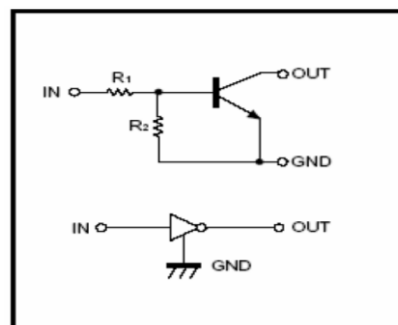


RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

## 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 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.

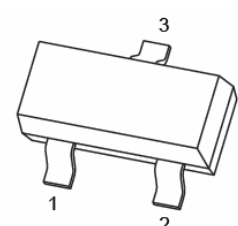
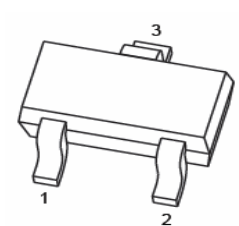
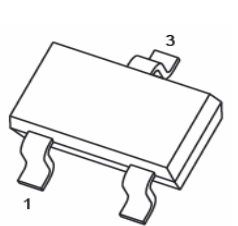
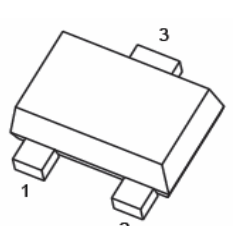
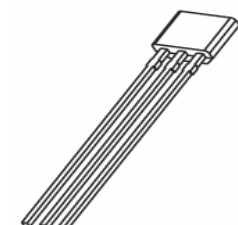
## EQUIVALENT CIRCUIT



## ORDER INFORMATION

Part Number	Type
DTC143Z Series	Lead (Pb)-free
DTC143Z Series-C	Lead (Pb)-free and Halogen-free

## PIN CONNENCTIONS AND MARKING

<p><b>DTC143ZCA</b></p> <p>1. IN 2. GND 3. OUT</p>  <p>SOT-23 MARKING: E23</p>	<p><b>DTC143ZE</b></p> <p>1. IN 2. GND 3. OUT</p>  <p>SOT-523 MARKING: E23</p>
<p><b>DTC143ZUA</b></p> <p>1. IN 2. GND 3. OUT</p>  <p>SOT-323 MARKING: E23</p>	<p><b>DTC143ZM</b></p> <p>1. IN 2. GND 3. OUT</p>  <p>SOT-723 MARKING: E23</p>
<p><b>DTC143ZSA</b></p> <p>1. IN 2. GND 3. OUT</p>  <p>TO-92S MARKING: <b>C143</b> <b>Z□□□</b> ← <b>□ = Production Line Indication</b></p>	

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

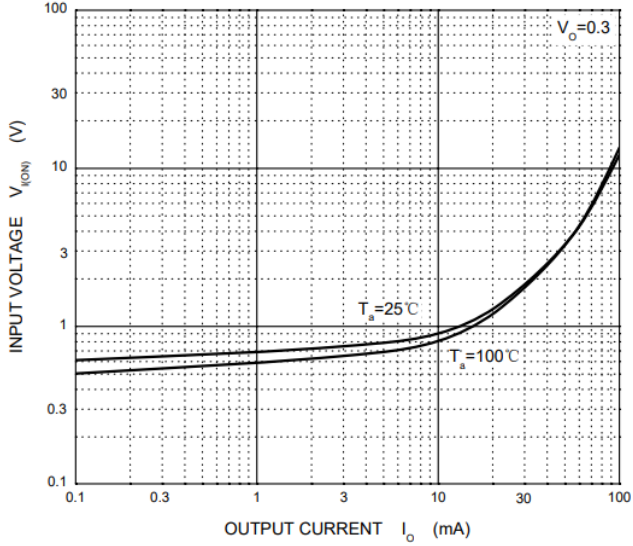
Parameter	Symbol	Limits (DTC143Z□)					Unit
		M	E	UA	CA	SA	
Collector-Base Voltage	$V_{CC}$	50					V
Input Voltage	$V_{IN}$	-5~30					V
Output Current	$I_o$	100					mA
Power Dissipation	$P_D$	100	150	200	300	mW	
Junction & Storage Temperature	$T_J, T_{STG}$	150, -55~150					$^\circ\text{C}$

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

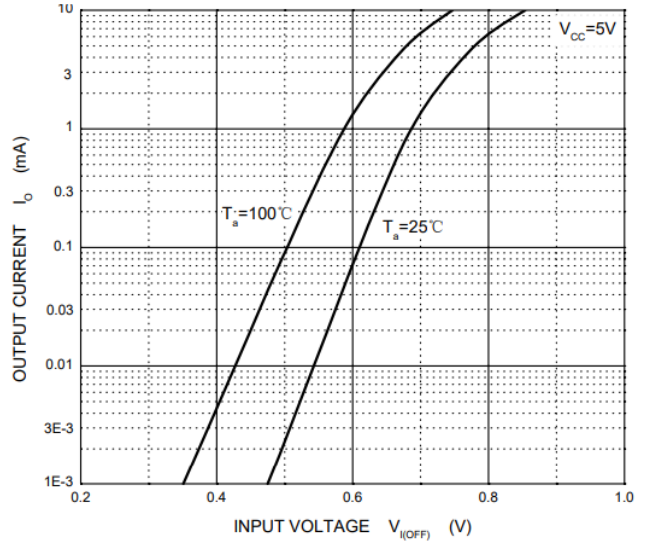
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Input Voltage	$V_{I(off)}$	0.5	-	-	V	$V_{CC}=5V, I_o=100\mu\text{A}$
	$V_{I(on)}$	-	-	1.3		$V_o=0.3V, I_o=5\text{mA}$
Output Voltage	$V_{O(on)}$	-	0.1	0.3	V	$I_o/I_i=5\text{mA}/0.25\text{mA}$
Input Current	$I_i$	-	-	1.8	mA	$V_i=5V$
Output Current	$I_{O(off)}$	-	-	0.5	$\mu\text{A}$	$V_{CC}=50V, V_i=0$
Dc Current Gain	$G_i$	80	-	-		$V_o=5V, I_o=10\text{mA}$
Input Resistance	$R_1$	3.29	4.7	6.11	k $\Omega$	
Resistance Ratio	$R_2/R_1$	8	10	12		
Transition Frequency	$f_T$	-	250	-	MHz	$V_o=10V, I_o=5\text{mA}, f=100\text{MHz}$

**CHARACTERISTIC CURVES**

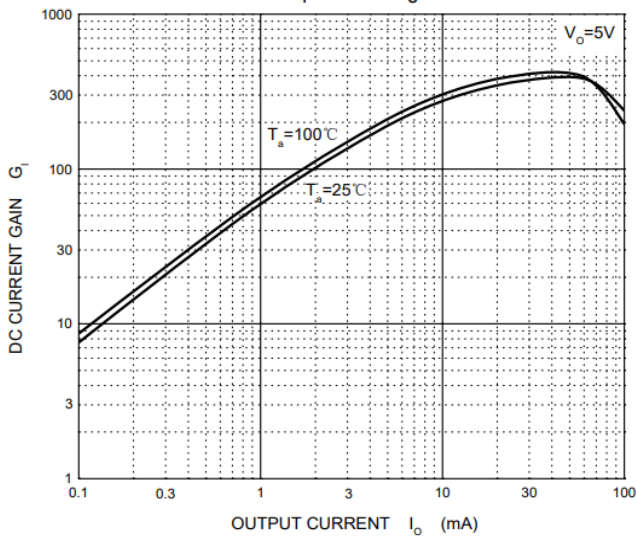
**ON Characteristics**



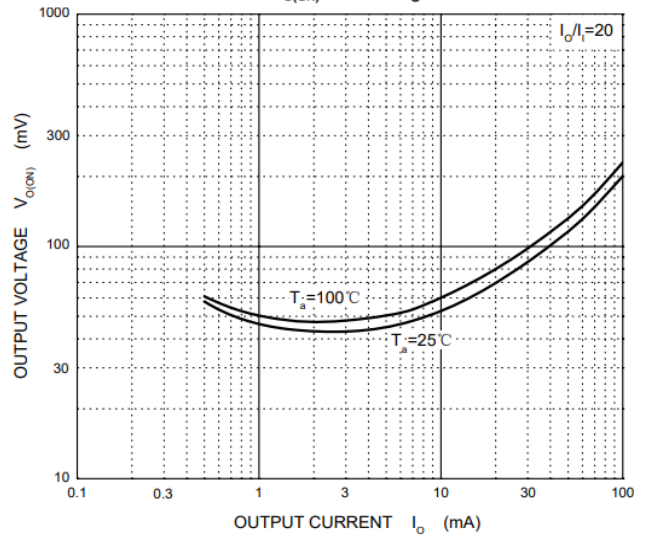
**OFF Characteristics**



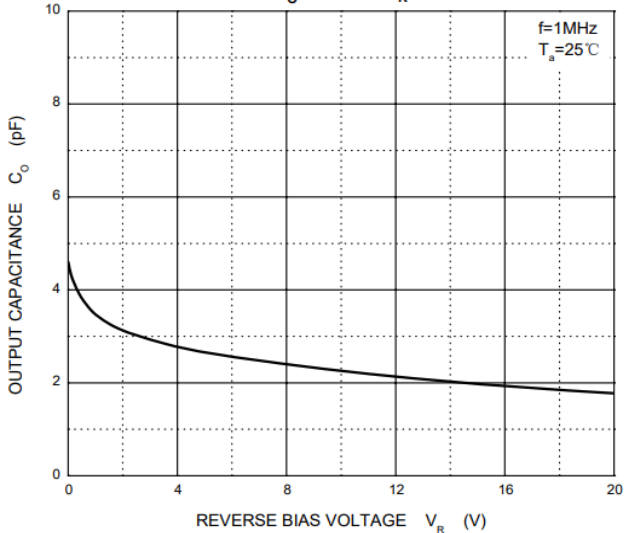
**$G_i$  —  $I_o$**



**$V_{o(ON)}$  —  $I_o$**



**$C_o$  —  $V_R$**



**$P_D$  —  $T_a$**

