

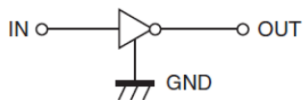
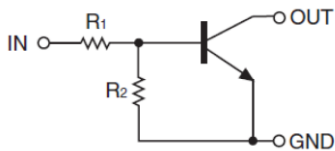


### DTC114EE Digital Transistor(NPN)

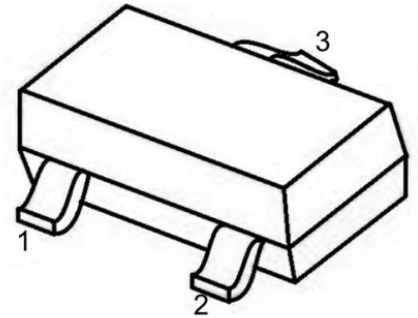
#### Feature

- 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



SOT-523



1.IN 2.GND 3.OUT

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

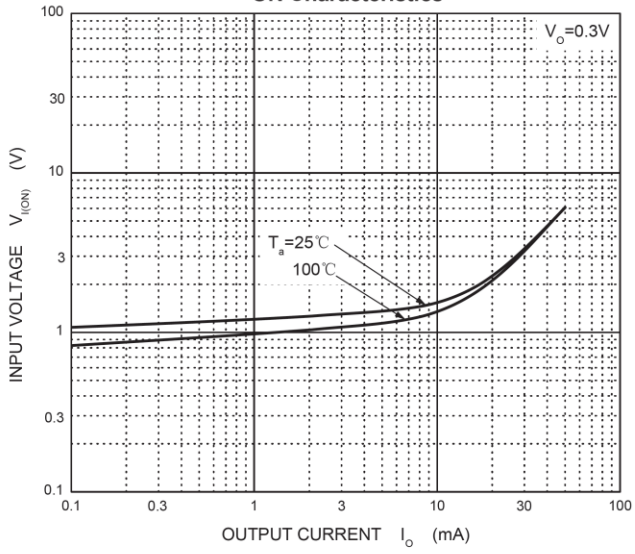
Parameter	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	50	V
Input Voltage	$V_{IN}$	-10~+40	V
Output Current	$I_o$	100	mA
Power Dissipation	$P_D$	150	mW
Junction Temperature	$T_J$	125	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-45 ~ +125	$^{\circ}\text{C}$

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

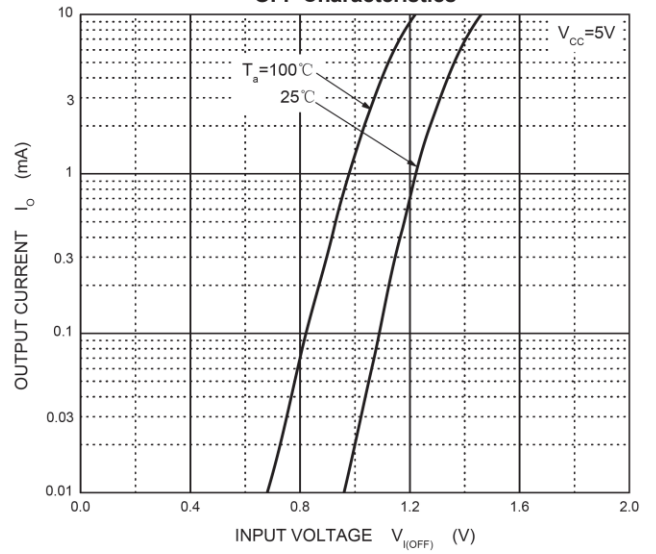
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Input voltage	$V_{I(off)}$	$V_{CC}=5V, I_o=100\mu A$	0.5			V
	$V_{I(on)}$	$V_o=0.3V, I_o=10mA$			3	V
Output voltage	$V_{O(on)}$	$I_o=10mA, I_i=0.5mA$			0.3	V
Input current	$I_i$	$V_i=5V$			0.88	mA
Output current	$I_{O(off)}$	$V_{CC}=50V, V_i=0V$			0.5	$\mu A$
DC current gain	$G_i$	$V_o=5V, I_o=5mA$	30			
Input resistance	$R_1$		7	10	13	k $\Omega$
Resistance ratio	$R_2/R_1$		0.8	1	1.2	
Transition frequency	$f_T$	$V_o=10V, I_o=5mA, f=1MHz$		250		MHz

**Typical Characteristics**

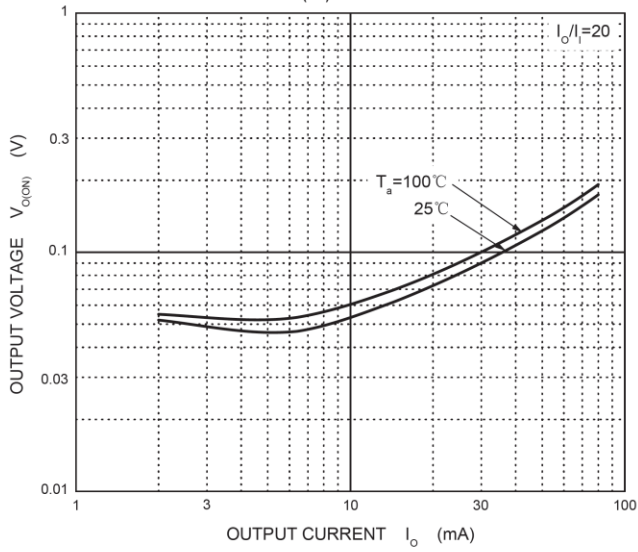
**ON Characteristics**



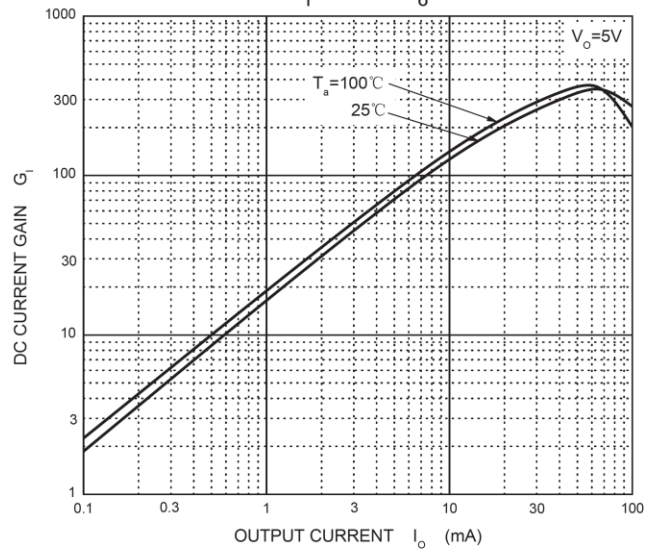
**OFF Characteristics**



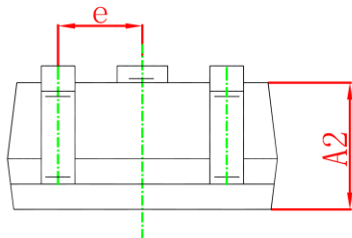
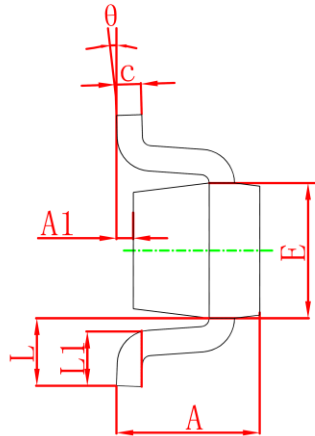
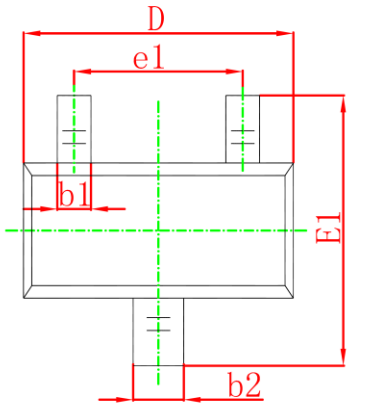
$V_{O(ON)}$  —  $I_O$



$G_I$  —  $I_O$



## SOT-523 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
$\theta$	0°	8°	0°	8°