

## SOT-323 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

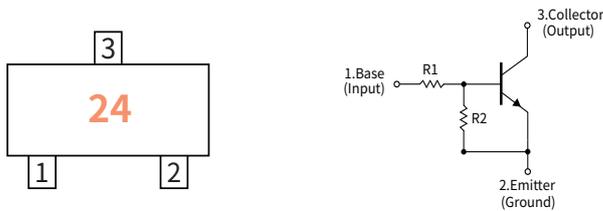
**Collector Current**  
0.05 Ampere

### Mechanical Data

- Case: SOT-323  
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026



### Function Diagram



### Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-323	R1	0.006	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	-10~+40
Output Current	I <sub>O</sub>	mA	50
Peak Collector Current	I <sub>CM</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

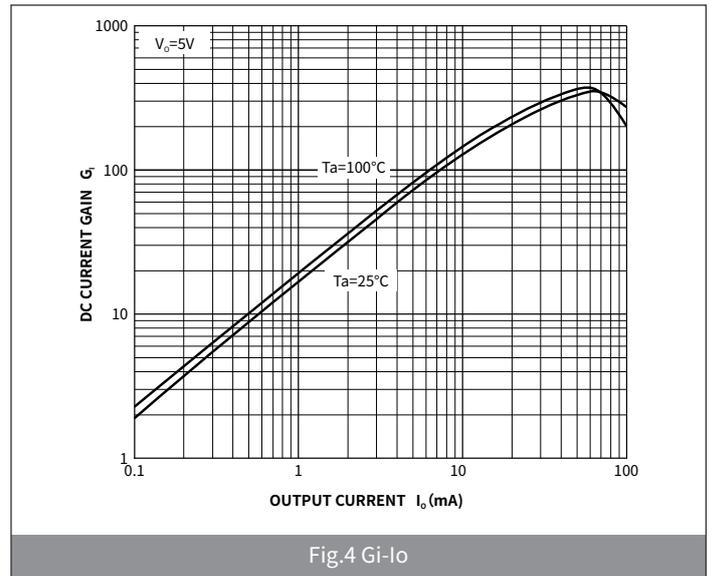
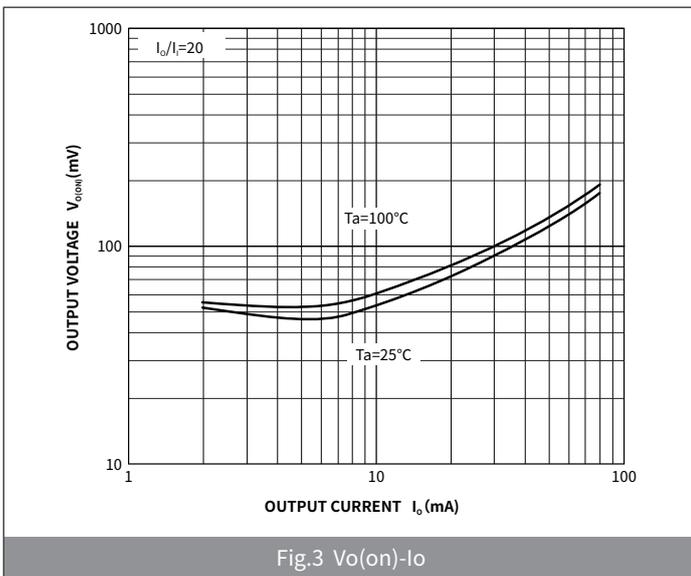
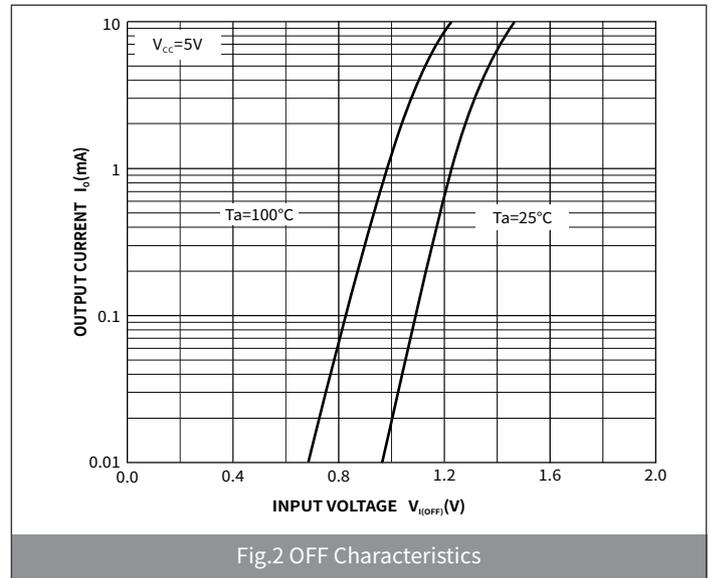
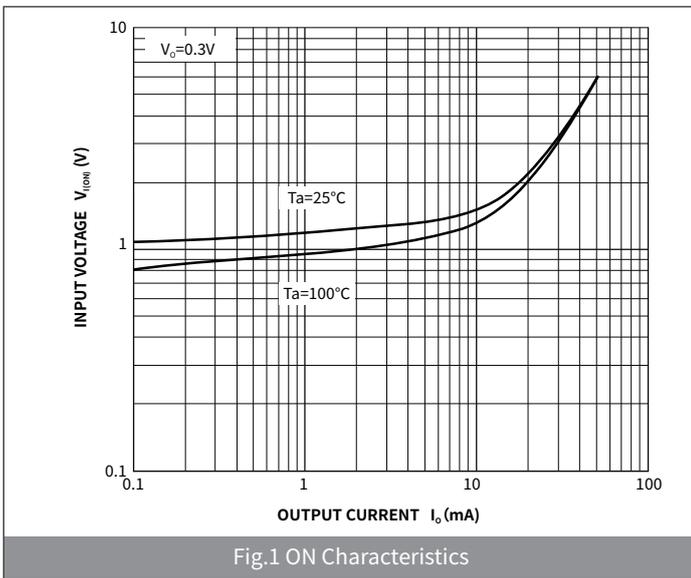
### Small-signal Characteristics

ITEM	SYMBOL	Condition	UNIT	Min	Typ	Max
Transition frequency	f <sub>T</sub>	I <sub>O</sub> = 5mA, V <sub>O</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	-	-
	$V_{I(on)}$		$I_o=10mA, V_o=0.3V$	-	-	3
Output voltage	$V_{O(on)}$		$I_o/I_i=10mA/0.5mA$	-	-	0.3
Input current	$I_i$	mA	$V_i=5V$	-	-	0.88
Output current	$I_{O(off)}$	$\mu A$	$V_{cc}=50V, V_i=0V$	-	-	0.5
DC Current Gain	$G_i$	-	$V_o=5V, I_o=5mA$	30	-	-
Input resistance	$R_i$	k $\Omega$	-	7	10	13
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-323)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.10	0.035	0.043
A1	0.90	1.00	0.035	0.039
B	0.15	0.40	0.006	0.016
c	0.10	0.25	0.004	0.010
D	1.80	2.20	0.071	0.087
E	1.15	1.35	0.045	0.053
E1	2.15	2.45	0.085	0.096
e	1.20	1.40	0.047	0.055
L	0.525REF		0.021 REF	
$\theta$	-	8°	-	8°

## ● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.65	0.75	0.026	0.030
K	0.85	0.95	0.033	0.037
M	1.85	1.95	0.073	0.077
N	1.25	1.35	0.049	0.053