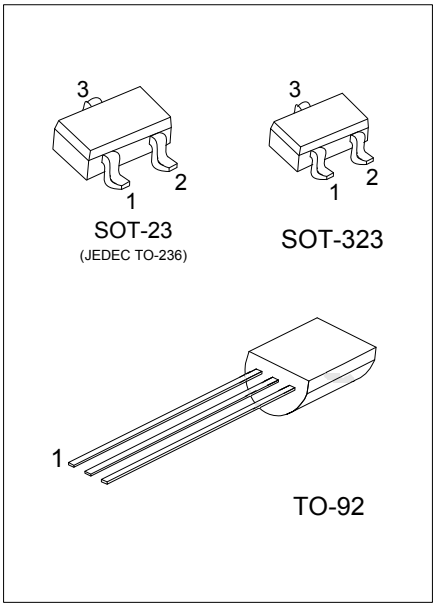
DTD123Y

NPN SILICON TRANSISTOR

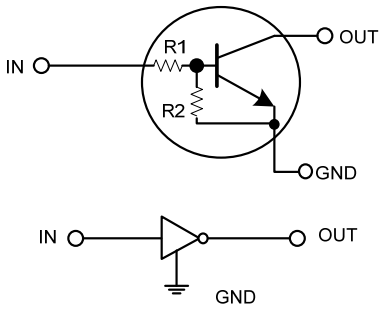
DIGITAL TRANSISTORS (BUILT-IN RESISTORS)



■ FEATURES

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

■ EQUIVALENT CIRCUIT



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
DTD123YL-AE3-R	DTD123YG-AE3-R	SOT-23	I	G	O	Tape Reel
DTD123YL-AL3-R	DTD123YG-AL3-R	SOT-323	I	G	O	Tape Reel
DTD123YL-T92-B	DTD123YG-T92-B	TO-92	G	O	I	Tape Box
DTD123YL-T92-K	DTD123YG-T92-K	TO-92	G	O	I	Bulk

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

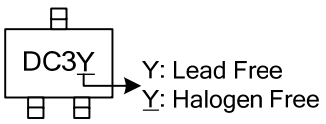
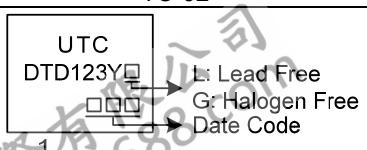
DTD123YG-AE3-R

(1)Packing Type — (1) B: Tape Box, K: Bluk, R: Tape Reel

(2)Package Type — (2) AE3: SOT-23, AL3: SOT-323,T92: TO-92

(3)Green Package — (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

SOT-23 / SOT-323	TO-92
	

■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless others specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply voltage		V_{CC}	50	V
Input voltage		V_{IN}	-5 ~ +12	V
Output current		I_C	500	mA
Power dissipation	SOT-23/SOT-323	P_D	200	mW
	TO-92		625	mW
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55 ~ +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 (T_A=25°C, unless others specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{IN(OFF)}$	V_{CC}=5V, I_{OUT}=100μA			0.3	V
	$V_{IN(ON)}$	V_{OUT}=0.3V, I_{OUT}=20mA	2			
Output Voltage	$V_{OUT(ON)}$	I_O/I_I=50mA/2.5mA		0.1	0.3	V
Input Current	I_{IN}	V_{IN}=5V			3.6	mA
Output Current	$I_{O(OFF)}$	V_{CC}=50V, V_{IN}=0V			0.5	μA
DC Current Gain	h_{FE}	V_{OUT}=5V, I_{OUT}=50mA	56			
Input Resistance	R_1		1.54	2.2	2.86	KΩ
Resistance Ratio	R_2/R_1		3.6	4.5	5.5	
Transition Frequency	f_T	V_{CE}=10V, I_E= −50mA, f=100MHz (Note)		200		MHz

Note: Transition frequency of the device.

■ TYPICAL CHARACTERISTICS

Fig.1 Input Voltage vs. Output Current (ON Characteristics)

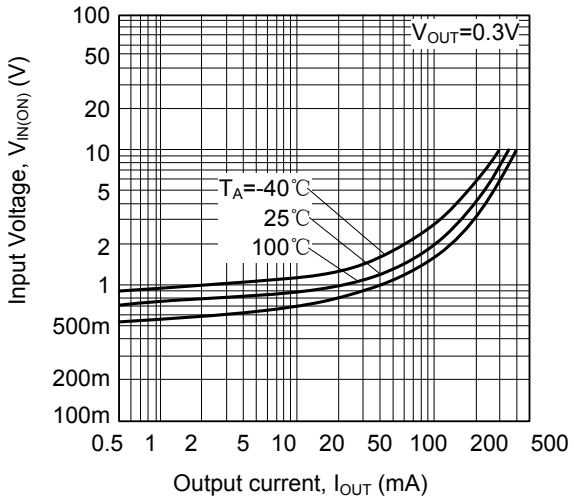


Fig.2 Output Current vs. Input Voltage (OFF Characteristics)

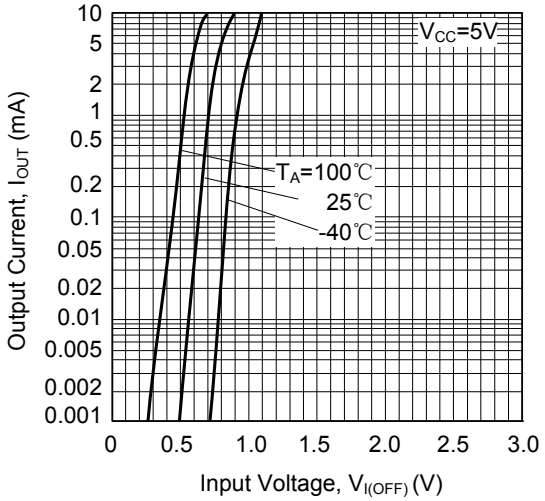


Fig.3 DC Current Gain vs. Output Current

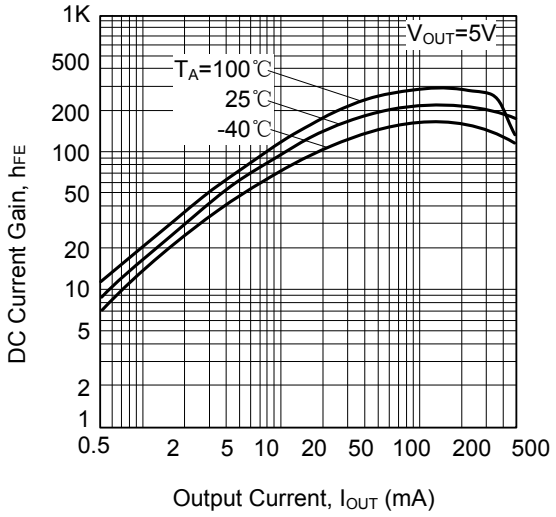


Fig.4 Output Voltage vs. Output Current