

Parameter	Value
$V_{CC}$	-50V
$I_{C(MAX.)}$	-100mA
$R_1$	4.7k $\Omega$
$R_2$	47k $\Omega$

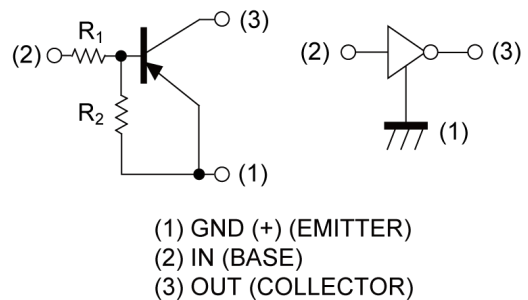
### ●Outline



### ●Features

- 1) Built-In Biasing Resistors
- 2) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see inner circuit).
- 3) The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of completely eliminating parasitic effects.
- 4) Only the on/off conditions need to be set for operation, making the circuit design easy.
- 5) Complementary NPN Types: DTC143ZCA HZG

### ●Inner circuit



### ●Application

INVERTER,INTERFACE,DRIVER

### ●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
DTA143ZCA HZG	SOT-23 (SST3)	2924	T116	180	8	3000	E13

● **Absolute maximum ratings** ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Values	Unit
Supply voltage	$V_{CC}$	-50	V
Input voltage	$V_{IN}$	-30 to 5	V
Output current	$I_O$	-100	mA
Collector current	$I_{C(MAX)}^{*1}$	-100	mA
Power dissipation	$P_D^{*2}$	200	mW
	$P_D^{*3}$	350	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Range of storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

● **Electrical characteristics** ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Input voltage	$V_{I(off)}$	$V_{CC} = -5\text{V}, I_O = -100\mu\text{A}$	-	-	-0.5	V
	$V_{I(on)}$	$V_O = -0.3\text{V}, I_O = -5\text{mA}$	-1.3	-	-	
Output voltage	$V_{O(on)}$	$I_O = -5\text{mA}, I_I = -0.25\text{mA}$	-	-100	-300	mV
Input current	$I_I$	$V_I = -5\text{V}$	-	-	-1.8	mA
Output current	$I_{O(off)}$	$V_{CC} = -50\text{V}, V_I = 0\text{V}$	-	-	-500	nA
DC current gain	$G_I$	$V_O = -5\text{V}, I_O = -10\text{mA}$	80	-	-	-
Input resistance	$R_1$	-	3.29	4.7	6.11	k $\Omega$
Resistance ratio	$R_2/R_1$	-	8	10	12	-
Transition frequency	$f_T^{*1}$	$V_{CE} = -10\text{V}, I_E = 5\text{mA},$ $f = 100\text{MHz}$	-	250	-	MHz

\*1 Characteristics of built-in transistor.

\*2 Each terminal mounted on a reference land.

\*3 Mounted on a ceramic board(7.0×5.0×0.6mm).

● Electrical characteristic curves ( $T_a = 25^\circ\text{C}$ )

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



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

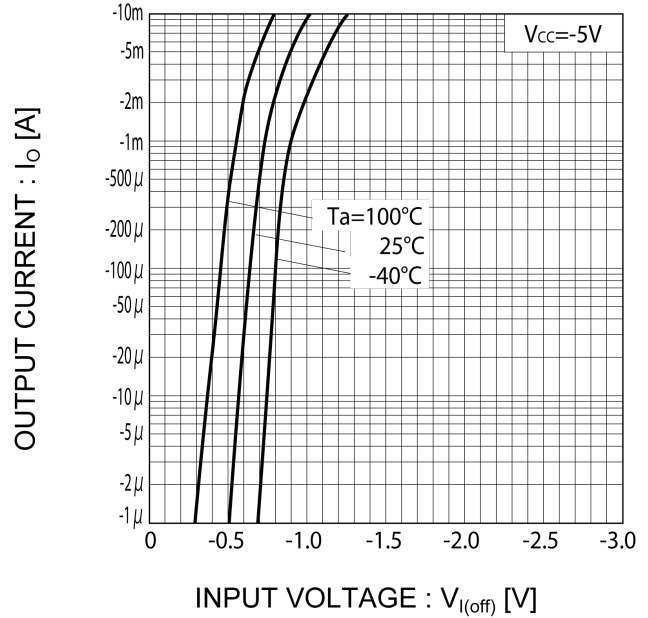


Fig.3 Output current vs. output voltage

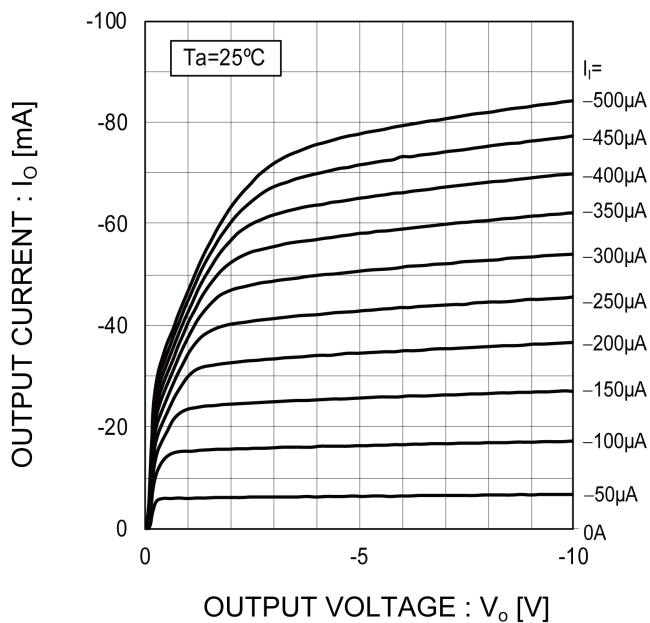
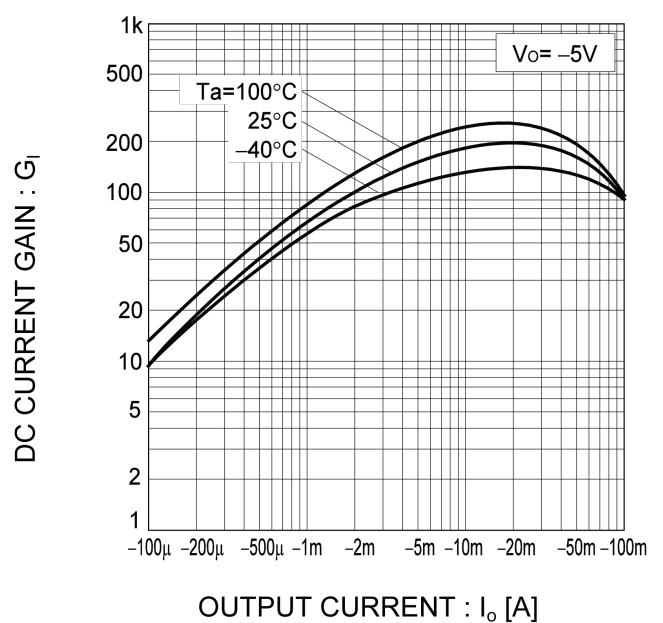


Fig.4 DC current gain vs. output current



● Electrical characteristic curves ( $T_a = 25^\circ\text{C}$ )

Fig.5 Output voltage vs. output current



●Dimensions

SOT-23  
(SST3)



Pattern of terminal position areas  
[Not a pattern of soldering pads]

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.90	1.20	0.035	0.047
A1	0.00	0.10	0.000	0.004
A2	0.85	1.15	0.033	0.045
A3	0.25		0.010	
b	0.35	0.50	0.014	0.020
c	0.09	0.25	0.004	0.010
D	2.70	3.10	0.106	0.122
E	1.20	1.50	0.047	0.059
e	0.95		0.037	
HE	2.20	2.60	0.087	0.102
L1	0.20	-	0.008	-
Lp	0.30	-	0.012	-
Q	0.40	0.60	0.016	0.024
x	-	0.10	-	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	-	0.60	-	0.024
e1	1.70		0.067	
l1	-	0.90	-	0.035

Dimension in mm/inches

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(Note1) Medical Equipment Classification of the Specific Applications

JAPAN	USA	EU	CHINA
CLASS III	CLASS III	CLASS II b	CLASS III
CLASS IV		CLASS III	

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  - [h] Use of the Products in places subject to dew condensation
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7. De-rate Power Dissipation depending on ambient temperature. When used in sealed area, confirm that it is the use in the range that does not exceed the maximum junction temperature.
8. Confirm that operation temperature is within the specified range described in the product specification.
9. ROHM shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

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2. In principle, the reflow soldering method must be used on a surface-mount products, the flow soldering method must be used on a through hole mount products. If the flow soldering method is preferred on a surface-mount products, please consult with the ROHM representative in advance.

For details, please refer to ROHM Mounting specification

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This Product is electrostatic sensitive product, which may be damaged due to electrostatic discharge. Please take proper caution in your manufacturing process and storage so that voltage exceeding the Products maximum rating will not be applied to Products. Please take special care under dry condition (e.g. Grounding of human body / equipment / solder iron, isolation from charged objects, setting of Ionizer, friction prevention and temperature / humidity control).

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1. Product performance and soldered connections may deteriorate if the Products are stored in the places where:
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  - [b] the temperature or humidity exceeds those recommended by ROHM
  - [c] the Products are exposed to direct sunshine or condensation
  - [d] the Products are exposed to high Electrostatic
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3. Store / transport cartons in the correct direction, which is indicated on a carton with a symbol. Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.
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