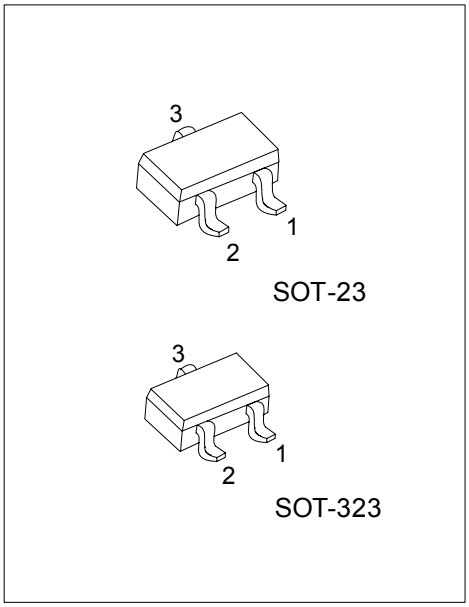
DTD143E

NPN EPITAXIAL SILICON TRANSISTOR

DIGITAL TRANSISTORS (BUILT- IN RESISTORS)

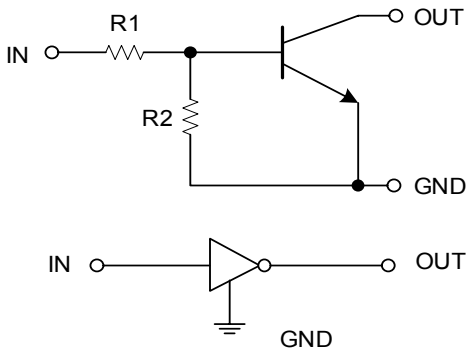


*Pb-free plating product number:DTD143EL

■ FEATURES

* Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
* The bias resistors consist of thin film resistors with complete isolation to allow negative 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



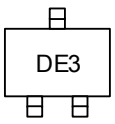
■ ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
DTD143E-AE3-6-R	DTD143EL-AE3-6-R	SOT-23	G	I	O	Tape Reel
DTD143E-AL3-6-R	DTD143EL-AL3-6-R	SOT-323	G	I	O	Tape Reel

DTD143EL-AE3-6-R

(1)Packing Type	(1) R: Tape Reel
(2)Pin Assignment	(2) refer to Pin Assignment
(3)Package Type	(3) AE3: SOT-23, AL3: SOT-323
(4)Lead Plating	(4) L: Lead Free Plating, Blank: Pb/Sn

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	50	V
Input Voltage	V_{IN}	-10 ~ +30	V
Output Current	I_{OUT}	500	mA
Power Dissipation	P_D	200	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.

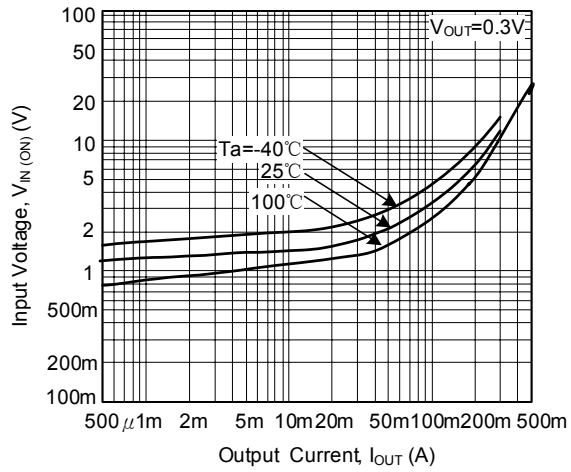
■ ELECTRICAL SPECIFICATIONS (Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{IN(OFF)}$	V_{CC} =5V, I_{OUT} =100μA			0.5	V
	$V_{IN(ON)}$	V_{OUT} =0.3V, I_{OUT} =20mA	3			
Output Voltage	$V_{OUT(ON)}$	I_{OUT}/I_{IN} =50mA/2.5mA		0.1	0.3	V
Input Current	I_{IN}	V_{IN}=5V			1.8	mA
Output Current	$I_{OUT(OFF)}$	V_{CC} =50V, V_{IN} =0V			0.5	μA
DC Current Gain	G_{IN}	V_{OUT} =5V, I_{OUT} =50mA	47			
Input Resistance	R_1		3.29	4.7	6.11	KΩ
Resistance Ratio	R_2/R_1		0.8	1	1.2	
Transition Frequency	f_T	V_{CE} =10V, I_E =−50mA, f=100MHz *		200		MHz

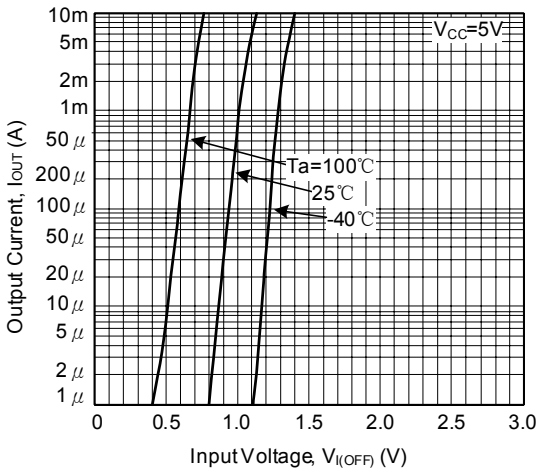
* Transition frequency of the device

■ TYPICAL CHARACTERISTIC

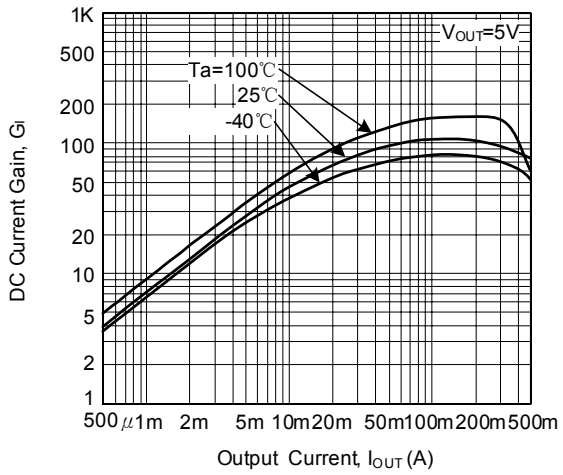
Input Voltage vs. Output Current
(ON Characteristics)



Output Current vs. Input Voltage
(OFF Characteristics)



DC Current Gain vs. Output Current



Output Voltage vs. Output Current