



## DTC124E

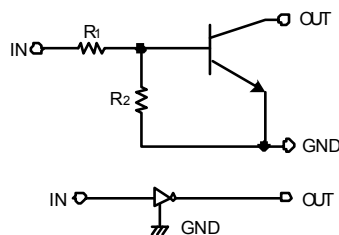
## NPN EPITAXIAL SILICON TRANSISTOR

### 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



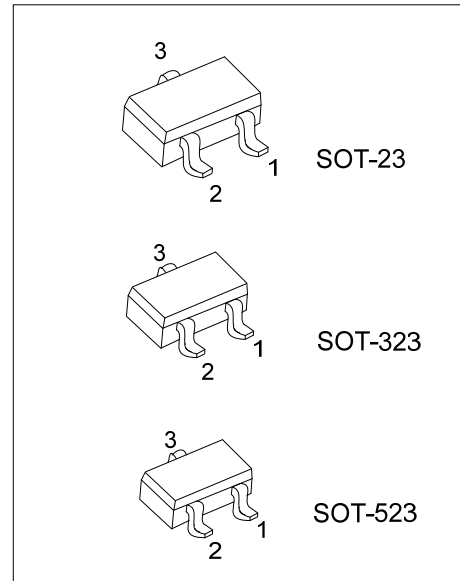
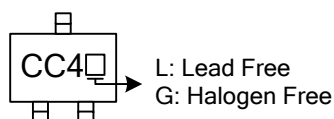
#### ORDERING INFORMATION

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

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



■ ABSOLUTE MAXIMUM RATINGS (Ta = 25°C, unless otherwise specified.)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V <sub>CC</sub>	50	V
Input Voltage		V <sub>IN</sub>	-10 ~ +40	V
Output Current		I <sub>C</sub>	100	mA
		I <sub>O</sub>	30	
Power Dissipation	SOT-23/SOT-323	P <sub>D</sub>	200	mW
	SOT-523		150	
Junction Temperature		T <sub>J</sub>	150	°C
Storage Temperature		T <sub>STG</sub>	-40 ~ +150	°C

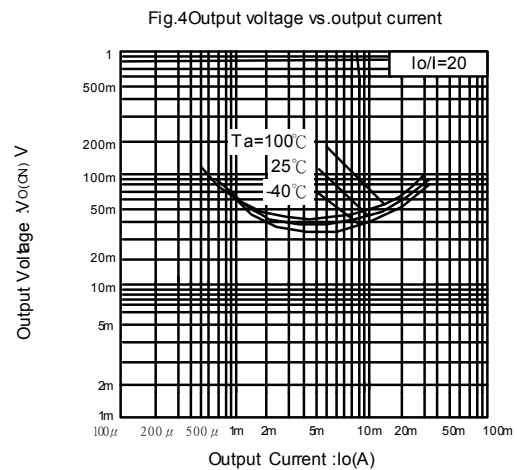
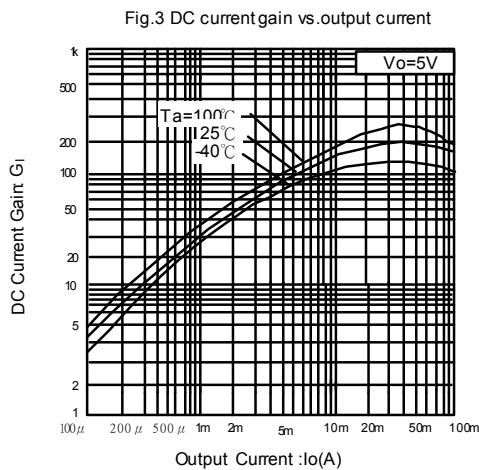
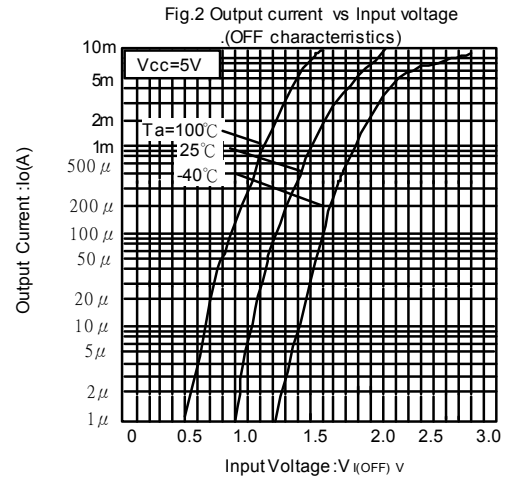
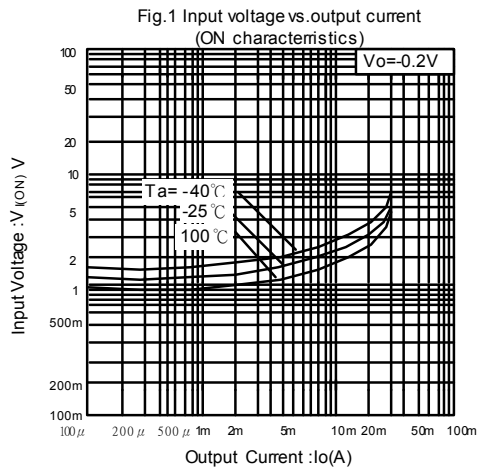
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.  
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (Ta= 25°C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	V <sub>I(OFF)</sub>	V <sub>CC</sub> = 5V, I <sub>OUT</sub> =100μA			0.5	V
	V <sub>I(ON)</sub>	V <sub>OUT</sub> = 0.2V, I <sub>OUT</sub> = 5mA	3			
Output Voltage	V <sub>O(ON)</sub>	I <sub>OUT</sub> /I <sub>IN</sub> = 10mA / 0.5 mA		0.1	0.3	V
Input Current	I <sub>I</sub>	V <sub>IN</sub> = 5V			0.36	mA
Output Current	I <sub>O(OFF)</sub>	V <sub>CC</sub> = 50V, V <sub>IN</sub> =0V			0.5	μA
DC Current Gain	G <sub>I</sub>	V <sub>OUT</sub> = 5V, I <sub>OUT</sub> = 5mA	56			
Input Resistance	R <sub>I</sub>		15.4	22	28.6	kΩ
Resistance Ratio	R <sub>2</sub> /R <sub>1</sub>		0.8	1	1.2	
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>E</sub> = -5mA, f=100MHz (Note )		250		MHz

Note: Transition frequency of the device

# TYPICAL CHARACTERISTICS



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