

SOT-23 Plastic-Encapsulate Transistors

Features

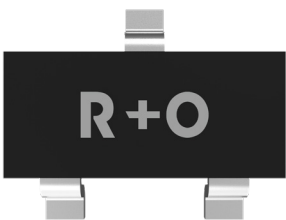
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit)
- The bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input.They also have the advantage of almost completely eliminating parasitic effects
- Only the on/off conditions need to be set for operation, making device design easy

Supply Voltage  
VCC -50V  
Collector Current  
-0.10 Ampere

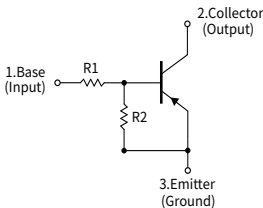
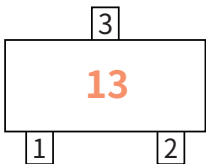
Mechanical Data

- Case: SOT-23  
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

SOT-23



Function Diagram



Ordering Information

| PACKAGE | PACKAGE CODE | UNIT WEIGHT(g) | REEL(pcs) | BOX(pcs) | CARTON(pcs) | DELIVERY MODE |
|---------|--------------|----------------|-----------|----------|-------------|---------------|
| SOT-23  | R1           | 0.0085         | 3000      | 15000    | 150000      | 7"            |

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

| PARAMETER            | SYMBOL           | UNIT | VALUE     |
|----------------------|------------------|------|-----------|
| Supply Voltage       | V <sub>CC</sub>  | V    | -50       |
| Input Voltage        | V <sub>IN</sub>  | V    | -30~+10   |
| Output Current       | I <sub>O</sub>   | mA   | -100      |
| Power Dissipation    | P <sub>D</sub>   | mW   | 200       |
| Storage temperature  | T <sub>stg</sub> | °C   | -55 ~+150 |
| Junction temperature | T <sub>j</sub>   | °C   | -55 ~+150 |

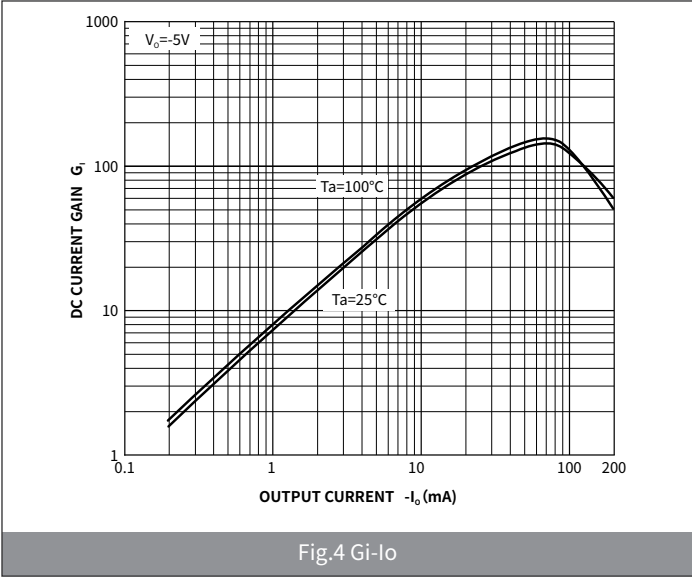
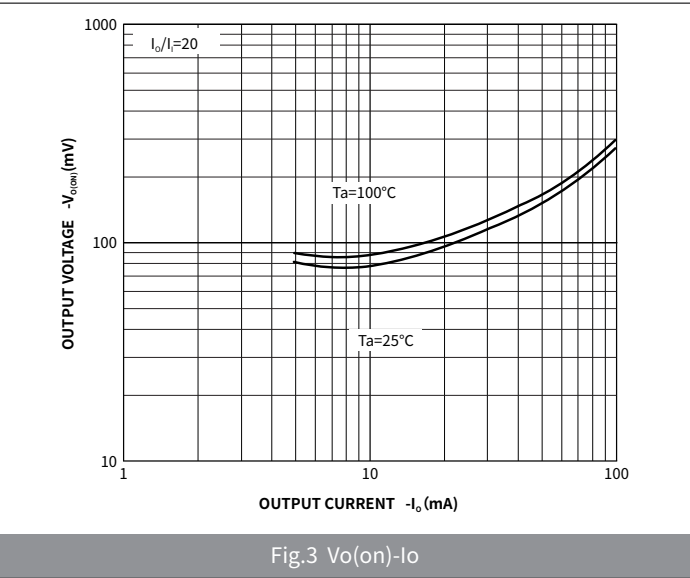
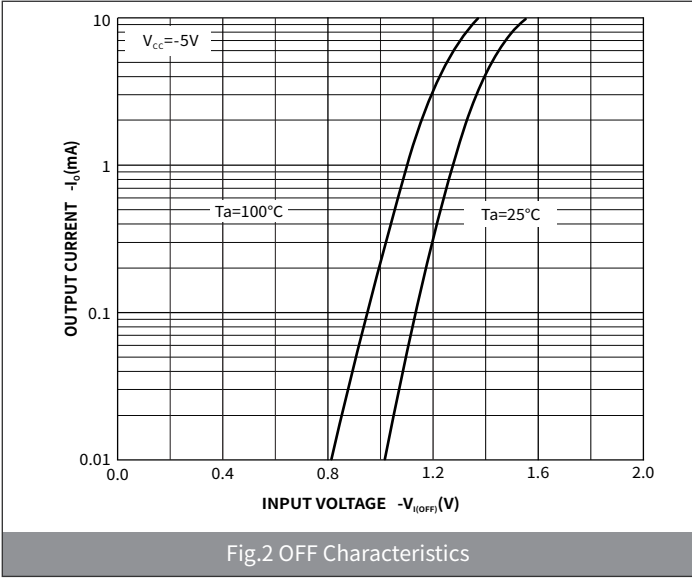
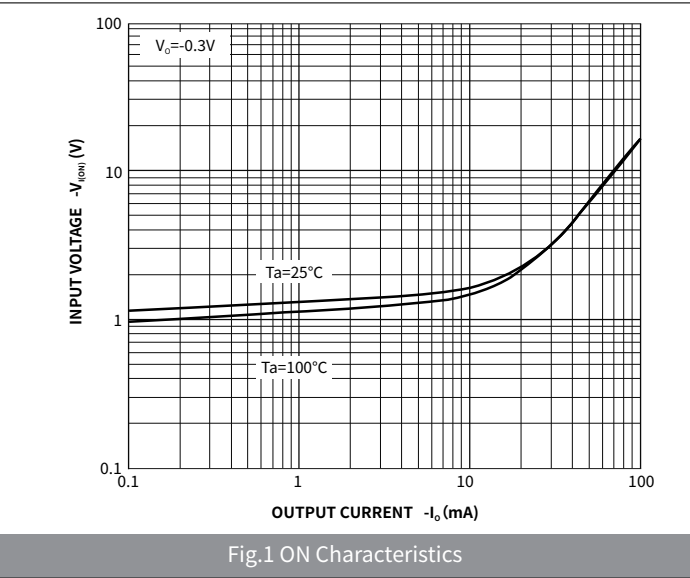
Small-signal Characteristics

| ITEM                 | SYMBOL         | Condition                                    | UNIT | Min | Typ | Max |
|----------------------|----------------|----------------------------------------------|------|-----|-----|-----|
| Transition frequency | f <sub>T</sub> | I <sub>0</sub> = -5mA, V <sub>0</sub> = -10V | MHz  | -   | 250 | -   |

● Electrical Characteristics (Ta=25°C Unless otherwise noted)

| PARAMETER        | SYMBOL       | UNIT       | Condition                   | Min  | Typ | Max  |
|------------------|--------------|------------|-----------------------------|------|-----|------|
| Input voltage    | $V_{I(off)}$ | V          | $I_o=-100\mu A, V_{cc}=-5V$ | -0.5 | -   | -    |
|                  | $V_{I(on)}$  |            | $I_o=-20mA, V_o=-0.3V$      | -    | -   | -3   |
| Output voltage   | $V_{O(on)}$  |            | $I_o/I_i=-10mA/-0.5mA$      | -    | -   | -0.3 |
| Input current    | $I_i$        | mA         | $V_i=-5V$                   | -    |     | -1.8 |
| Output current   | $I_{O(off)}$ | $\mu A$    | $V_{cc}=-50V, V_i=0V$       | -    | -   | -0.5 |
| DC Current Gain  | $G_i$        | -          | $V_o=-5V, I_o=-10mA$        | 30   | -   | -    |
| Input resistance | $R_i$        | k $\Omega$ | -                           | 3.29 | 4.7 | 6.11 |
| Resistance ratio | $R_2/R_1$    | -          | -                           | 0.8  | 1   | 1.2  |

● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



● Package Outline Dimensions (SOT-23)

| Symbol | Dimensions  |      |          |       |
|--------|-------------|------|----------|-------|
|        | Millimeters |      | Inches   |       |
|        | Min.        | Max. | Min.     | Max.  |
| A      | 0.90        | 1.15 | 0.035    | 0.045 |
| A1     | -           | 0.10 | -        | 0.004 |
| A2     | 0.90        | 1.05 | 0.035    | 0.041 |
| b      | 0.30        | 0.50 | 0.012    | 0.020 |
| c      | 0.10        | 0.20 | 0.004    | 0.008 |
| D      | 2.80        | 3.00 | 0.110    | 0.118 |
| E      | 1.20        | 1.40 | 0.047    | 0.055 |
| E1     | 2.25        | 2.55 | 0.089    | 0.100 |
| e      | 0.950TYP    |      | 0.037TYP |       |
| e1     | 1.80        | 2.00 | 0.071    | 0.079 |
| L      | 0.550REF    |      | 0.022REF |       |
| L1     | 0.30        | 0.50 | 0.012    | 0.020 |
| θ      | -           | 8°   | -        | 8°    |

● Suggested Pad Layout

| Symbol | Dimensions  |      |        |       |
|--------|-------------|------|--------|-------|
|        | Millimeters |      | Inches |       |
|        | Min.        | Max. | Min.   | Max.  |
| J      | 0.80        | -    | 0.031  | -     |
| K      | -           | 0.90 | -      | 0.035 |
| M      | 2.00        | -    | 0.078  | -     |
| N      | -           | 1.90 | -      | 0.074 |