

# DTA114T

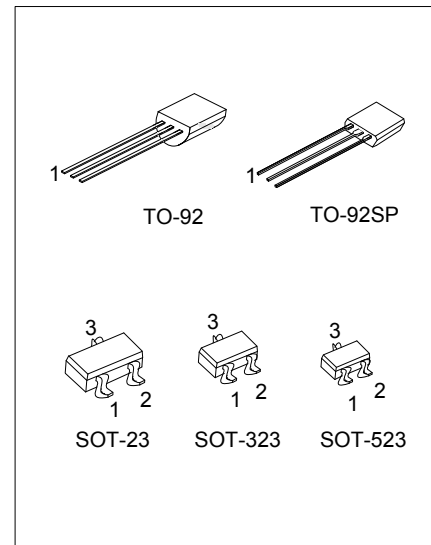
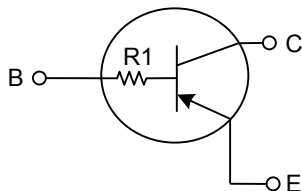
## PNP SILICON TRANSISTOR

### DIGITAL TRANSISTORS (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 positive input.

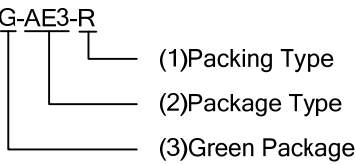
#### EQUIVALENT CIRCUIT



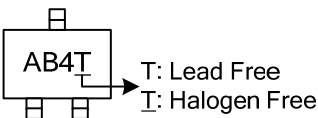
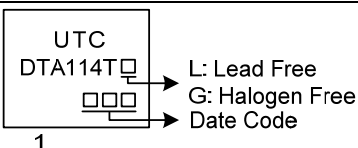
#### ORDERING INFORMATION

| Order Number   |                | Package | Pin Assignment |   |   | Packing   |
|----------------|----------------|---------|----------------|---|---|-----------|
| Lead Free      | Halogen Free   |         | 1              | 2 | 3 |           |
| DTA114TG-AE3-R | DTA114TG-AE3-R | SOT-23  | B              | E | C | Tape Reel |
| DTA114TG-AL3-R | DTA114TG-AL3-R | SOT-323 | B              | E | C | Tape Reel |
| DTA114TG-AN3-R | DTA114TG-AN3-R | SOT-523 | B              | E | C | Tape Reel |
| DTA114TL-T92-B | DTA114TG-T92-B | TO-92   | E              | C | B | Tape Box  |
| DTA114TL-T92-K | DTA114TG-T92-K | TO-92   | E              | C | B | Bulk      |
| DTA114TL-T9S-K | DTA114TG-T9S-K | TO-92SP | E              | C | B | Bulk      |

Note: Pin assignment: B: Base E: Emitter C: Collector

|                                                                                                                                                                              |                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>DTA114TG-AE3-R</p>  <p>(1) Packing Type<br/>(2) Package Type<br/>(3) Green Package</p> | <p>(1) R: Tape Reel, B: Tape Box, K: Bulk<br/>(2) AE3: SOT-23, AL3: SOT-323, AN3: SOT-523, T92: TO-92, T9S: TO-92SP<br/>(3) G: Halogen Free and Lead Free, L: Lead Free</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### MARKING

| SOT-23 / SOT-323 / SOT-523                                                                                                  | TO-92 / TO-92SP                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>T: Lead Free<br/>I: Halogen Free</p> |  <p>UTC<br/>DTA114T<br/>L: Lead Free<br/>G: Halogen Free<br/>Date Code</p> |

■ **ABSOLUTE MAXIMUM RATINGS** ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)

| 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-23          | $P_C$     | 200        | mW               |
|                             | SOT-323/SOT-523 |           | 150        |                  |
|                             | TO-92           |           | 625        |                  |
|                             | TO-92SP         |           | 550        |                  |
| Junction Temperature        |                 | $T_J$     | +150       | $^\circ\text{C}$ |
| Storage Temperature         |                 | $T_{STG}$ | -55 ~ +150 | $^\circ\text{C}$ |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

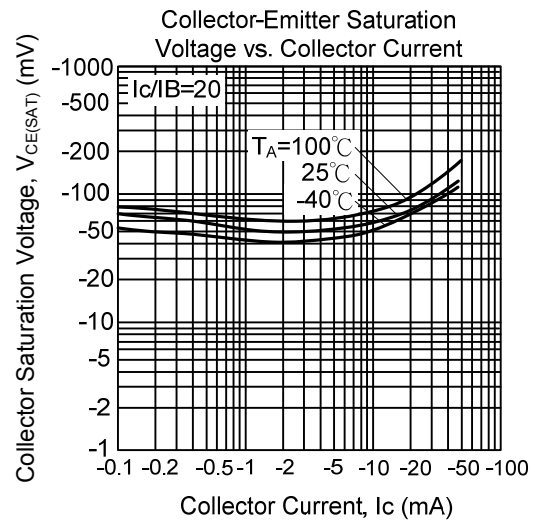
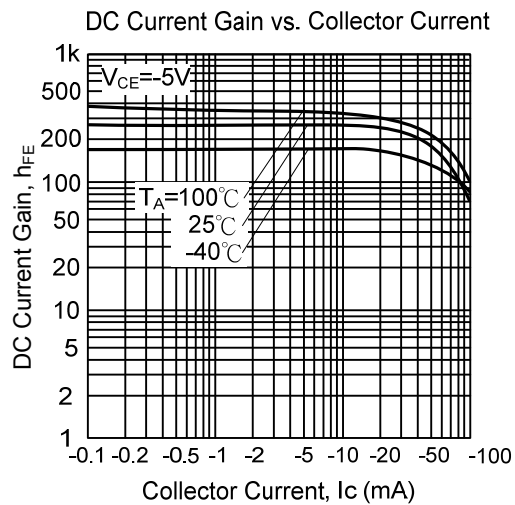
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ **ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)

| PARAMETER                            | SYMBOL        | TEST CONDITIONS                                                          | MIN | TYP | MAX  | UNIT          |
|--------------------------------------|---------------|--------------------------------------------------------------------------|-----|-----|------|---------------|
| <b>OFF CHARACTERISTICS</b>           |               |                                                                          |     |     |      |               |
| Collector-Base Breakdown Voltage     | $BV_{CBO}$    | $I_C = -50\mu\text{A}$                                                   | -50 |     |      | V             |
| Collector-Emitter Breakdown Voltage  | $BV_{CEO}$    | $I_C = -1\text{mA}$                                                      | -50 |     |      | V             |
| Emitter-Base Breakdown Voltage       | $BV_{EBO}$    | $I_E = -50\mu\text{A}$                                                   | -5  |     |      | V             |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C = -10\text{mA}$ , $I_B = -1\text{mA}$                               |     |     | -0.3 | V             |
| Collector Cutoff Current             | $I_{CBO}$     | $V_{CB} = -50\text{V}$                                                   |     |     | -0.5 | $\mu\text{A}$ |
| Emitter Cutoff Current               | $I_{EBO}$     | $V_{EB} = -4\text{V}$                                                    |     |     | -0.5 | $\mu\text{A}$ |
| <b>ON CHARACTERISTICS</b>            |               |                                                                          |     |     |      |               |
| DC Current Gain                      | $h_{FE}$      | $V_{CE} = -5\text{V}$ , $I_C = -1\text{mA}$                              | 100 | 250 | 600  |               |
| <b>SMALL SIGNAL CHARACTERISTICS</b>  |               |                                                                          |     |     |      |               |
| Input Resistance                     | $R_1$         |                                                                          | 7   | 10  | 13   | k $\Omega$    |
| Transition Frequency                 | $f_T$         | $V_{CE} = -10\text{V}$ , $I_E = 5\text{mA}$ , $f = 100\text{MHz}$ (Note) |     | 250 |      | MHz           |

Note: Transition frequency of the device

## ■ TYPICAL CHARACTERISTICS



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