



## DTC115E

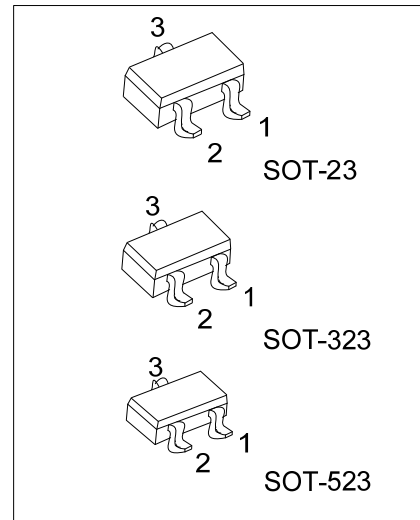
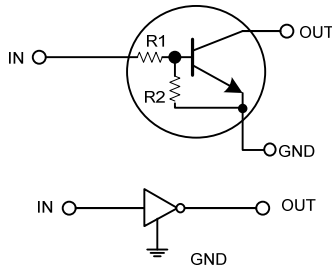
## NPN SILICON TRANSISTOR

### 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

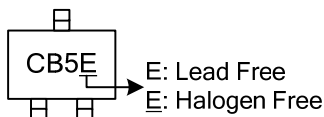


#### ORDERING INFORMATION

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

<p>DTC115EL-AE3-R</p>	<p>(1) R: Tape Reel</p> <p>(2) AE3: SOT-23, AL3: SOT-323, AN3: SOT-523</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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#### MARKING INFORMATION



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

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		$V_{CC}$	50	V
Input Voltage		$V_{IN}$	-10 ~ +40	V
Output Current		$I_{OUT}$	20	mA
		$I_{C(MAX)}$	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	$V_{I(OFF)}$	$V_{CC}=5\text{V}$ , $I_{OUT}=100\mu\text{A}$			0.5	V
	$V_{I(ON)}$	$V_{OUT}=0.3\text{V}$ , $I_{OUT}=1\text{mA}$	3			
Output Voltage	$V_{OUT(ON)}$	$I_{OUT}=5\text{mA}$ , $I_{IN}=0.25\text{mA}$		0.1	0.3	V
Input Current	$I_{IN}$	$V_{IN}=5\text{V}$			0.15	mA
Output Current	$I_{O(OFF)}$	$V_{CC}=50\text{V}$ , $V_{IN}=0\text{V}$			0.5	$\mu\text{A}$
DC Current Gain	$G_I$	$V_{OUT}=5\text{V}$ , $I_{OUT}=5\text{mA}$	82			
Input Resistance	R1		70	100	130	k $\Omega$
Resistance Ratio	R2/R1		0.8	1	1.2	
Transition Frequency	$f_T$	$V_{CE}=10\text{V}$ , $I_E=-5\text{mA}$ , $f=100\text{MHz}$ (Note)		250		MHz

Note: Transition frequency of the device

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