



DTD143E

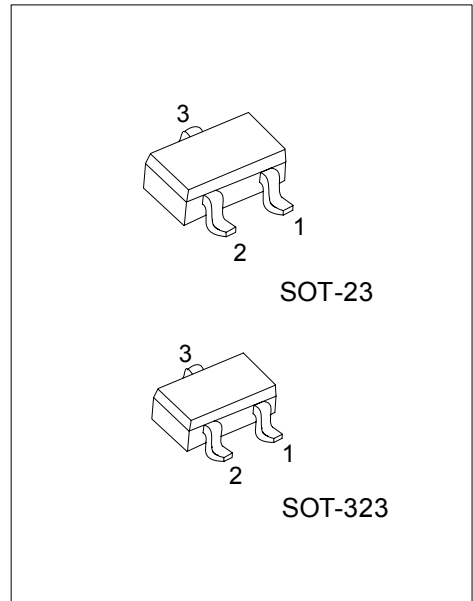
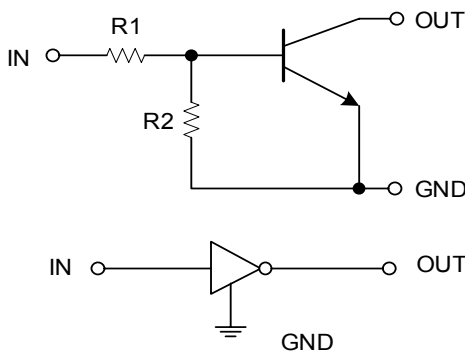
NPN EPITAXIAL SILICON TRANSISTOR

DIGITAL TRANSISTORS (BUILT-IN RESISTORS)

■ 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



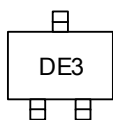
*Pb-free plating product number: DTD143EL

■ 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

<p>DTD143EL-AE3-6-R</p>	<p>(1) Packing Type (2) Pin Assignment (3) Package Type (4) Lead Plating</p> <p>(1) R: Tape Reel (2) refer to Pin Assignment (3) AE3: SOT-23, AL3: SOT-323 (4) L: Lead Free Plating, Blank: Pb/Sn</p>
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■ 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.

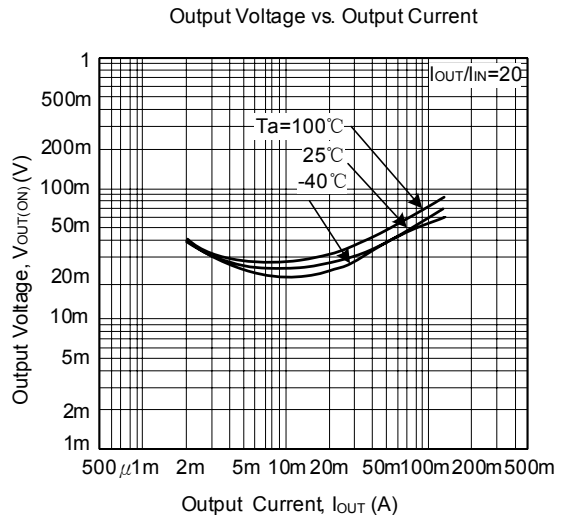
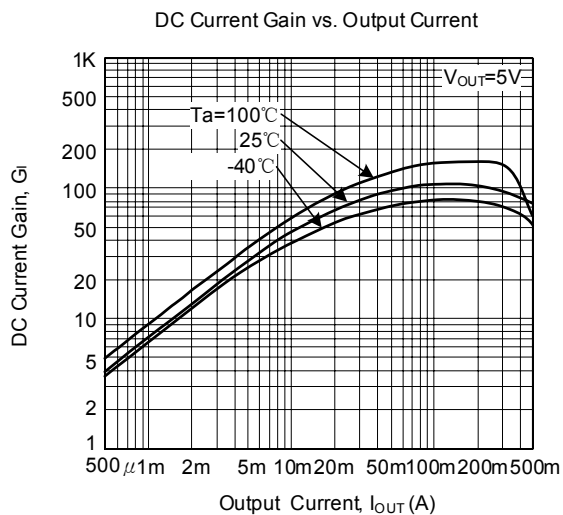
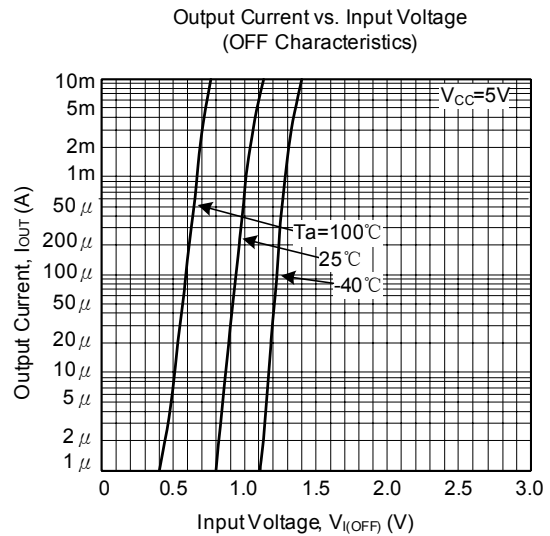
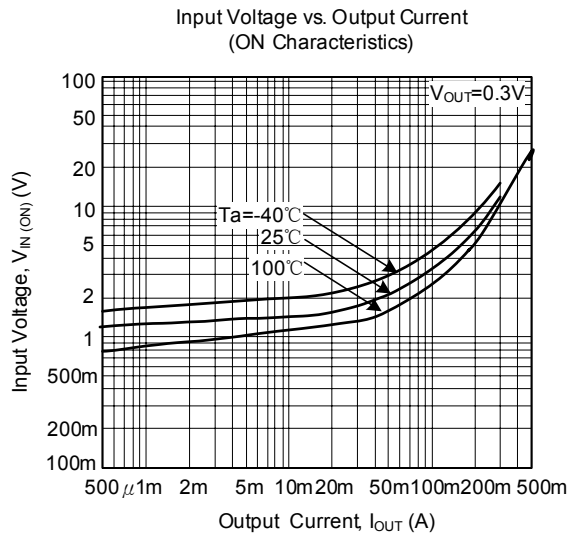
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL SPECIFICATIONS (Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{IN(OFF)}$	$V_{CC} = 5V, I_{OUT} = 100\mu A$			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	K Ω
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



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