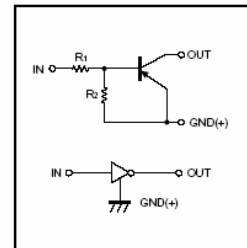


## FEATURES

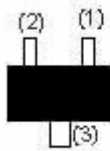
- \* Built-in bias resistors enable the configuration of an inverter circuit without connecting input resistors (see equivalent circuit).
- \* Only the on/off conditions need to be set for operation, making device design easy.
- \* The bias resistors consist of thin-film resistors with complete isolation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

●Equivalent circuit



## External Dimensions (Units: mm)

DTA143XE



1.IN  
2.GND  
3.OUT

SOT-523

Abbreviated symbol: 33

DTA143XUA



1.IN  
2.GND  
3.OUT

SOT-323

Abbreviated symbol: 33

DTA143XKA



1.IN  
2.GND  
3.OUT

SOT-23-3L

Abbreviated symbol: 33

DTA143XCA

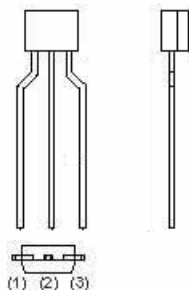


1.IN  
2.GND  
3.OUT

SOT-23

Abbreviated symbol: 33

DTA143XSA



1.GND  
2.OUT  
3.IN

TO-92S

**Absolute maximum ratings (Ta=25°C)**

| Parameter            | Symbol              | Limits (DTA143X) |    |         |    |     | Unit |
|----------------------|---------------------|------------------|----|---------|----|-----|------|
|                      |                     | E                | UA | CA      | KA | SA  |      |
| Supply voltage       | V <sub>CC</sub>     |                  |    | -50     |    |     | V    |
| Input voltage        | V <sub>IN</sub>     |                  |    | -20~+7  |    |     | V    |
| Output current       | I <sub>O</sub>      |                  |    | -100    |    |     | mA   |
|                      | I <sub>C(MAX)</sub> |                  |    | -100    |    |     |      |
| Power dissipation    | P <sub>d</sub>      | 150              |    | 200     |    | 300 | 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                         | Min. | Typ  | Max. | Unit | Conditions   |
|----------------------|--------------------------------|------|------|------|------|--|
| Input voltage        | V <sub>I(off)</sub>            |      |      | -0.3 | V    | V <sub>CC</sub> =-5V, I <sub>O</sub> =-100μA         |
|                      | V <sub>I(on)</sub>             | -2.5 |      |      |      | V <sub>O</sub> =-0.3V, I <sub>O</sub> =-20 mA        |
| Output voltage       | V <sub>O(on)</sub>             |      | -0.1 | -0.3 | V    | I <sub>O</sub> /I <sub>I</sub> =-10mA/-0.5mA         |
| Input current        | I <sub>I</sub>                 |      |      | -1.8 | mA   | V <sub>I</sub> =-5V                                  |
| Output current       | I <sub>O(off)</sub>            |      |      | -0.5 | μA   | V <sub>CC</sub> =-50V, V <sub>I</sub> =0             |
| DC current gain      | G <sub>I</sub>                 | 30   |      |      |      | V <sub>O</sub> =-5V, I <sub>O</sub> =-10mA           |
| Input resistance     | R <sub>1</sub>                 | 3.29 | 4.7  | 6.11 | KΩ   |  |
| Resistance ratio     | R <sub>2</sub> /R <sub>1</sub> | 1.7  | 2.1  | 2.6  |      |  |
| Transition frequency | f <sub>T</sub>                 |      | 250  |      | MHz  | V <sub>CE</sub> =-10V, I <sub>E</sub> =5mA, f=100MHz |

**Typical Characteristics**

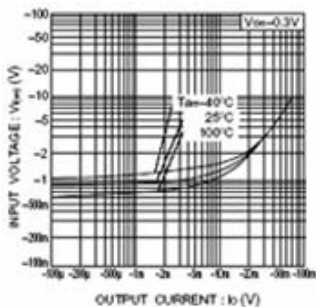


Fig.1 Input voltage vs. output current (ON characteristics)

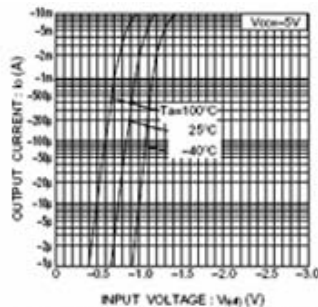


Fig.2 Output current vs. input voltage (OFF characteristics)

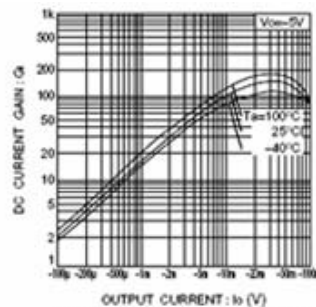


Fig.3 DC current gain vs. output current

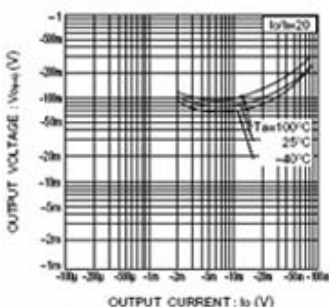


Fig.4 Output voltage vs. output current