



## SSCP143GN5

### Digital Transistor(built-in resistors)

#### ➤ Features

VCC	VIN	IO	R1	R2/R1
-50V	-30~+5V	-100mA	4.7kΩ	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.

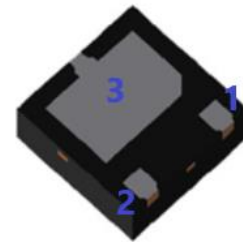
#### ➤ Applications

- Inverter
- Interface
- Driver

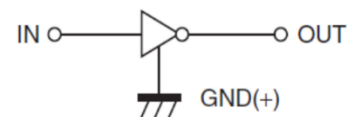
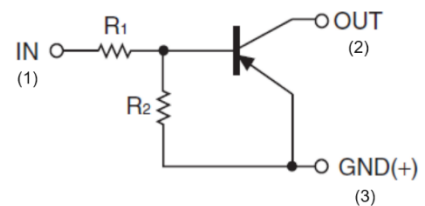
#### ➤ Ordering Information

Device	Package	Shipping
SSCP143GN5	DFN1616-3L	3000/Reel

#### ➤ Pin configuration



**DFN1616-3L**



**Circuit Diagram**



**Marking(Top View)**



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

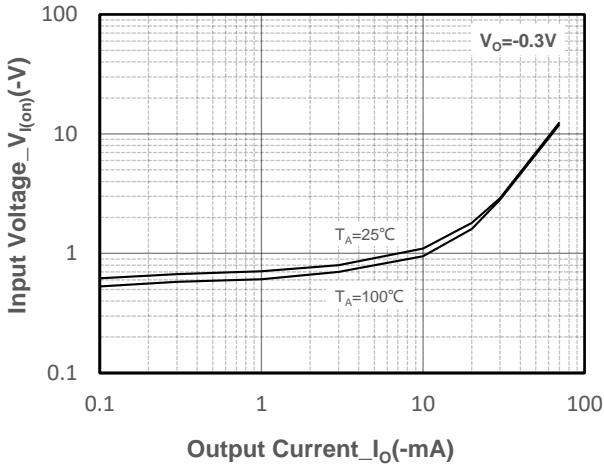
Parameter	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	-50	V
Input Voltage	$V_{IN}$	-30~+5	V
Output current	$I_o$	-100	mA
Power Dissipation	$P_D$	100	mW
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 to 150	$^{\circ}\text{C}$

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

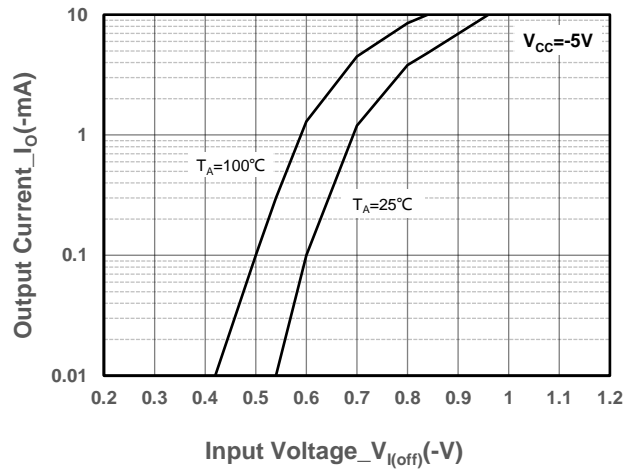
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input Voltage	$V_{I(off)}$	$V_{CC}=-5V, I_o=-100\mu\text{A}$	-0.5			V
	$V_{I(on)}$	$V_o=-0.3V, I_o=-5\text{mA}$			-1.3	V
Output Voltage	$V_{ON(on)}$	$I_o/I_i=-5\text{mA}/-0.25\text{mA}$			-0.3	V
Input Current	$I_i$	$V_i=-5V$			-1.8	mA
Output Current	$I_{O(off)}$	$V_{CC}=-50V, V_i=0$			-0.5	$\mu\text{A}$
DC Current Gain	$G_1$	$I_c=-5V, I_o=-10\text{mA}$	80			
Input resistance	$R_1$		3.3	4.7	6.1	$\text{k}\Omega$
Resistance ratio	$R_2/R_1$		8	10	12	
Transition frequency	$f_T$	$V_o=-10V, I_o=-5\text{mA}$ $f=100\text{MHz}$		250		MHz



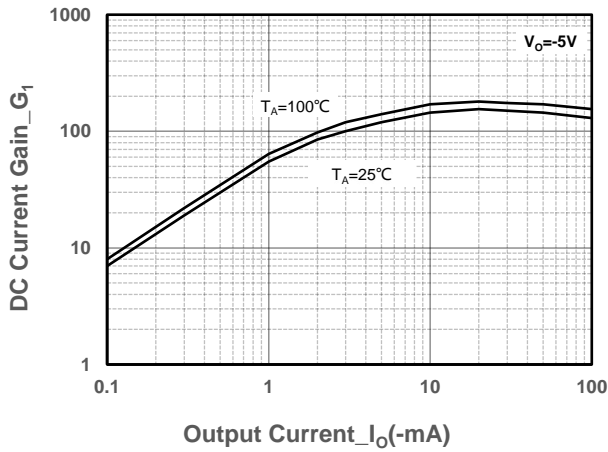
➤ **Typical Performance Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise noted)**



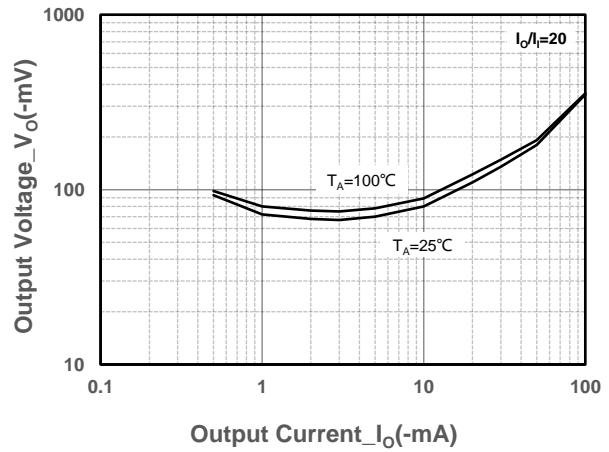
**Input Voltage vs. Output Current**



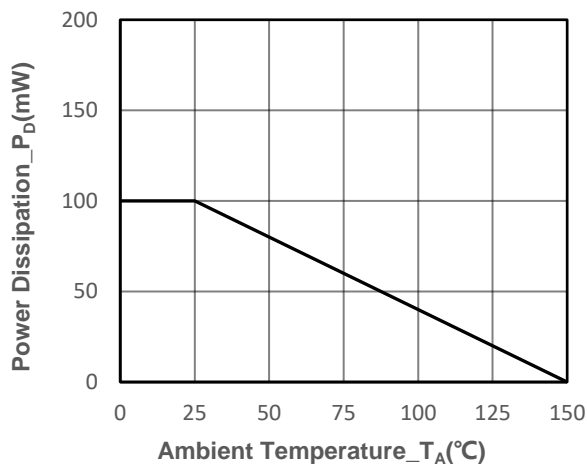
**Output Current vs. Input Voltage**



**DC Current Gain vs. Output Current**

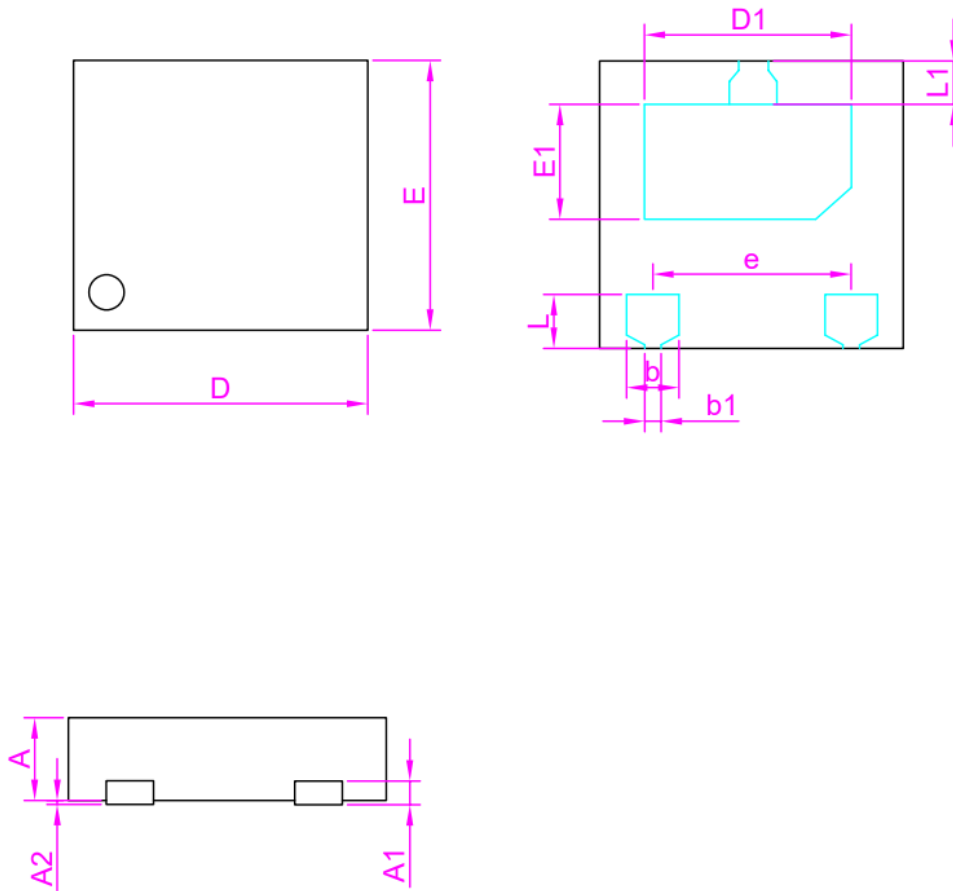


**Output Voltage vs. Output Current**



**Power derating vs. Ambient temperature**

## ➤ Package Information



DIM	Millimeters		
	Min.	Typ.	Max.
<b>A</b>	0.50	0.55	0.60
<b>D</b>	1.55	1.60	1.65
<b>E</b>	1.55	1.60	1.65
<b>b</b>	0.35	0.40	0.45
<b>L</b>	0.35	0.40	0.45
<b>e</b>	1.00BSC		
<b>D1</b>	1.15	1.20	1.25
<b>E1</b>	0.50	0.55	0.65
<b>b1</b>	0.15	0.20	0.25
<b>L1</b>	0.20	0.25	0.30
<b>A1</b>	0.15BSC		
<b>A2</b>	0.00	0.025	0.05



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