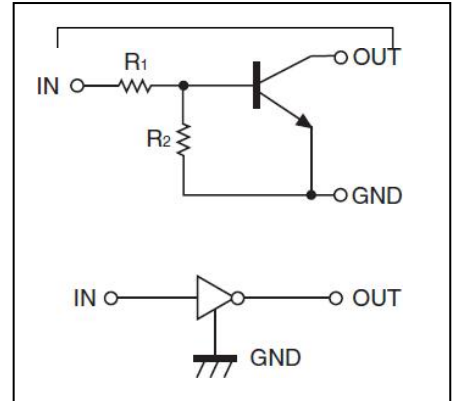


# Digital Transistors (Built-in Resistors)

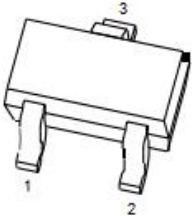
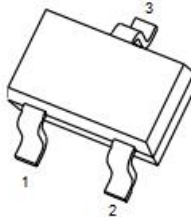
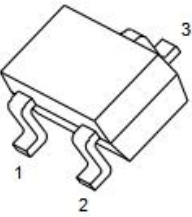
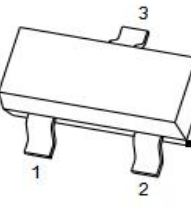
• **Equivalent Circuit** DIGITAL TRANSISTOR (NPN)

## FEATURES

- 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 device design easy



## PIN CONNENCTIONS and MARKING

<p><b>DTC143ZE</b></p>  <p><b>SOT-523</b></p> <p>1. IN 2. GND 3. OUT</p>	<p><b>DTC143ZUA</b></p>  <p><b>SOT-323</b></p> <p>1. IN 2. GND 3. OUT</p>
<p><b>DTC143ZKA</b></p>  <p><b>SOT-23-3L</b></p> <p>1. IN 2. GND 3. OUT</p>	<p><b>DTC143ZCA</b></p>  <p><b>SOT-23</b></p> <p>1. IN 2. GND 3. OUT</p>

## ORDERING INFORMATION

Part Number	MARKING	Package	Packing Method	Pack Quantity
DTC143ZE	<b>E23</b>	SOT-523	Reel	3000pcs/Reel
DTC143ZUA	<b>E23</b>	SOT-323	Reel	3000pcs/Reel
DTC143ZKA	<b>E23</b>	SOT-23-3L	Reel	3000pcs/Reel
DTC143ZCA	<b>E23</b>	SOT-23	Reel	3000pcs/Reel

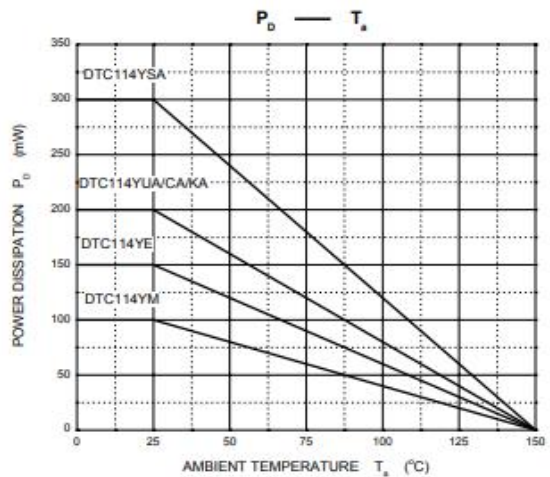
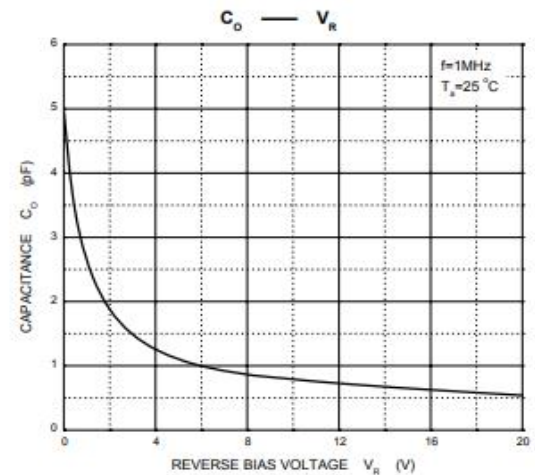
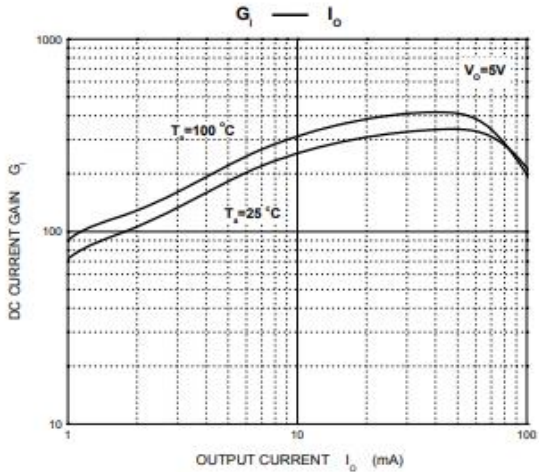
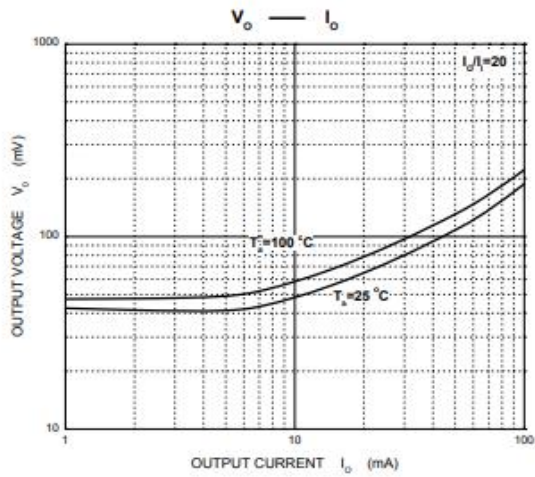
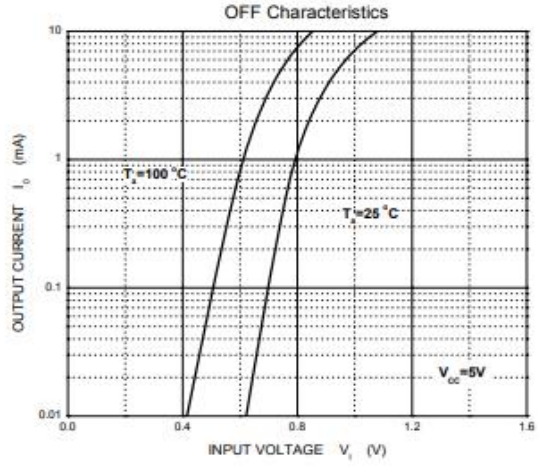
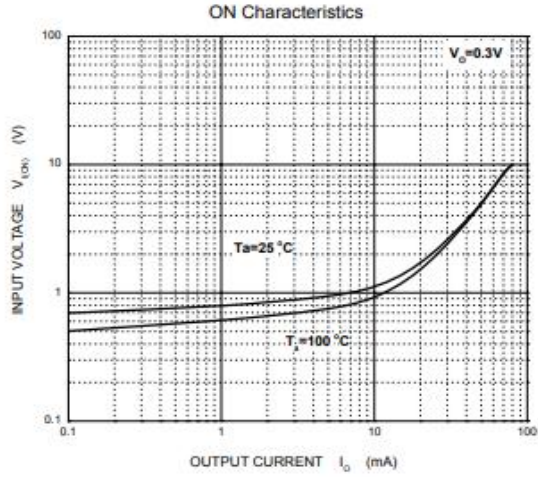
**MAXIMUM RATINGS(Ta=25°C unless otherwise noted)**

Symbol	Parameter	Limits(DTC143Z□)						Unit
		M	E	UA	CA	KA	SA	
V <sub>CC</sub>	Supply Voltage	50						V
V <sub>IN</sub>	Input Voltage	-5~+30						V
I <sub>o</sub>	Output Current	100						mA
P <sub>D</sub>	Power Dissipation	100	150	200	200	200	300	mW
T <sub>J</sub> , T <sub>stg</sub>	Operation Junction and Storage Temperature Range	-55~+150						°C

**ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)**

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	V <sub>I(off)</sub>	V <sub>CC</sub> =5V, I <sub>o</sub> =100μA	0.5			V
	V <sub>I(on)</sub>	V <sub>o</sub> =0.3V, I <sub>o</sub> =5mA			1.3	V
Output voltage	V <sub>O(on)</sub>	I <sub>o</sub> /I <sub>i</sub> =5mA/0.25mA		0.1	0.3	V
Input current	I <sub>i</sub>	V <sub>i</sub> =5V			1.8	mA
Output current	I <sub>O(off)</sub>	V <sub>CC</sub> =50V, V <sub>i</sub> =0			0.5	μA
DC current gain	G <sub>1</sub>	V <sub>o</sub> =5V, I <sub>o</sub> =10mA	80			
Input resistance	R <sub>1</sub>		3.29	4.7	6.11	kΩ
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>		8	10	12	
Transition frequency	f <sub>T</sub>	V <sub>o</sub> =10V, I <sub>o</sub> =5mA, f=100MHz		250		MHz

# Typical Characteristics



REVERSE VOLTAGE  $V_R$  (V)      AMBIENT TEMPERATURE  $T_a$  ( $^\circ C$ )

## **PACKAGE OUTLINE**

**Plastic surface mounted package; 3 leads**

**SOT-523**

## **PACKAGE OUTLINE**

**Plastic surface mounted package; 3 leads**

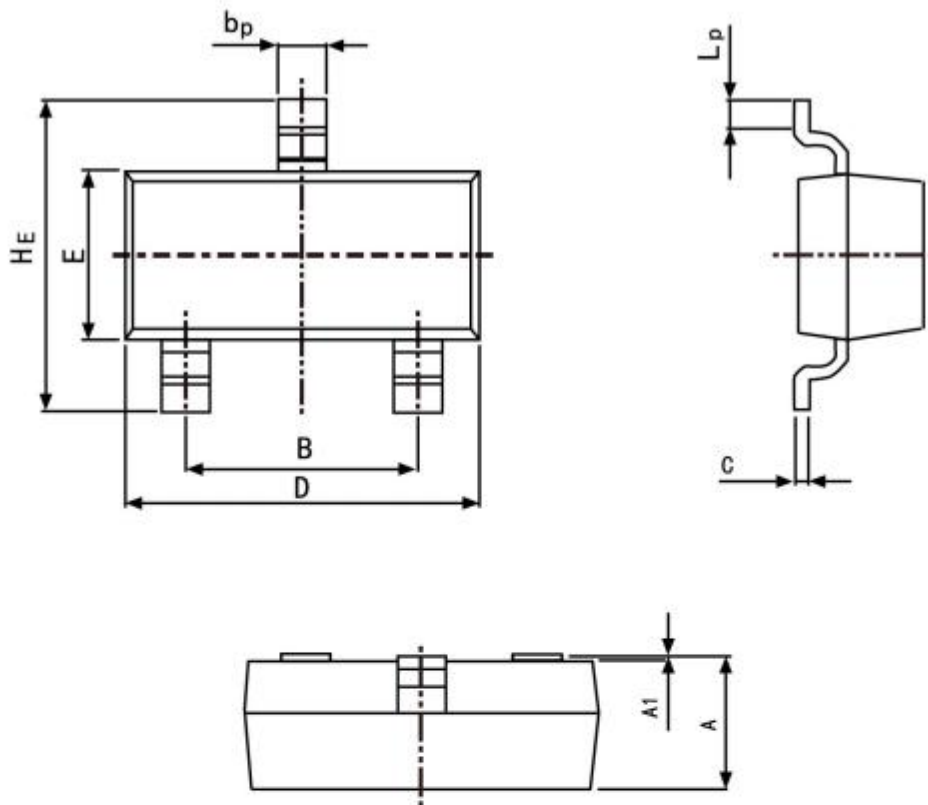
**SOT-323**

**Package outline dimensions    SOT23-3L**

## PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



Symbol	Dimension in Millimeters	
	Min	Max
A	0.95	1.40
B	1.78	2.04
$b_p$	0.35	0.50
C	0.08	0.19
D	2.70	3.10
E	1.20	1.65
HE	2.20	3.00
$A_1$	0.100	0.013
$L_p$	0.20	0.50

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[DTC114EUA-TP](#) [SMUN5237DW1T1G](#) [SMUN5213DW1T1G](#) [SMUN5114DW1T1G](#) [DTC124ECA-TP](#) [DTA114ECA-TP](#) [DTC113EM3T5G](#)  
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