SOT-23 Plastic-Encapsulate Transistors

Features

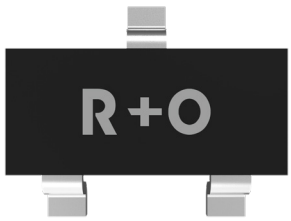
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit)
- The bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input.They also have the advantage of almost completely 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

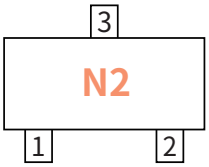
Mechanical Data

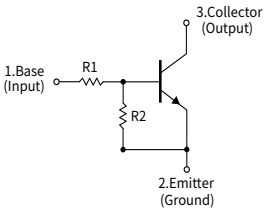
- Case: SOT-23
  Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

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_{CC}	V	50
Input Voltage	V_{IN}	V	-5~+10
Output Current	I_O	mA	100
Power Dissipation	P_D	mW	200
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	°C /W	625
Storage temperature	T_{stg}	°C	-55 ~+150
Junction temperature	T_j	°C	-55 ~+150

Small-signal Characteristics

ITEM	SYMBOL	Condition	UNIT	Min	Typ	Max
Transition frequency	f_T	I_O= 5mA, V_O= 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=100μA, V_{cc}=5V	0.3	-	-
	$V_{I(on)}$		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	-		7.2
Output current	$I_{O(off)}$	μA	V_{cc}=50V,V_I=0V	-	-	0.5
DC Current Gain	G_I	-	V_O=5V, I_O=5mA	33	-	-
Input resistance	R_1	kΩ	-	0.7	1	1.3
Resistance ratio	R_2 /R_1	-	-	8	10	12

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

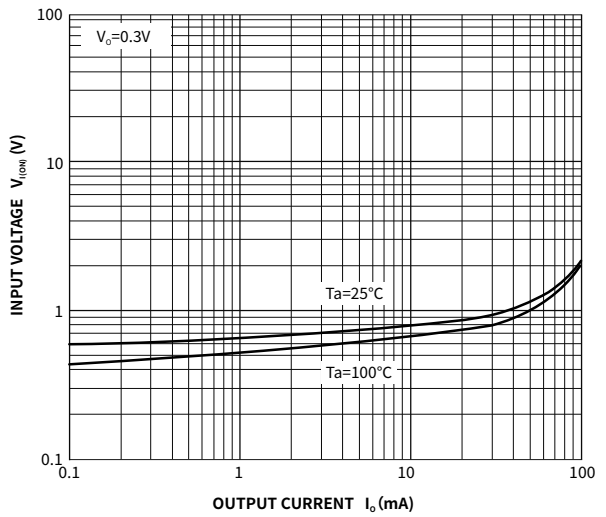


Fig.1 ON Characteristics

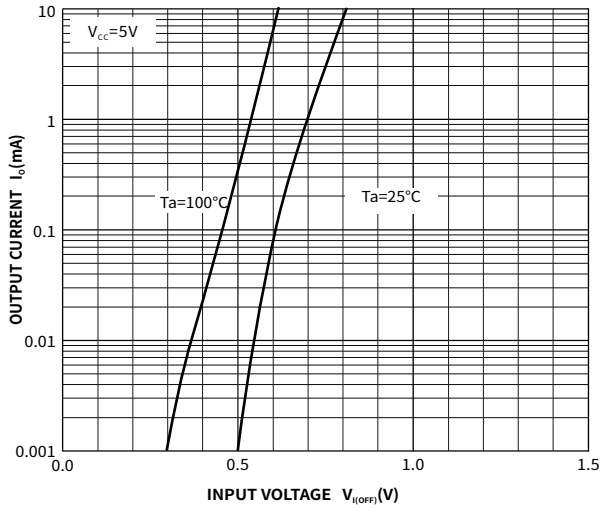


Fig.2 OFF Characteristics

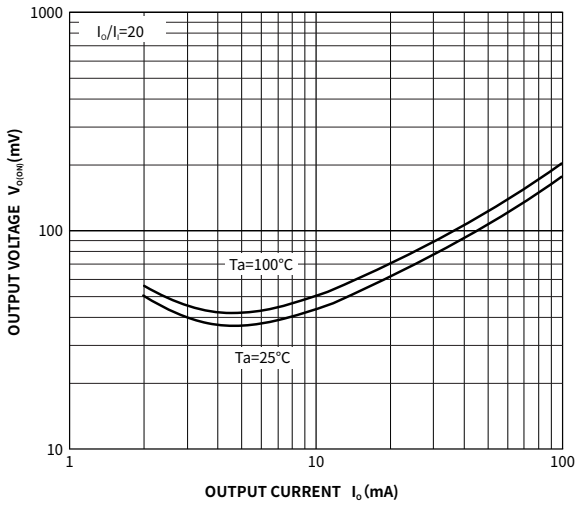


Fig.3 Vo(on)-Io

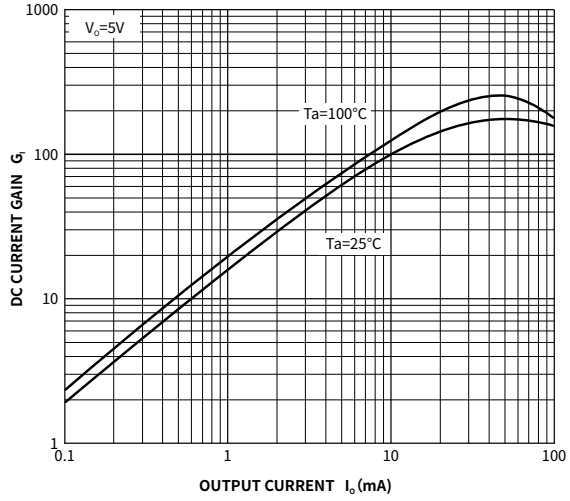
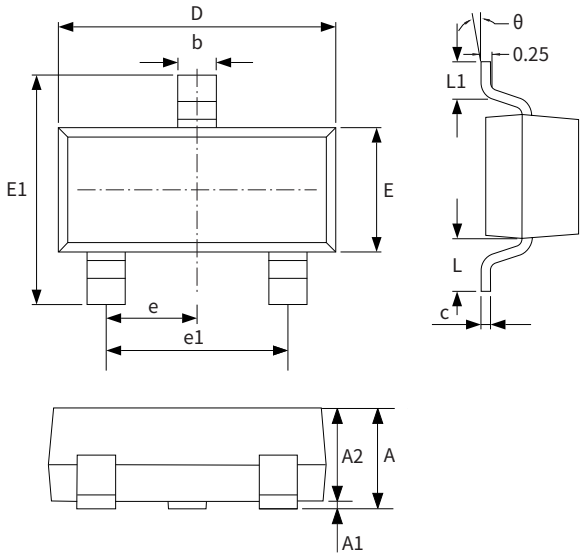


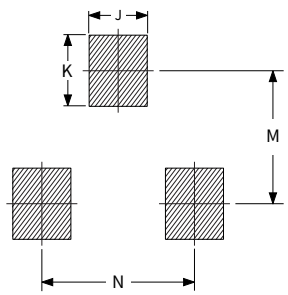
Fig.4 Gi-Io

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