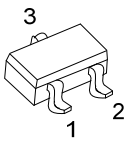
UP2316 **Preliminary** ***PNP SILICON TRANSISTOR***

# BIPOLAR TRANSISTOR SILICON PNP EPITAXIAL TYPE (BIAS RESISTOR BUILT-IN TRANSISTOR)



SOT-323

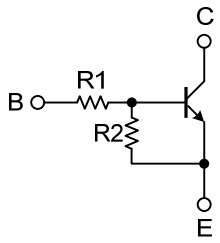
## ■ DESCRIPTION

The UTC **UP2316** is a transistor with low saturation voltage. It provides customers with very low on-state losses that makes it ideal for applications, such as driving and power management functions and DC-DC circuits.

## ■ FEATURES

* The integrated bias resistor reduces the number of external parts required, making it possible to reduce system size and assembly time.

## ■ EQUIVALENT CIRCUIT



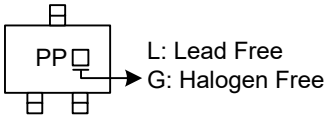

## ■ ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|---|---|---|---|---|---|---|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| UP2316L-AL3-R | UP2316G-AL3-R | SOT-323 | B | E | C | Tape Reel |

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

| | |
|---|---|
| UP2316G-AL3-R<br>(1)Packing Type<br>(2)Package Type<br>(3)Green Package | (1) R: Tape Reel<br>(2) AA3: SOT-223<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 |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | -50 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | -50 | V |
| Emitter-Base Voltage | $V_{EBO}$ | -7 | V |
| Continuous Collector Current | $I_C$ | -100 | mA |
| Collector power dissipation | $P_c$ | 100 | 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 CHARACTERISTICS ($T_A$=25°C, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $BV_{CBO}$ | $I_C$=-100μA | -50 | | | V |
| Collector-Emitter Breakdown Voltage | $BV_{CEO}$ | $I_C$=-10mA | -50 | | | V |
| Collector Cut-off Current | $I_{CBO}$ | $V_{CB}$=-50V, $I_E$=0mA | | | -100 | nA |
| Collector Cut-off Current | $I_{CEO}$ | $V_{CB}$=-50V, $I_E$=0mA | | | -500 | nA |
| Emitter Cut-off Current | $I_{EBO}$ | $V_{EB}$=-7V, $I_C$=0mA | -0.36 | | -0.68 | mA |
| Collector-Emitter Saturation Voltage | $V_{CE\ (SAT)}$ | $I_C$=-5mA, $I_B$=-0.25mA | | -0.1 | -0.3 | V |
| DC Current Gain | $h_{FE}$ | $V_{CE}$=-5V , $I_C$=-10mA | 50 | | | |
| Input Voltage | $V_{IN(ON)}$ | $V_{CE}$=-0.2V, $I_C$=-5mA | -0.8 | | -2.5 | V |
| | $V_{IN(OFF)}$ | $V_{CE}$=-5.0V, $I_C$=-0.1mA | -0.3 | | -1.1 | V |
| Transition Frequency | $f_T$ | $V_{CE}$=-10V, $I_C$=-5mA | | 250 | | MHz |
| Output Capacitance | Cob | $V_{CB}$=-10V, $I_E$=0mA, f=1MHz | | 3.0 | | pF |
| Input Resistance | $R_1$ | | 3.29 | 4.7 | 6.11 | kΩ |
| Resistance Ratio | $R_2/R_1$ | | 1.7 | 2.1 | 2.6 | |
| Resistance Ratio | $R_1/R_2$ | | | 0.47 | | |

Note: Pulse test: $t_P \leq 300\mu s$, Duty cycle $\leq 2\%$.