



DTC123E

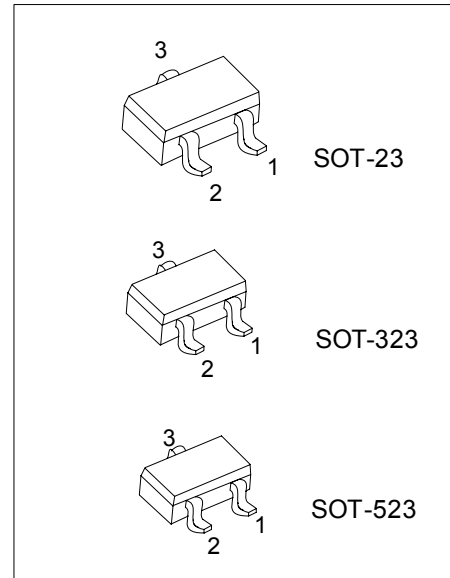
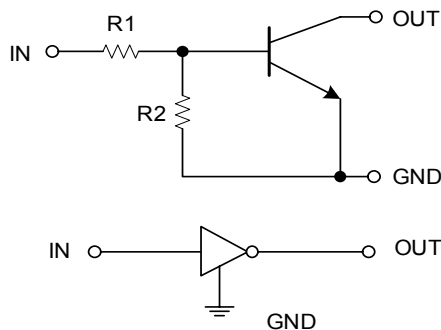
NPN EPITAXIAL SILICON TRANSISTOR

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



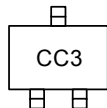
*Pb-free plating product number:DTC123EL

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	P _D	SOT-523	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.

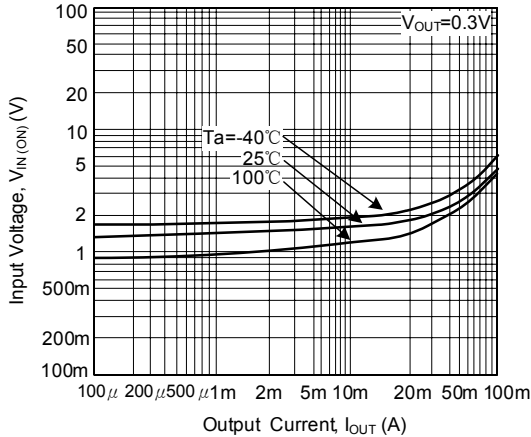
■ ELECTRICAL SPECIFICATIONS (Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	V _{IN(OFF)}	V _{CC} = 5V, I _{OUT} = 100μA			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	μA
DC Current Gain	G _{IN}	V _{OUT} = 5V, I _{OUT} = 20mA	20			
Input Resistance	R ₁		1.54	2.2	2.86	KΩ
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

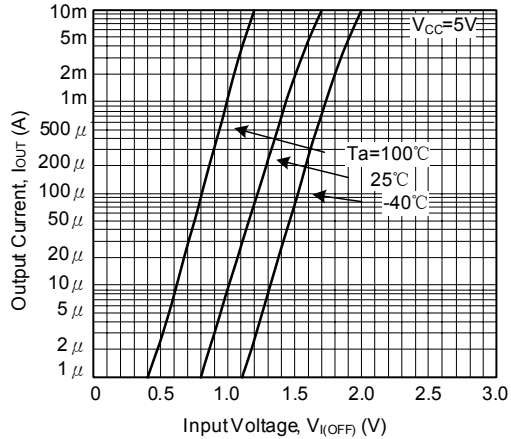
* Transition frequency of the device

■ TYPICAL CHARACTERISTIC

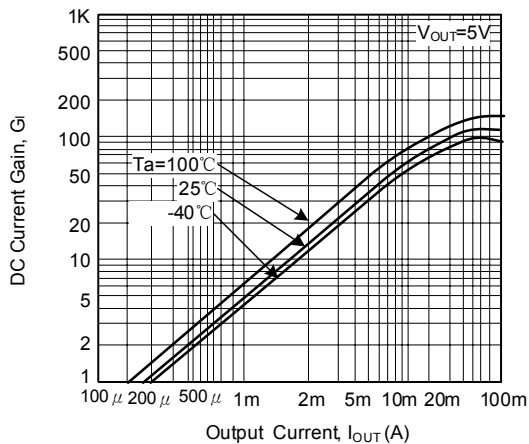
Input Voltage vs. Output Current
(ON Characteristics)



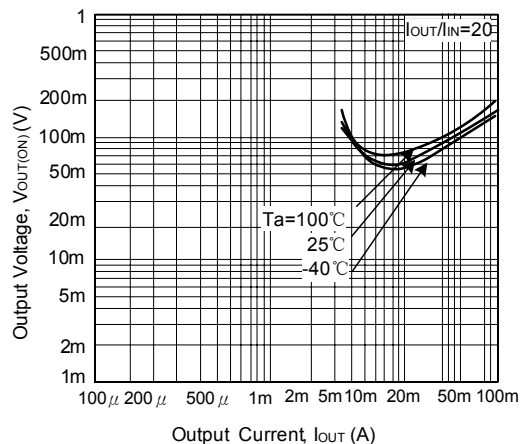
Output Current vs. Input Voltage
(OFF Characteristics)



DC Current Gain vs. Output Current



Output Voltage vs. Output Current



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