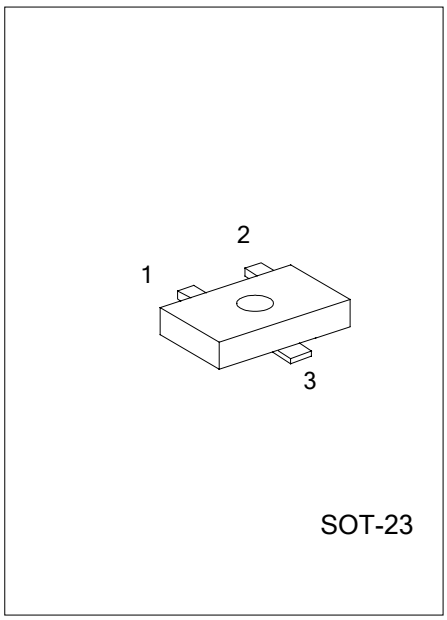
DTC124E

NPN EPITAXIAL SILICON TRANSISTOR

NPN DIGITAL TRANSISTOR (BUILT-IN RESISTORS)

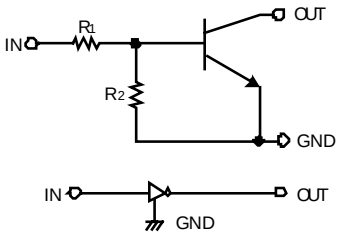


*Pb-free plating product number:DTC124EL

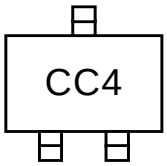
■ FEATURES

*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



■ PIN CONFIGURATION

PIN NO.	PIN NAME
1	GND
2	IN
3	OUT

■ ORDERING INFORMATION

Order Number		Package	Packing
Normal	Lead free		
DTC124E-AE3-R	DTC124EL-AE3-R	SOT-23	Tape Reel

■ ABSOLUATE MAXIUM RATINGS (Ta = 25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	50	V
Input Voltage	V_{IN}	-10 ~ +40	V
Output Current	I_C	100	mA
	I_O	30	
Power Dissipation	P_D	200	mW
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-40 ~ +150	℃

■ ELECTRICAL CHARACTERISTICS (Ta= 25℃, unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(off)}$	V_{CC}= 5V, I_{OUT}=100μA			0.5	V
	$V_{I(ON)}$	V_{OUT}= 0.2V, I_{OUT}= 5mA	3			
Output Voltage	$V_{O(ON)}$	I_{OUT}/I_{IN}= 10mA / 0.5 mA		0.1	0.3	V
Input Current	I_I	V_{IN}= 5V			0.36	mA
Output Current	$I_{O(off)}$	V_{CC}= 50V , V_{IN}=0V			0.5	μA
DC Current Gain	G_I	V_{OUT}= 5V, I_{OUT}= 5mA	56			
Input Resistance	R1		15.4	22	28.6	kΩ
Resistance Ratio	R2/R1		0.8	1	1.2	
Transition Frequency	f_T	V_{CE}= 10 V, I_E= -5mA, f=100MHz *		250		MHz

*Transition frequency of the device

■ TYPICAL CHARACTERICS

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

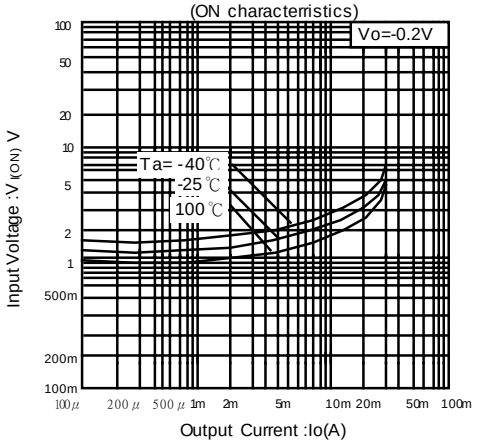


Fig.2 Output current vs Input voltage
.(OFF characterristics)

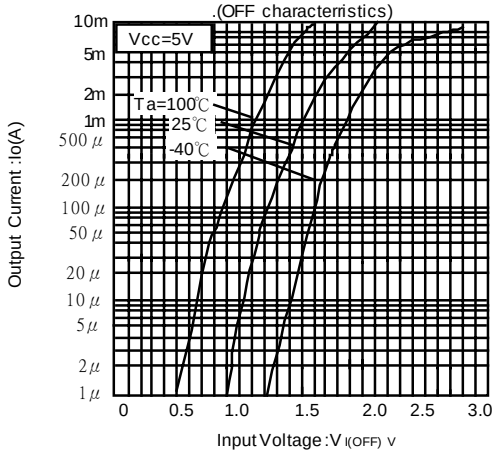


Fig.3 DC current gain vs.output current

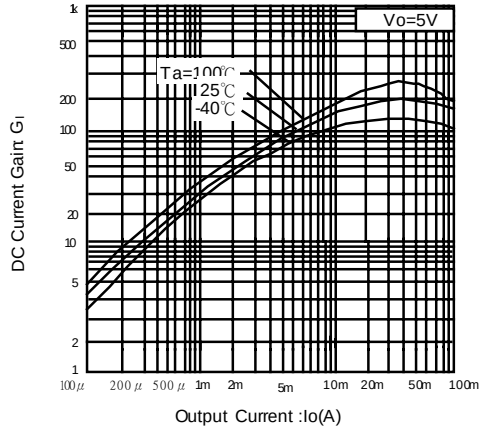


Fig.4Output voltage vs.output current