

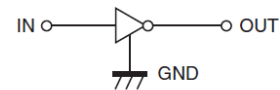
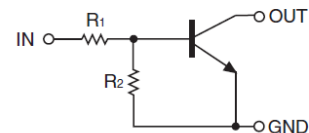


## Features

- 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



## Package Marking and Ordering Information

| Product ID | Pack    | Marking | Qty(PCS) |
|------------|---------|---------|----------|
| DTC123JE   | SOT-523 | E42     | 3000     |

## Maxmim Ratings (Ta=25 unless otherwise noted)

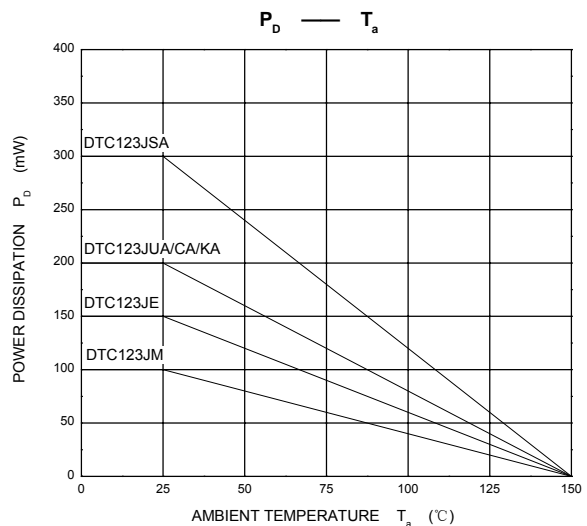
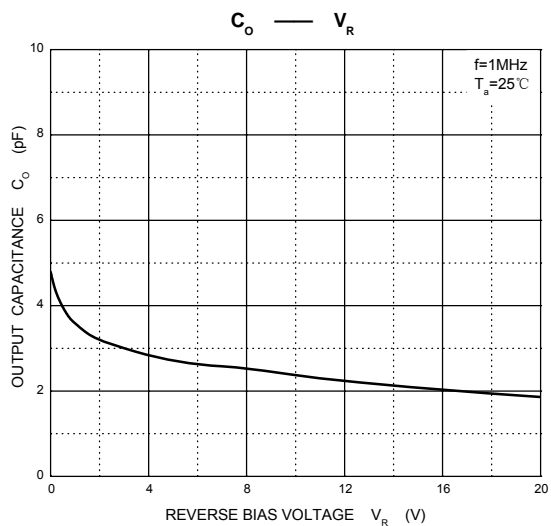
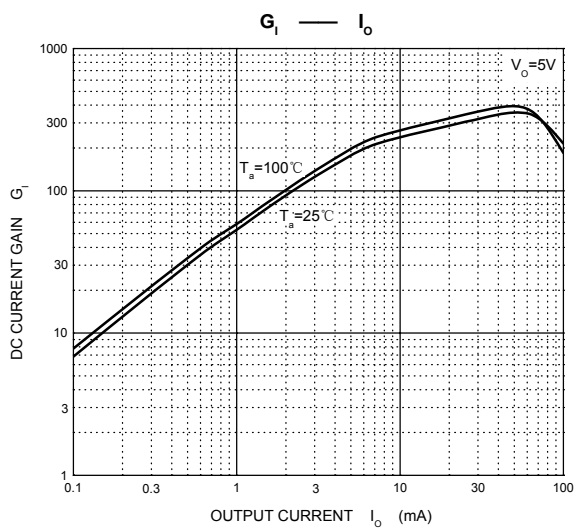
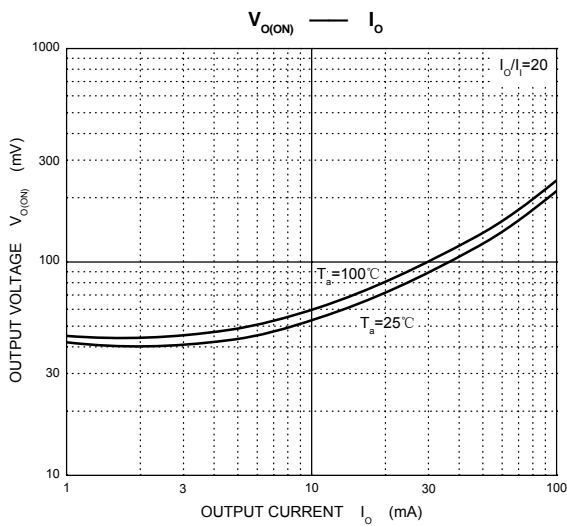
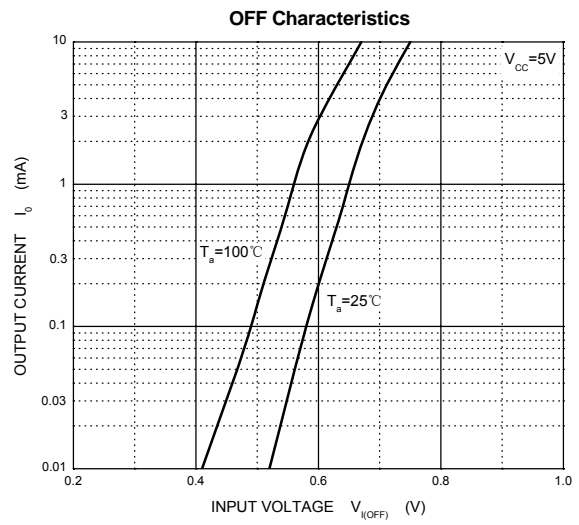
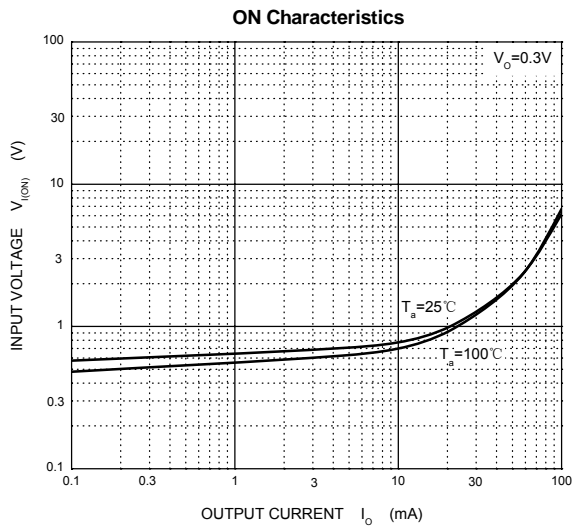
| Symbol         | Parameter  | Limits     | Unit |
|----------------|--|------------|------|
| $V_{CC}$       | Supply Voltage                                   | 50         | V    |
| $V_{IN}$       | Input Voltage                                    | -10 ~ +40  | V    |
| $I_O$          | Output Current                                   | 100        | mA   |
| $P_D$          | Power Dissipation                                | 150        | mW   |
| $T_J, T_{stg}$ | Operation Junction and Storage Temperature Range | -55 ~ +150 | °C   |

## Electrcal Charcteristics (Ta=25 unless otherwise specified)

| Parameter            | Symbol       | Conditions                   | Min  | Typ | Max  | Unit       |
|----------------------|--------------|------------------------------|------|-----|------|------------|
| Input voltage        | $V_{I(off)}$ | $V_{CC}=5V, I_O=100\mu A$    | 0.5  |     |      | V          |
|                      | $V_{I(on)}$  | $V_O=0.3V, I_O=5mA$          |      |     | 1.1  | V          |
| Output voltage       | $V_{O(on)}$  | $I_O/I_I=5mA/0.25mA$         |      | 0.1 | 0.3  | V          |
| Input current        | $I_I$        | $V_I=5V$                     |      |     | 3.6  | mA         |
| Output current       | $I_{O(off)}$ | $V_{CC}=50V, V_I=0$          |      |     | 0.5  | $\mu A$    |
| DC current gain      | $G_I$        | $V_O=5V, I_O=10mA$           | 80   |     |      |            |
| Input resistance     | $R_1$        |                              | 1.54 | 2.2 | 2.86 | k $\Omega$ |
| Resistance ratio     | $R_2/R_1$    |                              | 17   | 21  | 26   |            |
| Transition frequency | $f_T$        | $V_O=10V, I_O=5mA, f=100MHz$ |      | 250 |      | MHz        |

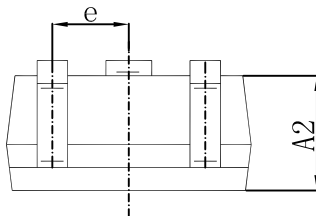
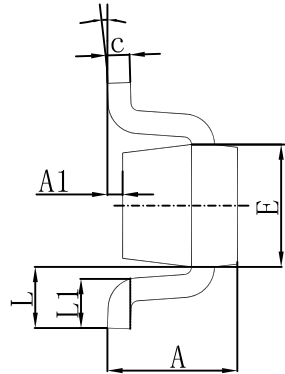
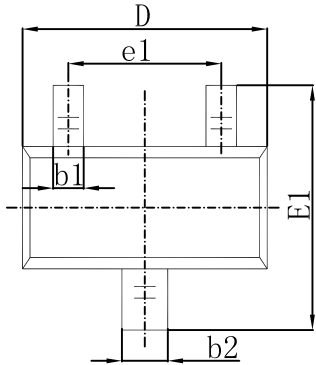


### Typical Characteristics



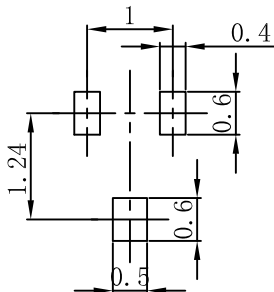


### SOT-523 Package Information



| 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.



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