)CBO}$   | $I_C = -100\mu A, I_E = 0$             | -400   | -   | -     | V    |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}^*$ | $I_C = -1mA, I_B = 0$                  | -400   | -   | -     | V    |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$   | $I_E = -100\mu A, I_C = 0$             | -5     | -   | -     | V    |
| Collector cut-off current            | $I_{CBO}$       | $V_{CB} = -400V, I_E = 0$              |        | -   | -100  | nA   |
| Collector cut-off current            | $I_{CEO}$       | $V_{CE} = -400V, I_E = 0$              |        | -   | -5    | uA   |
| Emitter cut-off current              | $I_{EBO}$       | $V_{EB} = -4V, I_C = 0$                |        | -   | -100  | nA   |
| DC current gain                      | $h_{FE(1)}^*$   | $V_{CE} = -10V, I_C = -10mA$           | 80     | -   | 300   |      |
|                                      | $h_{FE(2)}^*$   | $V_{CE} = -10V, I_C = -1mA$            | 70     | -   |       |      |
|                                      | $h_{FE(3)}^*$   | $V_{CE} = -10V, I_C = -50mA$           | 40     | -   |       |      |
|                                      | $h_{FE(4)}^*$   | $V_{CE} = -10V, I_C = -100mA$          | 40     | -   |       |      |
| Collector-emitter saturation voltage | $V_{CE(sat)}^*$ | $I_C = -10mA, I_B = -1mA$              | -      | -   | -0.2  | V    |
|                                      | $V_{CE(sat)}^*$ | $I_C = -50mA, I_B = -5mA$              | -      | -   | -0.3  | V    |
| Base -emitter saturation voltage     | $V_{BE(sat)}^*$ | $I_C = -10mA, I_B = -1mA$              | -      | -   | -0.75 | V    |
| Transition frequency                 | $f_T$           | $V_{CE} = -20V, I_C = 10mA, f = 30MHz$ | 50     | -   | -     | MHz  |

\*Pulse test: pulse width≤300us, duty cycle≤2.0%

Typical characteristics



### Ordering information

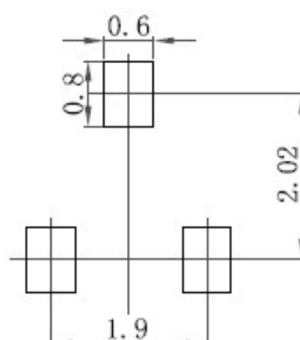
| Package | Packing Description | Base Quantity | Packing Quantity              |
|---------|---------------------|---------------|-------------------------------|
| SOT-23  | Tape/Reel, 7" reel  | 3000pcs/Reel  | 24000PCS/Box 120000PCS/Carton |

### Package Dimensions

#### SOT-23

| Dim. | Millimeter (mm) |      | mil  |      |
|------|-----------------|------|------|------|
|      | Min.            | Max. | Min. | Max. |
| A    | 0.9             | 1.15 | 35   | 45   |
| A1   | 0.1             |      | 3.9  |      |
| bp   | 0.38            | 0.48 | 15   | 19   |
| C    | 0.09            | 0.15 | 3.54 | 5.9  |
| D    | 2.8             | 3.0  | 110  | 118  |
| E    | 1.2             | 1.4  | 47   | 55   |
| E    | 1.9             |      | 75   |      |
| E1   | 0.95            |      | 37   |      |
| HE   | 2.1             | 2.55 | 83   | 100  |
| Lp   | 0.15            | 0.45 | 5.9  | 18   |
| Q    | 0.45            | 0.55 | 18   | 22   |
| v    | 0.2             |      | 7.9  |      |
| W    | 0.1             |      | 4    |      |

### The recommended mounting pad size



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