



UNISONIC TECHNOLOGIES CO., LTD

DTD114E

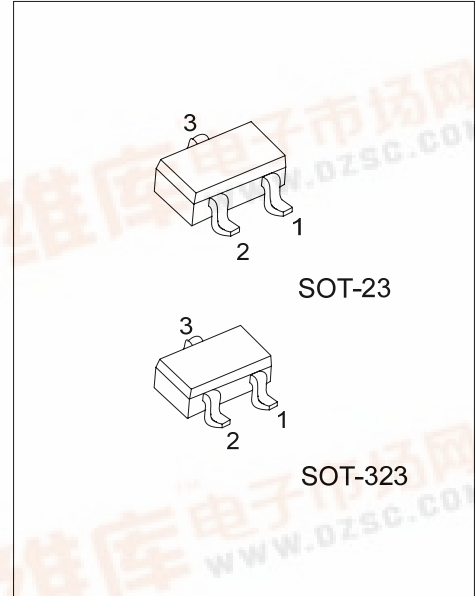
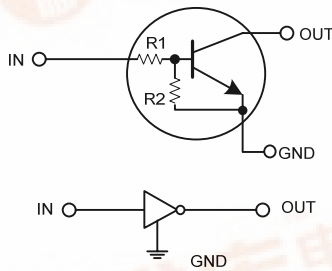
NPN SILICON TRANSISTOR

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



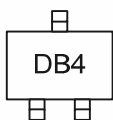
*Pb-free plating product number: DTD114EL

ORDERING INFORMATION

| Order Number | | Package | Pin Assignment | | | Packing |
|---------------|-------------------|---------|----------------|---|---|-----------|
| Normal | Lead Free Plating | | 1 | 2 | 3 | |
| DTD114E-AE3-R | DTD114EL-AE3-R | SOT-23 | G | I | O | Tape Reel |
| DTD114E-AL3-R | DTD114EL-AL3-R | SOT-323 | G | I | O | Tape Reel |

| | |
|---|--|
| <p>DTD114EL-AE3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Plating</p> | <p>(1) R: Tape Reel</p> <p>(2) AE3: SOT-23, AL3: SOT-323</p> <p>(3) L: Lead Free Plating, Blank: Pb/Sn</p> |
|---|--|

MARKING



DTD114E

NPN SILICON TRANSISTOR

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER | SYMBOL | RATING | UNIT |
|----------------------|------------------|------------|------|
| Supply Voltage | V _{CC} | 50 | V |
| Input Voltage | V _{IN} | -10~+40 | V |
| Output Current | I _{OUT} | 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.

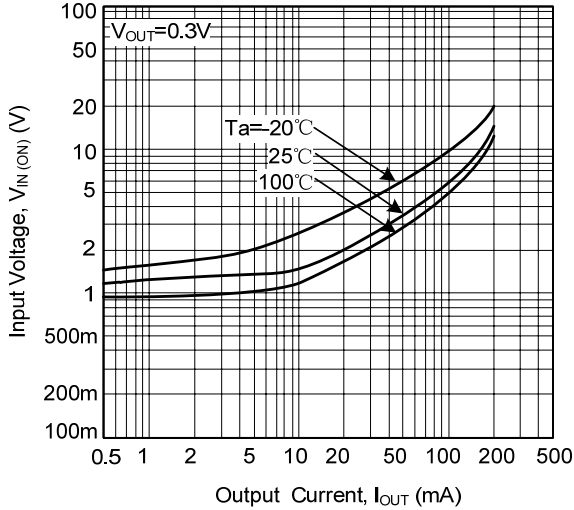
■ ELECTRICAL SPECIFICATIONS (Ta=25°C, unless others specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|----------------------|--------------------------------|---|-----|-----|------|------|
| Input Voltage | V _{IN(OFF)} | V _{CC} = 5V, I _{OUT} = 100μA | | | 0.5 | V |
| | V _{IN(ON)} | V _{OUT} = 0.3V, I _{OUT} = 10mA | 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 | | | 0.88 | mA |
| Output Current | I _{OUT(OFF)} | V _{CC} = 50V, V _{IN} = 0V | | | 0.5 | μA |
| DC Current Gain | h _{FE} | V _{OUT} = 5V, I _{OUT} = 50mA | 56 | | | |
| Input Resistance | R ₁ | | 7 | 10 | 13 | kΩ |
| Resistance Ratio | R ₂ /R ₁ | | 0.8 | 1 | 1.2 | |
| Transition Frequency | f _T | V _{CE} = 10V, I _E = -50mA, f = 100MHz | | 200 | | MHz |

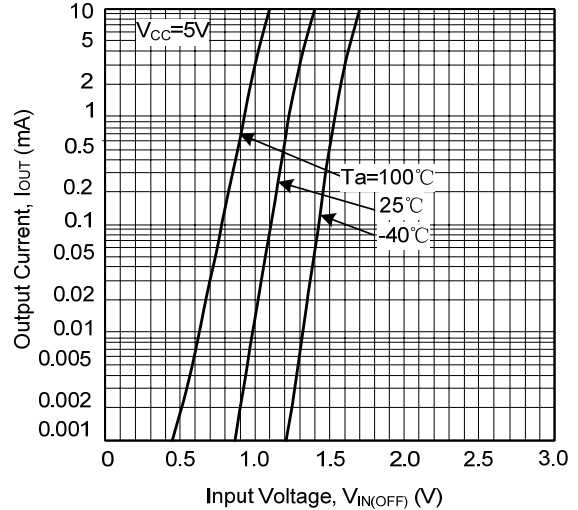
*Transition frequency of the device

■ TYPICAL CHARACTERISTICS

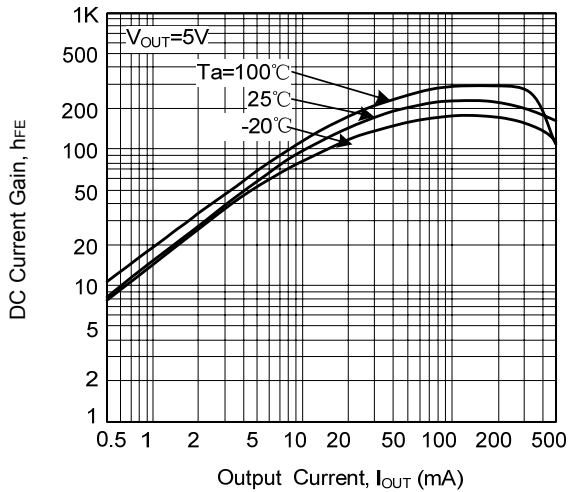
Input Voltage vs. Output Current
(ON Characteristics)



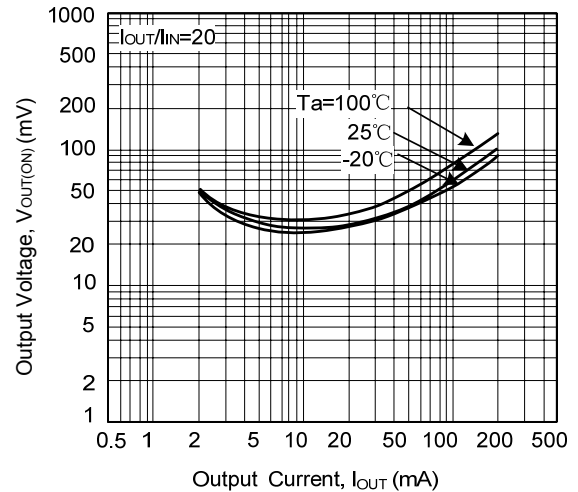
Output Current vs. Input Voltage
(OFF Characteristics)



DC Current Gain vs. Output Current



Output Voltage vs. Output Current



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