



DC COMPONENTS CO., LTD.  
DISCRETE SEMICONDUCTORS

DMBTA13

TECHNICAL SPECIFICATIONS OF NPN DARLINGTON TRANSISTOR

Description

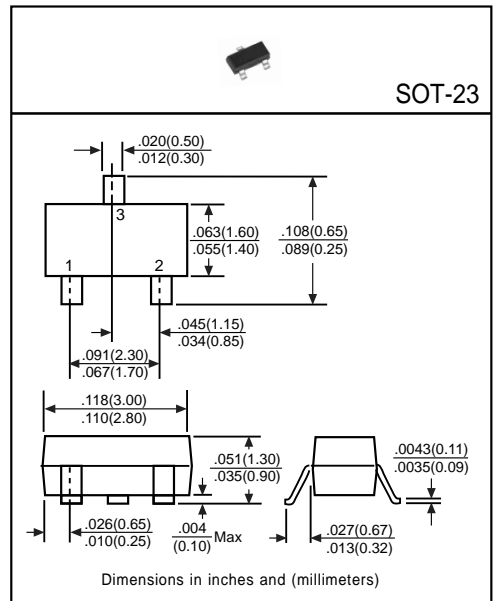
Designed for applications requiring high current gain.

Pinning

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

Absolute Maximum Ratings (TA=25°C)

| Characteristic            | Symbol | Rating      | Unit |
|---------------------------|--------|-------------|------|
| Collector-Base Voltage    | VCBO   | 30          | V    |
| Collector-Emitter Voltage | VCES   | 30          | V    |
| Emitter-Base Voltage      | VEBO   | 10          | V    |
| Collector Current         | IC     | 300         | mA   |
| Total Power Dissipation   | PD     | 225         | mW   |
| Junction Temperature      | TJ     | +150        | °C   |
| Storage Temperature       | TSTG   | -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>    | 30  | -   | -   | V    | I <sub>C</sub> =100μA                               |
| Collector-Emitter Breakdown Voltage                 | BV <sub>CEs</sub>    | 30  | -   | -   | V    | I <sub>C</sub> =100μA                               |
| Emitter-Base Breakdown Voltage                      | BV <sub>EBO</sub>    | 10  | -   | -   | V    | I <sub>E</sub> =10μA                                |
| Collector Cutoff Current                            | I <sub>CBO</sub>     | -   | -   | 100 | nA   | V <sub>CB</sub> =30V                                |
| Emitter Cutoff Current                              | I <sub>EBO</sub>     | -   | -   | 100 | nA   | V <sub>EB</sub> =10V                                |
| Collector-Emitter Saturation Voltage <sup>(1)</sup> | V <sub>CE(sat)</sub> | -   | -   | 1.5 | V    | I <sub>C</sub> =100mA, I <sub>B</sub> =0.1mA        |
| Base-Emitter On Voltage                             | V <sub>BE(on)</sub>  | -   | -   | 2   | V    | I <sub>C</sub> =100mA, V <sub>CE</sub> =5V          |
| DC Current Gain <sup>(1)</sup>                      | h <sub>FE1</sub>     | 5K  | -   | -   | -    | I <sub>C</sub> =10mA, V <sub>CE</sub> =5V           |
|   | h <sub>FE2</sub>     | 10K | -   | -   | -    | I <sub>C</sub> =100mA, V <sub>CE</sub> =5V          |
| Transition Frequency                                | f <sub>T</sub>       | 125 | -   | -   | MHz  | I <sub>C</sub> =10mA, V <sub>CE</sub> =5V, f=100MHz |
| Output Capacitance                                  | C <sub>ob</sub>      | -   | -   | 6   | pF   | V <sub>CB</sub> =10V, f=1MHz                        |

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