



## DTC115E

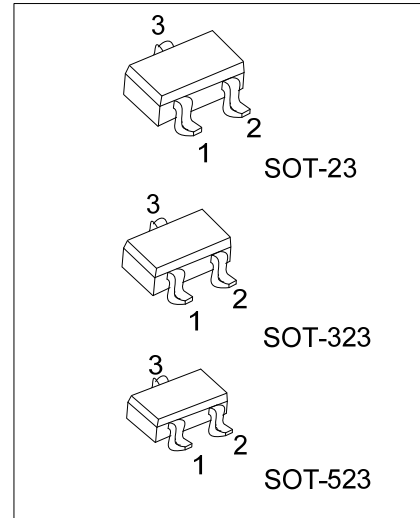
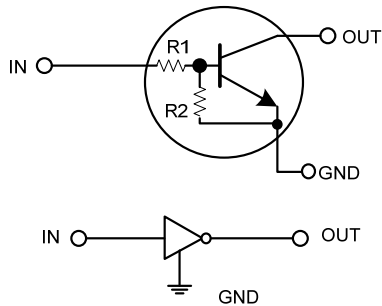
## NPN SILICON TRANSISTOR

### NPN DIGITAL TRANSISTOR (BUILT-IN BIAS 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



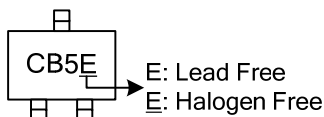
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
DTC115EL-AE3-R	DTC115EG-AE3-R	SOT-23	I	G	O	Tape Reel
DTC115EL-AL3-R	DTC115EG-AL3-R	SOT-323	I	G	O	Tape Reel
DTC115EL-AN3-R	DTC115EG-AN3-R	SOT-523	I	G	O	Tape Reel

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

<p>DTC115EG-AE3-R</p>	<p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) AE3: SOT-23, AL3: SOT-323, AN3: SOT-523 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING



■ ABSOLUTE MAXIMUM RATING ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		$V_{CC}$	50	V
Input Voltage		$V_{IN}$	-10 ~ +40	V
Output Current		$I_{OUT}$	20	mA
		$I_{OUT(MAX)}$	100	
Power Dissipation	SOT-23/SOT-323	$P_C$	200	mW
	SOT-523		150	mW
Junction Temperature		$T_J$	+150	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

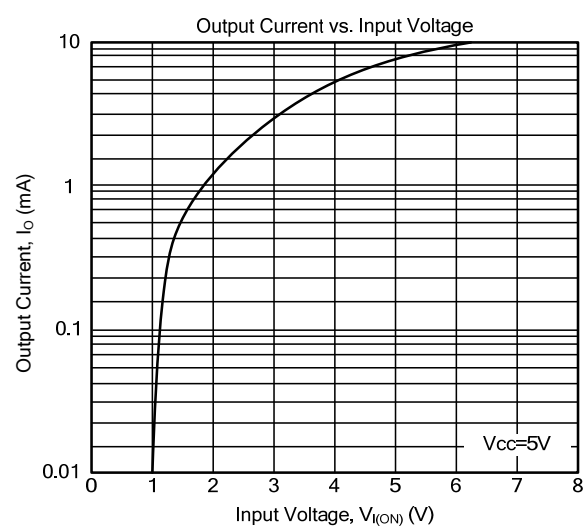
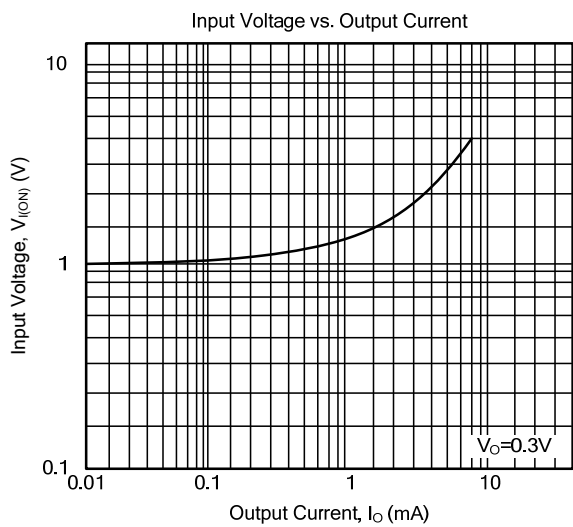
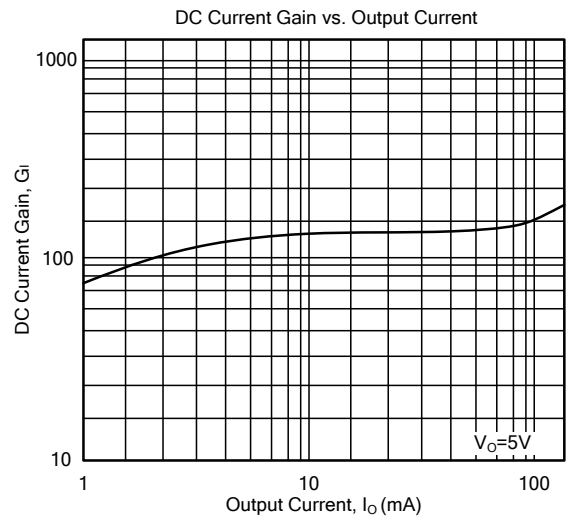
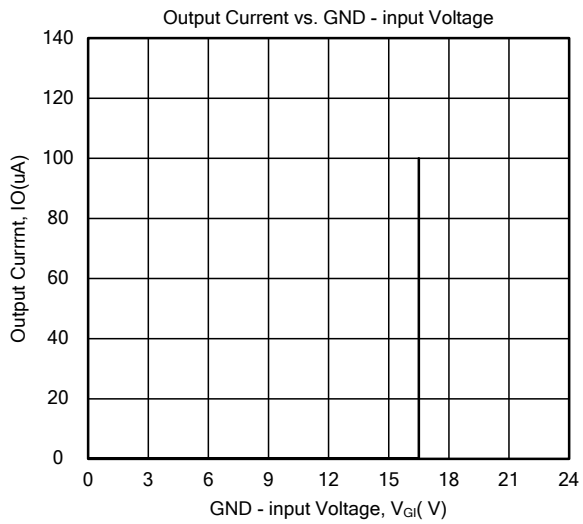
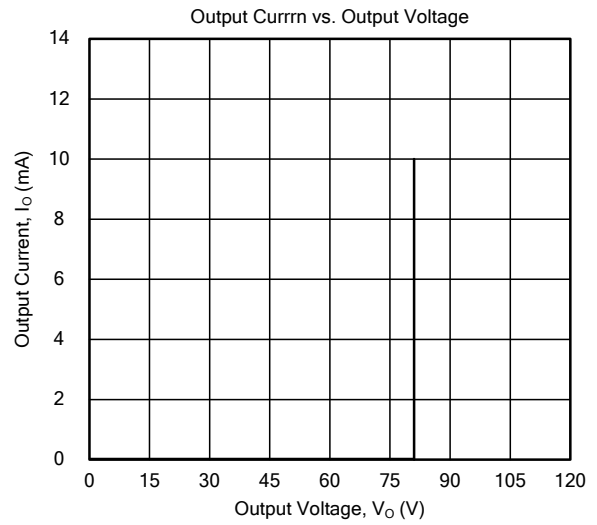
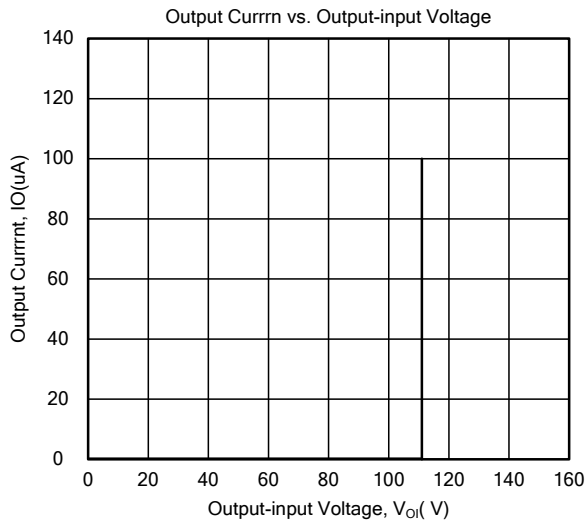
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

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

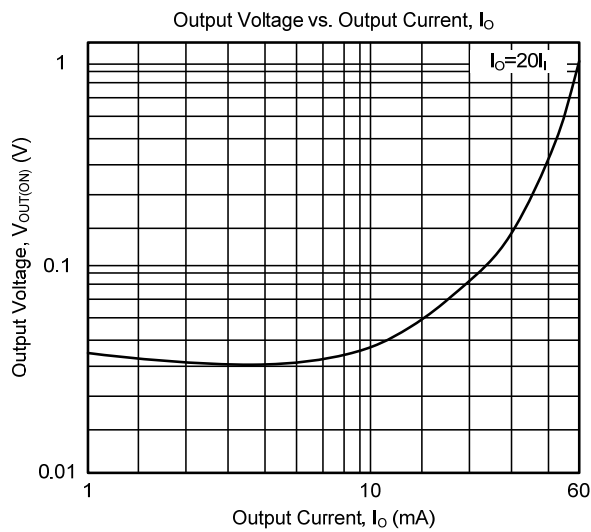
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(OFF)}$	$V_{CC}=5V, I_{OUT}=100\mu\text{A}$			0.5	V
	$V_{I(ON)}$	$V_{OUT}=0.3V, I_{OUT}=1\text{mA}$	3			
Output Voltage	$V_{OUT(ON)}$	$I_{OUT}=5\text{mA}, I_{IN}=0.25\text{mA}$		0.1	0.3	V
Input Current	$I_{IN}$	$V_{IN}=5V$			0.15	mA
Output Current	$I_{O(OFF)}$	$V_{CC}=50V, V_{IN}=0V$			0.5	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{OUT}=5V, I_{OUT}=5\text{mA}$	82			
Input Resistance	R1		70	100	130	k $\Omega$
Resistance Ratio	R2/R1		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 CHARACTERISTICS



### ■ TYPICAL CHARACTERISTICS (Cont.)



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