



## DTC123E

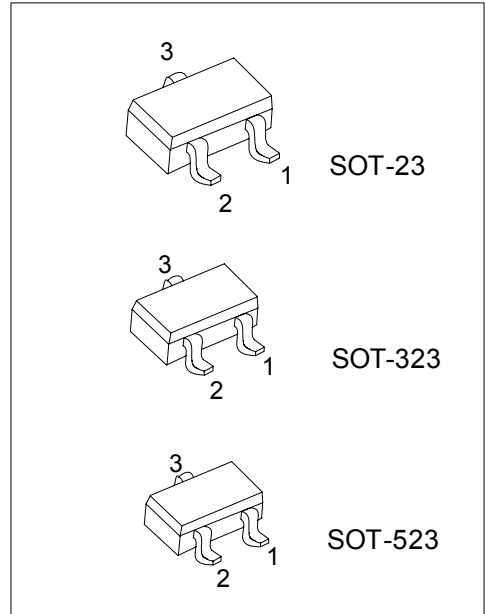
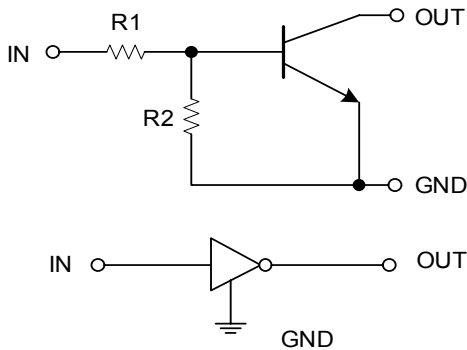
## NPN EPITAXIAL SILICON TRANSISTOR

### DIGITAL TRANSISTORS (BUILT-IN 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



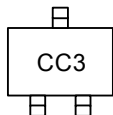
\*Pb-free plating product number:DTC123EL

#### ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
DTC123E-AE3-6-R	DTC123EL-AE3-6-R	SOT-23	G	I	O	Tape Reel
DTC123E-AL3-6-R	DTC123EL-AL3-6-R	SOT-323	G	I	O	Tape Reel
DTC123E-AN3-6-R	DTC123EL-AN3-6-R	SOT-523	G	I	O	Tape Reel

<p>DTC123EL-AE3-6-R</p>	<p>(1) R: Tape Reel  (2) refer to Pin Assignment  (3) AE3: SOT-23, AL3: SOT-323, AN3: SOT-523  (4) L: Lead Free Plating, Blank: Pb/Sn</p>
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#### MARKING



### ■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		$V_{CC}$	50	V
Input Voltage		$V_{IN}$	-10 ~ +12	V
Output Current		$I_{OUT}$	100	mA
Power Dissipation	SOT-523	$P_D$	150	mW
	SOT-23/SOT-323		200	mW
Junction Temperature		$T_J$	+150	°C
Storage Temperature		$T_{STG}$	-55 ~ +150	°C

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

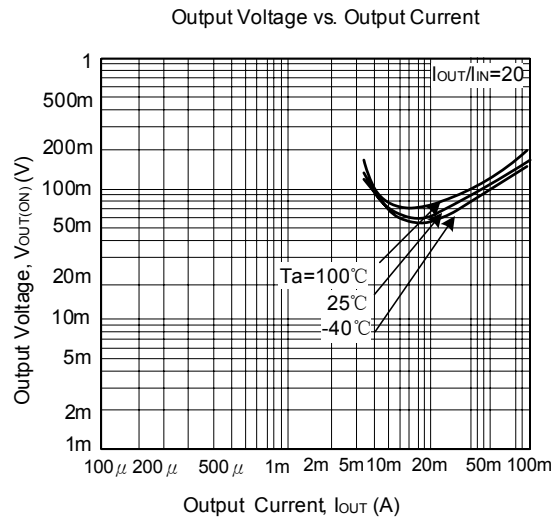
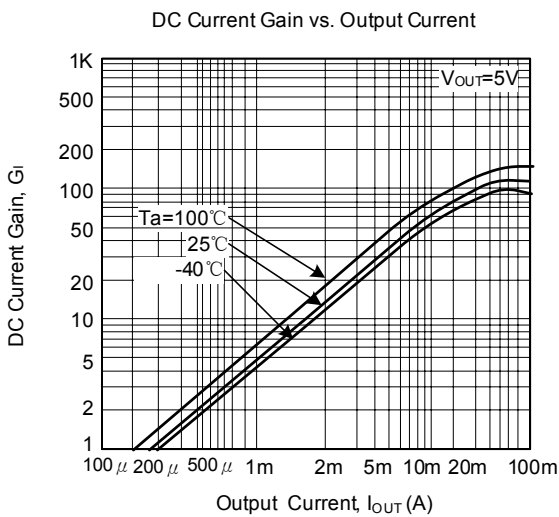
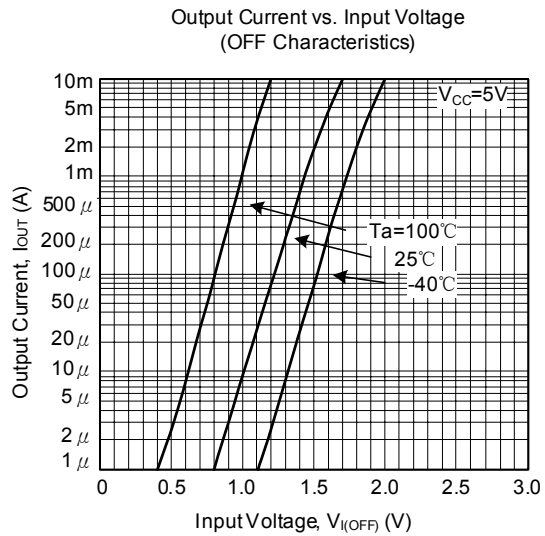
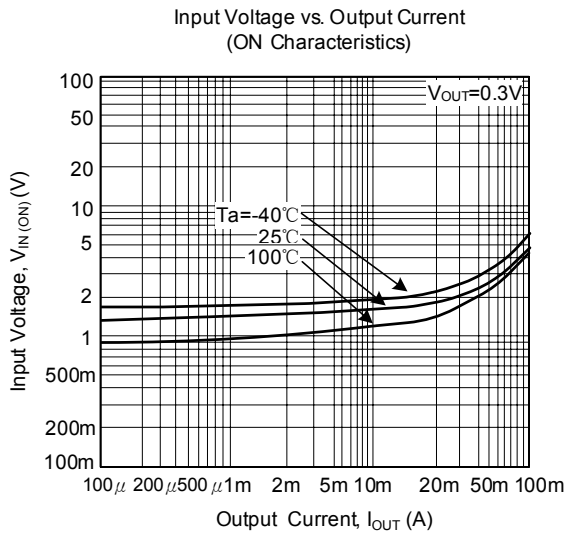
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

### ■ ELECTRICAL SPECIFICATIONS (Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	$V_{IN(OFF)}$	$V_{CC} = 5V, I_{OUT} = 100\mu A$			0.5	V
	$V_{IN(ON)}$	$V_{OUT} = 0.3V, I_{OUT} = 20mA$	3			
Output Voltage	$V_{OUT(ON)}$	$I_{OUT}/I_{IN} = 10mA/0.5mA$		0.1	0.3	V
Input Current	$I_{IN}$	$V_{IN} = 5V$			3.8	mA
Output Current	$I_{OUT(OFF)}$	$V_{CC} = 50V, V_{IN} = 0V$			0.5	$\mu A$
DC Current Gain	$G_{IN}$	$V_{OUT} = 5V, I_{OUT} = 20mA$	20			
Input Resistance	$R_1$		1.54	2.2	2.86	K $\Omega$
Resistance Ratio	$R_2/R_1$		0.8	1	1.2	
Transition Frequency	$f_T$	$V_{CE} = 10V, I_E = -5mA, f = 100MHz$ *		250		MHz

\* Transition frequency of the device

## ■ TYPICAL CHARACTERISTIC



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