



# DTB123Y

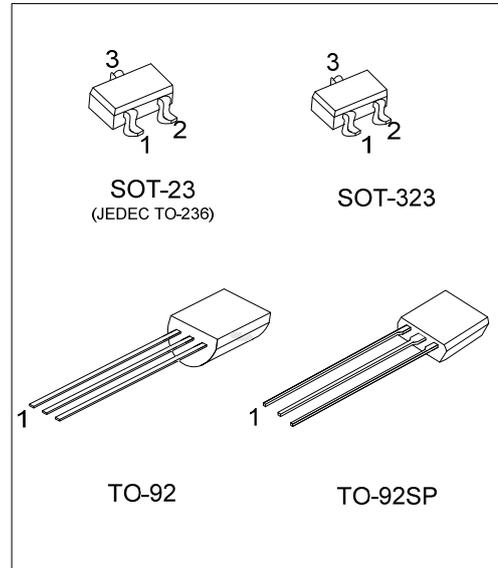
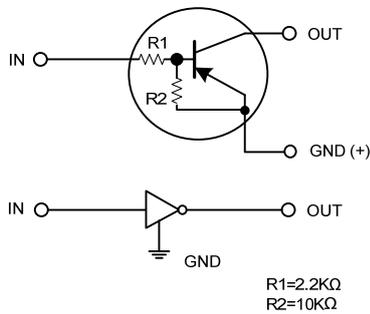
## PNP SILICON TRANSISTOR

### DIGITAL TRANSISTORS (BUILT-IN BIAS RESISTORS)

■ FEATURES

- \* Built-in bias resistors that implies easy ON/OFF applications.
- \* The bias resistors are thin-film resistors with complete isolation to allow positive input.

■ EQUIVALENT CIRCUIT



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
DTB123YL-AE3-R	DTB123YG-AE3-R	SOT-23	I	G	O	Tape Reel
DTB123YL-AL3-R	DTB123YG-AL3-R	SOT-323	I	G	O	Tape Reel
DTB123YL-T92-K	DTB123YG-T92-K	TO-92	G	O	I	Bluk
DTB123YL-T92-B	DTB123YG-T92-B	TO-92	G	O	I	Tape Box
DTB123YL-T9S-K	DTB123YG-T9S-K	TO-92SP	G	O	I	Bulk
DTB123YL-T9S-B	DTB123YG-T9S-B	TO-92SP	G	O	I	Tape Box

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

<p>DTB123YG-AE3-R</p>	<p>(1) B: Tape Box, K: Bluk, R: Tape Reel</p> <p>(2) AE3: SOT-23, AL3: SOT-323, T92: TO-92, T9S: TO-92SP</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING

SOT-23 / SOT-323	TO-92 / TO-92SP

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

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		$V_{CC}$	-50	V
Input Voltage		$V_{IN}$	-12 ~ +5	V
Output Current		$I_C$	-500	mA
Power Dissipation	SOT-23/ SOT-323	$P_D$	200	mW
	TO-92		625	mW
	TO-92SP		550	mW
Junction Temperature		$T_J$	+150	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-55 ~ +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.

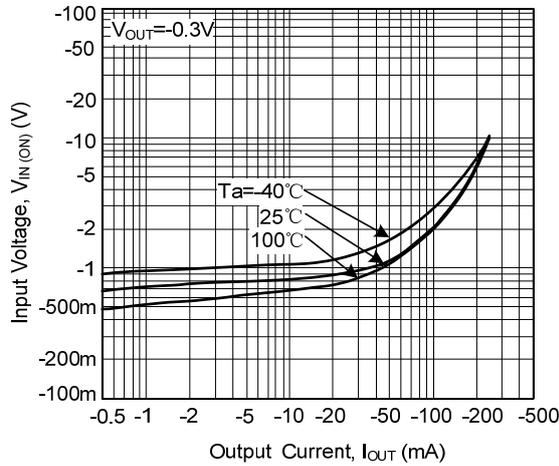
■ ELECTRICAL SPECIFICATIONS ( $T_A=25^\circ\text{C}$ , unless others specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Input Voltage	$V_{IN(OFF)}$	$V_{CC} = -5V, I_{OUT} = -100\mu\text{A}$			-0.3	V
	$V_{IN(ON)}$	$V_{OUT} = -0.3V, I_{OUT} = -20\text{mA}$	-2			
Output Voltage	$V_{OUT(ON)}$	$I_{OUT}/I_{IN} = -50\text{mA}/-2.5\text{mA}$		-0.1	-0.3	V
Input Current	$I_{IN}$	$V_{IN} = -5V$			-3.0	mA
Output Current	$I_{OUT(OFF)}$	$V_{CC} = -50V, V_{IN} = 0V$			-0.5	$\mu\text{A}$
<b>ON CHARACTERISTICS</b>						
DC Current Gain	$h_{FE}$	$V_{OUT} = -5V, I_{OUT} = -50\text{mA}$	56			
<b>SMALL SIGNAL CHARACTERISTICS</b>						
Input Resistance	$R_1$		1.54	2.2	2.86	K $\Omega$
Resistor Ratio	$R_2/R_1$		3.6	4.5	5.5	
Transition Frequency (Note)	$f_T$	$V_{CE} = -10V, I_E = 50\text{mA}, f = 100\text{MHz}$		200		MHz

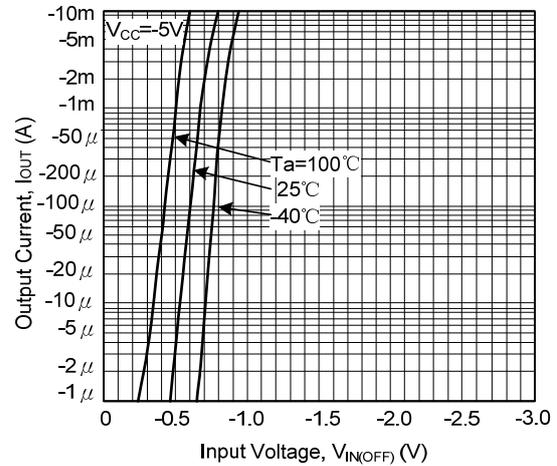
Note: Transition frequency of the device.

## TYPICAL CHARACTERISTICS

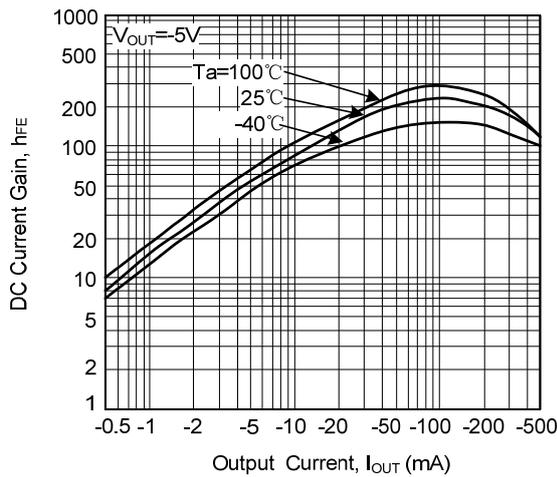
Input Voltage vs. Output Current  
(ON Characteristics)



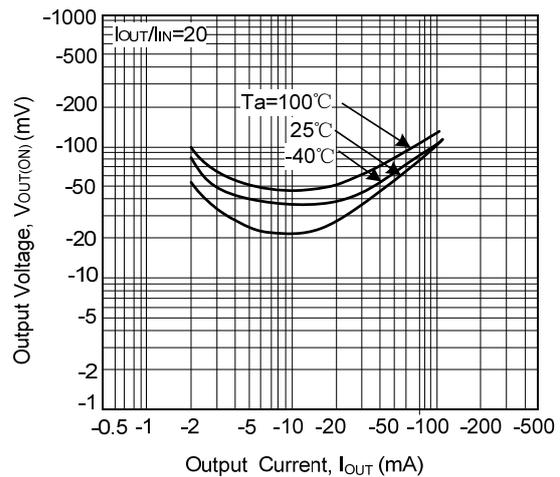
Output Current vs. Input Voltage  
(OFF Characteristics)



DC Current Gain vs. Output Current



Output Voltage vs. Output Current



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