



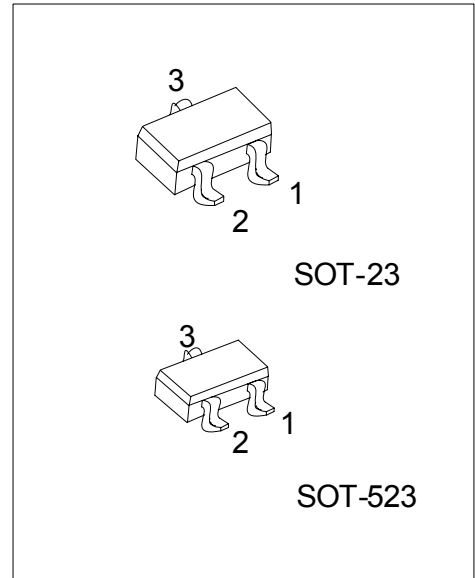
## DTC115E

## NPN EPITAXIAL 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.
- \* 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.



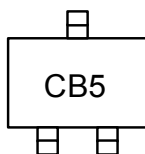
\*Pb-free plating product number: DTC115EL

#### ■ ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
DTC115E-AE3-6-R	DTC115EL-AE3-6-R	SOT-23	G	I	O	Tape Reel
DTC115E-AN3-6-R	DTC115EL-AN3-6-R	SOT-523	G	I	O	Tape Reel

<p>DTC115EL-AE3-6-R</p> <p>(1) Packing Type (2) Pin Assignment (3) Package Type (4) Lead Plating</p>	<p>(1) R: Tape Reel (2) refer to Pin Assignment (3) AE3: SOT-23, AN3: SOT-523 (4) L: Lead Free Plating, Blank: Pb/Sn</p>
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#### ■ MARKING INFORMATION



### ■ ABSOLUTE MAXIMUM RATING ( Ta=25°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	200	mW
	SOT-523	150	mW
Junction Temperature	$T_J$	+150	°C
Storage Temperature	$T_{STG}$	-40 ~ +150	°C

Note Absolute maximum ratings are those values beyond which the device could be permanently damaged.

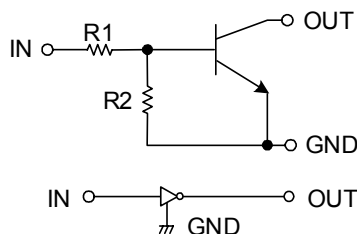
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(OFF)}$	$V_{CC}=5V, I_{OUT}=100\mu A$			0.5	V
	$V_{I(ON)}$	$V_{OUT}=0.3V, I_{OUT}=1mA$	3			
Output Voltage	$V_{OUT(ON)}$	$I_{OUT}=5mA, I_{IN}=0.25mA$		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	$\mu A$
DC Current Gain	$G_1$	$V_{OUT}=5V, I_{OUT}=5mA$	82			
Input Resistance	R1		70	100	130	k $\Omega$
Resistance Ratio	R2/R1		0.8	1	1.2	
Transition Frequency	$f_T$	$V_{CE}=10V, I_E=-5mA, f=100MHz$ *		250		MHz

\*Transition frequency of the device

### ■ EQUIVALENT CIRCUIT



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