



# DTA115E

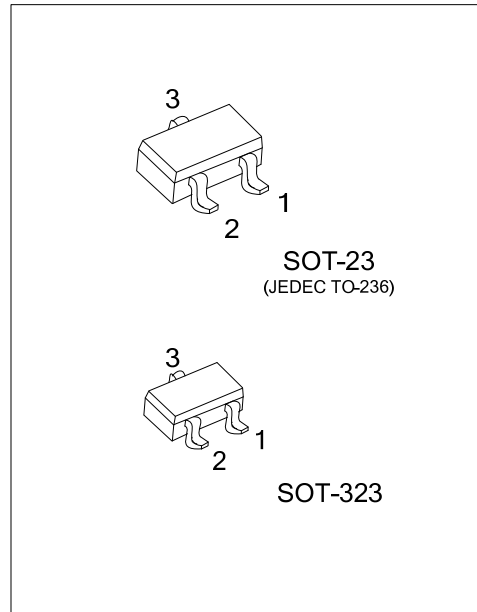
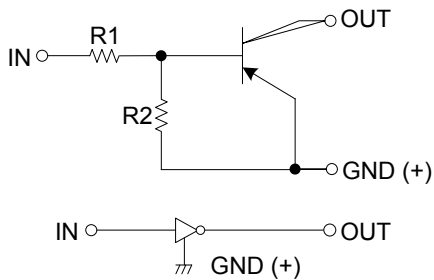
## PNP EPITAXIAL SILICON TRANSISTOR

### PNP DIGITAL TRANSISTOR (BUILT-IN RESISTORS)

#### ■ FEATURES

- \* Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see the equivalent circuit).
- \* The bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
- \* Only the on / off conditions need to be set for operation, making device design easy.

#### ■ EQUIVALENT CIRCUIT

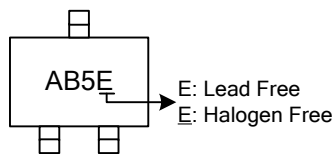


#### ■ ORDERING INFORMATION

| Ordering Number |                | Package | Pin Assignment |   |   | Packing   |
|-----------------|----------------|---------|----------------|---|---|-----------|
| Lead Free       | Halogen Free   |         | 1              | 2 | 3 |           |
| DTA115EL-AE3-R  | DTA115EG-AE3-R | SOT-23  | G              | I | O | Tape Reel |
| DTA115EL-AL3-R  | DTA115EG-AL3-R | SOT-323 | G              | I | O | Tape Reel |

Note: Pin Assignment: G: GND I: IN O: OUT

#### ■ MARKING



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

| PARAMETER            | SYMBOL       | RATINGS    | UNIT             |
|----------------------|--------------|------------|------------------|
| Supply Voltage       | $V_{CC}$     | -50        | V                |
| Input Voltage        | $V_{IN}$     | -40~+10    | V                |
| Output Current       | $I_{OUT}$    | -20        | mA               |
|                      | $I_{C(MAX)}$ | -100       |                  |
| Power Dissipation    | $P_D$        | 200        | mW               |
| Junction Temperature | $T_J$        | 150        | $^\circ\text{C}$ |
| Storage Temperature  | $T_{STG}$    | -40 ~ +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       |
|----------------------|----------------|---|-----|------|-------|------------|
| Input Voltage        | $V_{IN(OFF)}$  | $V_{CC} = -5V, I_{OUT} = -100\mu A$           |     |      | -0.5  | V          |
|                      | $V_{IN(ON)}$   | $V_{OUT} = -0.3V, I_{OUT} = -1mA$             | -3  |      |       |            |
| Output Voltage       | $V_{OUT(ON)}$  | $I_{OUT} = -5mA, I_{IN} = -0.25mA$            |     | -0.1 | -0.3  | V          |
| Input Current        | $I_{IN}$       | $V_{IN} = -5V$                                |     |      | -0.15 | mA         |
| Output Current       | $I_{OUT(OFF)}$ | $V_{CC} = -50V, V_{IN} = 0V$                  |     |      | -0.5  | $\mu A$    |
| DC Current Gain      | $G_I$          | $V_{OUT} = -5V, I_{OUT} = -5mA$               | 82  |      |       |            |
| Input Resistance     | $R_1$          |   | 70  | 100  | 130   | k $\Omega$ |
| Resistance Ratio     | $R_2/R_1$      |   | 0.8 | 1    | 1.2   |            |
| Transition Frequency | $f_T$          | $V_{CE} = -10V, I_E = 5mA, f = 100MHz$ (Note) |     | 250  |       | MHz        |

Note: Transition frequency of the device

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