



# DTC143E

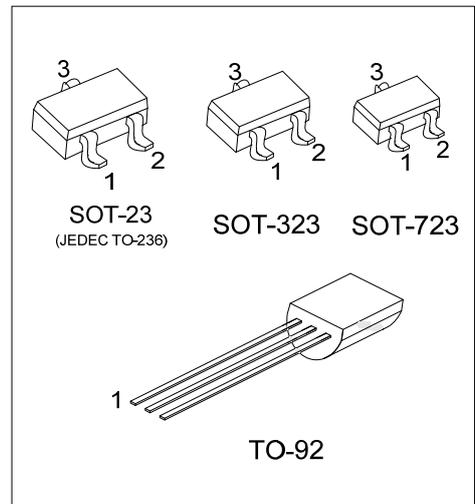
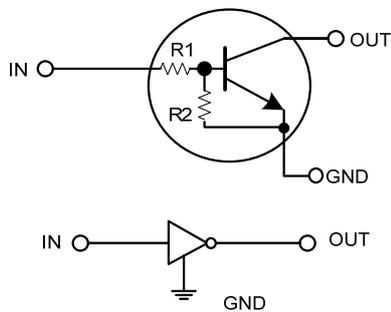
## NPN SILICON TRANSISTOR

### 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	
DTC143EG-AE3-R	DTC143EG-AE3-R	SOT-23	I	G	O	Tape Reel
DTC143EG-AL3-R	DTC143EG-AL3-R	SOT-323	I	G	O	Tape Reel
DTC143EG-AQ3-R	DTC143EG-AQ3-R	SOT-723	I	G	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

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

<p>DTC143EG-AE3-R</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel                  (2) AE3: SOT-23, AL3: SOT-323, AQ3: SOT-723                  T92: TO-92                  (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING

SOT-23 / SOT-323 / SOT-723	TO-92

■ 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
	SOT-723		125	mW
	TO-92		625	mW
Junction Temperature		$T_J$	+150	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

Notes: 1. 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.

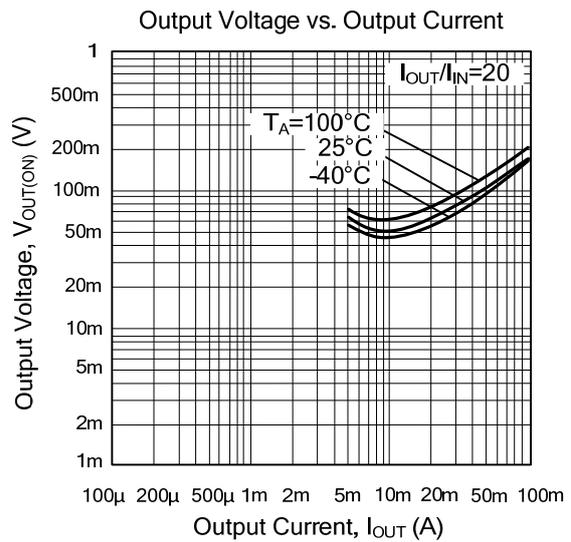
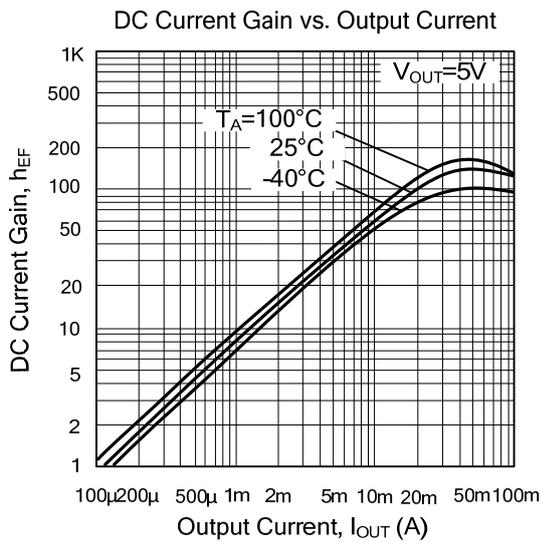
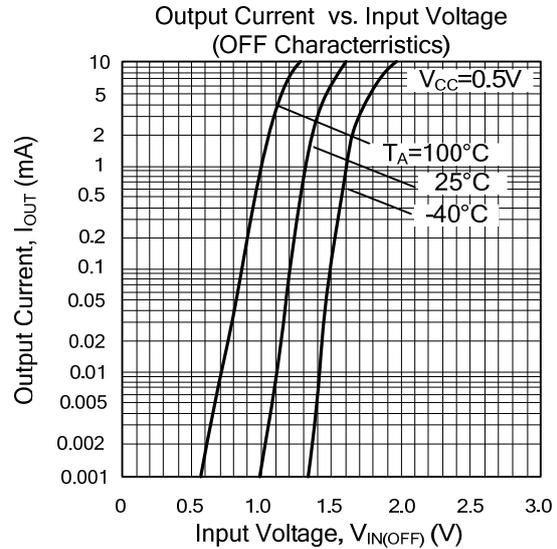
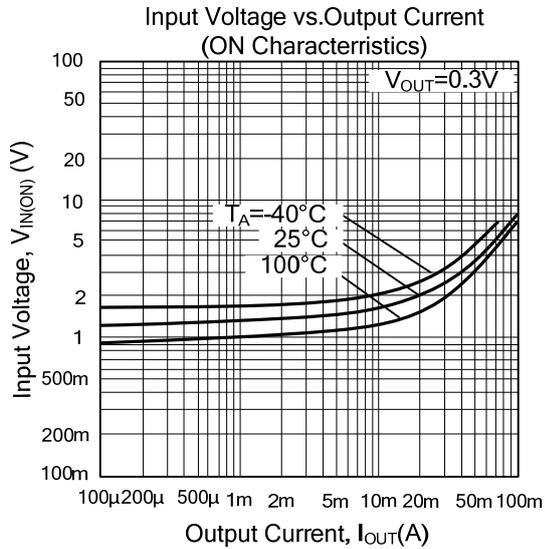
2. Device mounted on PCB 50mm × 50mm × 1.6mm

■ 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	$\mu\text{A}$
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 $\Omega$
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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