# MBTA43

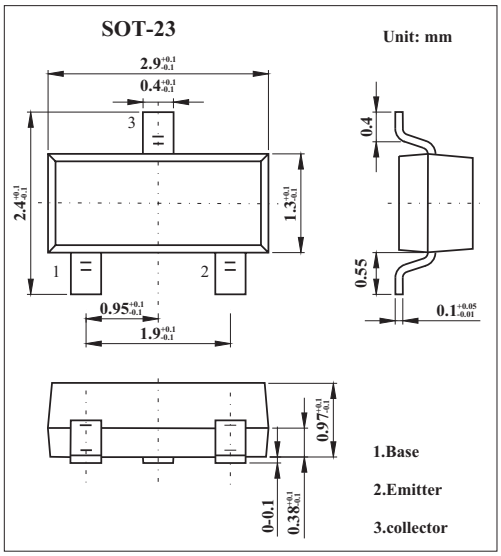
## SOT-23 Plastic-Encapsulate Transistors

### Features

- High Voltage Transistors
- NPN Silicon

### MECHANICAL DATA

- Case style:SOT-23molded plastic
- Mounting position:any




## MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Collector-emitter voltage | $V_{CEO}$ | 200 | V |
| Collector-base voltage | $V_{CBO}$ | 200 | V |
| Emitter-base voltage | $V_{EBO}$ | 6 | V |
| Collector current-continuous | $I_C$ | 500 | mA |
| Total device dissipation FR-5 board *1<br>@TA = 25℃<br>Derate above 25℃ | $P_D$ | <br>225<br>1.8 | <br>mW<br>mW/℃ |
| Thermal resistance, junction-to-ambient | $R_{\theta JA}$ | 556 | ℃/W |
| Total device dissipation alumina substrate *2<br>@TA = 25℃<br>derate above 25℃ | $P_D$ | <br>300<br>2.4 | <br>mW<br>mW/℃ |
| Thermal resistance, junction-to-ambient | $R_{\theta JA}$ | 417 | ℃/W |
| Junction and storage temperature | $T_J$, $T_{stg}$ | -55 to +150 | ℃ |

**PACKAGE INFORMATION**

| Device | Package | Shipping |
|---|---|---|
| MBTA43 | SOT-23 | 3000/Tape&Reel |

* 1. FR-5 = 1.0 X 0.75 X 0.062 in.

* 2. Alumina = 0.4 X 0.3 X 0.024 in. 99.5% alumina.

| Parameter | Symbol | Testconditons | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector-emitter breakdown voltage * | $V_{(BR)CEO}$ | $I_C$ = 1.0 mA, $I_B$ = 0 | 200 | | | V |
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C$ = 100 μA, $I_E$ = 0 | 200 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E$ = 100 μA, $I_C$ = 0 | 6 | | | V |
| Collector cutoff current | $I_{CBO}$ | $V_{CB}$ = 160 V, $I_E$ = 0 | | | 0.1 | μA |
| Emitter cutoff current | $I_{EBO}$ | $V_{EB}$ = 4.0 V, $I_C$ = 0 | | | 0.1 | μA |
| DC current gain * | $h_{FE}$ | $I_C$ = 1.0 mA, $V_{CE}$ = 10 V | 25 | | | |
| | | $I_C$ = 10 mA, $V_{CE}$ = 10 V | 40 | | | |
| | | $I_C$ = 30 mA, $V_{CE}$ = 10 V | 40 | | | |
| Collector-emitter saturation voltage * | $V_{CE(sat)}$ | $I_C$ = 20 mA, $I_B$ = 2.0 mA | | | 0.5 | V |
| Base-emitter saturation voltage * | $V_{BE(sat)}$ | $I_C$ = 20 mA, $I_B$ = 2.0 mA | | | 0.9 | V |
| Current-gain - bandwidth product | $f_T$ | $I_C$ = 10 mA, $V_{CE}$ = 20 V, f = 100 MHz | 50 | | | MHz |
| Collector-base capacitance | $C_{cb}$ | $V_{CB}$ = 20 V, $I_E$ = 0, f = 1.0 MHz | | | 4 | pF |

* Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle≤2.0%.

## ■ Marking

| Marking | M1E |
|---|---|