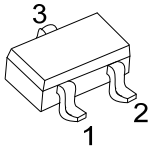
# DTB123E

**Preliminary** ***PNP SILICON TRANSISTOR***

## DIGITAL TRANSISTORS (BUILT- IN BIAS RESISTORS)

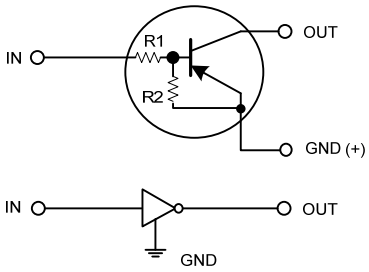



SOT-23
(JEDEC TO-236)

### ■ 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



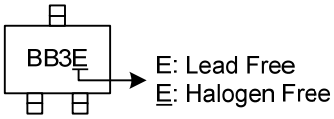

### ■ ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|---|---|---|---|---|---|---|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| DTB123EL-AE3-R | DTB123EG-AE3-R | SOT-23 | I | G | O | Tape Reel |

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

| | |
|---|---|
| DTB123EG-AE3-R<br>(1)Packing Type<br>(2)Package Type<br>(3)Green Package | (1) R: Tape Reel<br>(2) AE3: SOT-23<br>(3) G: Halogen Free and Lead Free, L: Lead Free |

### ■ MARKING



## ■ ABSOLUTE MAXIMUM RATINGS ($T_A$= 25°C, unless otherwise specified)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---|---|---|---|
| Supply Voltage | $V_{CC}$ | -50 | V |
| Input Voltage | $V_{IN}$ | -12 | V |
| | | 10 | V |
| Output Current | $I_C$ | -500 | mA |
| Power Dissipation | $P_D$ | 200 | mW |
| Junction Temperature | $T_J$ | +150 | °C |
| Storage Temperature | $T_{STG}$ | -55 ~ +150 | °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 SPECIFICATIONS ($T_A$= 25°C, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | | |
| Input Voltage | $V_{IN(OFF)}$ | $V_{CC}$ =-5V, $I_{OUT}$ =-100μA | | | -0.5 | V |
| | $V_{IN(ON)}$ | $V_{OUT}$=-0.3V, $I_O$=-20mA | -3 | | | |
| Output Voltage | $V_{OUT(ON)}$ | $I_{OUT}/I_{IN}$=-50mA/-2.5mA | | -0.1 | -0.3 | V |
| Input Current | $I_{IN}$ | $V_{IN}$=-5V | | | -3.8 | mA |
| Output Current | $I_{OUT(OFF)}$ | $V_{CC}$=-50V, $V_{IN}$=0V | | | -0.5 | μA |
| **ON CHARACTERISTICS** | | | | | | |
| DC Current Gain | $h_{FE}$ | $V_{OUT}$=-5V, $I_{OUT}$=-50mA | 39 | | | |
| **SMALL SIGNAL CHARACTERISTICS** | | | | | | |
| Input Resistance | $R_1$ | | 1.54 | 2.2 | 2.86 | kΩ |
| Resistor Ratio | $R_2/R_1$ | | 0.8 | 1 | 1.2 | |
| Transition Frequency (Note) | $f_T$ | $V_{CE}$ =-10V, $I_E$ =50mA, f=100MHz | | 200 | | MHz |

Note: Transition frequency of the device.