



SSCN123GS7

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.

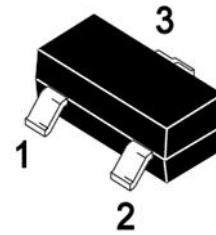
➤ Applications

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

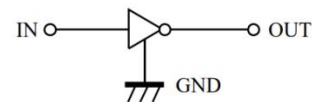
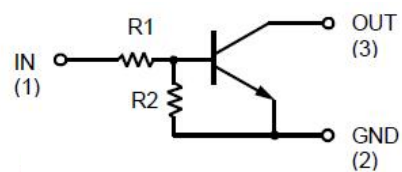
➤ Ordering Information

Device	Package	Shipping
SSCN123GS7	SOT-323	3000/Reel

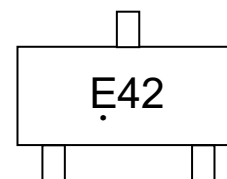
➤ Pin configuration



SOT-323



Circuit Diagram



Marking (Top View)



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

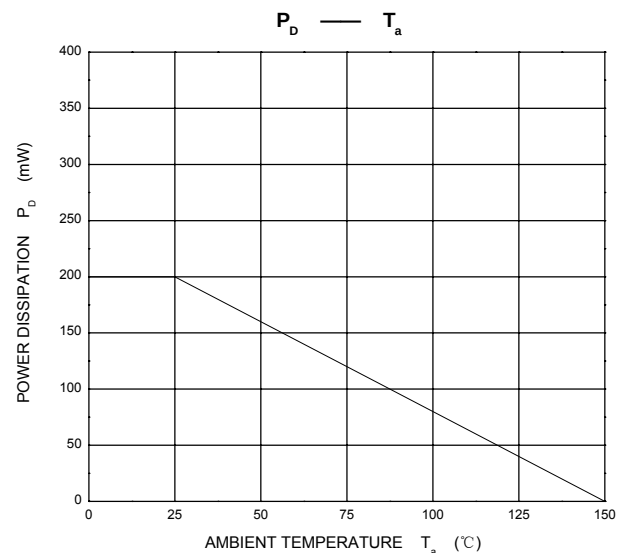
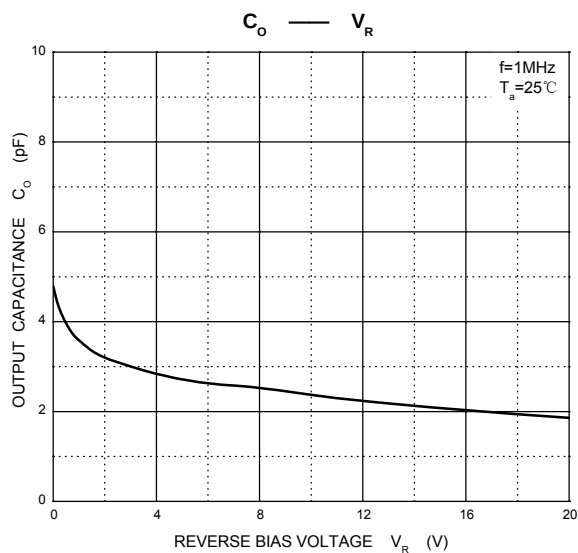
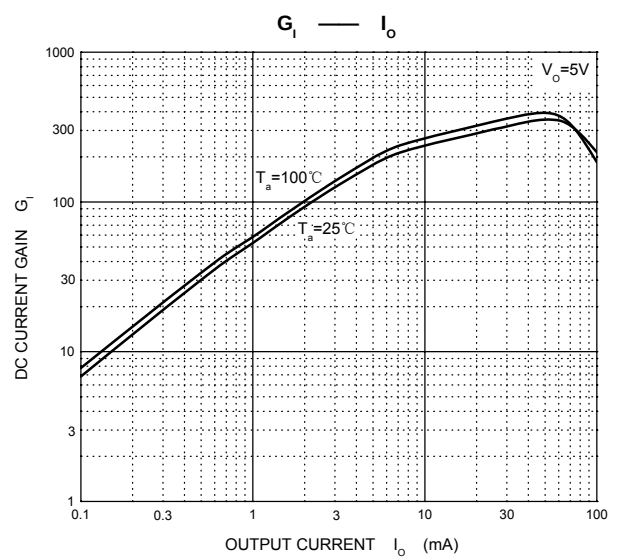
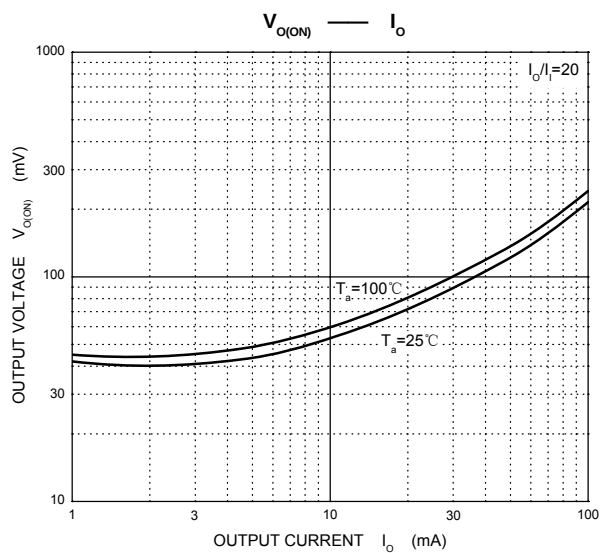
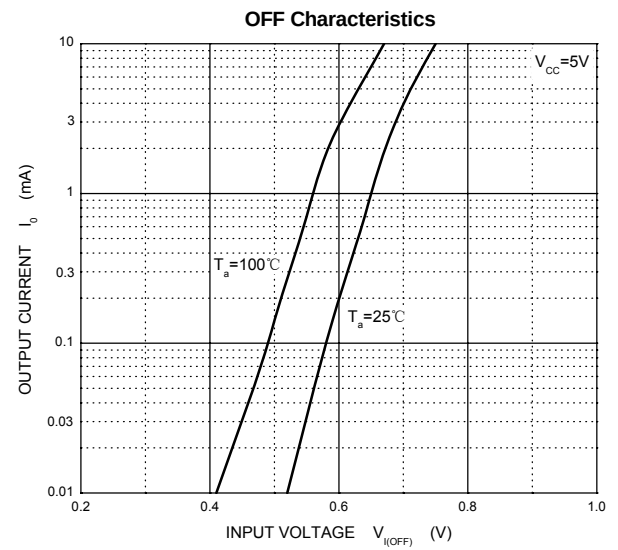
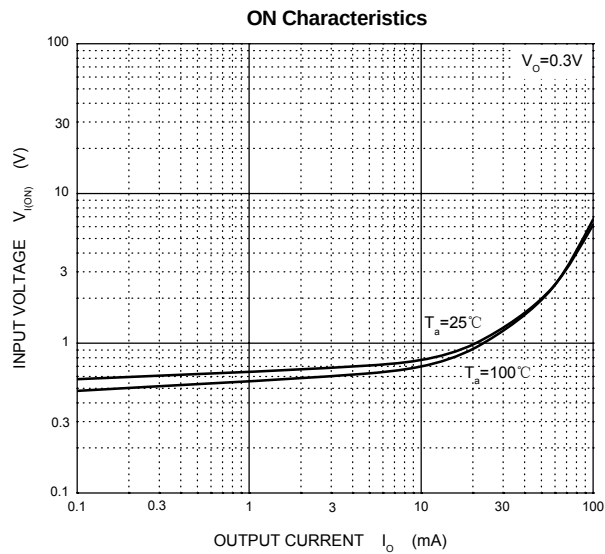
Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	50	V
Input Voltage	V_{IN}	-5 to +12	V
Output current	I_o	100	mA
Power Dissipation	P_D	200	mW
Junction Temperature	T_J	-55 to 150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to 150	$^{\circ}\text{C}$

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

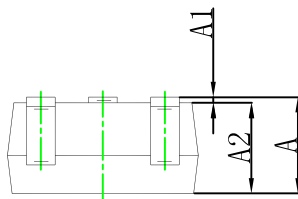
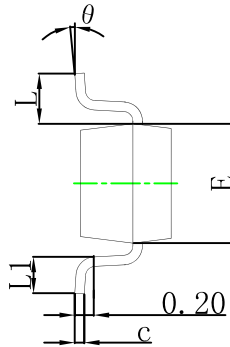
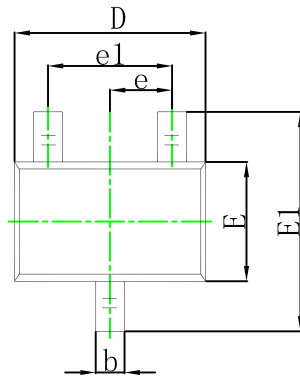
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input Voltage	$V_{I(off)}$	$V_{CC} = 5V, I_o = 0.1mA$	0.5			V
	$V_{I(on)}$	$V_{CC} = 0.3V, I_o = 5mA$			1.1	V
Output Voltage	$V_{O(on)}$	$I_o/I_i = 5mA/0.25mA$		0.1	0.3	V
Input Current	I_i	$V_i = 5V$			3.8	mA
Output Current	$I_{O(off)}$	$V_{CC} = 50V, V_i = 0V$			0.5	μA
DC Current Gain	G_1	$V_o = 5V, I_o = 10mA$	80			
Input Resistance	R_1		1.54	2.2	2.86	K Ω
Resistance Ration	R_2/R_1		17	21	26	
Transition Frequency	f_T	$V_o = 10V, I_o = 5mA, f = 100MHz$		250		MHz



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

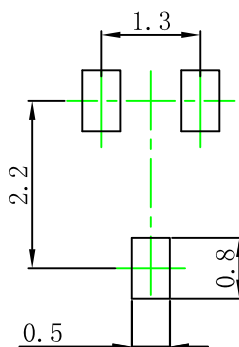


● Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-323 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.



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