



DTC124E

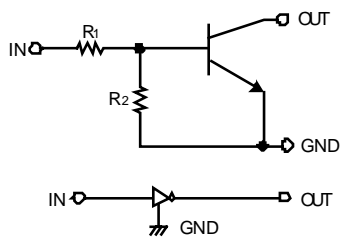
NPN EPITAXIAL SILICON TRANSISTOR

NPN DIGITAL TRANSISTOR (BUILT-IN RESISTORS)

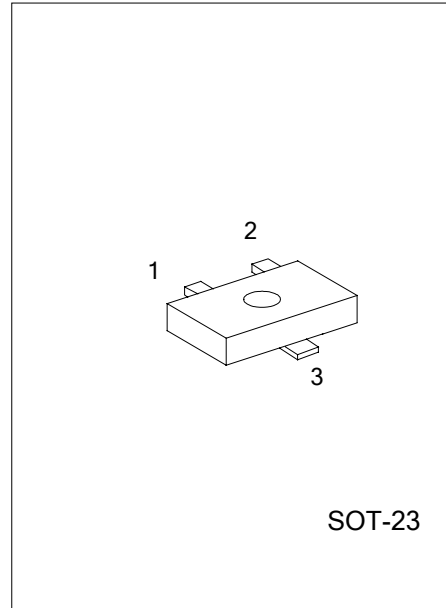
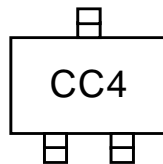
■ FEATURES

- *Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see the 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.

■ EQUIVALENT CIRCUIT



■ MARKING



*Pb-free plating product number:DTC124EL

■ PIN CONFIGURATION

| PIN NO. | PIN NAME |
|---------|----------|
| 1 | GND |
| 2 | IN |
| 3 | OUT |

■ ORDERING INFORMATION

| Order Number | | Package | Packing |
|---------------|----------------|---------|-----------|
| Normal | Lead free | | |
| DTC124E-AE3-R | DTC124EL-AE3-R | SOT-23 | Tape Reel |

■ ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

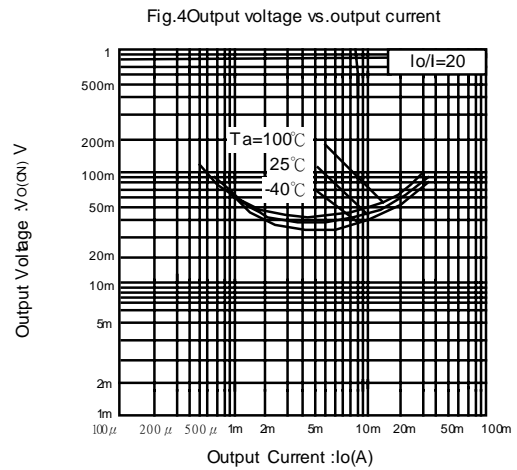
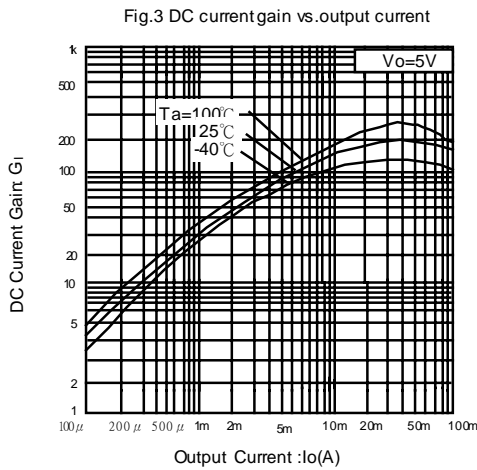
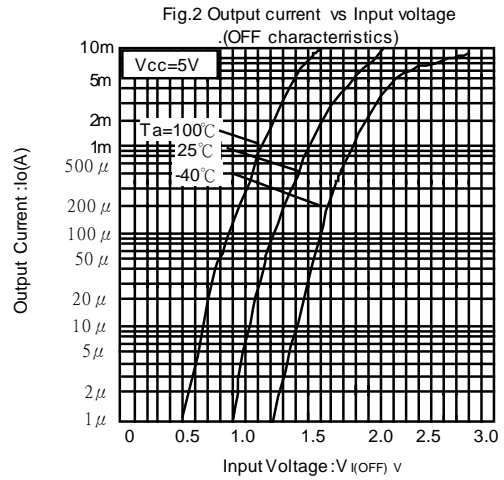
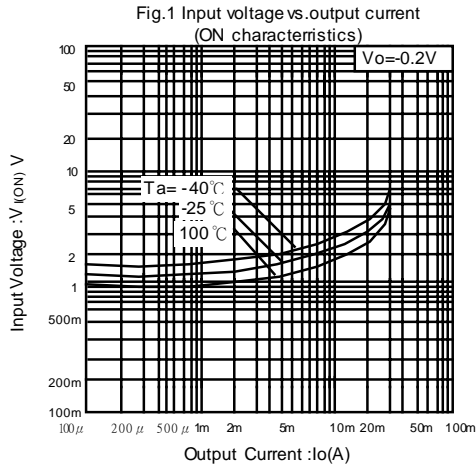
| PARAMETER | SYMBOL | RATINGS | UNIT |
|----------------------|------------------|------------|------|
| Supply Voltage | V _{CC} | 50 | V |
| Input Voltage | V _{IN} | -10 ~ +40 | V |
| Output Current | I _C | 100 | mA |
| | I _O | 30 | |
| Power Dissipation | P _D | 200 | mW |
| Junction Temperature | T _J | 150 | °C |
| Storage Temperature | T _{STG} | -40 ~ +150 | °C |

■ ELECTRICAL CHARACTERISTICS (Ta= 25°C, unless otherwise specified.)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|----------------------|--------------------------------|---|------|-----|------|------|
| Input Voltage | V _{I(off)} | V _{CC} = 5V, I _{OUT} =100 μA | | | 0.5 | V |
| | V _{I(ON)} | V _{OUT} = 0.2V, I _{OUT} = 5mA | 3 | | | |
| Output Voltage | V _{O(ON)} | I _{OUT} /I _{IN} = 10mA / 0.5 mA | | 0.1 | 0.3 | V |
| Input Current | I _I | V _{IN} = 5V | | | 0.36 | mA |
| Output Current | I _{O(off)} | V _{CC} = 50V, V _{IN} =0V | | | 0.5 | μA |
| DC Current Gain | G _I | V _{OUT} = 5V, I _{OUT} = 5mA | 56 | | | |
| Input Resistance | R _I | | 15.4 | 22 | 28.6 | kΩ |
| Resistance Ratio | R ₂ /R ₁ | | 0.8 | 1 | 1.2 | |
| Transition Frequency | f _T | V _{CE} = 10 V, I _E = -5mA, f=100MHz * | | 250 | | MHz |

*Transition frequency of the device

■ TYPICAL CHARACTERISTICS



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