



DTC143E

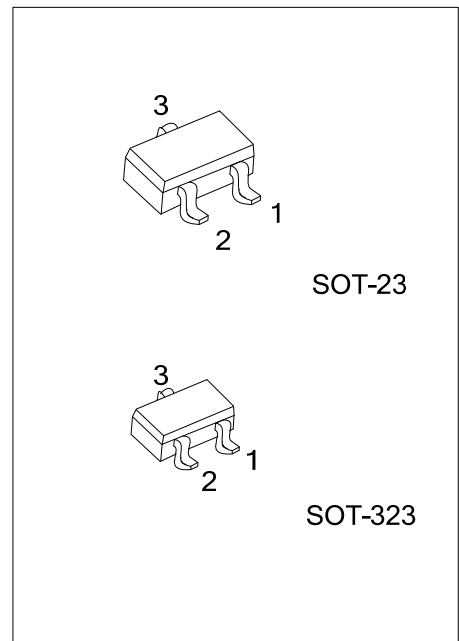
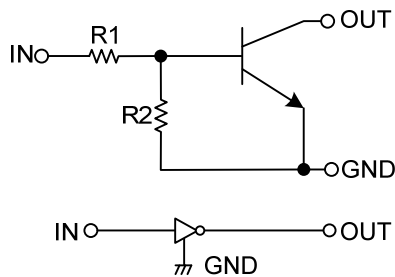
NPN SILICON TRANSISTOR

NPN 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

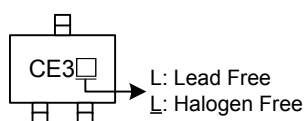


■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
DTC143EL-AE3-R	DTC143EG-AE3-R	SOT-23	G	I	O	Tape Reel
DTC143EL-AL3-R	DTC143EG-AL3-R	SOT-323	G	I	O	Tape Reel

<p>DTC143EL-AE3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Plating</p>	<p>(1) R: Tape Reel</p> <p>(2) AE3: SOT-23, AL3: SOT-323</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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■ MARKING



■ ABSOLUTE MAXIMUM RATINGS(Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V _{CC}	50	V
Input Voltage	V _{IN}	-10 ~ +30	V
Output Current	I _C	100	mA
Power Dissipation	P _D	400	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.

■ THERMAL DATA

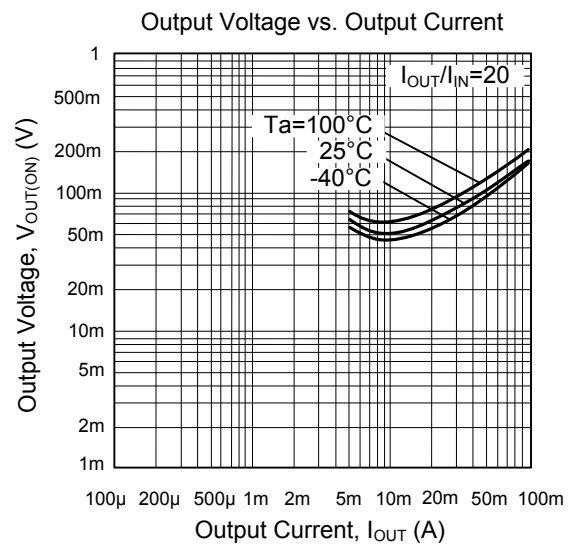
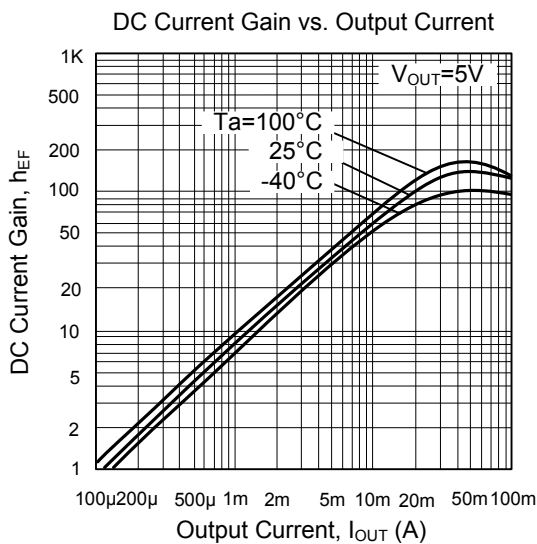
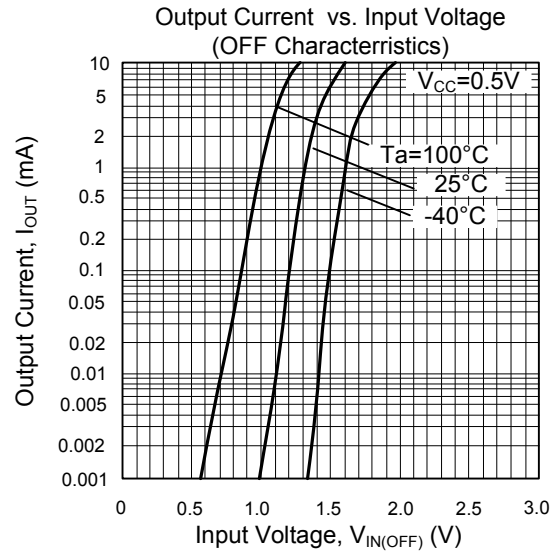
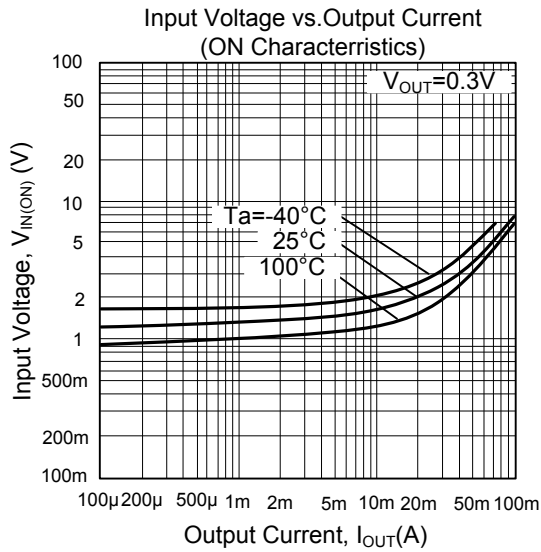
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-23	294	°C/W
	SOT-323	310	°C/W
Junction to Case	SOT-23	138	°C/W
	SOT-323	148	°C/W

■ ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise specified)

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			V
Output Voltage	V _{OUT(ON)}	I _{OUT} /I _{IN} = 10mA/0.5 mA		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	h _{FE}	V _{OUT} = 5V, I _{OUT} = 10mA	20			
Input Resistance	R ₁		3.29	4.7	6.11	KΩ
Resistance Ratio	$\frac{R_2}{R_1}$		0.8	1	1.2	
Transition Frequency	f _T	V _{CE} = 10V, I _E = -5mA, f = 100MHz (Note)		250		MHz

Note: Transition frequency of the device

TYPICAL CHARACTERISTIC



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