Digital transistors (built-in resistors)

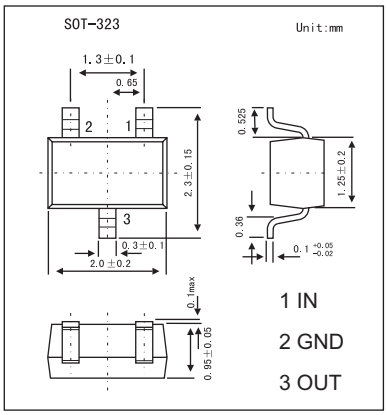
DTC144EUA

Features

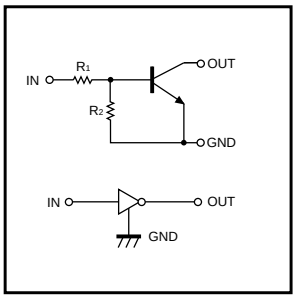
Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors

The bias resistors consist of thin-film resistors with complete isolation to allow 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.



■ Equivalent Circuit



■ Absolute Maximum Ratings T_A=25℃

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	50	V
Input voltage	V_{IN}	-10 to 40	V
Collector current	I_O $I_{C(Max.)}$	100 100	mA
power dissipation	P_C	200	mW
Junction temperature	T_j	150	℃
Storage temperature	T_{stg}	-55 to +150	℃

■ Electrical Characteristics T_A=25℃

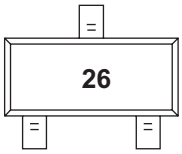
Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Input voltage	$V_{I(off)}$	V_{CC} = 5 V , I_O = 100 uA			0.5	V
	$V_{I(on)}$	V_O= 0.3 V , I_O = 2 mA	3			
Output voltage	$V_{O(on)}$	I_O =10 mA , I_I = 0.5 mA		0.1	0.3	V
Input current	I_I	V_I = 5 V			0.18	mA
Output current	$I_{D(off)}$	V_{CC} = 50 V , V_I = 0 V			0.5	μA
DC current gain	G_I	I_O = 5 mA,V_O = 5V	68			
Input resistance	R_1		32.9	4.7	61.1	kΩ
Resistance ratio	R_2/R_1		0.8	1	1.2	
Transition frequency	f_T	V_{CE} = 10 V , I_E = -5 mA , f = 100MHz		250		MHz

DTC144EUA

■ Ordering Information

Deviece	Packaging	Shipping
DTC144EUA	SOT323	3000/Tape & Reel

■ Marking Information



■ Typlacl Characteristics

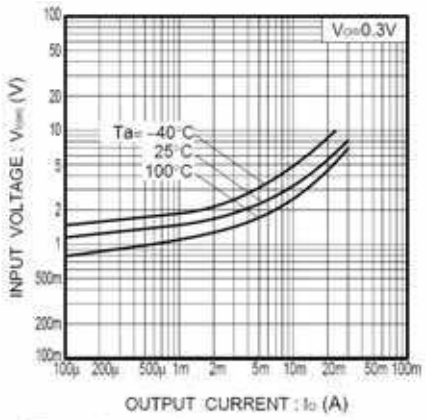


Fig.1 Input voltage vs. output current (ON characteristics)

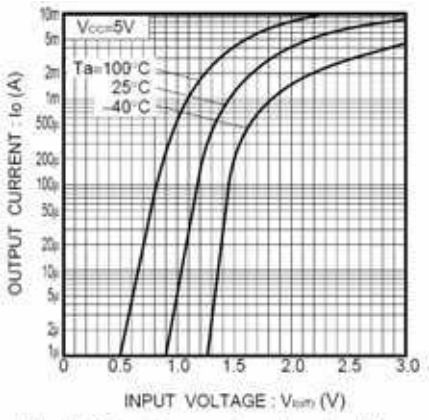


Fig.2 Output current vs. input voltage (OFF characteristics)

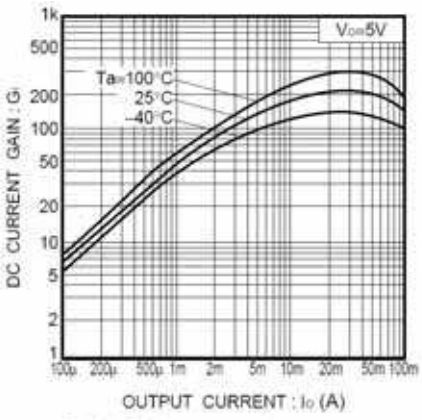


Fig.3 DC current gain vs. output current

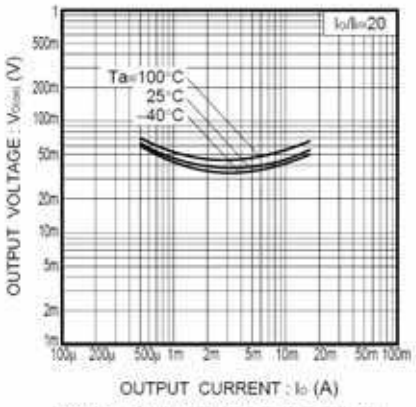


Fig.4 Output voltage vs. output current