



DTC143E

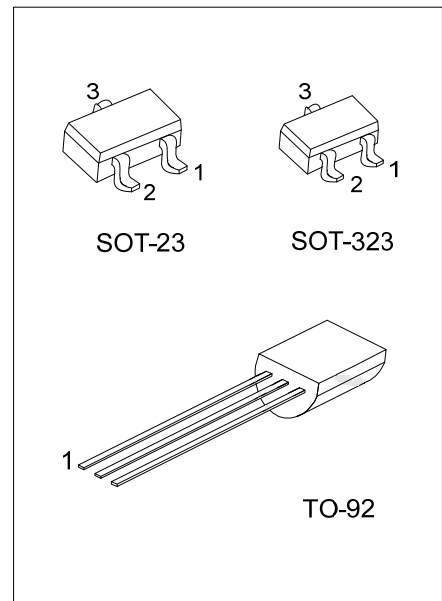
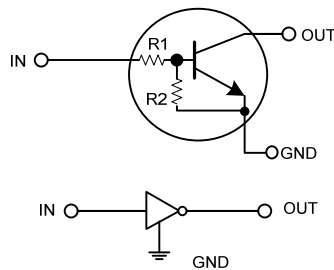
NPN SILICON TRANSISTOR

NPN DIGITAL TRANSISTOR (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

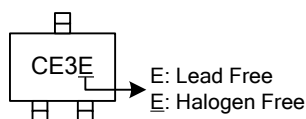


■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
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
DTC143EL-T92-B	DTC143EG-T92-B	TO-92	G	O	I	Tape Box
DTC143EL-T92-K	DTC143EG-T92-K	TO-92	G	O	I	Bulk
DTC143EL-T92-R	DTC143EG-T92-R	TO-92	G	O	I	Tape Reel

<p>DTC143EL-AE3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Free</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel</p> <p>(2) AE3: SOT-23, AL3: SOT-323, T92: TO-92</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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■ MARKING(FOR SOT-23/SOT-323 PACKAGE)



■ ABSOLUTE MAXIMUM RATINGS($T_A=25^{\circ}\text{C}$, 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	SOT-23/ SOT-323	P_D	400	mW
	TO-92		625	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.

*Device mounted on PCB 50mm × 50mm × 1.6mm

■ THERMAL DATA

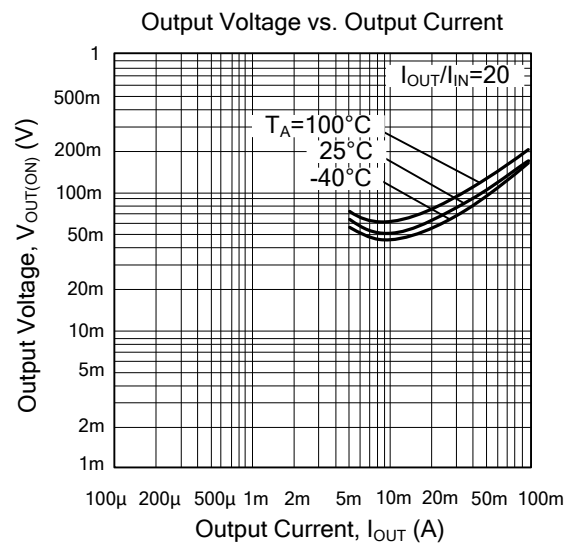
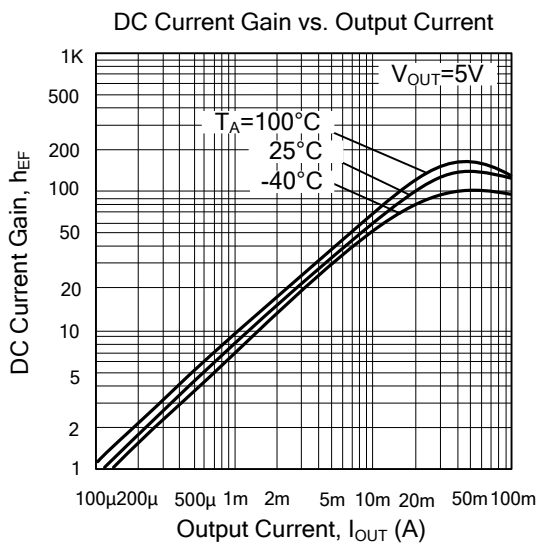
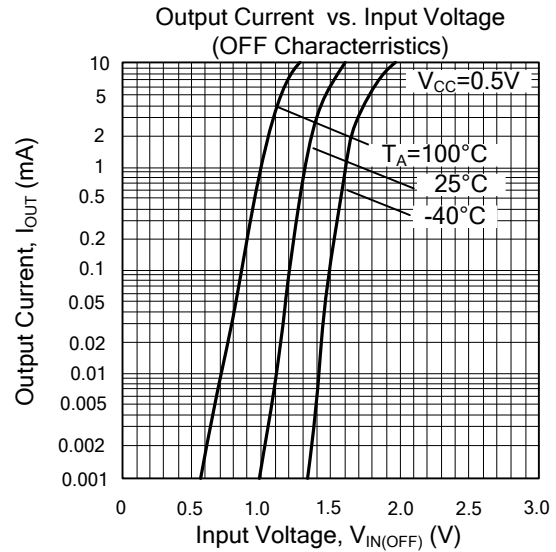
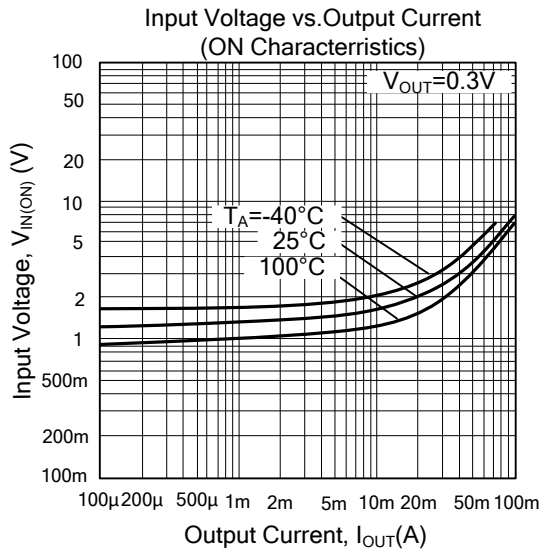
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-23	θ_{JA}	294	$^{\circ}\text{C/W}$
	SOT-323		310	$^{\circ}\text{C/W}$
	TO-92		200	$^{\circ}\text{C/W}$
Junction to Case	SOT-23	θ_{JC}	138	$^{\circ}\text{C/W}$
	SOT-323		148	$^{\circ}\text{C/W}$
	TO-92		84	$^{\circ}\text{C/W}$

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{IN(OFF)}$	$V_{CC} = 5V, I_{OUT} = 100\mu\text{A}$			0.5	V
	$V_{IN(ON)}$	$V_{OUT} = 0.3V, I_{OUT} = 20\text{mA}$	3			V
Output Voltage	$V_{OUT(ON)}$	$I_{OUT}/I_{IN} = 10\text{mA}/0.5\text{mA}$		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}	$V_{OUT} = 5V, I_{OUT} = 10\text{mA}$	20			
Input Resistance	R_1		3.29	4.7	6.11	K Ω
Resistance Ratio	$\frac{R_2}{R_1}$		0.8	1	1.2	
Transition Frequency	f_T	$V_{CE} = 10V, I_E = -5\text{mA}, f = 100\text{MHz}$ (Note)		250		MHz

Note: Transition frequency of the device

TYPICAL CHARACTERISTIC



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