

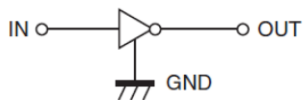
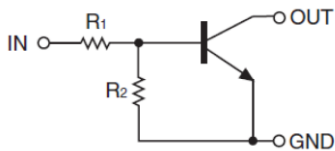


### DTC143ECA Digital Transistor(NPN)

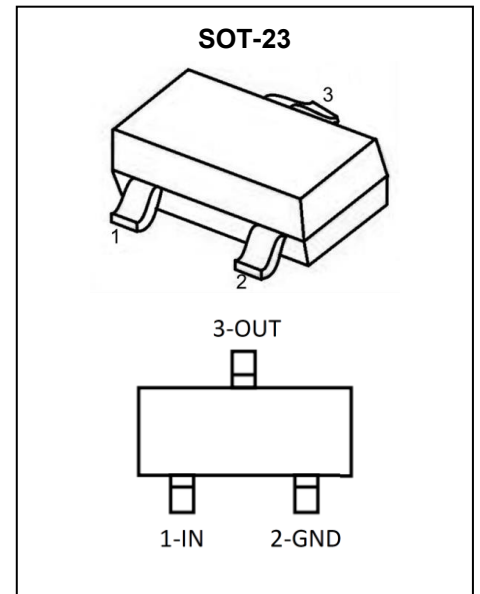
#### Feature

- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors
- The bias resistors consist of thin-film resistors with complete isolation to allow positive 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 device design easy

#### Schematic diagram



Marking: 23/H23



**ABSOLUTE MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$  unless otherwise noted)**

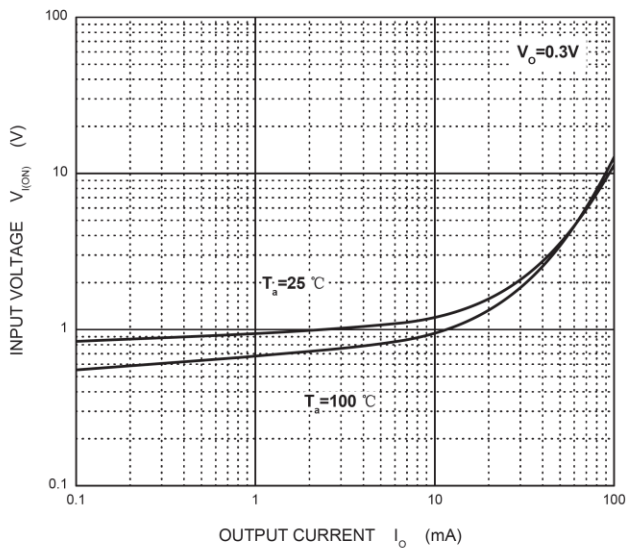
Parameter	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	50	V
Input Voltage	$V_{IN}$	-5~+30	V
Output Current	$I_o$	100	mA
Power Dissipation	$P_D$	200	mW
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-55 ~ +150	$^{\circ}\text{C}$

**ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$  unless otherwise noted)**

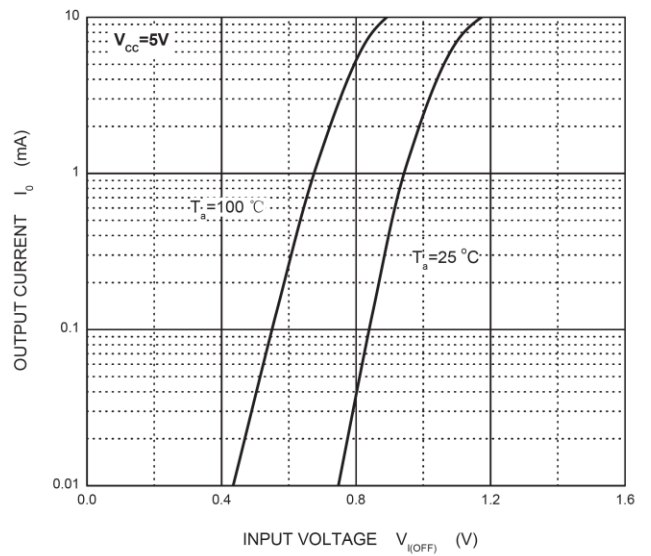
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Input voltage	$V_{I(off)}$	$V_{CC}=5V, I_o=100\mu A$	0.5			V
	$V_{I(on)}$	$V_o=0.3V, I_o=20mA$			3	V
Output voltage	$V_{O(on)}$	$I_o/I_i=10mA/0.5mA$		0.1	0.3	V
Input current	$I_i$	$V_i=5V$			1.8	mA
Output current	$I_{O(off)}$	$V_{CC}=50V, V_i=0V$			0.5	$\mu A$
DC current gain	$G_i$	$V_o=5V, I_o=10mA$	20			
Input resistance	$R_1$		3.29	4.7	6.11	k $\Omega$
Resistance ratio	$R_2/R_1$		0.8	1	1.2	
Transition frequency	$f_T$	$V_o=10V, I_o=5mA, f=100MHz$		250		MHz

**Typical Characteristics**

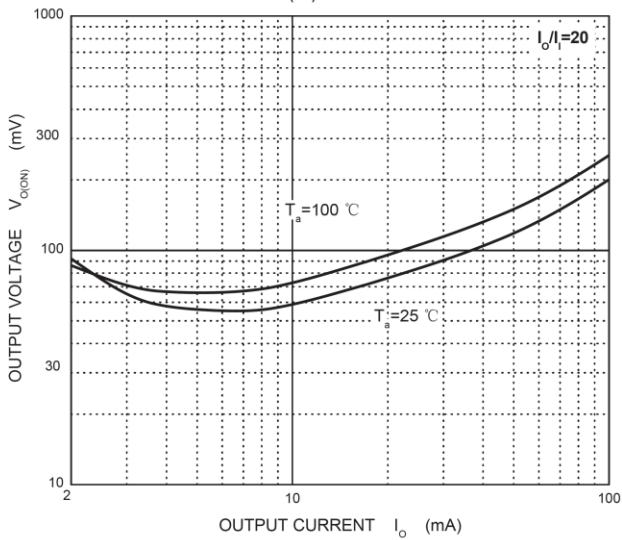
**ON Characteristics**



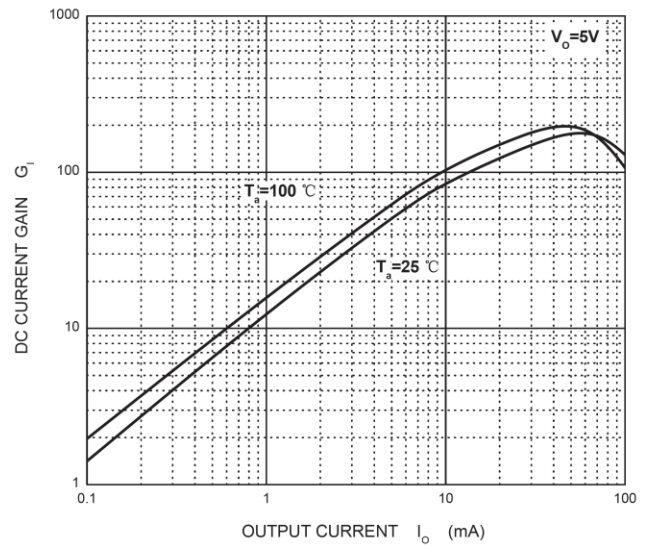
**OFF Characteristics**



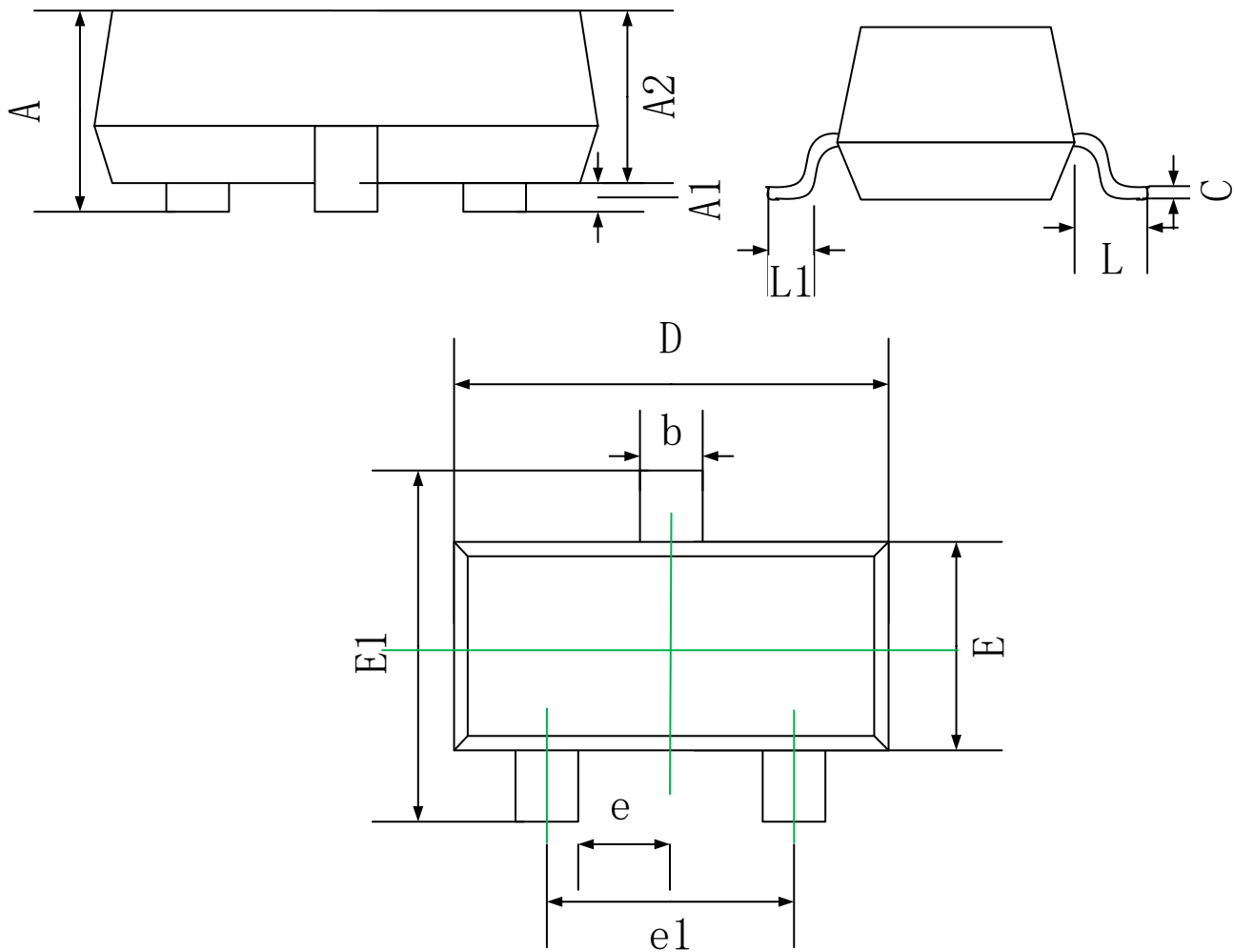
$V_{O(ON)} - I_O$



$G_I - I_O$



## SOT-23 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
<b>A</b>	<b>0.90</b>	<b>1.15</b>
<b>A1</b>	<b>0.00</b>	<b>0.10</b>
<b>A2</b>	<b>0.90</b>	<b>1.05</b>
<b>b</b>	<b>0.30</b>	<b>0.50</b>
<b>c</b>	<b>0.08</b>	<b>0.15</b>
<b>D</b>	<b>2.80</b>	<b>3.00</b>
<b>E</b>	<b>1.20</b>	<b>1.40</b>
<b>E1</b>	<b>2.25</b>	<b>2.55</b>
<b>e</b>	<b>0.95 REF.</b>	
<b>e1</b>	<b>1.80</b>	<b>2.00</b>
<b>L</b>	<b>0.55 REF.</b>	
<b>L1</b>	<b>0.30</b>	<b>0.50</b>