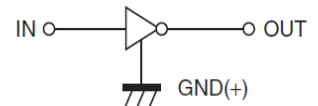
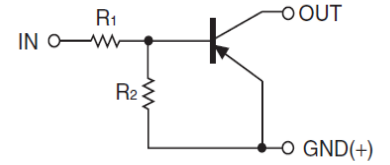




## DTA143XM/DTA143XE/DTA143XUA DTA143XKA /DTA143XCA/DTA143XSA

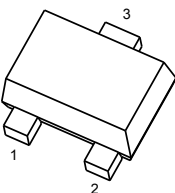
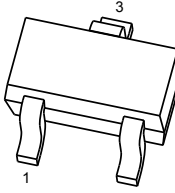
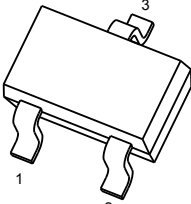
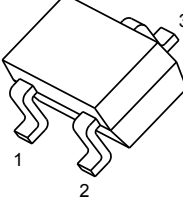
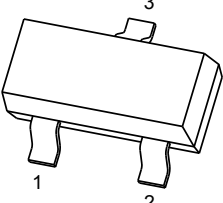
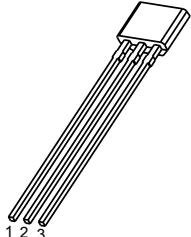
DIGITAL TRANSISTOR (PNP)



### 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 positive 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

### PIN CONNENCTIONS and MARKING

|   |   |   |   |
|---|---|---|---|
| <b>DTA143XM</b><br>  | <b>SOT-723</b><br>1. IN<br>2. GND<br>3. OUT | <b>DTA143XE</b><br>  | <b>SOT-523</b><br>1. IN<br>2. GND<br>3. OUT   |
| <b>DTA143XUA</b><br> | <b>SOT-323</b><br>1. IN<br>2. GND<br>3. OUT | <b>DTA143XKA</b><br> | <b>SOT-23-3L</b><br>1. IN<br>2. GND<br>3. OUT |
| <b>DTA143XCA</b><br> | <b>SOT-23</b><br>1. IN<br>2. GND<br>3. OUT  | <b>DTA143XSA</b><br> | <b>TO-92S</b><br>1. GND<br>2. OUT<br>3. IN    |



## ORDERING INFORMATION

| Part Number | MARKING | Package   | Packing Method | Pack Quantity |
|-------------|---------|-----------|----------------|---------------|
| DTA143XM    | 33      | SOT-723   | Reel           | 8000pcs/Reel  |
| DTA143XE    | 33      | SOT-523   | Reel           | 3000pcs/Reel  |
| DTA143XUA   | 33      | SOT-323   | Reel           | 3000pcs/Reel  |
| DTA143XKA   | 33      | SOT-23-3L | Reel           | 3000pcs/Reel  |
| DTA143XCA   | 33      | SOT-23    | Reel           | 3000pcs/Reel  |

## MAXIMUM RATINGS(Ta=25°C unless otherwise noted)

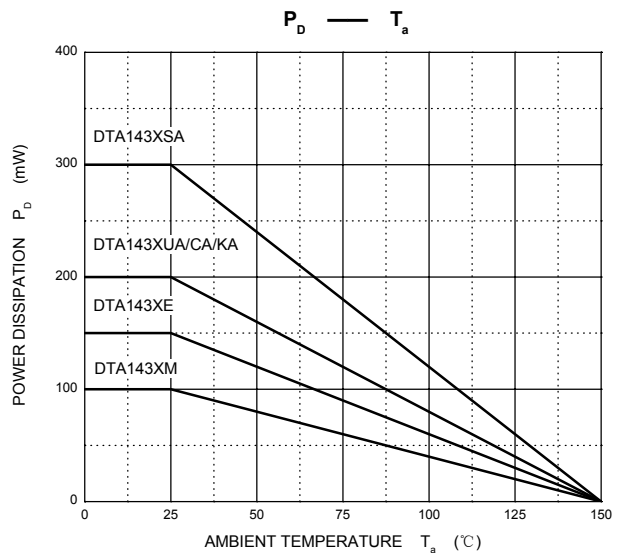
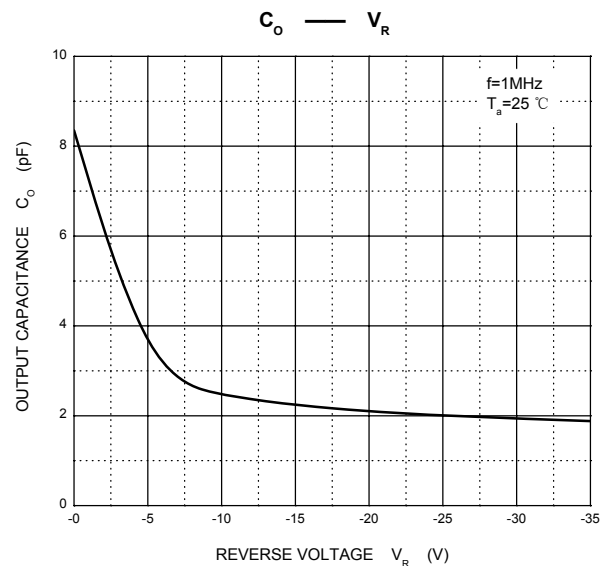
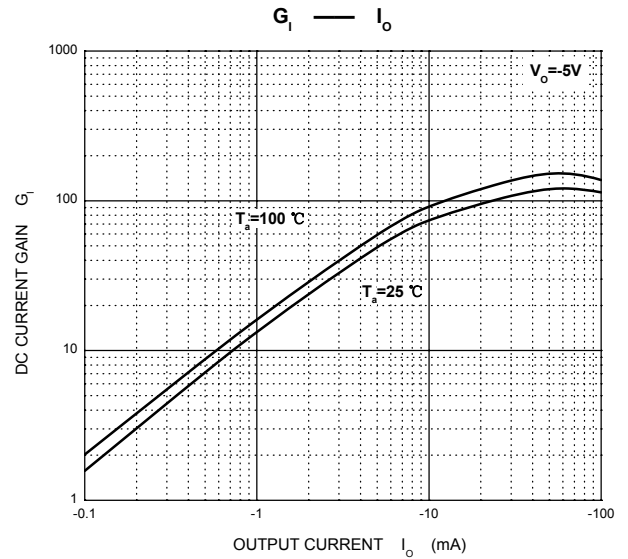
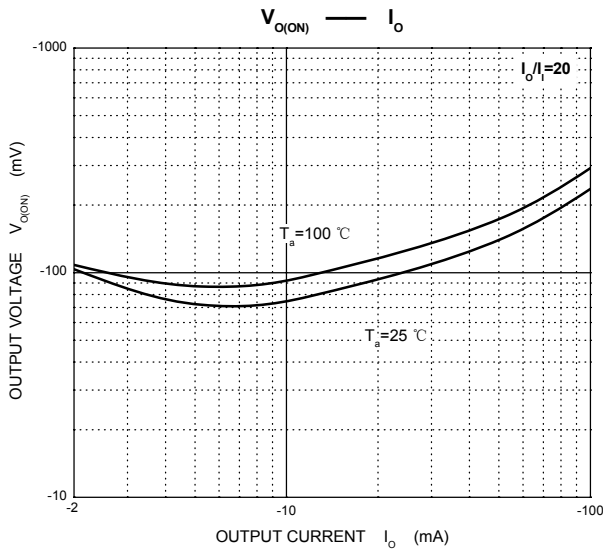
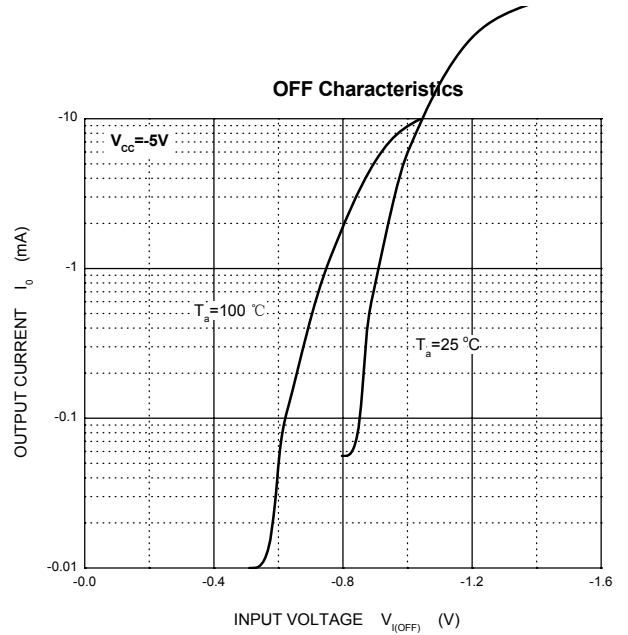
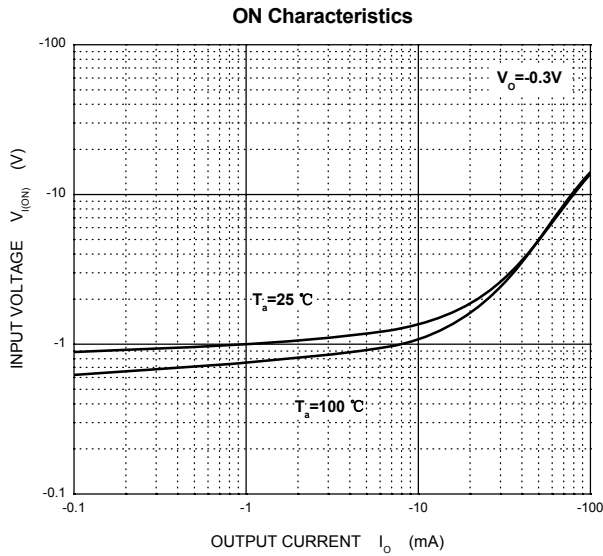
| Symbol                            | Parameter  | Limits(DTA143X□) |     |     |     |     |     | Unit |
|-----------------------------------|--|------------------|-----|-----|-----|-----|-----|------|
|                                   |  | M                | E   | UA  | CA  | KA  | SA  |      |
| V <sub>CC</sub>                   | Supply Voltage                                   | -50              |     |     |     |     |     | V    |
| V <sub>IN</sub>                   | Input Voltage                                    | -20~+7           |     |     |     |     |     | V    |
| I <sub>O</sub>                    | Output Current                                   | -100             |     |     |     |     |     | mA   |
| P <sub>D</sub>                    | Power Dissipation                                | 100              | 150 | 200 | 200 | 200 | 300 | mW   |
| T <sub>J</sub> , T <sub>stg</sub> | Operation Junction and Storage Temperature Range | -55~+150         |     |     |     |     |     | °C   |

## ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

| Parameter            | Symbol                         | Conditions   | Min  | Typ  | Max  | Unit |
|----------------------|--------------------------------|--|------|------|------|------|
| Input voltage        | V <sub>I(off)</sub>            | V <sub>CC</sub> =-5V, I <sub>O</sub> =-100μA         | -0.3 |      |      | V    |
|                      | V <sub>I(on)</sub>             | V <sub>O</sub> =-0.3V, I <sub>O</sub> =-20mA         |      |      | -2.5 | V    |
| Output voltage       | V <sub>O(on)</sub>             | I <sub>O</sub> /I <sub>I</sub> =-10mA/-0.5mA         |      | -0.1 | -0.3 | V    |
| Input current        | I <sub>I</sub>                 | V <sub>I</sub> =-5V                                  |      |      | -1.8 | mA   |
| Output current       | I <sub>O(off)</sub>            | V <sub>CC</sub> =-50V, V <sub>I</sub> =0             |      |      | -0.5 | μA   |
| DC current gain      | G <sub>I</sub>                 | V <sub>O</sub> =-5V, I <sub>O</sub> =-10mA           | 30   |      |      |      |
| 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>                 | V <sub>O</sub> =-10V, I <sub>O</sub> =-5mA, f=100MHz |      | 250  |      | MHz  |

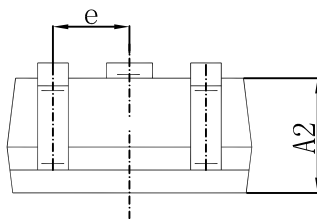
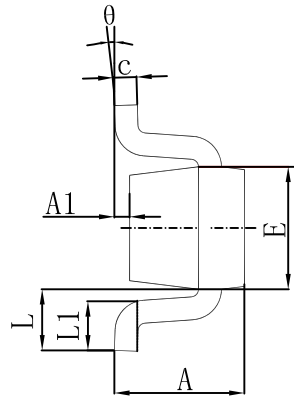
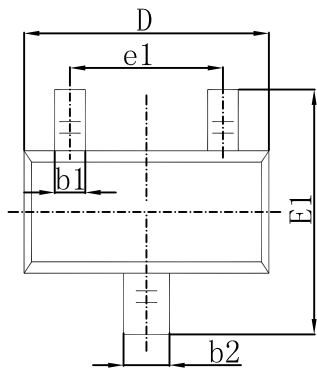


## Typical Characteristics



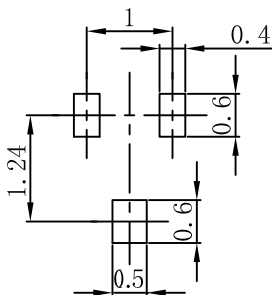


## SOT-523 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min.                      | Max.  | Min.                 | Max.  |
| A      | 0.700                     | 0.900 | 0.028                | 0.035 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.700                     | 0.800 | 0.028                | 0.031 |
| b1     | 0.150                     | 0.250 | 0.006                | 0.010 |
| b2     | 0.250                     | 0.350 | 0.010                | 0.014 |
| c      | 0.100                     | 0.200 | 0.004                | 0.008 |
| D      | 1.500                     | 1.700 | 0.059                | 0.067 |
| E      | 0.700                     | 0.900 | 0.028                | 0.035 |
| E1     | 1.450                     | 1.750 | 0.057                | 0.069 |
| e      | 0.500 TYP.                |       | 0.020 TYP.           |       |
| e1     | 0.900                     | 1.100 | 0.035                | 0.043 |
| L      | 0.400 REF.                |       | 0.016 REF.           |       |
| L1     | 0.260                     | 0.460 | 0.010                | 0.018 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

## SOT-523 Suggested Pad Layout

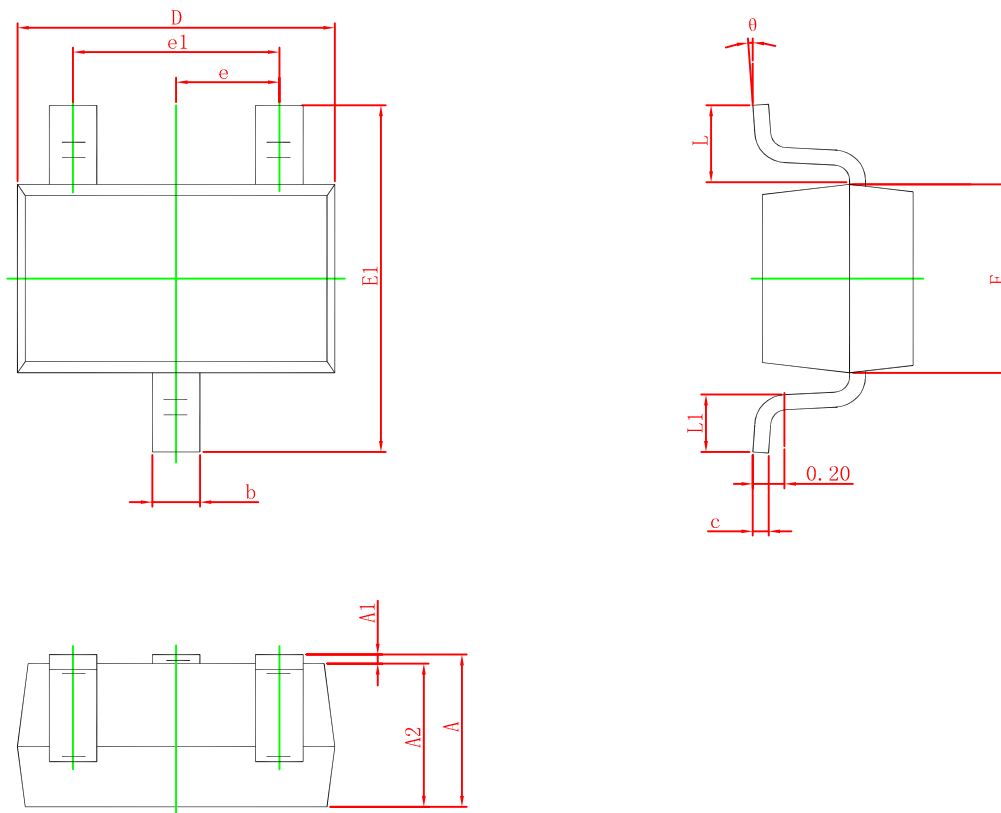


Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.



### SOT-323 PACKAGE OUTLINE DIMENSIONS



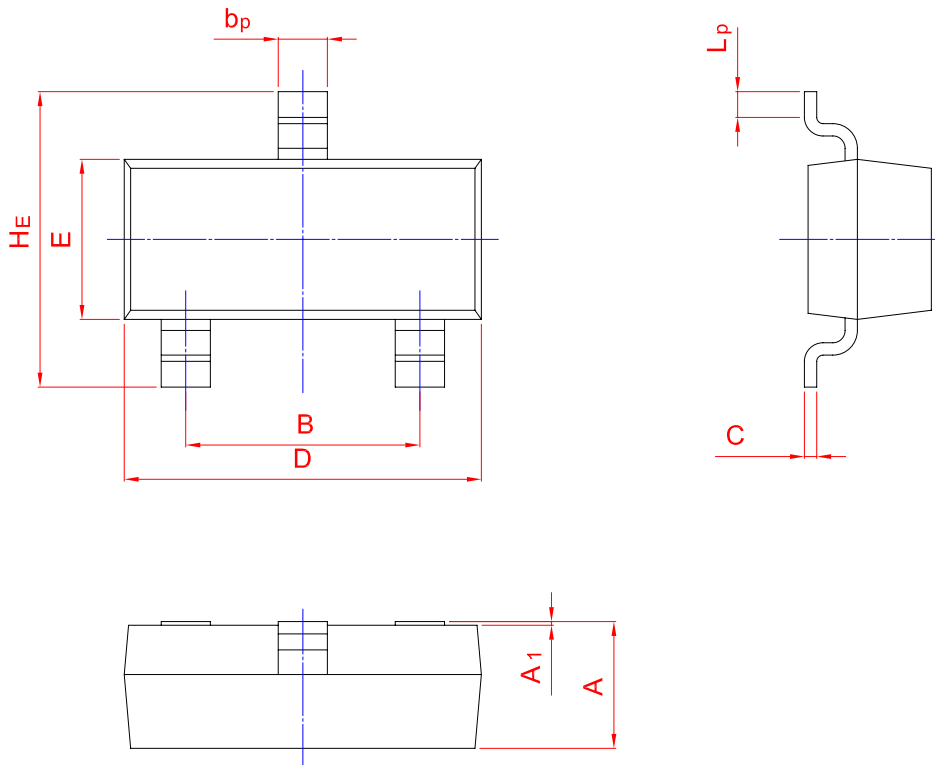
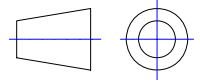
| Symbol   | Dimensions In Millimeters |       | Dimensions In Inches |       |
|----------|---------------------------|-------|----------------------|-------|
|          | Min.                      | Max.  | Min.                 | Max.  |
| A        | 0.900                     | 1.100 | 0.035                | 0.043 |
| A1       | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2       | 0.900                     | 1.000 | 0.035                | 0.039 |
| b        | 0.200                     | 0.400 | 0.008                | 0.016 |
| c        | 0.080                     | 0.150 | 0.003                | 0.006 |
| D        | 2.000                     | 2.200 | 0.079                | 0.087 |
| E        | 1.150                     | 1.350 | 0.045                | 0.053 |
| E1       | 2.150                     | 2.450 | 0.085                | 0.096 |
| e        | 0.650 TYP.                |       | 0.026 TYP.           |       |
| e1       | 1.200                     | 1.400 | 0.047                | 0.055 |
| L        | 0.525 REF.                |       | 0.021 REF.           |       |
| L1       | 0.260                     | 0.460 | 0.010                | 0.018 |
| $\theta$ | 0°                        | 8°    | 0°                   | 8°    |



## PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



| UNIT | A    | B    | bp   | C    | D    | E    | HE   | A1    | Lp   |
|------|------|------|------|------|------|------|------|-------|------|
| mm   | 1.40 | 2.04 | 0.50 | 0.19 | 3.10 | 1.65 | 3.00 | 0.100 | 0.50 |
|      | 0.95 | 1.78 | 0.35 | 0.08 | 2.70 | 1.20 | 2.20 | 0.013 | 0.20 |