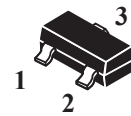


### NPN DIGITAL TRANSISTOR

 Lead(Pb)-Free

#### Features:

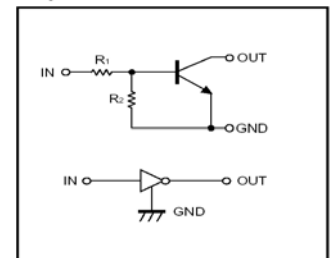
- \* Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit).
- \* The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input.They also have the advantage of almost completely eliminating parasitic effects.
- \* Only the on/off conditions need to be set for operation, making device design easy.



**SOT-23**

(1)GND (2)OUT (3)IN

#### ●Equivalent circuit



#### Absolute maximum ratings(Ta=25°C)

Parameter	Symbol	Value	Unit
Supply voltage	$V_{CC}$	50	V
Input voltage	$V_{IN}$	-10 ~ 40	V
Output current	$I_O$	50	mA
	$I_{C(MAX)}$	100	
Power dissipation	$P_d$	200	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55-150	°C

#### Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$			0.5	V	$V_{CC}=5V, I_O=100 \mu A$
	$V_{I(on)}$	3				$V_O=0.3V, I_O=10 mA$
Output voltage	$V_{O(on)}$		0.1	0.3	V	$I_O/I_I=10mA/0.5mA$
Input current	$I_I$			0.88	mA	$V_I=5V$
Output current	$I_{O(off)}$			0.5	$\mu A$	$V_{CC}=50V, V_I=0$
DC current gain	$G_I$	30				$V_O=5V, I_O=5mA$
Input resistance	$R_1$	7	10	13	K $\Omega$	
Resistance ratio	$R_2/R_1$	0.8	1	1.2		
Transition frequency	$f_T$		250		MHz	$V_{CE}=10V, I_E=-5mA, f=100MHz$

## Electrical characteristic curves

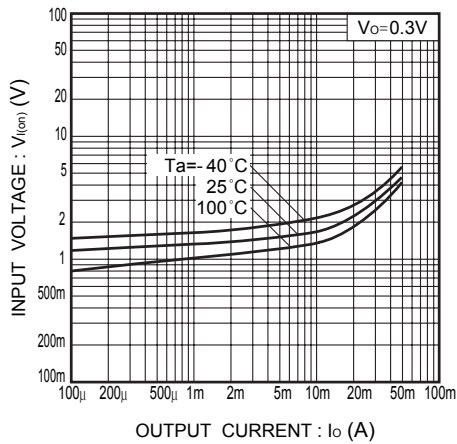


Fig.1 Input voltage vs. output current (ON characteristics)

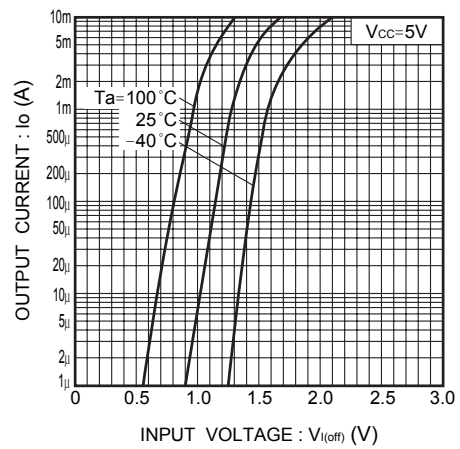


Fig.2 Output current vs. input voltage (OFF characteristics)

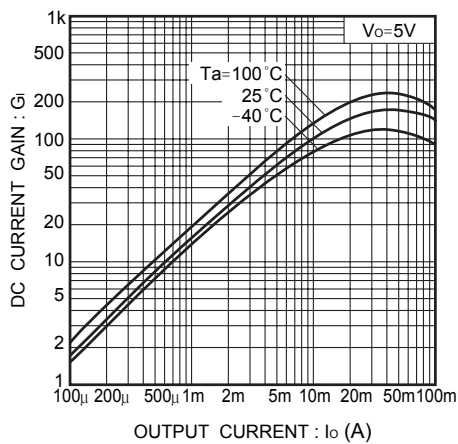


Fig.3 DC current gain vs. output current

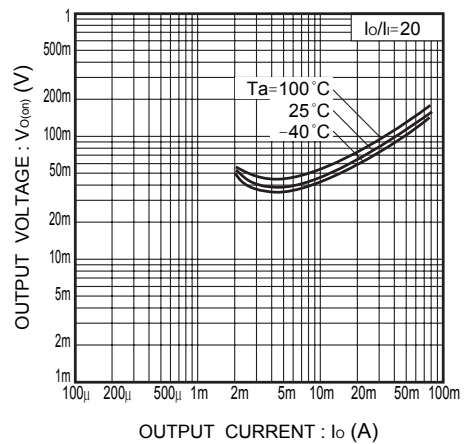
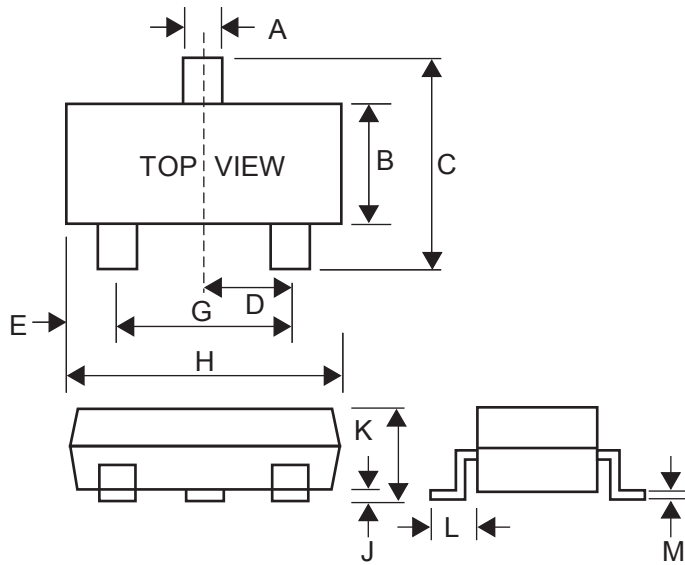


Fig.4 Output voltage vs. output current

**SOT-23 Outline Dimensions**

Unit:mm



Dim	Min	Max
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25