



# DC COMPONENTS CO., LTD.

## DISCRETE SEMICONDUCTORS

### DMBTA44

### TECHNICAL SPECIFICATIONS OF NPN EPITAXIAL PLANAR TRANSISTOR

#### Description

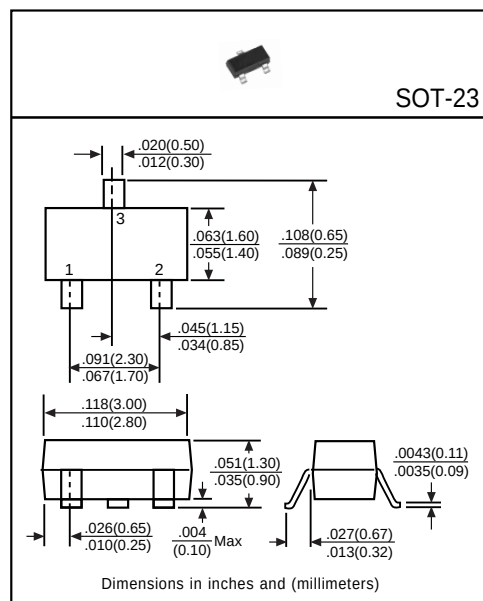
Designed for applications requiring high breakdown voltage.

#### Pinning

- 1 = Base
- 2 = Emitter
- 3 = Collector

#### Absolute Maximum Ratings( $T_A=25^{\circ}\text{C}$ )

| Characteristic            | Symbol    | Rating      | Unit               |
|---------------------------|-----------|-------------|--------------------|
| Collector-Base Voltage    | $V_{CB0}$ | 450         | V                  |
| Collector-Emitter Voltage | $V_{CE0}$ | 400         | V                  |
| Emitter-Base Voltage      | $V_{EB0}$ | 6           | V                  |
| Collector Current         | $I_C$     | 300         | mA                 |
| Total Power Dissipation   | $P_D$     | 350         | mW                 |
| Junction Temperature      | $T_J$     | +150        | $^{\circ}\text{C}$ |
| Storage Temperature       | $T_{STG}$ | -55 to +150 | $^{\circ}\text{C}$ |



#### Electrical Characteristics

(Ratings at  $25^{\circ}\text{C}$  ambient temperature unless otherwise specified)

| Characteristic                                      | Symbol         | Min | Typ | Max  | Unit | Test Conditions                       |
|-----------------------------------------------------|----------------|-----|-----|------|------|---------------------------------------|
| Collector-Base Breakdown Voltage                    | $BV_{CB0}$     | 450 | -   | -    | V    | $I_C=100\mu\text{A}$                  |
| Collector-Emitter Breakdown Voltage                 | $BV_{CE0}$     | 400 | -   | -    | V    | $I_C=1\text{mA}$                      |
| Emitter-Base Breakdown Voltage                      | $BV_{EB0}$     | 6   | -   | -    | V    | $I_E=10\mu\text{A}$                   |
| Collector Cutoff Current                            | $I_{CB0}$      | -   | -   | 100  | nA   | $V_{CB}=400\text{V}$                  |
|                                                     | $I_{CES}$      | -   | -   | 500  | nA   | $V_{CE}=400\text{V}$                  |
| Emitter Cutoff Current                              | $I_{EB0}$      | -   | -   | 100  | nA   | $V_{EB}=4\text{V}$                    |
| Collector-Emitter Saturation Voltage <sup>(1)</sup> | $V_{CE(sat)1}$ | -   | -   | 0.4  | V    | $I_C=1\text{mA}, I_B=0.1\text{mA}$    |
|                                                     | $V_{CE(sat)2}$ | -   | -   | 0.5  | V    | $I_C=10\text{mA}, I_B=1\text{mA}$     |
|                                                     | $V_{CE(sat)3}$ | -   | -   | 0.75 | V    | $I_C=50\text{mA}, I_B=5\text{mA}$     |
| Base-Emitter Saturation Voltage <sup>(1)</sup>      | $V_{BE(sat)}$  | -   | -   | 0.75 | V    | $I_C=10\text{mA}, I_B=1\text{mA}$     |
| DC Current Gain <sup>(1)</sup>                      | $h_{FE1}$      | 40  | -   | -    | -    | $I_C=1\text{mA}, V_{CE}=10\text{V}$   |
|                                                     | $h_{FE2}$      | 50  | -   | 300  | -    | $I_C=10\text{mA}, V_{CE}=10\text{V}$  |
|                                                     | $h_{FE3}$      | 45  | -   | -    | -    | $I_C=50\text{mA}, V_{CE}=10\text{V}$  |
|                                                     | $h_{FE4}$      | 40  | -   | -    | -    | $I_C=100\text{mA}, V_{CE}=10\text{V}$ |
| Output Capacitance                                  | $C_{ob}$       | -   | 4   | 6    | pF   | $V_{CB}=20\text{V}, f=1\text{MHz}$    |

(1) Pulse Test: Pulse Width  $\leq 380\mu\text{s}$ , Duty Cycle  $\leq 2\%$