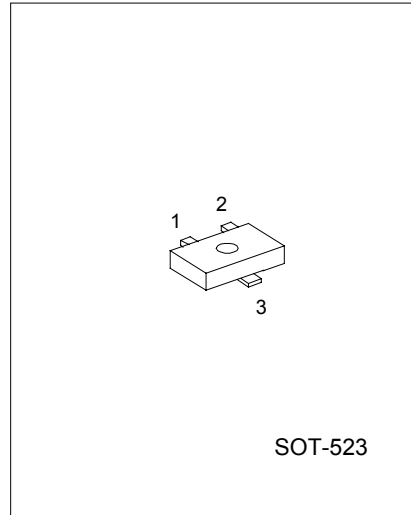


NPN DIGITAL TRANSISTOR  
(BUILT-IN RESISTORS)

FEATURES

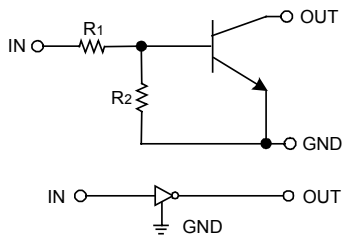
- \* Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- \* The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost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



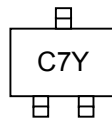
SOT-523

1: GND 2: IN 3: OUT

EQUIVALENT CIRCUIT



MARKING



ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

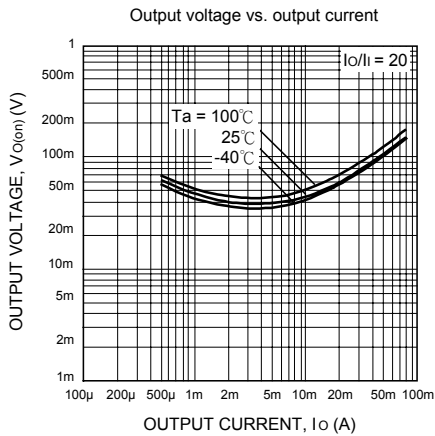
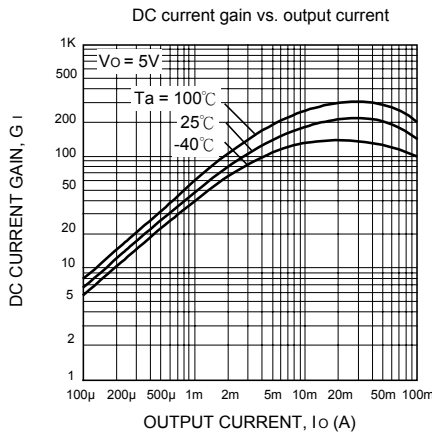
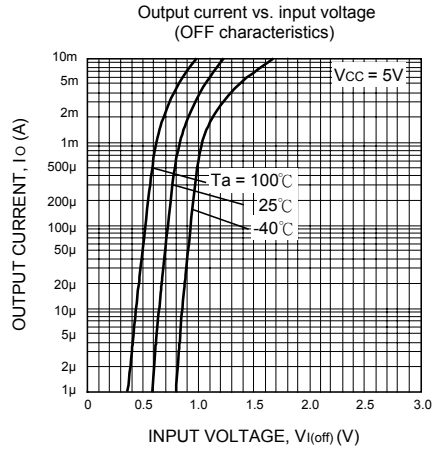
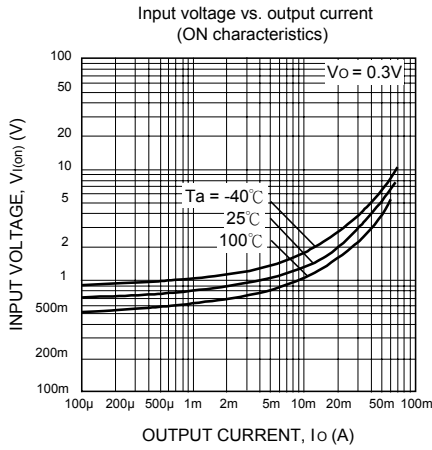
| PARAMETER            | SYMBOL                | RATINGS    | UNIT |
|----------------------|-----------------------|------------|------|
| Supply voltage       | V <sub>CC</sub>       | 50         | V    |
| Input voltage        | V <sub>IN</sub>       | -6 ~ +40   | V    |
| Output current       | I <sub>O</sub>        | 70         | mA   |
|                      | I <sub>C (Max.)</sub> | 100        |      |
| Power Dissipation    | P <sub>D</sub>        | 150        | mW   |
| Junction temperature | T <sub>J</sub>        | 150        | °C   |
| Storage temperature  | T <sub>stg</sub>      | -55 ~ +150 | °C   |

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| PARAMETER            | SYMBOL                         | TEST CONDITIONS  | MIN | TYP | MAX  | UNIT |
|----------------------|--------------------------------|--|-----|-----|------|------|
| Input voltage        | V <sub>I (off)</sub>           | V <sub>CC</sub> =5V, I <sub>O</sub> =100 μA            |     |     | 0.3  | V    |
|                      | V <sub>I (on)</sub>            | V <sub>O</sub> =0.3V, I <sub>O</sub> =1mA              | 1.4 |     |      |      |
| Output voltage       | V <sub>O (on)</sub>            | I <sub>O</sub> /I <sub>I</sub> =5mA/0.25mA             |     | 0.1 | 0.3  | V    |
| Input current        | I <sub>I</sub>                 | V <sub>I</sub> =5V                                     |     |     | 0.88 | mA   |
| Output current       | I <sub>O (off)</sub>           | V <sub>CC</sub> =50V, V <sub>I</sub> =0V               |     |     | 0.5  | μA   |
| DC current gain      | G <sub>I</sub>                 | V <sub>O</sub> =5V, I <sub>O</sub> =5mA                | 68  |     |      |      |
| Input resistance     | R <sub>1</sub>                 |  | 7   | 10  | 13   | KΩ   |
| Resistance ratio     | R <sub>2</sub> /R <sub>1</sub> |  | 3.7 | 4.7 | 5.7  |      |
| Transition frequency | f <sub>T</sub>                 | V <sub>CE</sub> =10V, I <sub>E</sub> =-5mA, f=100MHz * |     | 250 |      | MHz  |

\* Transition frequency of the device

ELECTRICAL CHARACTERISTIC CURVES



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