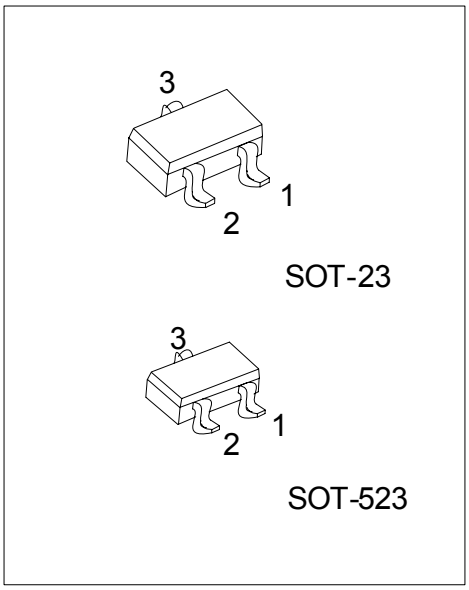
DTC115E

NPN EPITAXIAL SILICON TRANSISTOR

NPN DIGITAL TRANSISTOR (BUILT-IN RESISTORS)



*Pb-free plating product number: DTC115EL

■ 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.

■ ORDERING INFORMATION

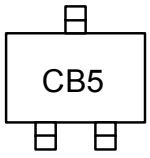
Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
DTC115E-AE3-6-R	DTC115EL-AE3-6-R	SOT-23	G	I	O	Tape Reel
DTC115E-AN3-6-R	DTC115EL-AN3-6-R	SOT-523	G	I	O	Tape Reel

DTC115EL-AE3-6-R

(1)Packing Type
(2)Pin Assignment
(3)Package Type
(4)Lead Plating

(1) R: Tape Reel
(2) refer to Pin Assignment
(3) AE3: SOT-23, AN3: SOT-523
(4) L: Lead Free Plating, Blank: Pb/Sn

■ MARKING INFORMATION



■ ABSOLUTE MAXIMUM RATING (Ta=25℃)

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	P_D	200	mW
	SOT-523		150	mW
Junction Temperature		T_J	+150	℃
Storage Temperature		T_{STG}	-40 ~ +150	℃

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℃, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{I(OFF)}$	V_{CC}=5V, I_{OUT}=100μA			0.5	V
	$V_{I(ON)}$	V_{OUT}=0.3V, I_{OUT}=1mA	3			
Output Voltage	$V_{OUT(ON)}$	I_{OUT}=5 mA, 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	μA
DC Current Gain	G_I	V_{OUT}= 5V, I_{OUT}= 5mA	82			
Input Resistance	R1		70	100	130	kΩ
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