SSCN143GS8

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.
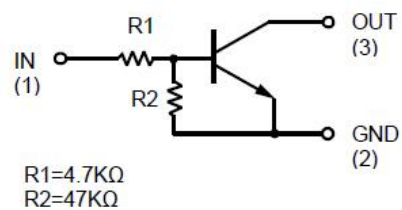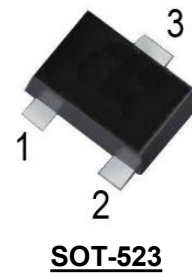
➢ Applications

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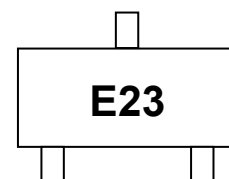- Electronic switch
- Oscillating circuit
- Variable resistance

➢ Ordering Information

Device	Package	Shipping
SSCN143GS8	SOT-523	3000/Reel

➢ Pin configuration

SOT-523

R1=4.7KΩ
R2=47KΩ

Circuit Diagram

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Marking(Top View)

➢ **Absolute Maximum Ratings(T$_A$=25℃ 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$_C$	150	mW
Junction Temperature	T$_J$	-55 to 150	℃
Storage Temperature	T$_{STG}$	-55 to 150	℃

➢ **Electrical Characteristics (T$_A$=25℃ unless otherwise noted)**

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input Voltage	V$_{I(off)}$	V$_{CC}$=5V , I$_O$=100uA	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	uA
DC Current Gain	G$_1$	V$_O$=5V , I$_O$=10mA	80			
Input Resistance	R$_1$		3.29	4.7	6.11	KΩ
Resistance Ration	R$_2$/R$_1$		8	10	12	KΩ
Transition Frequency	f$_T$	V$_{CE}$=10V,I$_E$=-5mA,f=100MHz		250		MHz

Typical Performance Characteristics (T$_A$=25℃ unless otherwise noted)

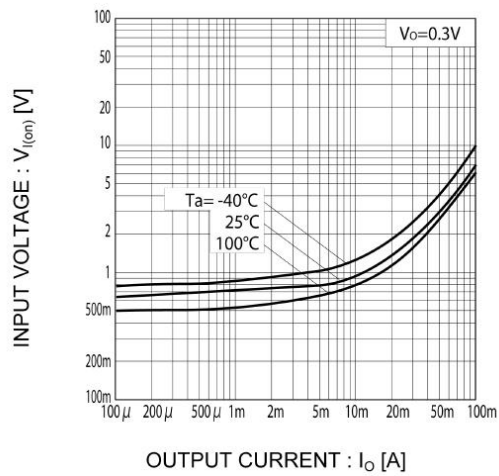Fig.1 Input voltage vs. output current (ON characteristics)

Fig.2 Output current vs. input voltage (OFF characteristics)
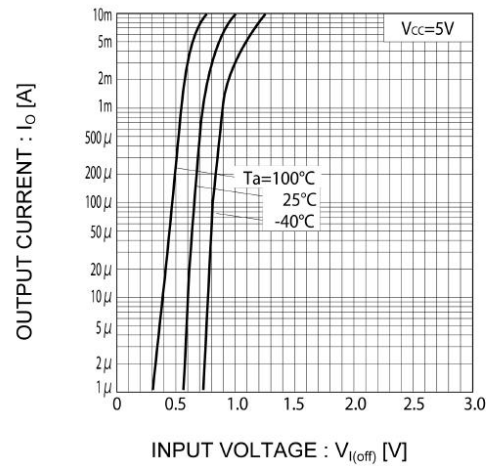

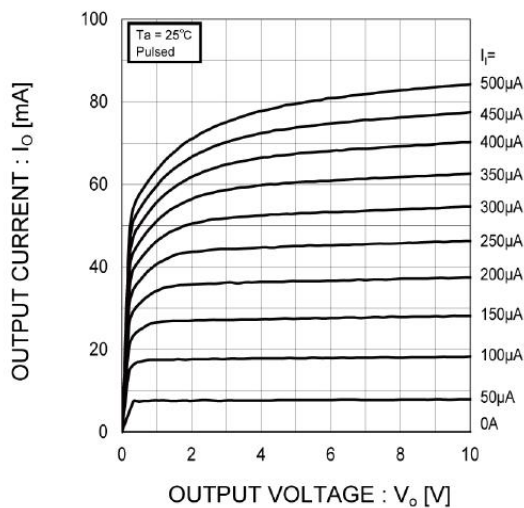
Fig.3 Output current vs. output voltage
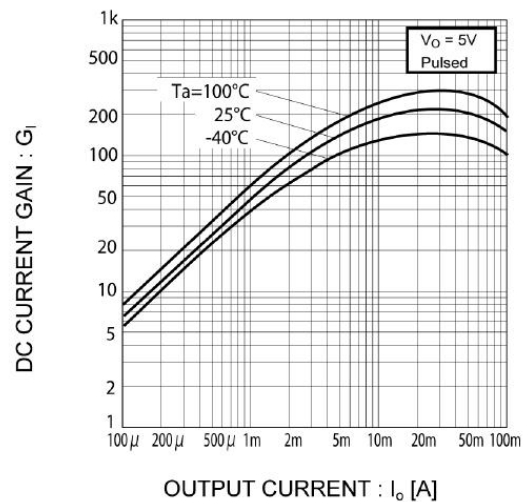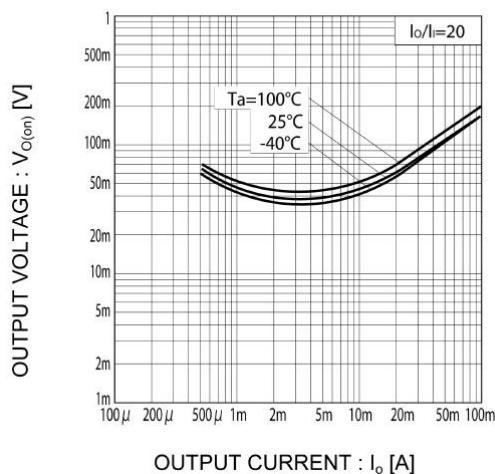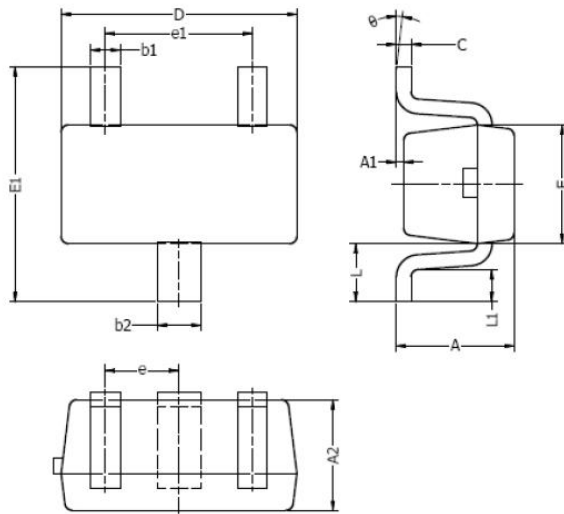

Fig.4 DC current gain vs. output current
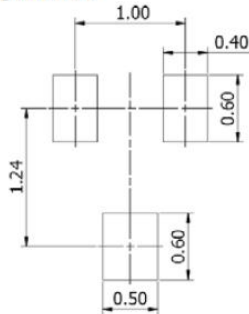

Fig.5 Output voltage vs. output current

● **Package Information**

SOT-523

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.70	0.90	0.028	0.035
A1	0.00	0.10	0.000	0.004
A2	0.70	0.80	0.028	0.031
b1	0.15	0.25	0.006	0.010
b2	0.25	0.35	0.010	0.014
c	0.10	0.20	0.004	0.008
D	1.50	1.70	0.059	0.067
E	0.70	0.90	0.028	0.035
E1	1.45	1.75	0.057	0.069
e	0.50 TYP.		0.020 TYP.	
e1	0.90	1.10	0.035	0.043
L	0.40 REF.		0.016 REF.	
L1	0.10	0.30	0.004	0.012
θ	0°	8°	0°	8°

Typical Soldering Pattern:

NOTES:
1. Above package outline conforms to JEITA EAIJ ED-7500A SC-75A.
2. Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

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