



# DTC123Y

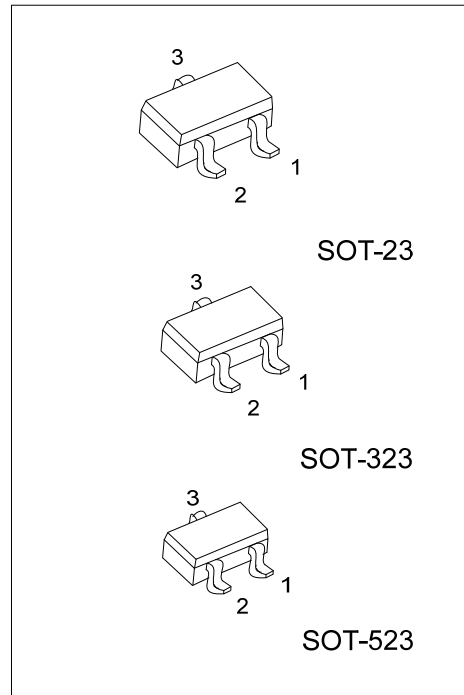
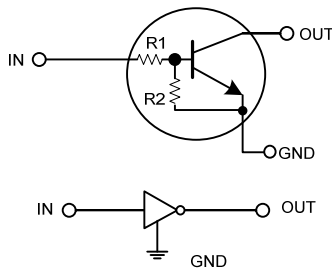
## NPN SILICON TRANSISTOR

### 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

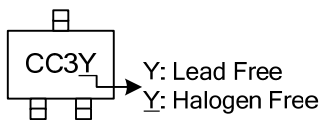


■ ORDERING INFORMATION

| Ordering Number |                |                | Package | Pin Assignment |   |   | Packing   |
|-----------------|----------------|----------------|---------|----------------|---|---|-----------|
| Normal          | Lead Free      | Halogen Free   |         | 1              | 2 | 3 |           |
| DTC123Y-AE3-R   | DTC123YL-AE3-R | DTC123YG-AE3-R | SOT-23  | G              | I | O | Tape Reel |
| DTC123Y-AL3-R   | DTC123YL-AL3-R | DTC123YG-AL3-R | SOT-323 | G              | I | O | Tape Reel |
| DTC123Y-AN3-R   | DTC123YL-AN3-R | DTC123YG-AN3-R | SOT-523 | G              | I | O | Tape Reel |

|  |   |
|--|---|
| <p>DTC123YL-AE3-R</p> <p>(1)Packing Type<br/>(2)Package Type<br/>(3)Lead Plating</p> | <p>(1) R: Tape Reel<br/>(2) AE3: SOT-23, AL3: SOT-323, AN3: SOT-523<br/>(3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p> |
|--|---|

■ MARKING



■ ABSOLUTE MAXIMUM RATING (Ta=25°C)

| PARAMETER            |                | SYMBOL              | RATINGS  | UNIT |
|----------------------|----------------|---------------------|----------|------|
| Supply Voltage       |                | V <sub>CC</sub>     | 50       | V    |
| Input Voltage        |                | V <sub>IN</sub>     | -5 ~ +12 | V    |
| Output Current       |                | I <sub>OUT</sub>    | 100      | mA   |
|                      |                | I <sub>C(MAX)</sub> | 100      | mA   |
| Power Dissipation    | SOT-23/SOT-323 | P <sub>D</sub>      | 200      | mW   |
|                      | SOT-523        |                     | 150      | mW   |
| Storage Temperature  |                | T <sub>J</sub>      | +150     | °C   |
| Junction Temperature |                | T <sub>STG</sub>    | -55~+150 | °C   |

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

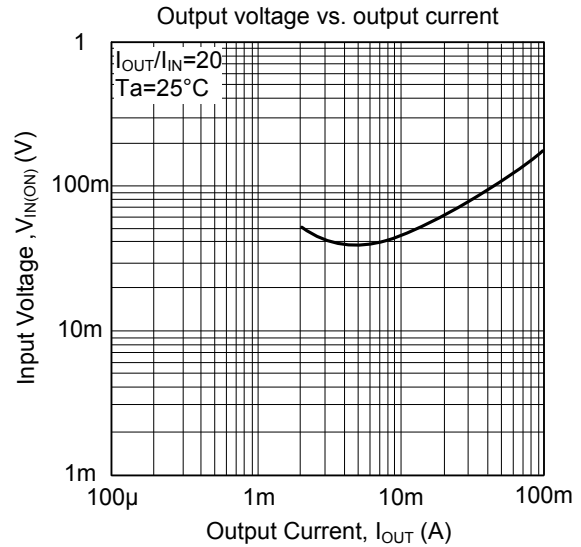
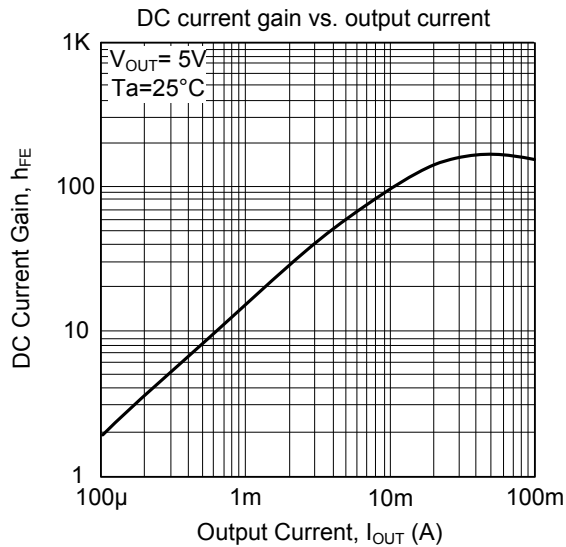
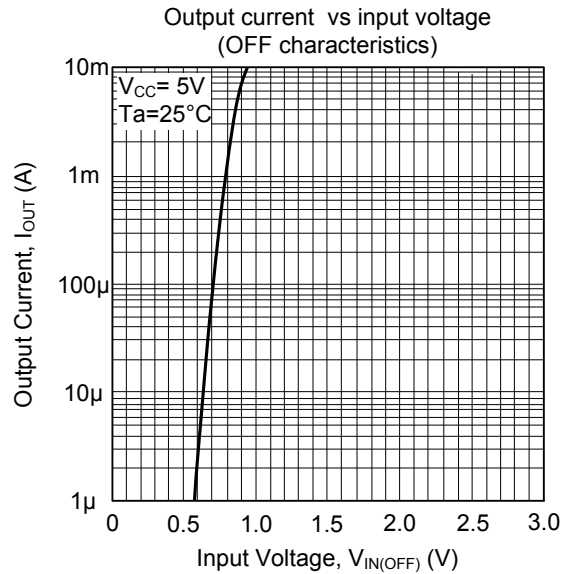
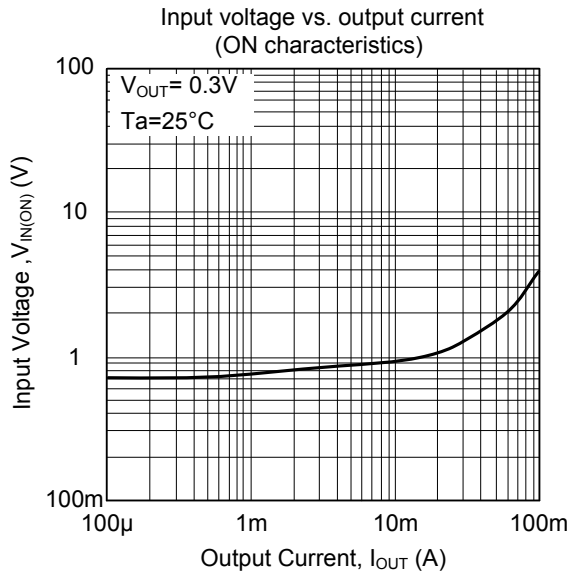
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C, unless otherwise specified)

| PARAMETER            | SYMBOL                         | TEST CONDITIONS  | MIN  | TYP | MAX  | UNIT |
|----------------------|--------------------------------|--|------|-----|------|------|
| Input Voltage        | V <sub>IN(OFF)</sub>           | V <sub>CC</sub> =5V, I <sub>OUT</sub> =100μA               |      |     | 0.3  | V    |
|                      | V <sub>IN(ON)</sub>            | V <sub>OUT</sub> =0.3V, I <sub>OUT</sub> =20mA             | 3    |     |      | V    |
| Output Voltage       | V <sub>OUT(ON)</sub>           | I <sub>OUT</sub> /I <sub>IN</sub> =10mA/0.5mA              |      | 0.1 | 0.3  | V    |
| Input Current        | I <sub>IN</sub>                | V <sub>IN</sub> =5V  |      |     | 3.8  | mA   |
| Output Current       | I <sub>OUT(OFF)</sub>          | V <sub>CC</sub> =50V, V <sub>IN</sub> =0V                  |      |     | 0.5  | μA   |
| DC Current Gain      | h <sub>FE</sub>                | V <sub>OUT</sub> =5V, I <sub>OUT</sub> =10mA               | 33   |     |      |      |
| Input Resistance     | R <sub>1</sub>                 |  | 1.54 | 2.2 | 2.86 | KΩ   |
| Resistance Ratio     | R <sub>2</sub> /R <sub>1</sub> |  | 3.6  | 4.5 | 5.5  |      |
| Transition Frequency | f <sub>T</sub>                 | V <sub>CE</sub> =10V, I <sub>E</sub> =-5mA, f=100MHz(Note) |      | 250 |      | MHz  |

Note: Transition frequency of the device

### TYPICAL CHARACTERISTICS



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