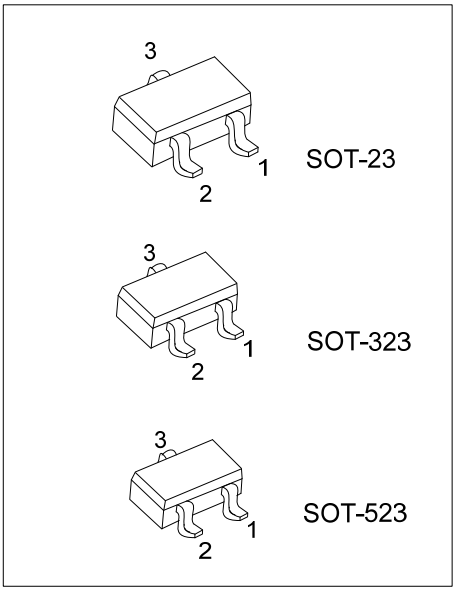
DTC124E

NPN EPITAXIAL SILICON TRANSISTOR

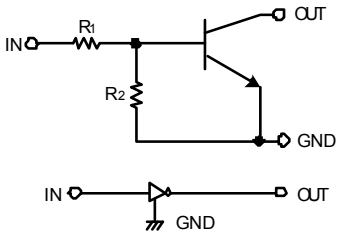
NPN DIGITAL TRANSISTOR (BUILT-IN RESISTORS)



■ 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



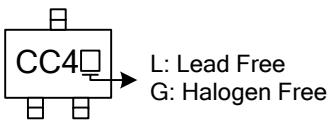
■ ORDERING INFORMATION

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free	Halogen Free		1	2	3	
DTC124E-AE3-R	DTC124EL-AE3-R	DTC124EG-AE3-R	SOT-23	G	I	O	Tape Reel
DTC124E-AL3-R	DTC124EL-AL3-R	DTC124EG-AL3-R	SOT-323	G	I	O	Tape Reel
DTC124E-AN3-R	DTC124EL-AN3-R	DTC124EG-AN3-R	SOT-523	G	I	O	Tape Reel

Note: Pin Assignment: G: GND I: IN O: OUT

DTC124EL-AE3-R (1)Packing Type (2)Package Type (3)Lead Free	(1) R: Tape Reel (2) AE3: SOT-23, AL3: SOT-323, AN3: SOT-523 (3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn

■ MARKING



■ ABSOLUATE MAXIUM RATINGS (Ta = 25℃, unless otherwise specified.)

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	SOT-23/SOT-323	P_D	200	mW
	SOT-523		150	
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-40 ~ +150	℃

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (Ta= 25℃)

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}=10V, I_E = -5mA, f=100MHz (Note)		250		MHz

Note: Transition frequency of the device

■ TYPICAL CHARACTERICS

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

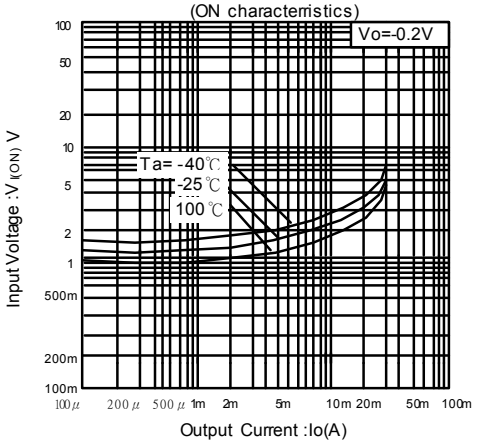


Fig.2 Output current vs Input voltage .(OFF characteristics)

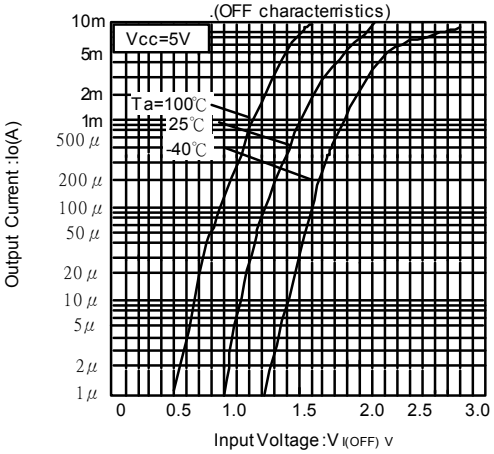


Fig.3 DC current gain vs.output current

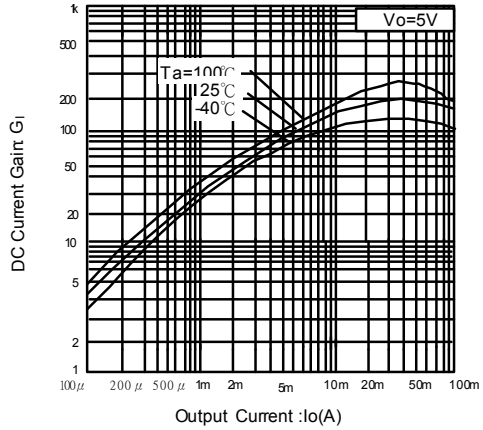


Fig.4Output voltage vs.output current