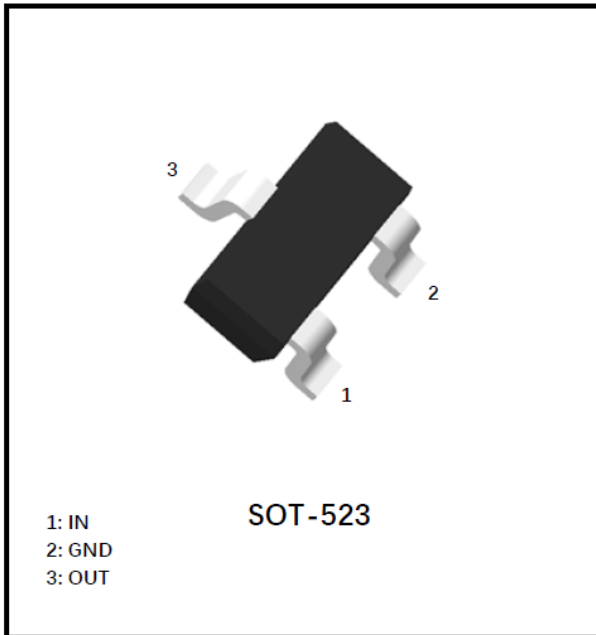


## NPN Digital Transistors (Built-in Resistors)



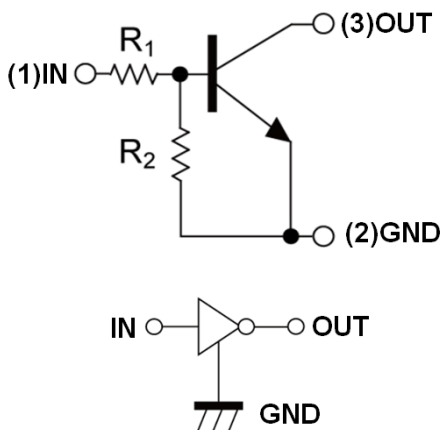
### Features

- Moisture Sensitivity Level 1
- Surface mount package ideally Suited for Automatic Insertion
- Halogen-free

### Mechanical Data

- **Package:** SOT-523
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 62

### ■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    |            | -5 to +12   |
| Output Current       | $I_O$     | mA   |            | 100         |
| Power Dissipation    | $P_D$     | mW   |            | 150         |
| Junction Temperature | $T_J$     | °C   |            | 150         |
| Storage Temperature  | $T_{STG}$ | °C   |            | -55 to +150 |



## DTC123YE

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

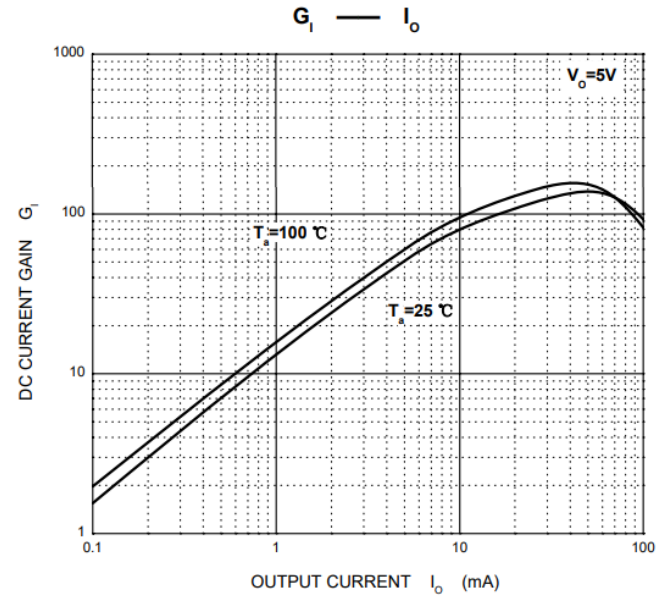
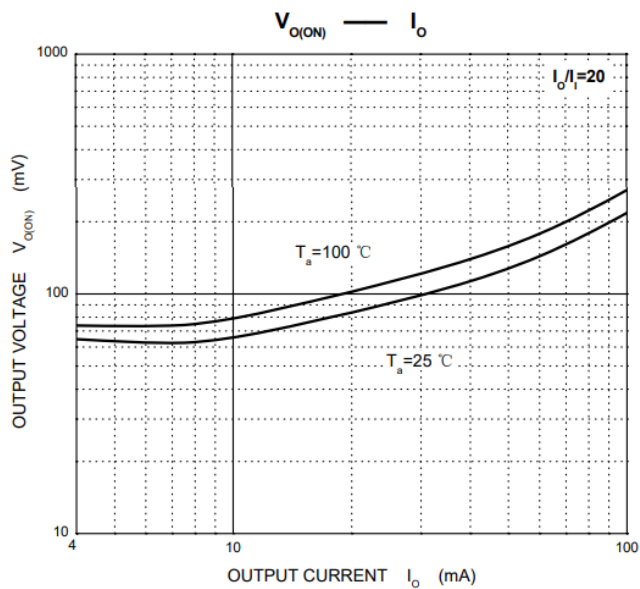
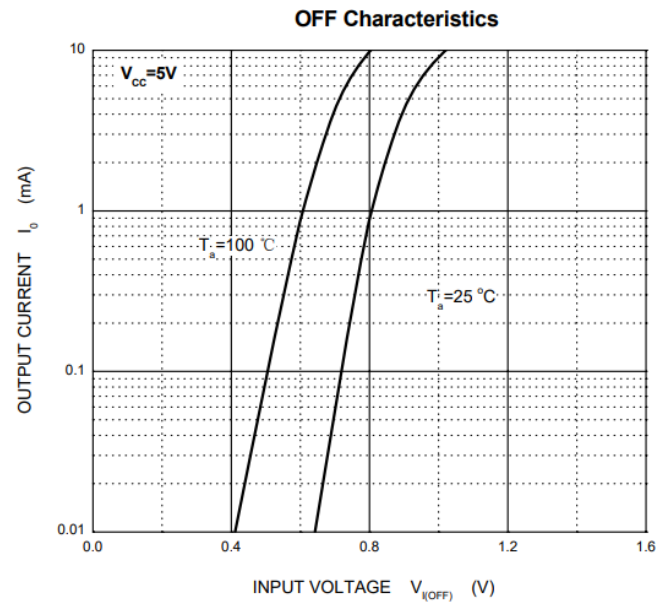
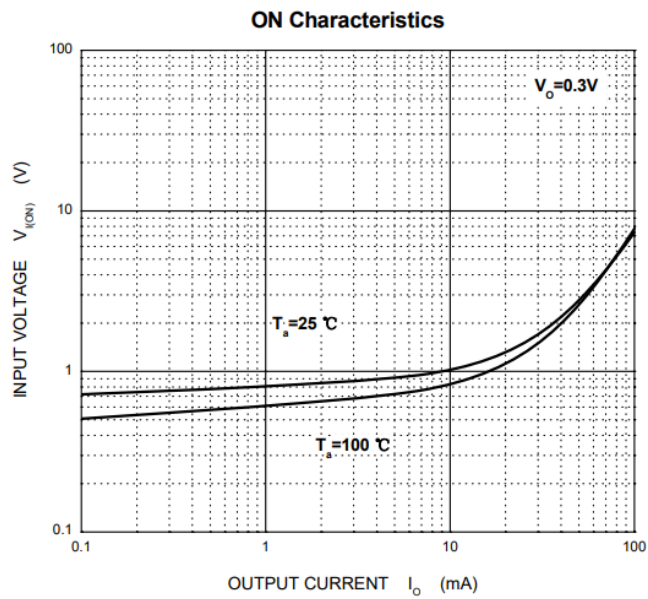
| ITEM                 | SYMBOL       | UNIT       | CONDITIONS                  | MIN  | TYP | MAX  |
|----------------------|--------------|------------|-----------------------------|------|-----|------|
| Input voltage        | $V_{I(off)}$ | V          | $V_{CC}=5V, I_o=100\mu A$   | 0.3  | -   | -    |
|                      | $V_{I(on)}$  | V          | $V_o=0.3V, I_o=20mA$        | -    | -   | 3    |
| Output voltage       | $V_{O(on)}$  | V          | $I_o / I_i = 10mA / 0.5 mA$ | -    | -   | 0.3  |
| Input current        | $I_i$        | mA         | $V_i=5V$                    | -    | -   | 3.8  |
| Output current       | $I_{O(off)}$ | $\mu A$    | $V_{CC}=50V, V_i=0$         | -    | -   | 0.5  |
| DC current gain      | $G_i$        |            | $V_o=5V, I_o = 10mA$        | 33   | -   | -    |
| Input resistance     | $R_i$        | k $\Omega$ |                             | 1.54 | 2.2 | 2.86 |
| Resistance ratio     | $R_2/R_i$    |            |                             | 3.6  | 4.5 | 5.5  |
| Transition frequency | $f_T$        | MHz        | $V_o=10V, I_o=-5mA$         | -    | 250 | -    |

### ■ Ordering Information (Example)

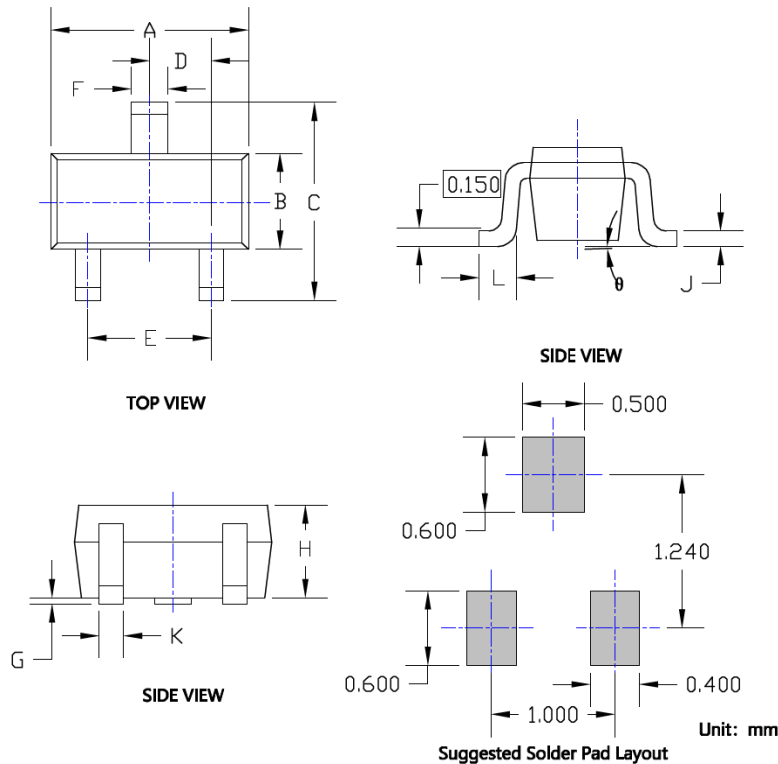
| Preferred P/N | Packing code | Unit Weight(G)     | Minimum Package(Pcs) | Inner Box Quantity(Pcs) | Outer Carton Quantity(Pcs) | Delivery Mode |
|---------------|--------------|--------------------|----------------------|-------------------------|----------------------------|---------------|
| DTC123YE      | F2           | Approximate 0.0027 | 3000                 | 30000                   | 120000                     | 7" reel       |



## ■ Characteristics (Typical)



## ■ SOT-523 Package Outline Dimensions



| SYMBOL | DIMENSIONS |       |            |       |
|--------|------------|-------|------------|-------|
|        | INCHES     |       | Millimeter |       |
|        | MIN.       | MAX.  | MIN.       | MAX.  |
| A      | 0.059      | 0.067 | 1.500      | 1.700 |
| B      | 0.030      | 0.033 | 0.750      | 0.850 |
| C      | 0.057      | 0.069 | 1.450      | 1.750 |
| D      | 0.020TYP   |       | 0.500TYP   |       |
| E      | 0.035      | 0.043 | 0.900      | 1.100 |
| F      | 0.010      | 0.018 | 0.250      | 0.450 |
| G      | 0.000      | 0.004 | 0.000      | 0.100 |
| H      | 0.024      | 0.031 | 0.600      | 0.800 |
| J      | 0.004      | 0.008 | 0.100      | 0.200 |
| K      | 0.006      | 0.014 | 0.150      | 0.350 |
| L      | 0.010      | 0.018 | 0.260      | 0.460 |
| 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 A and B 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.  
[A和B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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