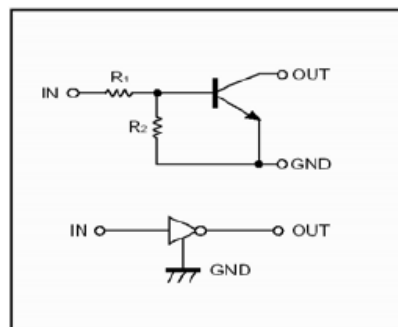


RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

## 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.

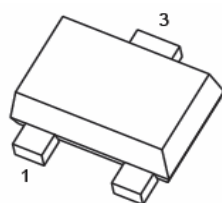
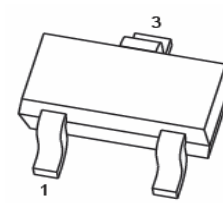
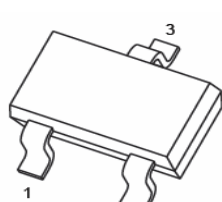
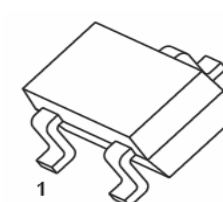
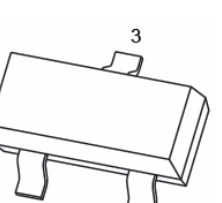
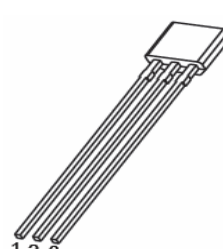

## EQUIVALENT CIRCUIT



## ORDER INFORMATION

Part Number	Type
DTC123J Series	Lead (Pb)-free
DTC123J Series-C	Lead (Pb)-free and Halogen-free

## PIN CONNECTIONS AND MARKING

<p><b>DTC123JM</b></p> <p>1. IN 2. GND 3. OUT</p>  <p>SOT-723 MARKING:E42</p>	<p><b>DTC123JE</b></p> <p>1. IN 2. GND 3. OUT</p>  <p>SOT-523 MARKING:E42</p>
<p><b>DTC123JUA</b></p> <p>1. IN 2. GND 3. OUT</p>  <p>SOT-323 MARKING:E42</p>	<p><b>DTC123JKA</b></p> <p>1. IN 2. GND 3. OUT</p>  <p>SC-59 MARKING:E42</p>
<p><b>DTC123JCA</b></p> <p>1. IN 2. GND 3. OUT</p>  <p>SOT-23 MARKING:E42</p>	<p><b>DTC123JSA</b></p> <p>1. IN 2. GND 3. OUT</p>  <p>TO-92S MARKING: </p>

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

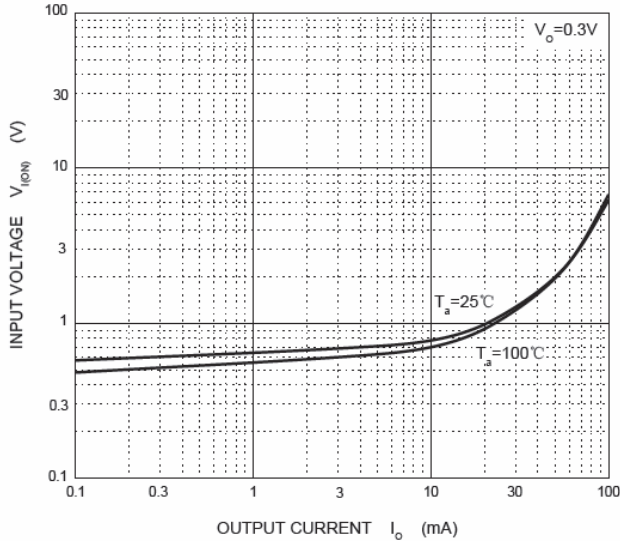
Parameter	Symbol	Limits (DTC123J□)						Unit
		M	E	UA	KA	CA	SA	
Supply Voltage	$V_{CC}$	50						V
Input Voltage	$V_{IN}$	-5~12						
Output Current	$I_o$	100						mA
Power Dissipation	$P_D$	100	150	200		300		mW
Junction & Storage Temperature	$T_J, T_{STG}$	150, -55~150						$^\circ\text{C}$

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

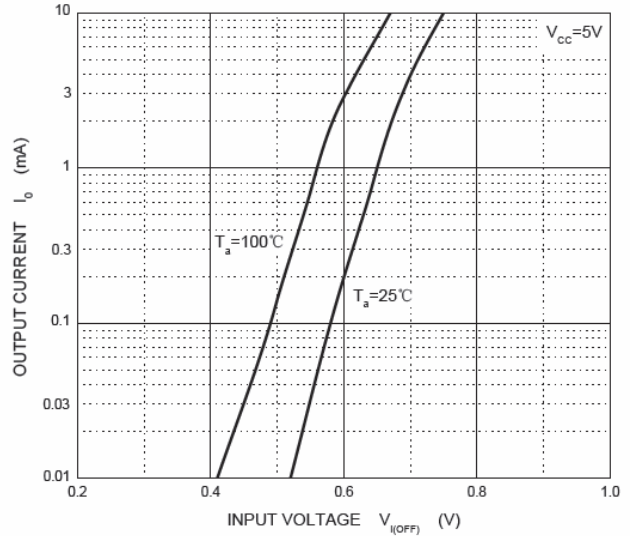
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Input Voltage	$V_{I(off)}$	0.5	-	-	V	$V_{CC}=5V, I_o=100\mu\text{A}$
	$V_{I(on)}$	-	-	1.1		$V_o=0.3V, I_o=5\text{mA}$
Output Voltage	$V_{O(on)}$	-	0.1	0.3	V	$I_o/I_i=5\text{mA}/0.25\text{mA}$
Input Current	$I_i$	-	-	3.6	mA	$V_i=5V$
Output Current	$I_{O(off)}$	-	-	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	$R_1$	1.54	2.2	2.86	k $\Omega$	
Resistance Ratio	$R_2 / R_1$	17	21	26		
Transition Frequency	$f_T$	-	250	-	MHz	$V_o=10V, I_o=5\text{mA}, f=100\text{MHz}$

**CHARACTERISTIC CURVES**

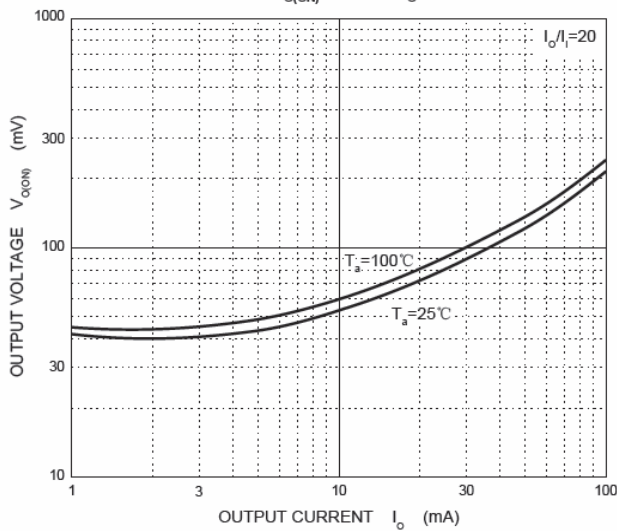
**ON Characteristics**



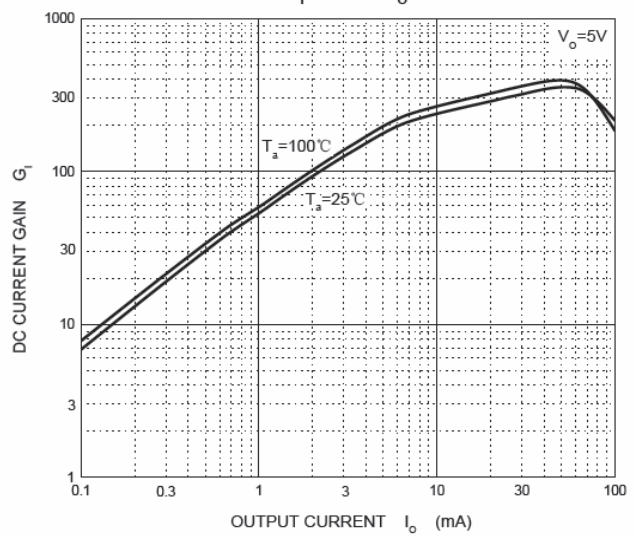
**OFF Characteristics**



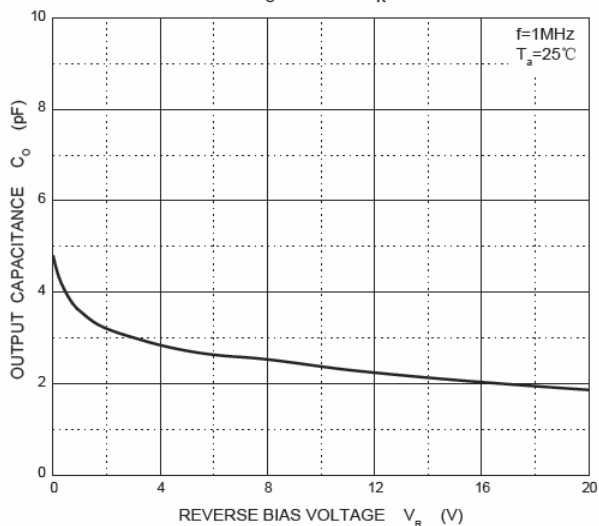
$V_{o(ON)}$  —  $I_o$



$G_i$  —  $I_o$



$C_o$  —  $V_R$



$P_D$  —  $T_a$

