



# DTC144T

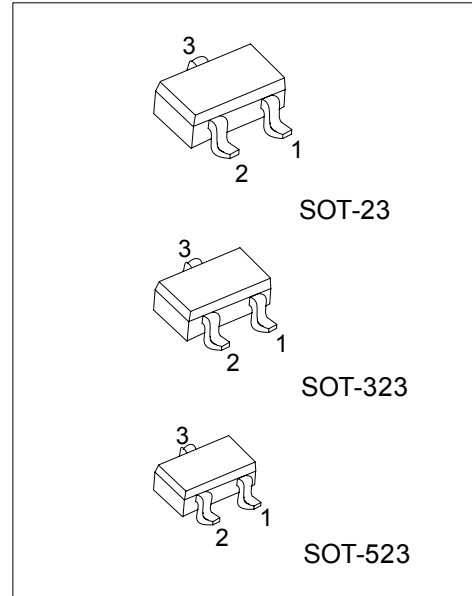
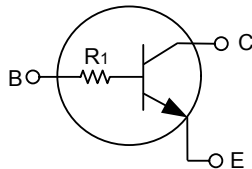
## NPN SILICON TRANSISTOR

### NPN DIGITAL TRANSISTOR (BUILT-IN BIAS RESISTORS)

#### ■ FEATURES

- \* Built-in bias resistors that implies easy ON/OFF applications.
- \* The bias resistors are thin-film resistors with complete isolation to allow negative input.

#### ■ EQUIVALENT CIRCUIT



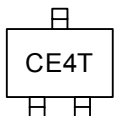
\*Pb-free plating product number:DTC144TL

#### ■ ORDERING INFORMATION

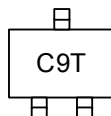
| Order Number  |                   | Package | Pin Assignment |   |   | Packing   |
|---------------|-------------------|---------|----------------|---|---|-----------|
| Normal        | Lead Free Plating |         | 1              | 2 | 3 |           |
| DTC144T-AE3-R | DTC144TL-AE3-R    | SOT-23  | E              | B | C | Tape Reel |
| DTC144T-AL3-R | DTC144TL-AL3-R    | SOT-323 | E              | B | C | Tape Reel |
| DTC144T-AN3-R | DTC144TL-AN3-R    | SOT-523 | E              | B | C | Tape Reel |

|  |  |
|--|--|
| <p>DTC144TL-AE3-R</p> <p>(1)Packing Type<br/>(2)Package Type<br/>(3)Lead Plating</p> | <p>(1) R: Tape Reel<br/>(2) AE3: SOT-23, AL3: SOT-323, AN3: SOT-523<br/>(3) L: Lead Free Plating, Blank: Pb/Sn</p> |
|--|--|

#### ■ MARKING



For SOT-23/SOT-323 Package



For SOT-523 Package

■ ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C)

| PARAMETER                   |                | SYMBOL    | RATING   | UNIT |
|-----------------------------|----------------|-----------|----------|------|
| Collector-Base Voltage      |                | $V_{CBO}$ | 50       | V    |
| Collector-Emitter Voltage   |                | $V_{CEO}$ | 50       | V    |
| Emitter-Base Voltage        |                | $V_{EBO}$ | 5        | V    |
| Collector Current           |                | $I_C$     | 100      | mA   |
| Collector Power Dissipation | SOT-523        | $P_C$     | 150      | mW   |
|                             | SOT-23/SOT-323 |           | 200      | mW   |
| Junction Temperature        |                | $T_J$     | 150      |      |
| Storage Temperature         |                | $T_{STG}$ | -55~+150 |      |

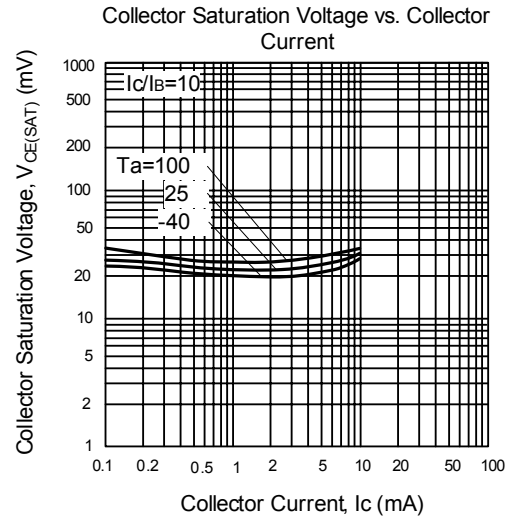
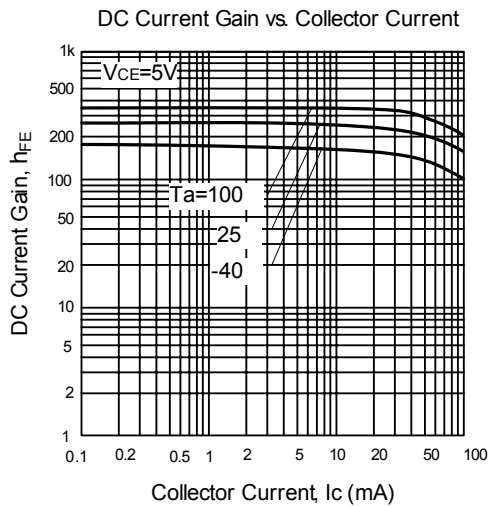
Note Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (Ta= 25 °C, unless otherwise specified)

| PARAMETER                            | SYMBOL        | TEST CONDITIONS                    | MIN  | TYP | MAX  | UNIT       |
|--------------------------------------|---------------|------------------------------------|------|-----|------|------------|
| Collector-Base Breakdown Voltage     | $BV_{CBO}$    | $I_C=50\mu A$                      | 50   |     |      | V          |
| Collector-Emitter Breakdown Voltage  | $BV_{CEO}$    | $I_C=1mA$                          | 50   |     |      | V          |
| Emitter-Base Breakdown Voltage       | $BV_{EBO}$    | $I_E=50\mu A$                      | 5    |     |      | V          |
| Collector Cutoff Current             | $I_{CBO}$     | $V_{CB}=50V$                       |      |     | 0.5  | $\mu A$    |
| Emitter Cutoff Current               | $I_{EBO}$     | $V_{EB}=4V$                        |      |     | 0.5  | $\mu A$    |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C=5mA, I_B=0.5mA$               |      |     | 0.3  | V          |
| DC Current Gain                      | $h_{FE}$      | $V_{CE}=5V, I_C=1mA$               | 100  | 250 | 600  |            |
| Input Resistance                     | R1            |                                    | 32.9 | 47  | 61.1 | k $\Omega$ |
| Transition Frequency                 | $f_T$         | $V_{CE}=10V, I_E=-5mA, f=100MHz^*$ |      | 250 |      | MHz        |

\* Transition frequency of the device

## TYPICAL CHARACTERISTICS



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