



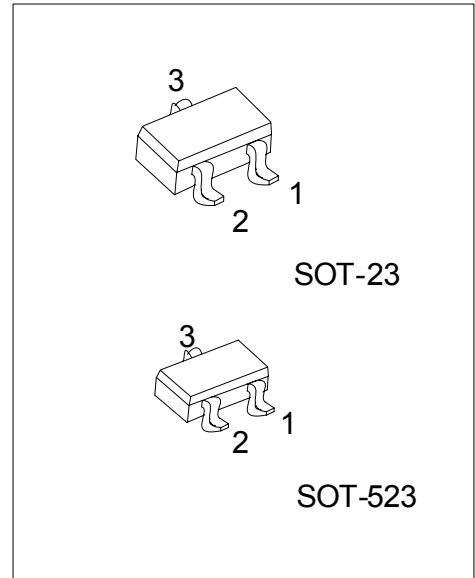
## DTC115E

## 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.



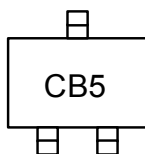
\*Pb-free plating product number: DTC115EL

#### ■ 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 <sub>CC</sub>	50	V	
Input Voltage	V <sub>IN</sub>	-10 ~ +40	V	
Output Current	I <sub>OUT</sub>	20	mA	
	I <sub>C(MAX)</sub>	100		
Power Dissipation	P <sub>D</sub>	SOT-23	200	mW
		SOT-523	150	mW
Junction Temperature	T <sub>J</sub>	+150	°C	
Storage Temperature	T <sub>STG</sub>	-40 ~ +150	°C	

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

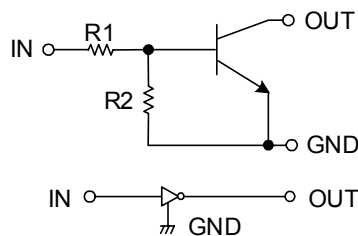
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	V <sub>I(OFF)</sub>	V <sub>CC</sub> =5V, I <sub>OUT</sub> =100μA			0.5	V
	V <sub>I(ON)</sub>	V <sub>OUT</sub> =0.3V, I <sub>OUT</sub> =1mA	3			
Output Voltage	V <sub>OUT(ON)</sub>	I <sub>OUT</sub> =5 mA, I <sub>IN</sub> =0.25mA		0.1	0.3	V
Input Current	I <sub>IN</sub>	V <sub>IN</sub> = 5V			0.15	mA
Output Current	I <sub>O(OFF)</sub>	V <sub>CC</sub> =50V, V <sub>IN</sub> =0V			0.5	μA
DC Current Gain	G <sub>I</sub>	V <sub>OUT</sub> = 5V, I <sub>OUT</sub> = 5mA	82			
Input Resistance	R1		70	100	130	kΩ
Resistance Ratio	R2/R1		0.8	1	1.2	
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>E</sub> =-5mA, f=100MHz *		250		MHz

\*Transition frequency of the device

### ■ EQUIVALENT CIRCUIT



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