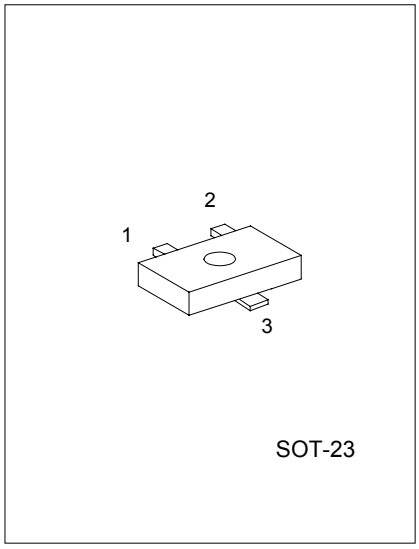
NPN DIGITAL TRANSISTOR (BUILT-IN RESISTORS)

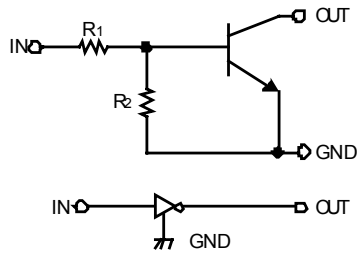


1: GND 2: IN 3: OUT

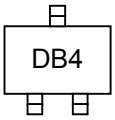
FEATURES

*Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see the 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



MARKING



ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	50	V
Input Voltage	V_{IN}	-10~+40	V
Output Current	I_C	500	mA
Power Dissipation	P_D	200	mW
Junction Temperature	T_j	150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(off)}$	V_{CC}=5V,I_O= 100 μA			0.5	V
	$V_{I(ON)}$	V_O=0.3V,I_O= 10mA	3			
Output Voltage	$V_{O(ON)}$	I_O/I_I = 50mA/2.5 mA		0.1	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	μA
DC Current Gain	G_I	V_O=5V,I_O= 50mA	56			
Input Resistance	R_1		7	10	13	kΩ
Resistance Ratio	R_2/R_1		0.8	1	1.2	
Transition Frequency	f_T	V_{CE}= 10 V, I_E=-50mA,f=100MHz *		200		MHz

*Transition frequency of the device

ELECTRICAL CHARACTERISTIC CURVES

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

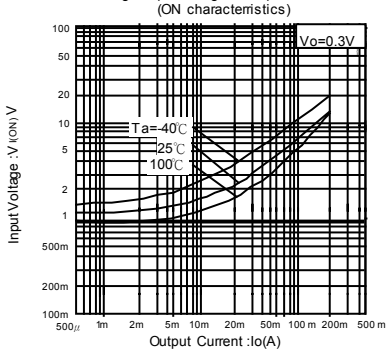


Fig.2 Output current vs Input voltage
(OFF characterristics)

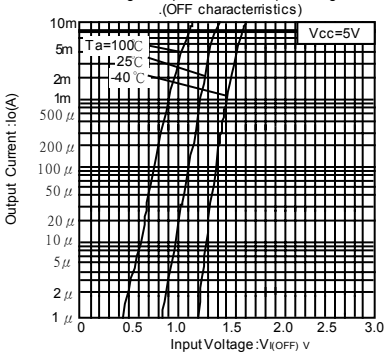


Fig.3 DC current gain vs.output current

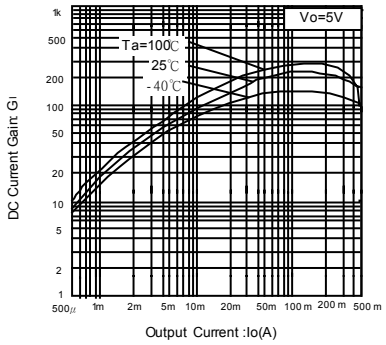


Fig.4Output voltage vs.output current