



DC COMPONENTS CO., LTD.

DISCRETE SEMICONDUCTORS

DXTA13

## TECHNICAL SPECIFICATIONS OF NPN DARLINGTON TRANSISTOR

### Description

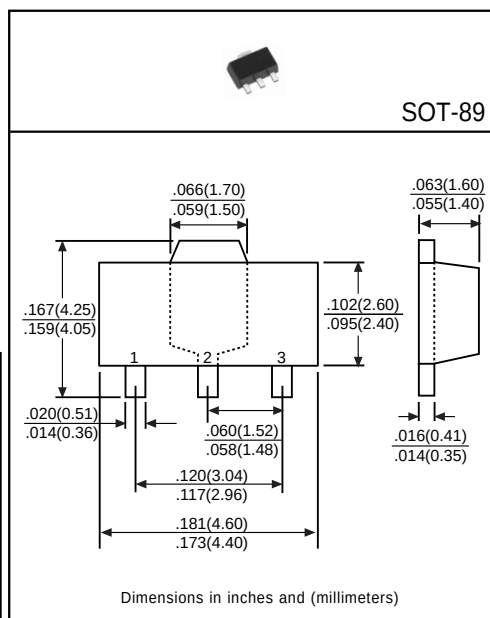
Designed for applications requiring extremely high current gain.

### Pinning

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

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

| Characteristic            | Symbol    | Rating      | Unit               |
|---------------------------|-----------|-------------|--------------------|
| Collector-Base Voltage    | $V_{CB0}$ | 30          | V                  |
| Collector-Emitter Voltage | $V_{CES}$ | 30          | V                  |
| Emitter-Base Voltage      | $V_{EBO}$ | 10          | V                  |
| Collector Current         | $I_C$     | 300         | mA                 |
| Total Power Dissipation   | $P_D$     | 1           | W                  |
| 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                    | $BV_{CB0}$    | 30  | -   | -   | V    | $I_C=100\mu\text{A}$ , $I_E=0$                             |
| Collector-Emitter Breakdown Voltage                 | $BV_{CES}$    | 30  | -   | -   | V    | $I_C=100\mu\text{A}$ , $I_B=0$                             |
| Emitter-Base Breakdown Voltage                      | $BV_{EBO}$    | 10  | -   | -   | V    | $I_E=10\mu\text{A}$ , $I_C=0$                              |
| Collector Cutoff Current                            | $I_{CBO}$     | -   | -   | 100 | nA   | $V_{CB}=30\text{V}$ , $I_E=0$                              |
| Emitter Cutoff Current                              | $I_{EBO}$     | -   | -   | 100 | nA   | $V_{EB}=10\text{V}$ , $I_C=0$                              |
| Collector-Emitter Saturation Voltage <sup>(1)</sup> | $V_{CE(sat)}$ | -   | -   | 1.5 | V    | $I_C=100\text{mA}$ , $I_B=0.1\text{mA}$                    |
| Base-Emitter On Voltage <sup>(1)</sup>              | $V_{BE(on)}$  | -   | -   | 2   | V    | $I_C=100\text{mA}$ , $V_{CE}=5\text{V}$                    |
| DC Current Gain <sup>(1)</sup>                      | $h_{FE1}$     | 5K  | -   | -   | -    | $I_C=10\text{mA}$ , $V_{CE}=5\text{V}$                     |
|                                                     | $h_{FE2}$     | 10K | -   | -   | -    | $I_C=100\text{mA}$ , $V_{CE}=5\text{V}$                    |
| Transition Frequency                                | $f_T$         | 125 | -   | -   | MHz  | $V_{CE}=5\text{V}$ , $f=100\text{MHz}$ , $I_C=10\text{mA}$ |

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