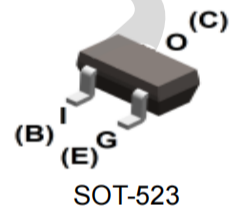
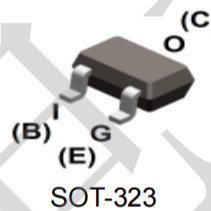
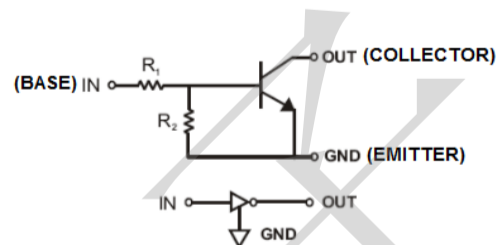


## Features

- Epitaxial planar die construction
- Built-in biasing resistors ( $R_1$ : 22k $\Omega$ ,  $R_2$ : 22k $\Omega$ )
- Also available in lead free version
- RoHS compliant with Halogen-free

## Mechanical Data

- Case: SOT-323, SOT-523,
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



## Ordering Information

| Part Number | Package | Shipping Quantity      |
|-------------|---------|------------------------|
| DTC124EUA   | SOT-323 | 3000 pcs / Tape & Reel |
| DTC124EE    | SOT-523 | 3000 pcs / Tape & Reel |

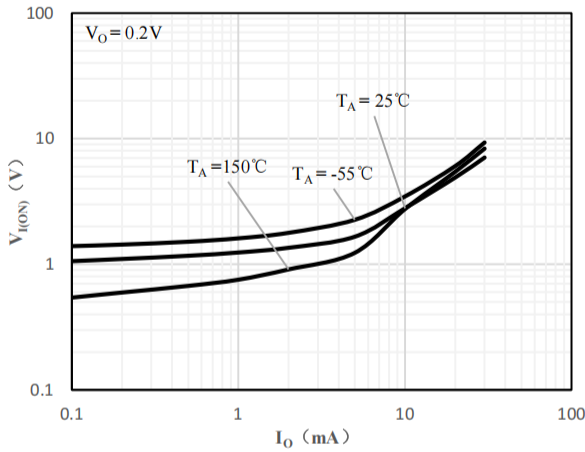
**Maximum Ratings** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)

| Parameter                  | Symbol              | Value      |         | Unit             |
|----------------------------|---------------------|------------|---------|------------------|
|                            |                     | SOT-323    | SOT-523 |                  |
| Supply Voltage             | $V_{CC}$            | 50         |         | V                |
| Input Voltage              | $V_I$               | -10 to +40 |         | V                |
| Output Current             | $I_O$               | 30         |         | mA               |
| Collector Current          | $I_{C(\text{Max})}$ | 100        |         | mA               |
| Power Dissipation          | $P_D$               | 200        | 150     | mW               |
| Junction Temperature Range | $T_J$               | -55 ~ +150 |         | $^\circ\text{C}$ |
| Storage Temperature Range  | $T_{STG}$           | -55 ~ +150 |         | $^\circ\text{C}$ |

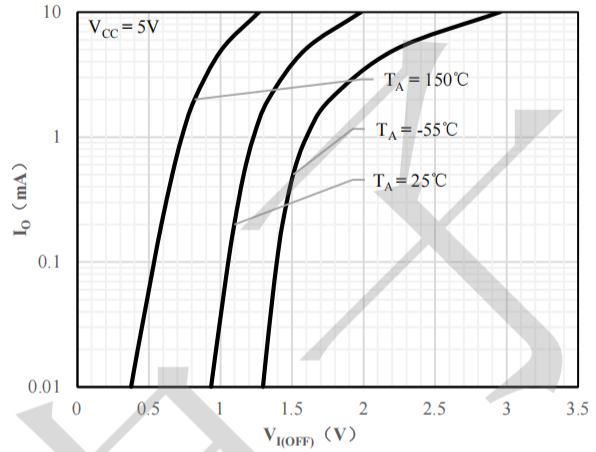
**Electrical Characteristics** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)

| Parameter              | Symbol              | Test Condition   | Min. | Typ. | Max. | Unit          |
|------------------------|---------------------|--|------|------|------|---------------|
| Input Voltage          | $V_{I(\text{OFF})}$ | $V_{CC} = 5\text{V}, I_O = 100\mu\text{A}$                     | 0.5  | -    | -    | V             |
| Input Voltage          | $V_{I(\text{ON})}$  | $V_O = 0.2\text{V}, I_O = 5\text{mA}$                          | -    | -    | 3    | V             |
| Output Voltage         | $V_{O(\text{on})}$  | $I_O = 10\text{mA}, I_I = 0.5\text{mA}$                        | -    | -    | 0.3  | V             |
| Input Current          | $I_I$               | $V_I = 5\text{V}$  | -    | -    | 0.36 | mA            |
| Output Current         | $I_{O(\text{off})}$ | $V_{CC} = 50\text{V}, V_I = 0\text{V}$                         | -    | -    | 0.5  | $\mu\text{A}$ |
| DC Current Gain        | $G_I$               | $V_O = 5\text{V}, I_O = 5\text{mA}$                            | 56   | -    | -    | -             |
| Input Resistor         | $R_1$               |  | 15.4 | 22   | 28.6 | k $\Omega$    |
| Resistance ratio       | $R_2/R_1$           |  | 0.8  | 1.0  | 1.2  | -             |
| Gain-Bandwidth Product | $f_T$               | $V_{CE} = 10\text{V}, I_E = 5\text{mA}$<br>$f = 100\text{MHz}$ | -    | 250  | -    | MHz           |

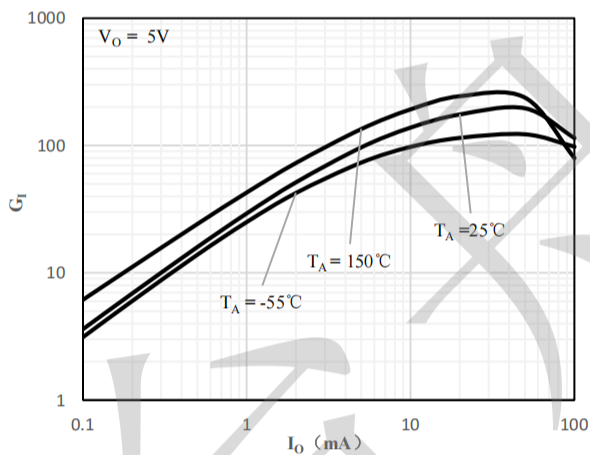
**Ratings and Characteristic Curves (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)**



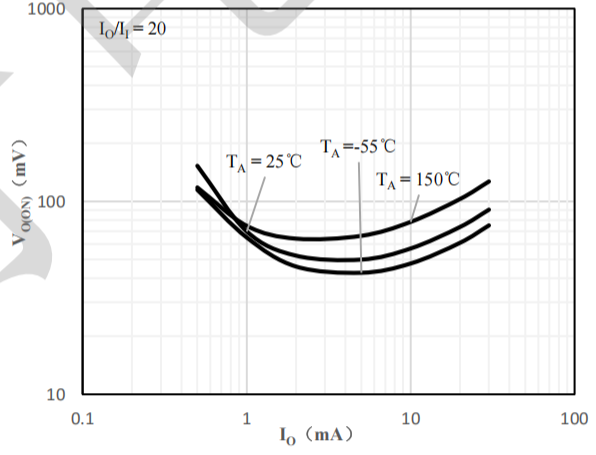
**Fig 1 Input Voltage vs Output Current**



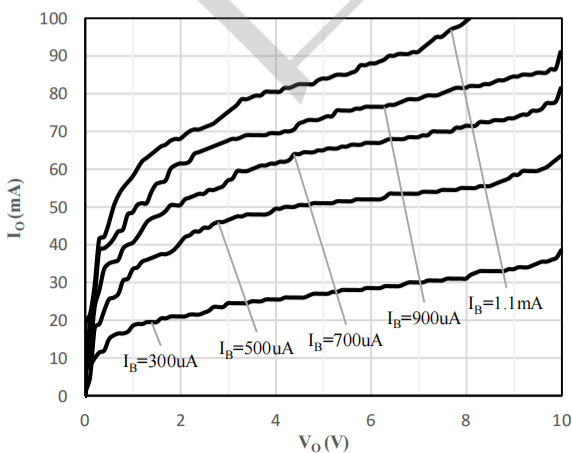
**Fig 2 Output Current vs Input Voltage**



**Fig 3 DC Current Gain vs Output Current**



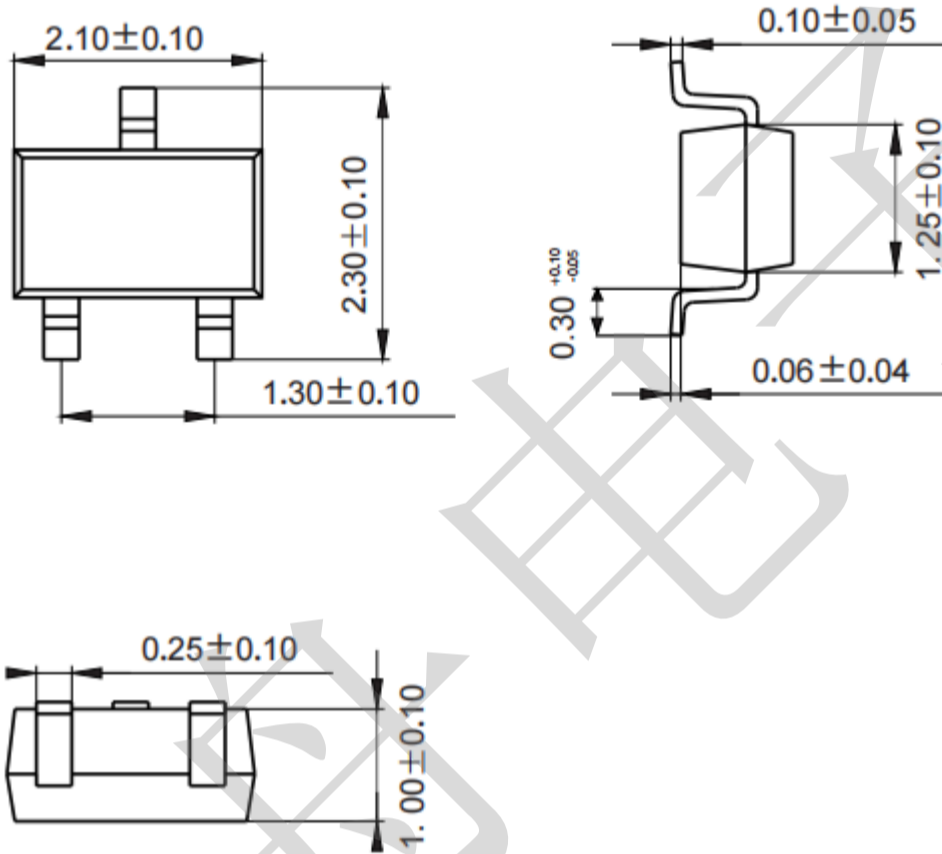
**Fig 4 Output Voltage vs Output Current**



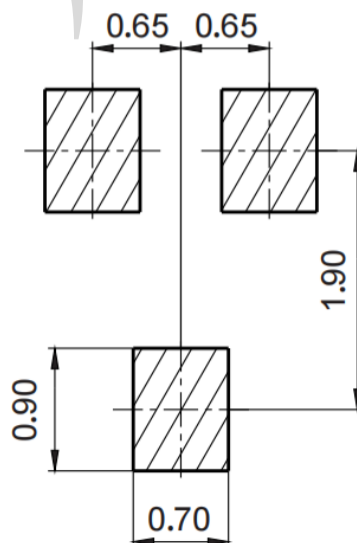
**Fig 5 Output Current vs. Output Voltage**

**Package Outline Dimensions** (unit:mm)

SOT-323

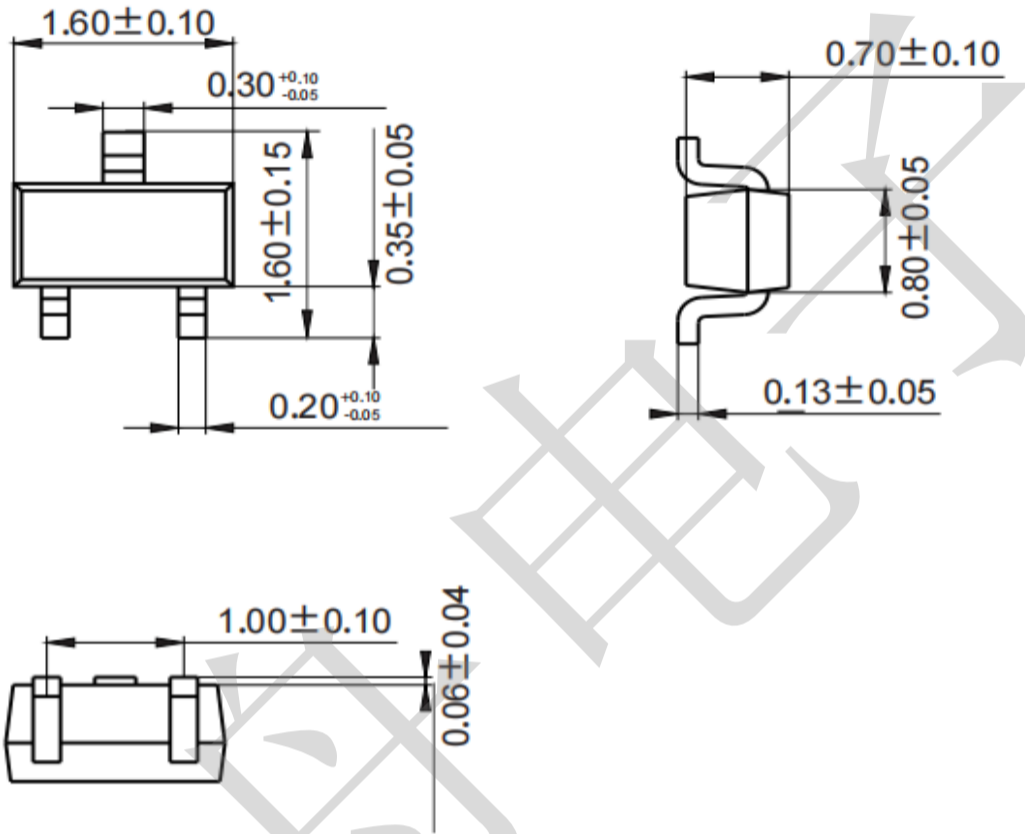


**Mounting Pad Layout** (unit: mm)



**Package Outline Dimensions** (unit:mm)

SOT-523



**Mounting Pad Layout** (unit: mm)

