



## SSCN124EGS8

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

#### ➤ Features

| VCC | VIN      | IO   | R1   | R2/R1 Typ. |
|-----|----------|------|------|------------|
| 50V | -10~+40V | 30mA | 22kΩ | 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.

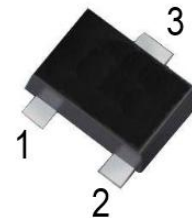
#### ➤ Applications

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

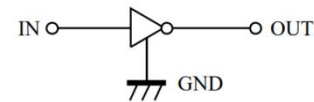
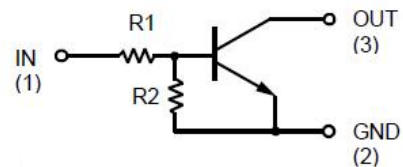
#### ➤ Ordering Information

| Device      | Package | Shipping  |
|-------------|---------|-----------|
| SSCN124EGS8 | SOT-523 | 3000/Reel |

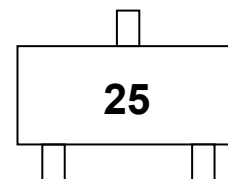
#### ➤ Pin configuration



**SOT-523**



**Circuit Diagram**



**Marking (Top View)**



# SSCN124EGS8

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

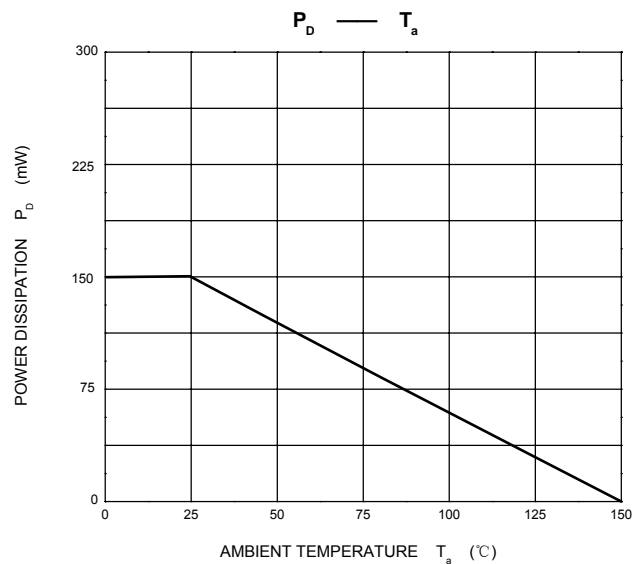
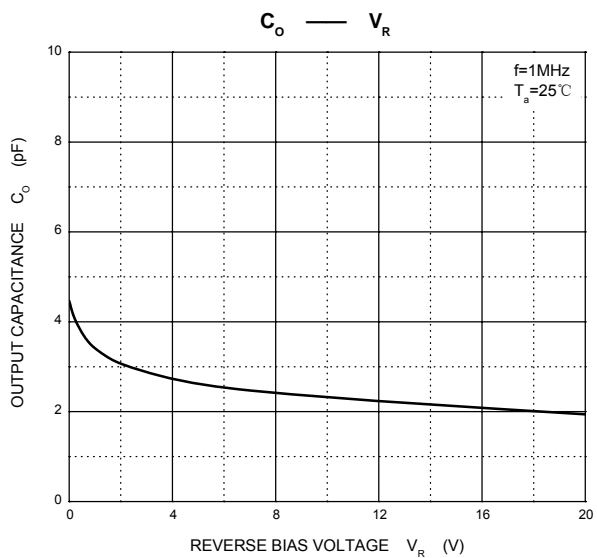
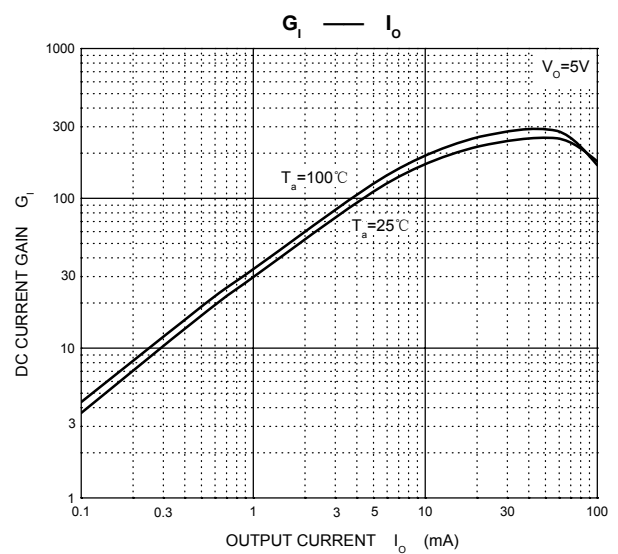
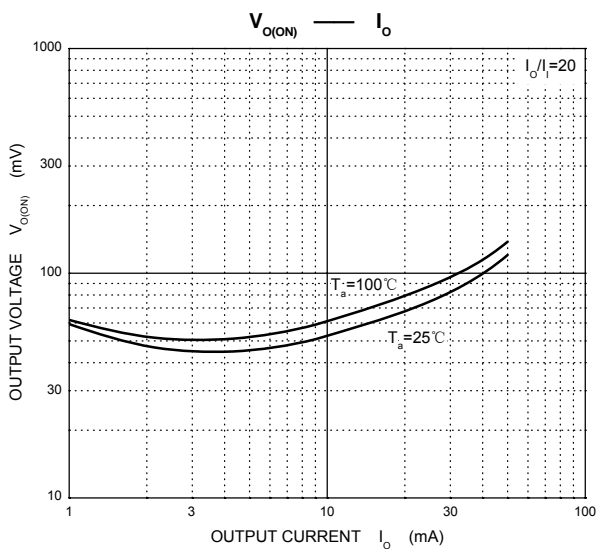
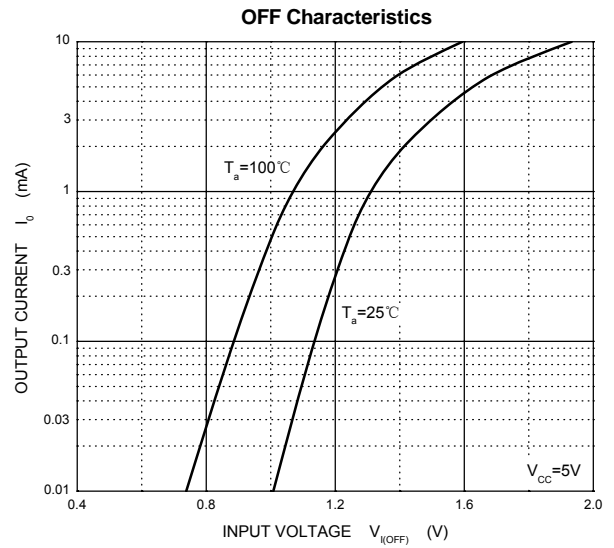
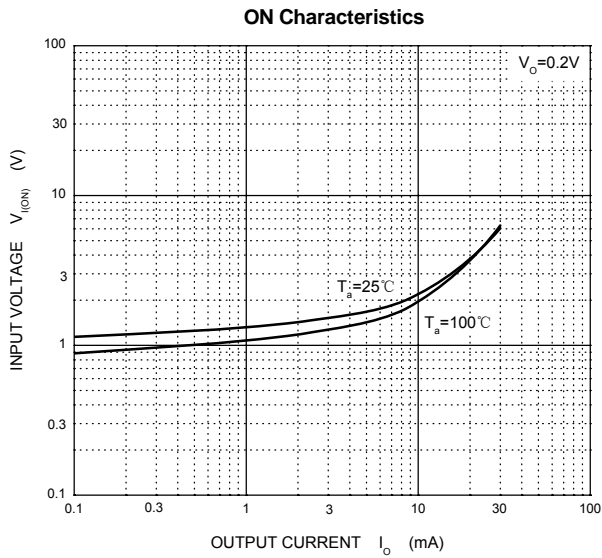
| Parameter              | Symbol    | Value        | Unit             |
|------------------------|-----------|--------------|------------------|
| Supply Voltage         | $V_{CC}$  | 50           | V                |
| Input Voltage          | $V_{IN}$  | -10 to + 40  | V                |
| Output current         | $I_o$     | 30           | mA               |
| Peak Collector Current | $I_{CM}$  | 100          | mA               |
| Power Dissipation      | $P_D$     | 150          | 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                |
|                      | $V_{I(on)}$  | $V_{CC} = 0.2V, I_o = 5mA$                |      |      | 3    | V                |
| Output Voltage       | $V_{O(on)}$  | $I_o/I_i = 10mA/0.5mA$                    |      | 0.1  | 0.3  | V                |
| Input Current        | $I_i$        | $V_i = 5V$                                |      |      | 0.36 | mA               |
| Output Current       | $I_{O(off)}$ | $V_{CC} = 50V, V_i = 0V$                  |      |      | 0.5  | $\mu\text{A}$    |
| DC Current Gain      | $G_1$        | $V_o = 5V, I_o = 5mA$                     | 56   |      |      |                  |
| Input Resistance     | $R_1$        |   | 15.4 | 22   | 28.6 | $\text{K}\Omega$ |
| Resistance Ration    | $R_2/R_1$    |   | 0.8  | 1.0  | 1.2  |                  |
| Transition Frequency | $f_T$        | $V_o = 10V, I_o = 5mA, f = 100\text{MHz}$ |      | 250  |      | MHz              |

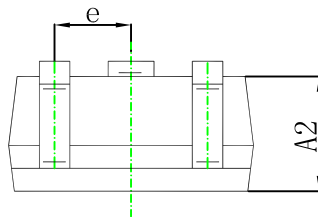
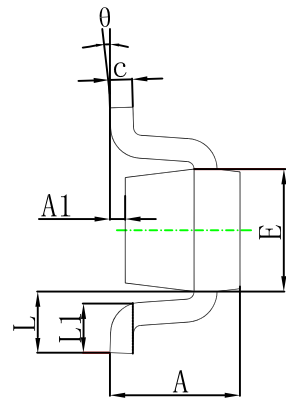
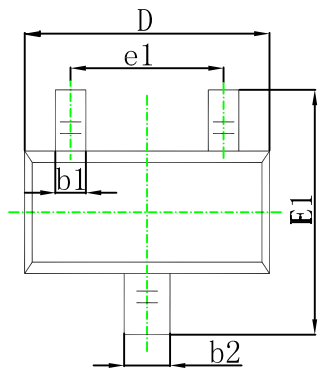


➤ Typical Performance Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise noted)



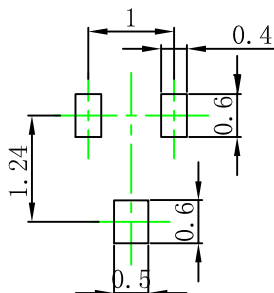


## ➤ Package Information



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min.                      | Max.  | Min.                 | Max.  |
| A      | 0.700                     | 0.900 | 0.028                | 0.035 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.700                     | 0.800 | 0.028                | 0.031 |
| b1     | 0.150                     | 0.250 | 0.006                | 0.010 |
| b2     | 0.250                     | 0.350 | 0.010                | 0.014 |
| c      | 0.100                     | 0.200 | 0.004                | 0.008 |
| D      | 1.500                     | 1.700 | 0.059                | 0.067 |
| E      | 0.700                     | 0.900 | 0.028                | 0.035 |
| E1     | 1.450                     | 1.750 | 0.057                | 0.069 |
| e      | 0.500 TYP.                |       | 0.020 TYP.           |       |
| e1     | 0.900                     | 1.100 | 0.035                | 0.043 |
| L      | 0.400 REF.                |       | 0.016 REF.           |       |
| L1     | 0.260                     | 0.460 | 0.010                | 0.018 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

## SOT-523 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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