



## SSCN123GS6

### NPN Type Digital Transistor (built-in resistors)

#### Features

VCC	VIN	IO	R1	R2/R1 Typ.
50V	-5~+12V	100mA	2.2kΩ	21

#### Description

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 negative 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 the device design easy.

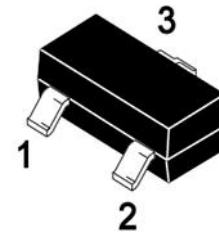
#### Applications

- Amplifying signal
- Electronic switch
- Oscillating circuit
- Variable resistance

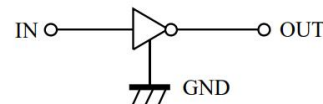
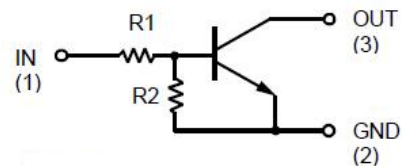
#### Ordering Information

Device	Package	Shipping
SSCN123GS6	SOT-23	3000/Reel

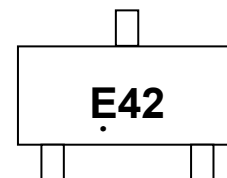
#### Pin configuration



**SOT-23**



**Circuit Diagram**



**Marking (Top View)**



➤ **Absolute Maximum Ratings**( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

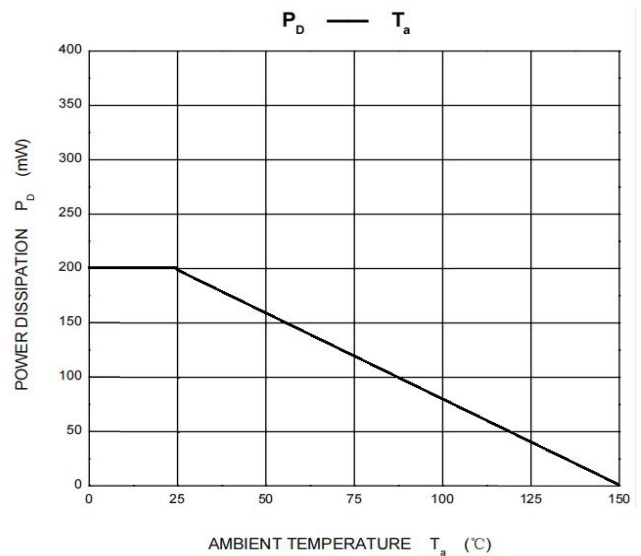
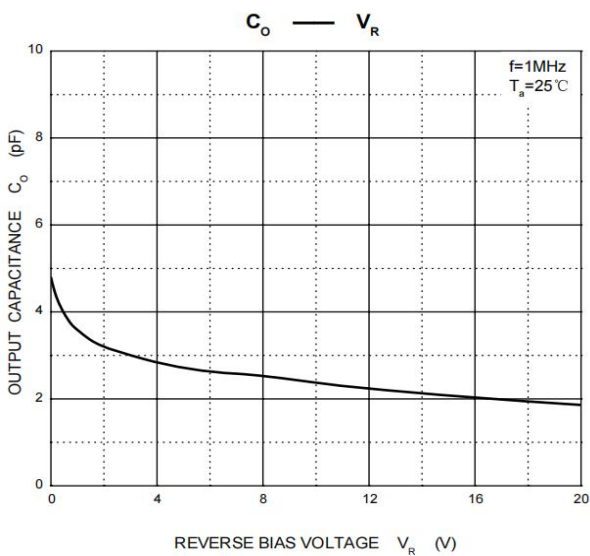
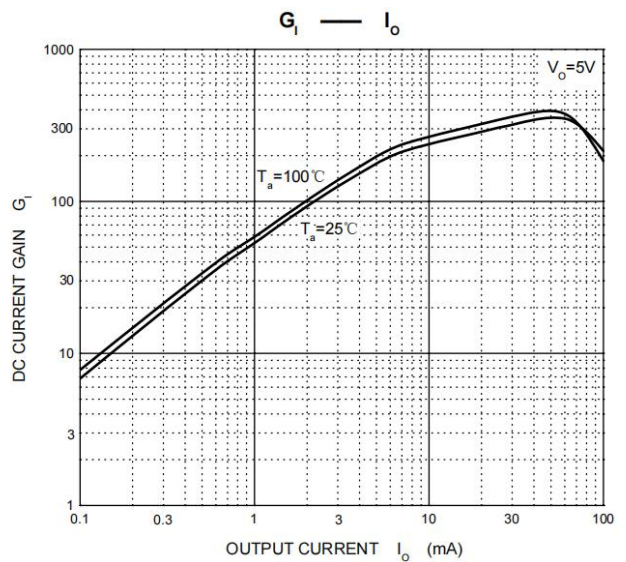
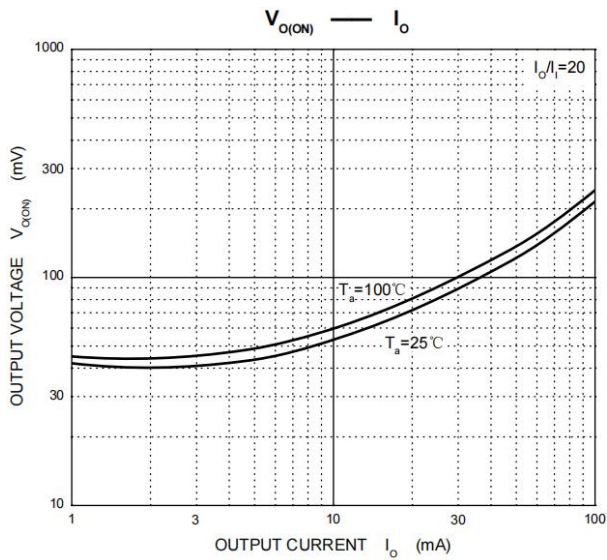
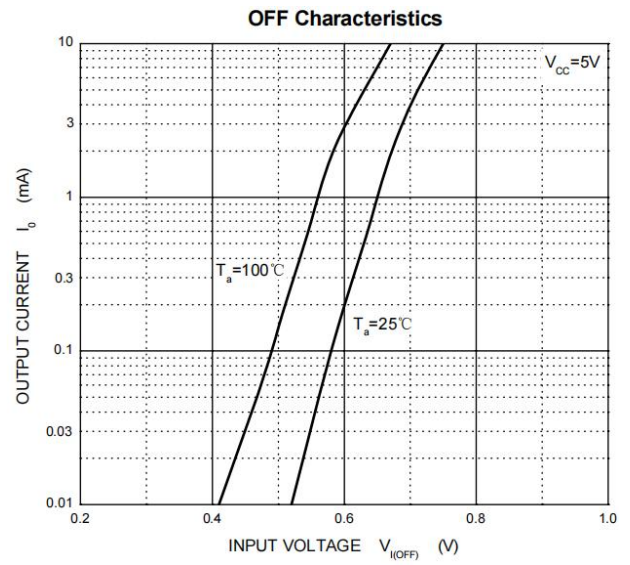
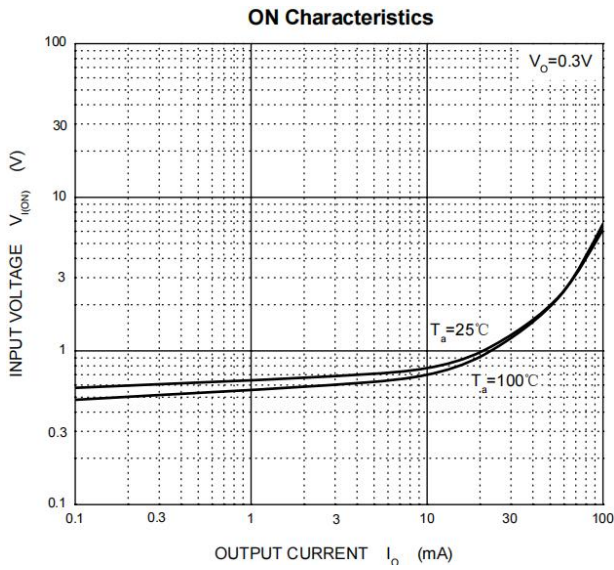
Parameter	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	50	V
Input Voltage	$V_{IN}$	-5 to +12	V
Output current	$I_o$	100	mA
Power Dissipation	$P_D$	200	mW
Junction Temperature	$T_J$	-55 to 150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 to 150	$^{\circ}\text{C}$

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input Voltage	$V_{I(off)}$	$V_{CC} = 5V, I_o = 0.1mA$	0.5			V
	$V_{I(on)}$	$V_{CC} = 0.3V, I_o = 5mA$			1.1	V
Output Voltage	$V_{O(on)}$	$I_o/I_i = 5mA/0.25mA$		0.1	0.3	V
Input Current	$I_i$	$V_i = 5V$			3.6	mA
Output Current	$I_{O(off)}$	$V_{CC} = 50V, V_i = 0V$			0.5	$\mu\text{A}$
DC Current Gain	$G_1$	$V_o = 5V, I_o = 10mA$	80			
Input Resistance	$R_1$		1.54	2.2	2.86	$\text{K}\Omega$
Resistance Ration	$R_2/R_1$		17	21	26	
Transition Frequency	$f_T$	$V_o = 10V, I_o = 5mA, f = 100\text{MHz}$		250		MHz



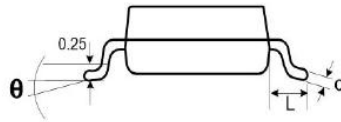
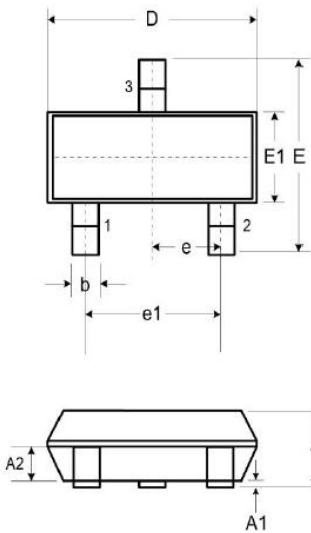
## Typical Performance Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise noted)



➤ Package Information

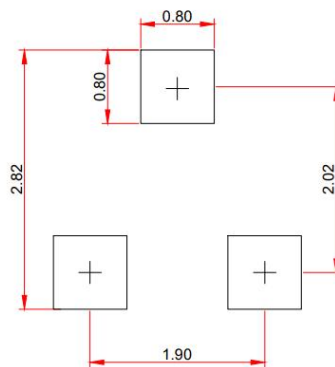
● Mechanical Data

**SOT-23**



DIM	Millimeters		
	Min.	Typ.	Max.
<b>A</b>	0.89	-	1.12
<b>A1</b>	0.01	-	0.10
<b>A2</b>	0.88	0.95	1.02
<b>b</b>	0.30	-	0.51
<b>c</b>	0.08	-	0.18
<b>D</b>	2.80	2.90	3.04
<b>E</b>	2.10	2.37	2.64
<b>E1</b>	1.20	1.30	1.40
<b>e</b>	1.90		
<b>e1</b>	0.95		
<b>L</b>	0.40	0.50	0.60
<b>L1</b>	0.55		
<b>N</b>	3		
<b>θ</b>	0°	-	8°

● Recommended Pad outline





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