



DC COMPONENTS CO., LTD.  
DISCRETE SEMICONDUCTORS

DMBT3904

TECHNICAL SPECIFICATIONS OF NPN EPITAXIAL PLANAR TRANSISTOR

Description

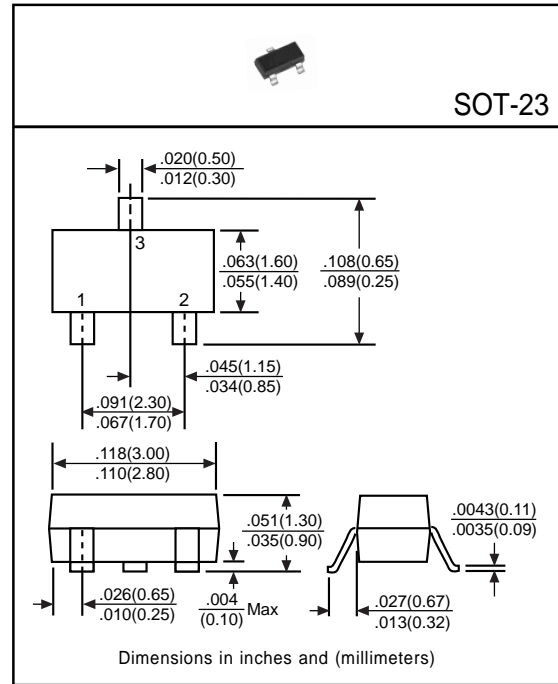
Designed for general purpose switching and amplifier applications.

Pinning

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

Absolute Maximum Ratings (TA=25°C)

| Characteristic            | Symbol           | Rating      | Unit |
|---------------------------|------------------|-------------|------|
| Collector-Base Voltage    | V <sub>CB0</sub> | 60          | V    |
| Collector-Emitter Voltage | V <sub>CE0</sub> | 40          | V    |
| Emitter-Base Voltage      | V <sub>EB0</sub> | 6           | V    |
| Collector Current         | I <sub>C</sub>   | 200         | mA   |
| Total Power Dissipation   | P <sub>D</sub>   | 225         | mW   |
| Junction Temperature      | T <sub>J</sub>   | +150        | °C   |
| Storage Temperature       | T <sub>STG</sub> | -55 to +150 | °C   |



Electrical Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified)

| Characteristic                                      | Symbol                | Min | Typ | Max | Unit | Test Conditions                                      |
|---|-----------------------|-----|-----|-----|------|--|
| Collector-Base Breakdown Voltage                    | BV <sub>CB0</sub>     | 60  | -   | -   | V    | I <sub>C</sub> =10μA                                 |
| Collector-Emitter Breakdown Voltage                 | BV <sub>CE0</sub>     | 40  | -   | -   | V    | I <sub>C</sub> =1mA                                  |
| Emitter-Base Breakdown Voltage                      | BV <sub>EB0</sub>     | 6   | -   | -   | V    | I <sub>E</sub> =10μA                                 |
| Collector Cutoff Current                            | I <sub>CX</sub>       | -   | -   | 50  | nA   | V <sub>CE</sub> =30V, V <sub>BE</sub> = 3V           |
| Collector-Emitter Saturation Voltage <sup>(1)</sup> | V <sub>CE(sat)1</sub> | -   | -   | 200 | mV   | I <sub>C</sub> =10mA, I <sub>B</sub> =1mA            |
|   | V <sub>CE(sat)2</sub> | -   | -   | 300 | mV   | I <sub>C</sub> =50mA, I <sub>B</sub> =5mA            |
| Base-Emitter Saturation Voltage <sup>(1)</sup>      | V <sub>BE(sat)1</sub> | 650 | -   | 850 | mV   | I <sub>C</sub> =10mA, I <sub>B</sub> =1mA            |
|   | V <sub>BE(sat)2</sub> | -   | -   | 950 | mV   | I <sub>C</sub> =50mA, I <sub>B</sub> =5mA            |
| DC Current Gain <sup>(1)</sup>                      | h <sub>FE1</sub>      | 40  | -   | -   | -    | I <sub>C</sub> =0.1mA, V <sub>CE</sub> =1V           |
|   | h <sub>FE2</sub>      | 70  | -   | -   | -    | I <sub>C</sub> =1mA, V <sub>CE</sub> =1V             |
|   | h <sub>FE3</sub>      | 100 | -   | 300 | -    | I <sub>C</sub> =10mA, V <sub>CE</sub> =1V            |
|   | h <sub>FE4</sub>      | 60  | -   | -   | -    | I <sub>C</sub> =50mA, V <sub>CE</sub> =1V            |
|   | h <sub>FE5</sub>      | 30  | -   | -   | -    | I <sub>C</sub> =100mA, V <sub>CE</sub> =1V           |
| Transition Frequency                                | f <sub>T</sub>        | 300 | -   | -   | MHz  | I <sub>C</sub> =10mA, V <sub>CE</sub> =20V, f=100MHz |
| Output Capacitance                                  | C <sub>ob</sub>       | -   | -   | 4   | pF   | V <sub>CB</sub> =5V, f=1MHz, I <sub>E</sub> =0       |

(1)Pulse Test: Pulse Width ≤ 380μs, Duty Cycle ≤ 2%