



## SSCN143EGS6

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

#### Features

VCC	VIN	IO	R1	R2/R1 Typ.
50V	-10~+30V	100mA	4.7kΩ	1.0

#### 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.

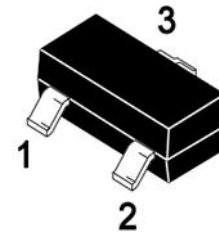
#### Applications

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

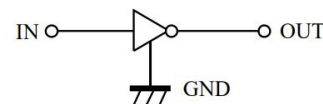
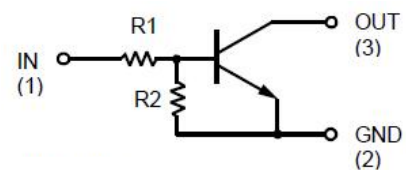
#### Ordering Information

Device	Package	Shipping
SSCN143EGS6	SOT-23	3000/Reel

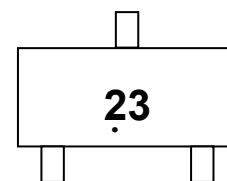
#### Pin configuration



**SOT-23**



**Circuit Diagram**



**Marking (Top View)**



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

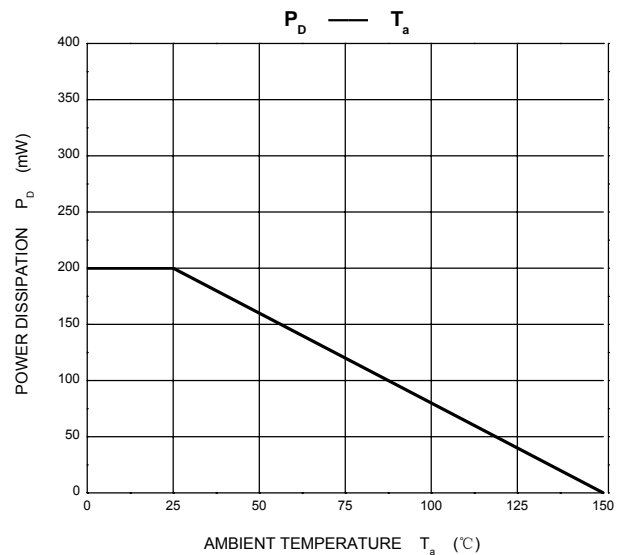
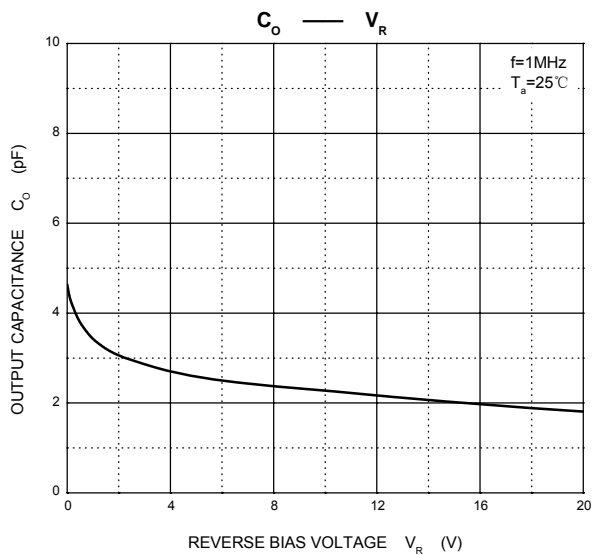
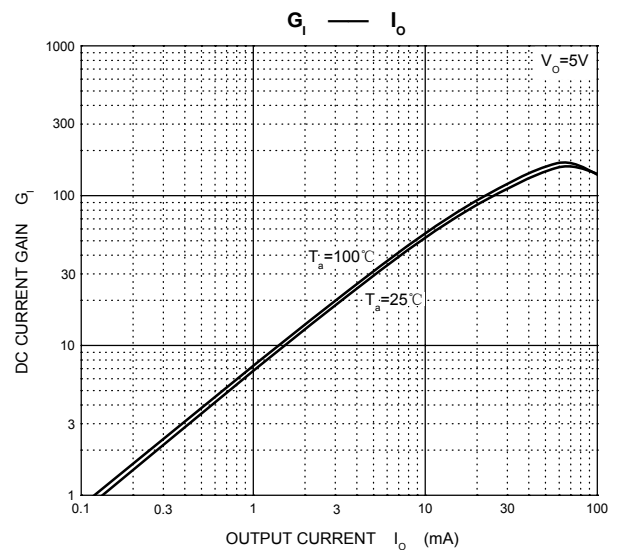
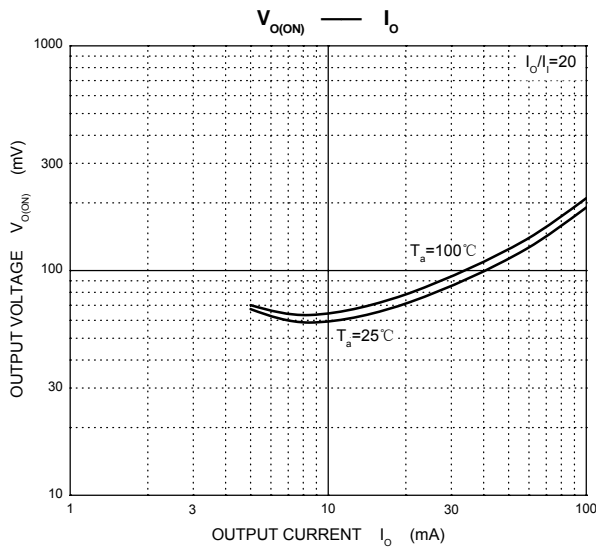
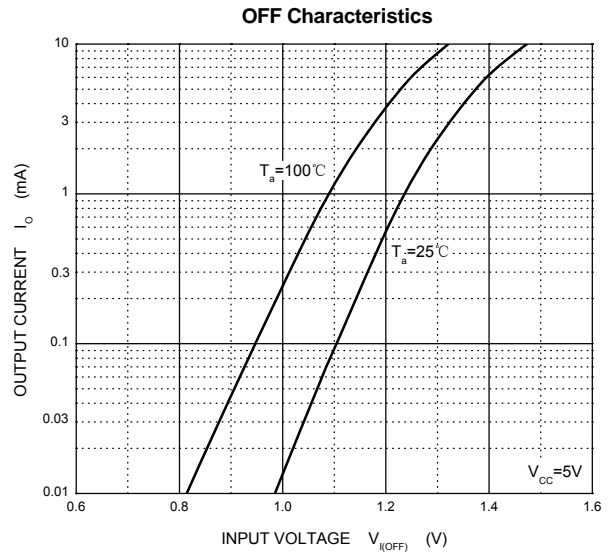
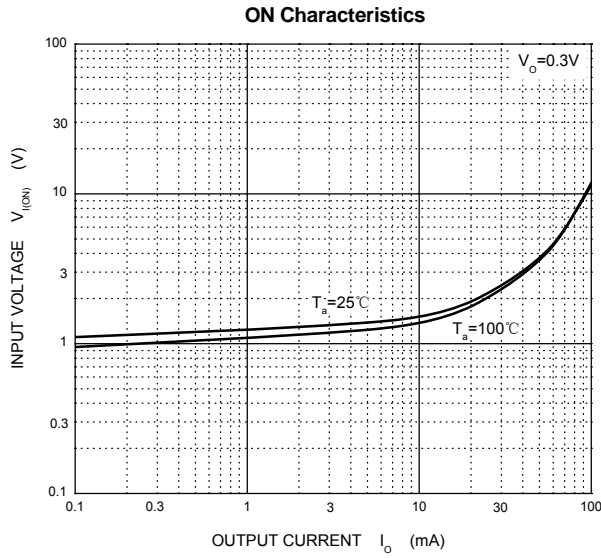
Parameter	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	50	V
Input Voltage	$V_{IN}$	-10 to +30	V
Output current	$I_o$	100	mA
Power Dissipation	$P_D$	200	mW
Junction Temperature	$T_J$	-55 to 150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 to 150	$^{\circ}\text{C}$

➤ **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
	$V_{I(on)}$	$V_{CC} = 0.3V, I_o = 20mA$			3	V
Output Voltage	$V_{O(on)}$	$I_o/I_i = 10mA/0.5mA$			0.3	V
Input Current	$I_i$	$V_i = 5V$			1.8	mA
Output Current	$I_{O(off)}$	$V_{CC} = 50V, V_i = 0V$			0.5	uA
DC Current Gain	$G_1$	$V_o = 5V, I_o = 10mA$	20			
Input Resistance	$R_1$		3.29	4.7	6.11	K $\Omega$
Resistance Ration	$R_2/R_1$		0.8	1.0	1.2	
Transition Frequency	$f_T$	$V_o = 10V, I_o = 5mA, f = 100MHz$		250		MHz



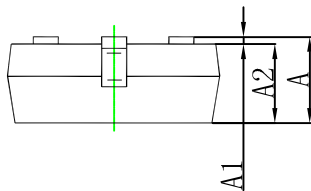
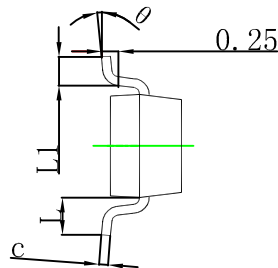
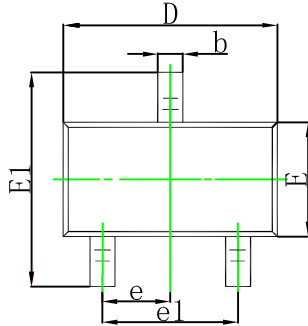
➤ Typical Performance Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise noted)



➤ **Package Information**

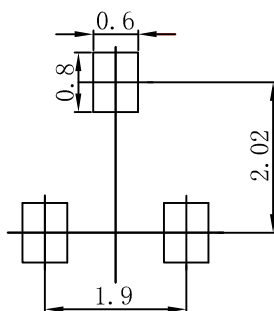
● **Mechanical Data**

**SOT-23**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

● **Recommended Pad outline**



Note:  
 1. Controlling dimension: in millimeters.  
 2. General tolerance: ± 0.05mm.  
 3. The pad layout is for reference purposes only.



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