



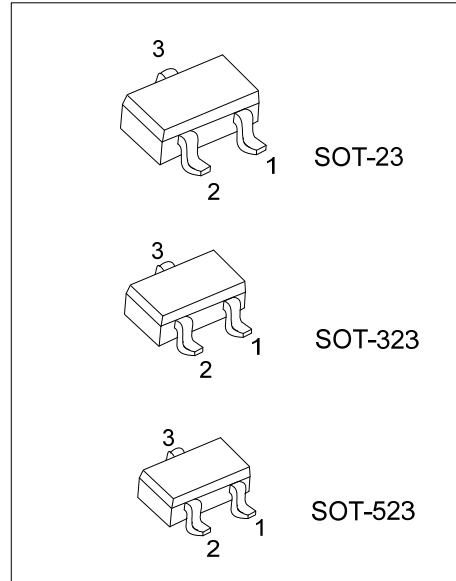
# DTA124E

## PNP EPITAXIAL SILICON TRANSISTOR

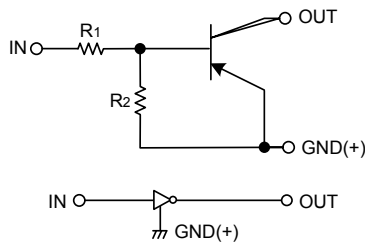
### PNP DIGITAL TRANSISTOR (BUILT-IN RESISTORS)

■ 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



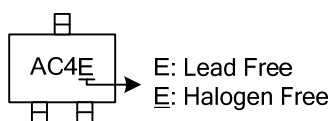
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
DTA124EL-AE3-R	DTA124EG-AE3-R	SOT-23	G	I	O	Tape Reel
DTA124EL-AL3-R	DTA124EG-AL3-R	SOT-323	G	I	O	Tape Reel
DTA124EL-AN3-R	DTA124EG-AN3-R	SOT-523	G	I	O	Tape Reel

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

<p>DTA124EL-AE3-R</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</p>
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■ MARKING



■ ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ , unless otherwise specified.)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		$V_{CC}$	50	V
Input Voltage		$V_{IN}$	-40 ~ +10	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	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-40 ~ +150	$^\circ\text{C}$

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 ( $T_A = 25^\circ\text{C}$ )

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

Note: Transition frequency of the device

■ TYPICAL CHARACTERISTICS

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

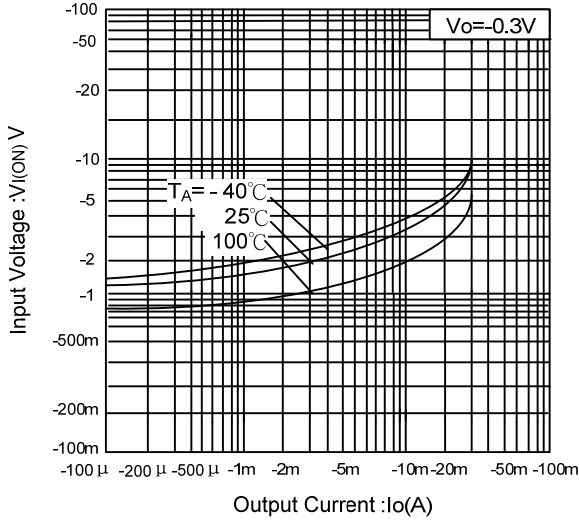


Fig.2 Output current vs Input voltage. (OFF characteristics)

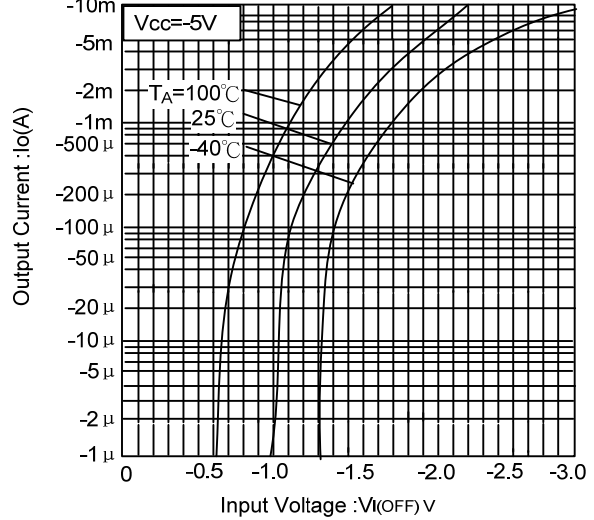


Fig.3 DC current gain vs.output current

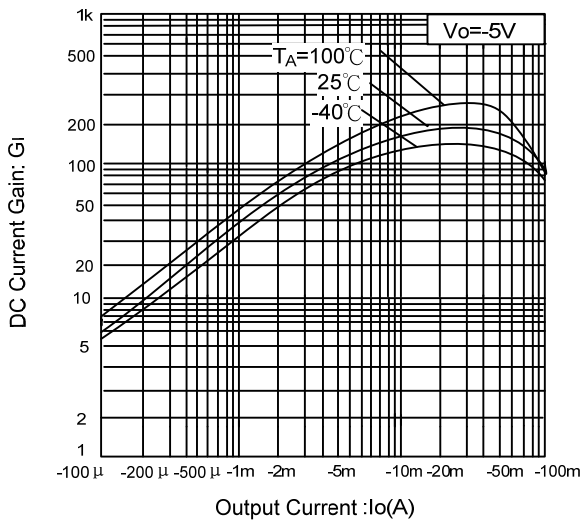
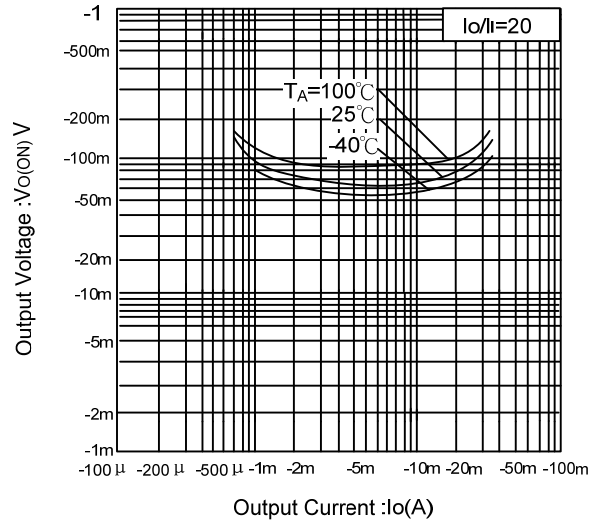


Fig.4 Output voltage vs.output current



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