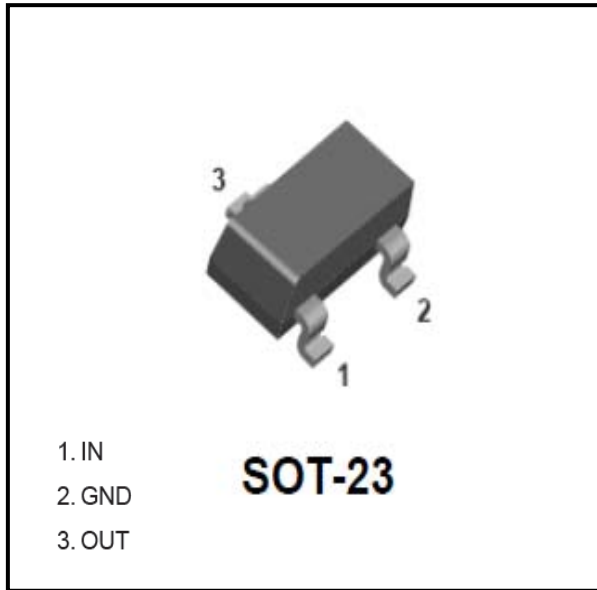


## Digital Transistors (Built-in Resistors)



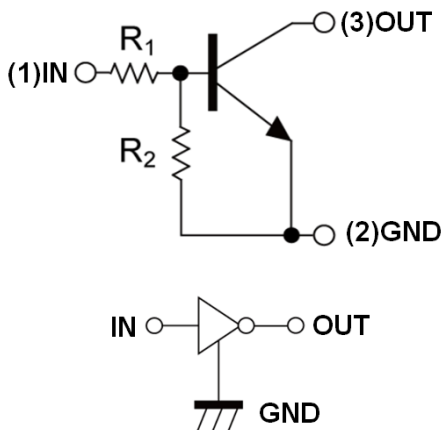
### Features

- Epoxy meets UL-94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors
- Surface mount package ideally Suited for Automatic Insertion
- NPN

### Mechanical Data

- **Package:** SOT-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 43

### ■Equivalent circuit



### ■Maximum Ratings (Ta=25°C Unless otherwise specified)

| ITEM                 | SYMBOL    | UNIT | CONDITIONS | VALUE       |
|----------------------|-----------|------|------------|-------------|
| Supply Voltage       | $V_{CC}$  | V    |            | 50          |
| Input Voltage        | $V_{IN}$  | V    |            | -7 to +20   |
| Output Current       | $I_O$     | mA   |            | 100         |
| Power Dissipation    | $P_D$     | mW   |            | 200         |
| Junction Temperature | $T_J$     | °C   |            | 150         |
| Storage Temperature  | $T_{STG}$ | °C   |            | -55 to +150 |



## DTC143XCA

### ■ Electrical Characteristics (Ta=25°C unless otherwise specified)

| ITEM                 | SYMBOL       | UNIT      | CONDITIONS                   | MIN  | TYP | MAX  |
|----------------------|--------------|-----------|------------------------------|------|-----|------|
| Input voltage        | $V_{I(off)}$ | V         | $V_{CC}=5V, I_c=100\mu A$    | 0.3  |     |      |
|                      | $V_{I(on)}$  | V         | $V_o=0.3V, I_c=20mA$         |      |     | 2.5  |
| Output voltage       | $V_{O(on)}$  | V         | $I_o/I_i=10mA/0.5mA$         |      |     | 0.3  |
| Output current       | $I_{O(off)}$ | $\mu A$   | $V_{CC}=50V, V_i=0$          |      |     | 0.5  |
| DC current gain      | GI           |           | $V_o=5V, I_o=10mA$           | 30   |     |      |
| Input resistance     | $R_1$        | $k\Omega$ |                              | 3.29 | 4.7 | 6.11 |
| Resistance ratio     | $R_2/R_1$    |           |                              | 1.7  | 2.1 | 2.6  |
| Transition frequency | fT           | MHz       | $V_o=10V, I_o=5mA, f=100MHz$ |      | 250 |      |

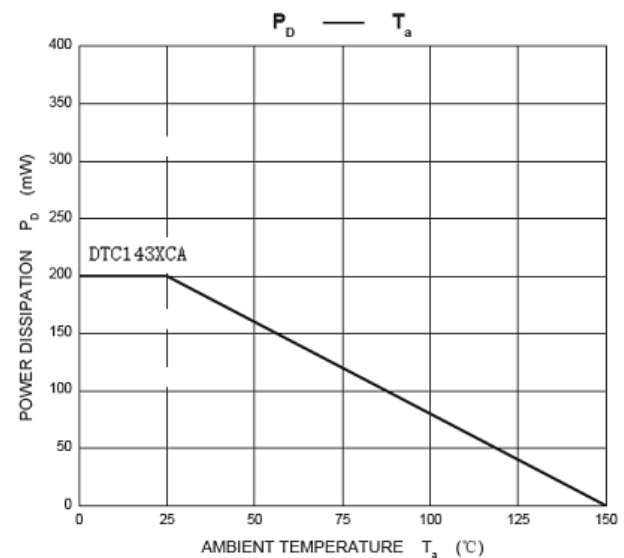
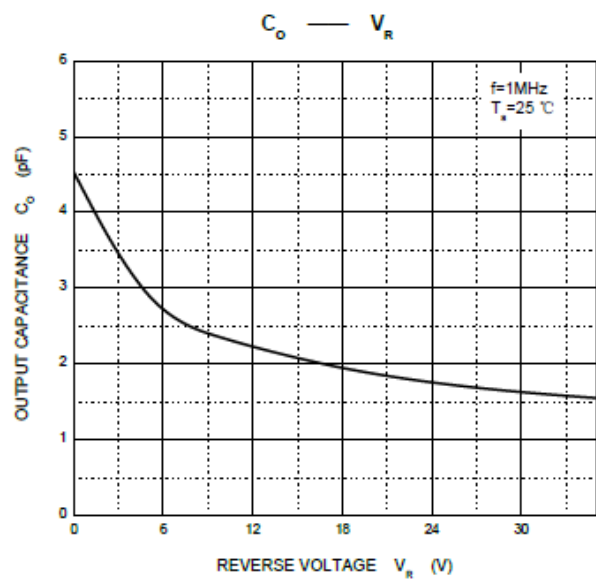
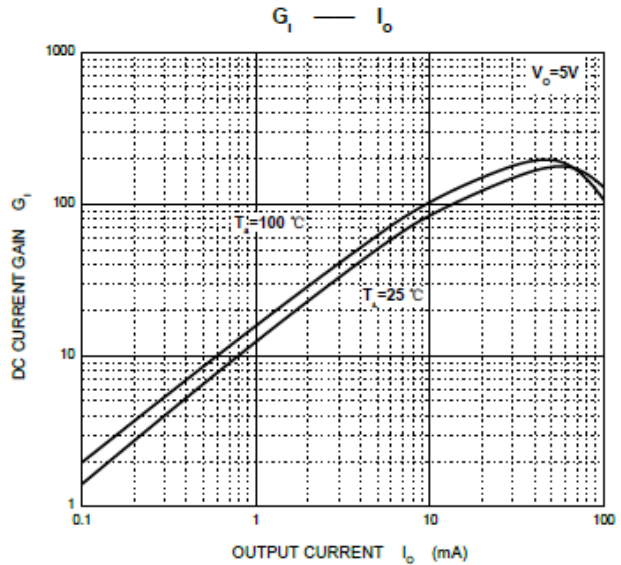
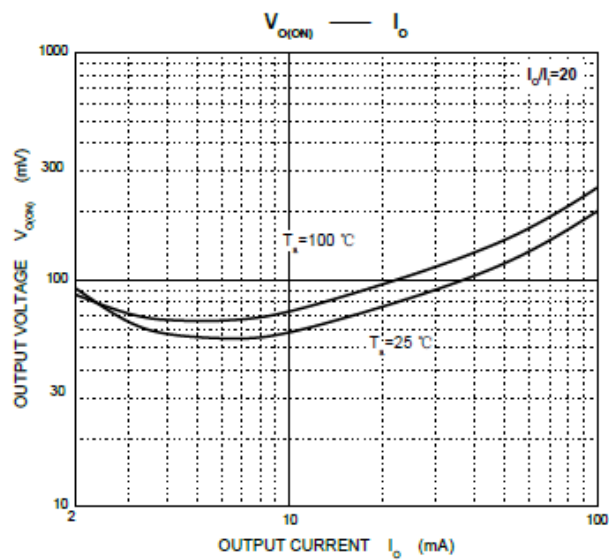
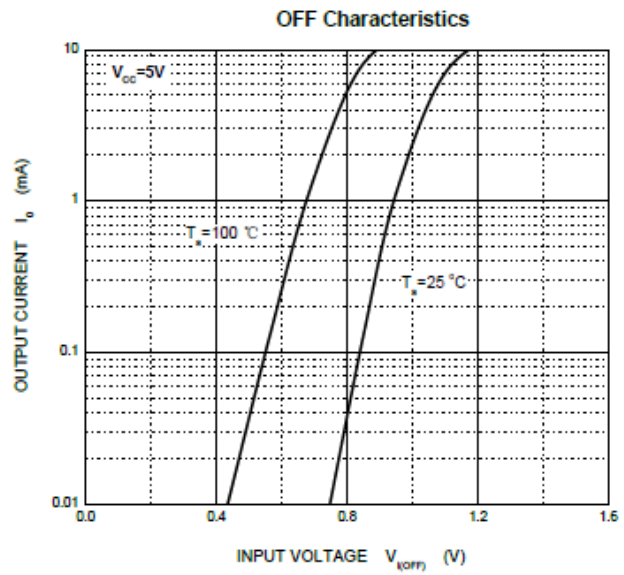
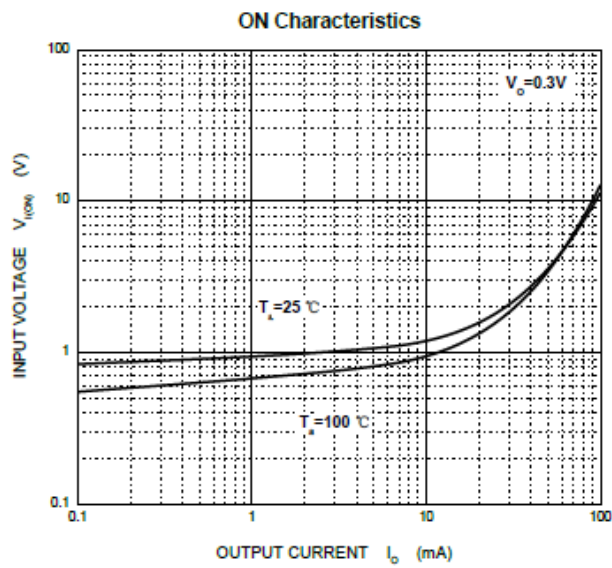
### ■ Ordering Information (Example)

| PREFERRED P/N | PACKING CODE | UNIT WEIGHT(g)    | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|-------------------|----------------------|-------------------------|----------------------------|---------------|
| DTC143XCA     | F2           | Approximate 0.009 | 3000                 | 30000                   | 120000                     | 7" reel       |



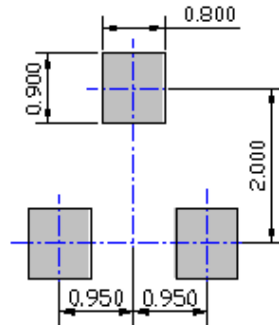
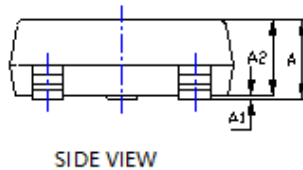
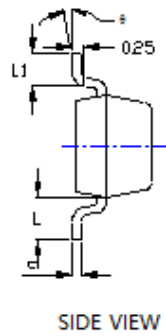
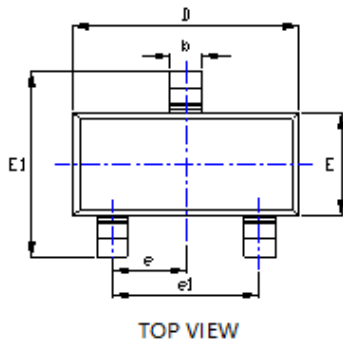
# DTC143XCA

## ■ Characteristics (Typical)





## ■SOT-23 Package Outline Dimensions



UNIT: mm

SUGGESTED SOLDER PAD LAYOUT

| SYMBOL | DIMENSIONS |       |            |       |
|--------|------------|-------|------------|-------|
|        | INCHES     |       | Millimeter |       |
|        | MIN.       | MAX.  | MIN.       | MAX.  |
| A      | 0.035      | 0.045 | 0.900      | 1.150 |
| A1     | 0.000      | 0.004 | 0.000      | 0.100 |
| A2     | 0.035      | 0.041 | 0.900      | 1.050 |
| b      | 0.012      | 0.020 | 0.300      | 0.500 |
| c      | 0.004      | 0.008 | 0.100      | 0.200 |
| D      | 0.110      | 0.118 | 2.800      | 3.000 |
| E      | 0.047      | 0.055 | 1.200      | 1.400 |
| E1     | 0.089      | 0.100 | 2.250      | 2.550 |
| e      | 0.037TYP   |       | 0.950TYP   |       |
| e1     | 0.071      | 0.079 | 1.800      | 2.000 |
| L      | 0.022REF   |       | 0.550REF   |       |
| L1     | 0.012      | 0.020 | 0.300      | 0.500 |
| θ      | 0°         | 8°    | 0°         | 8°    |

### NOTE:

- 1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
- 2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
- 3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

### Note:

1. All dimensions are in millimeters (mm) unless otherwise specified.  
[所有尺寸均以毫米为单位, 除非另有说明]
2. General tolerances:  $\pm 0.10\text{mm}$  unless otherwise specified.  
[通用公差为 $\pm 0.10\text{mm}$ , 除非另有说明]
3. Dimensions and tolerances per ASME Y14.5M-2018.  
[尺寸和公差遵循 ASME Y14.5M-2018 标准]
4. All dimensions shown are exclusive of burrs and gate residues. Burrs and gate vestiges shall not exceed 0.15 mm in maximum.  
[所有尺寸均不包括毛刺和浇口残留。毛刺与浇口残留的尺寸最大不得超过 0.15mm]
5. Dimension b does not include dambar protrusion of max 0.100 mm per side.  
[尺寸b不包括单边最大0.100 MM的中筋凸出部分]
6. Dimensions D and E are the overall extreme outer dimensions of the mold compound. These dimensions exclude mold flash, lead flash, protrusions and burrs but include the maximum allowable mold mismatch.  
[D和E是塑封体的外部极限尺寸, 不包括包封溢料、内引线溢料、凸出部分以及胶体毛刺, 但是包含了包封错位的最大尺寸]
7. Formed leads shall be planar with respect to one another within a maximum of 0.076 mm relative to the seating plane.  
[成型的管脚应为同一平面, 共面性最大为0.1mm]
8. ★It is the key size.  
[★ 标记为关键尺寸]



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