



SSCN143GS7

NPN Type Digital Transistor (built-in resistors)

➤ Features

| VCC | VIN | IO | R2/R1 Typ. |
|-----|---------|-------|------------|
| 50V | -5~+30V | 100mA | 10 |

➤ 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.

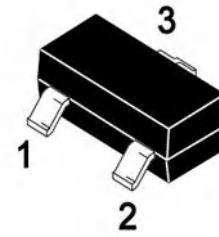
➤ Applications

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

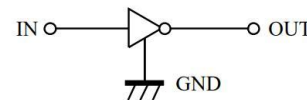
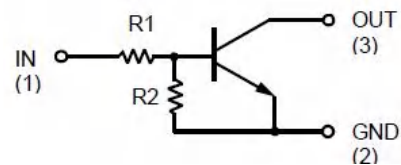
➤ Ordering Information

| Device | Package | Shipping |
|------------|---------|-----------|
| SSCN143GS7 | SOT-323 | 3000/Reel |

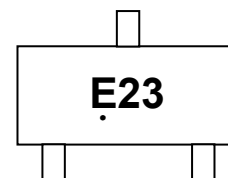
➤ Pin configuration



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Circuit Diagram



Marking(Top View)



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

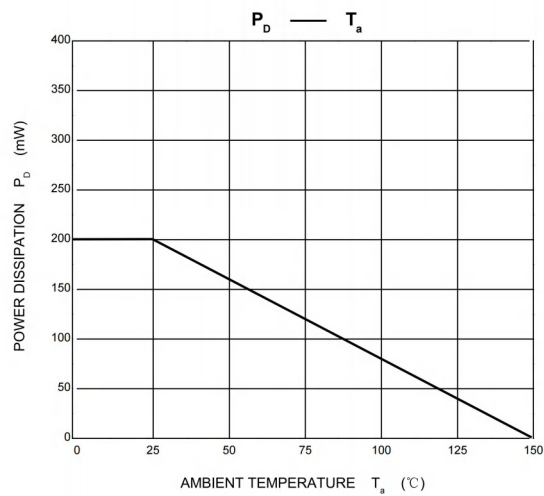
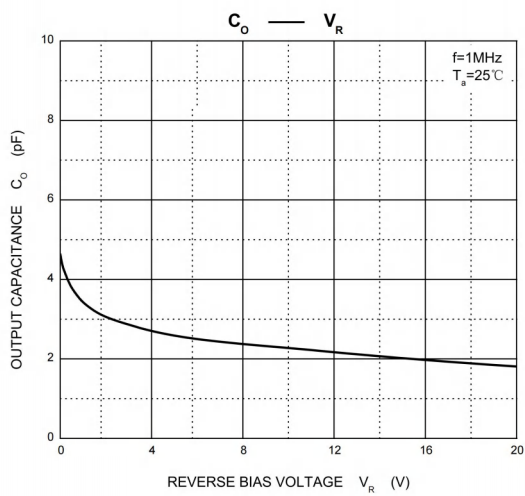
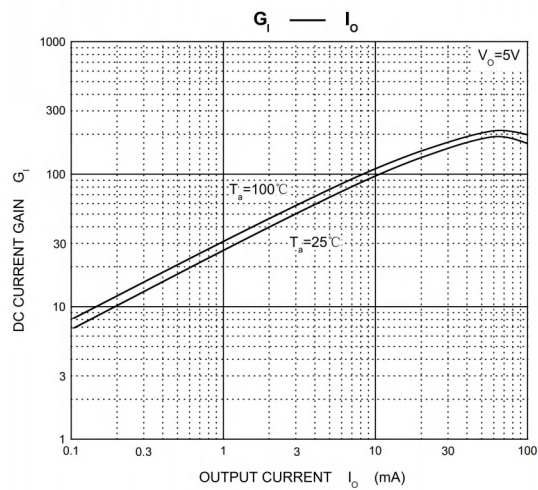
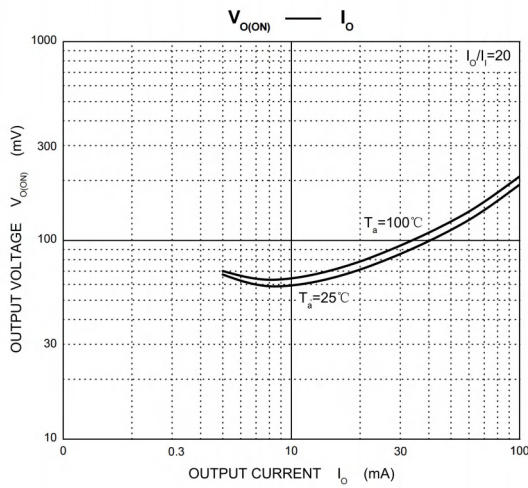
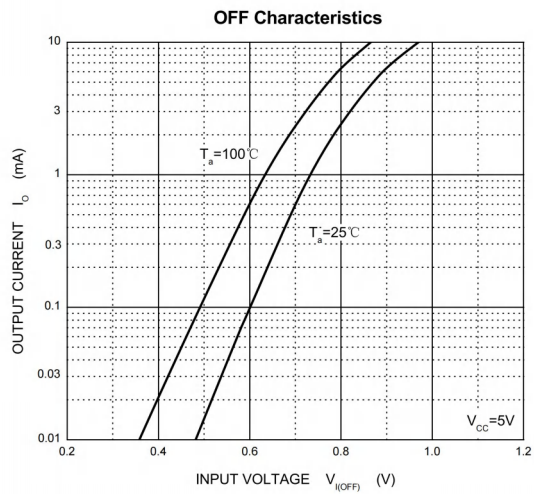
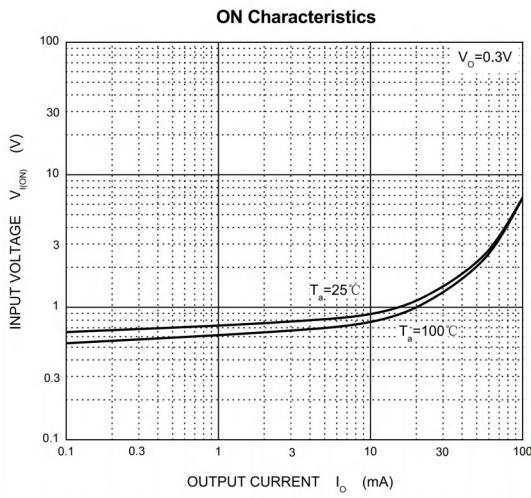
| Parameter | Symbol | Value | Unit |
|-----------------------------|-----------|------------|--------------------|
| Supply Voltage | V_{CC} | 50 | V |
| Input Voltage | V_{CN} | -5 to +30 | V |
| Output current | I_o | 100 | mA |
| Collector Power Dissipation | P_C | 200 | mW |
| Junction Temperature | 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 | $V_{I(off)}$ | $V_{CC}=5V, I_o=-100\mu A$ | 0.5 | | | V |
| | $V_{I(on)}$ | $V_{CC}=0.3V, I_o=5mA$ | | | 1.3 | V |
| Output Voltage | $V_{O(on)}$ | $I_o/I_i=-5mA/0.25mA$ | | 0.1 | 0.3 | V |
| Input Current | I_i | $V_i=5V$ | | | 1.8 | 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 | | 3.29 | 4.7 | 6.11 | $K\Omega$ |
| Resistance Ration | R_2/R_1 | | 8 | 10 | 12 | $K\Omega$ |
| Transition Frequency | f_T | $V_{CE}=10V, I_E=5mA, f=100MHz$ | | 250 | | MHz |

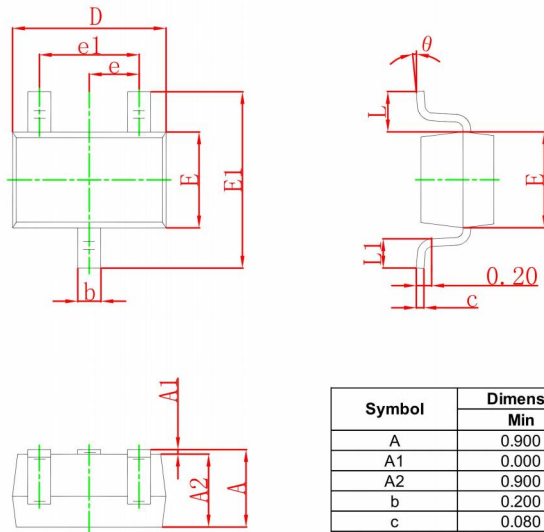


➤ Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



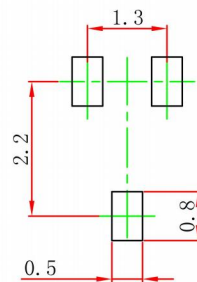
- Package Information

SOT-323



| 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 |
| theta | 0° | 8° | 0° | 8° |

SOT-323 Suggested Pad Layout



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



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