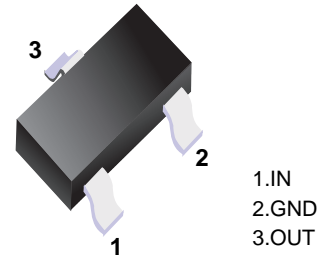
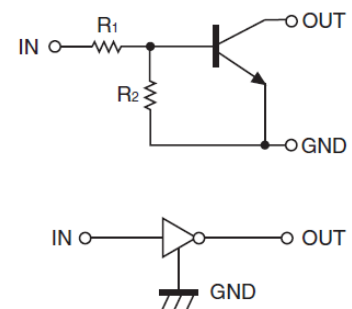


**■ Digital Transistor (NPN)**
**■ Features**

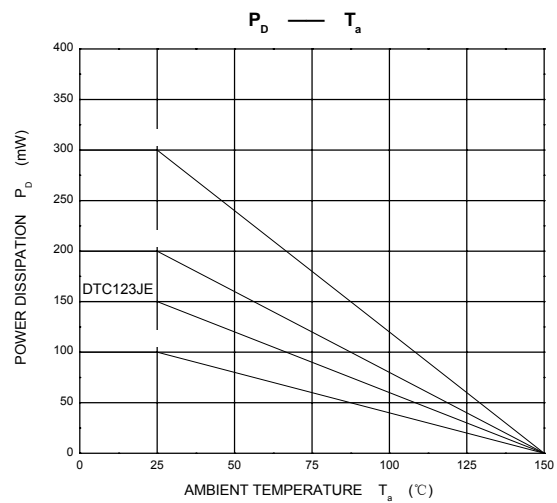
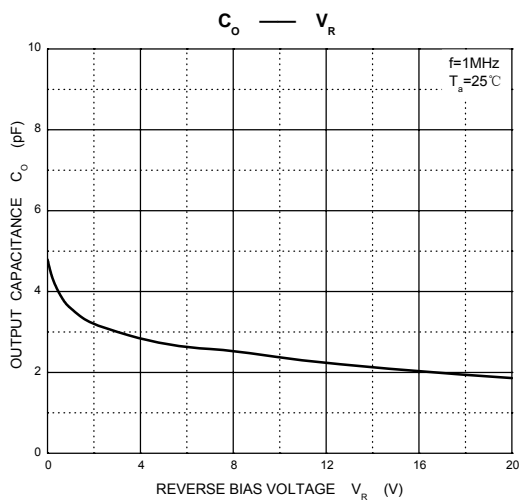
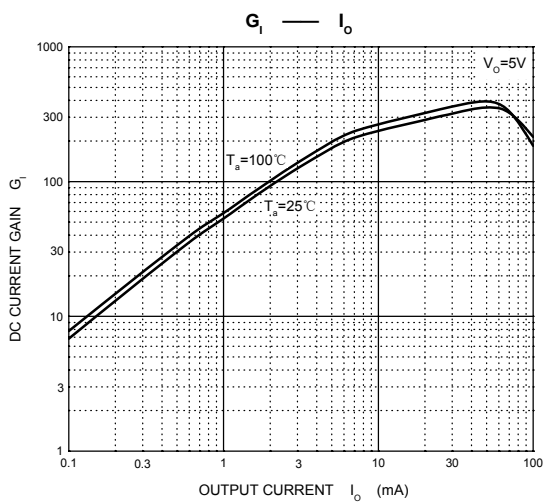
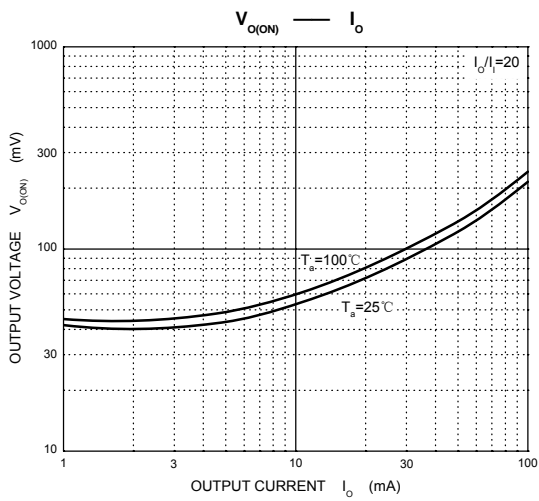
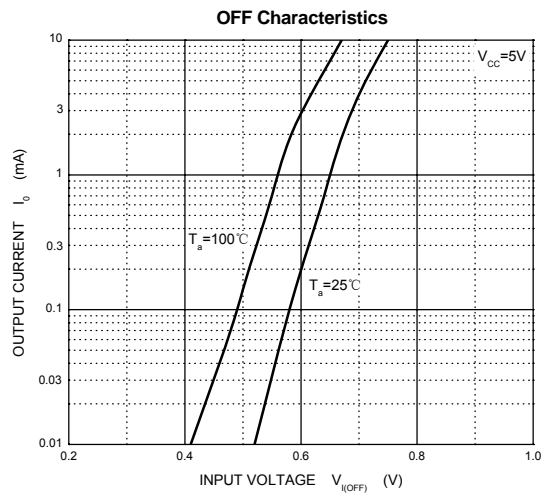
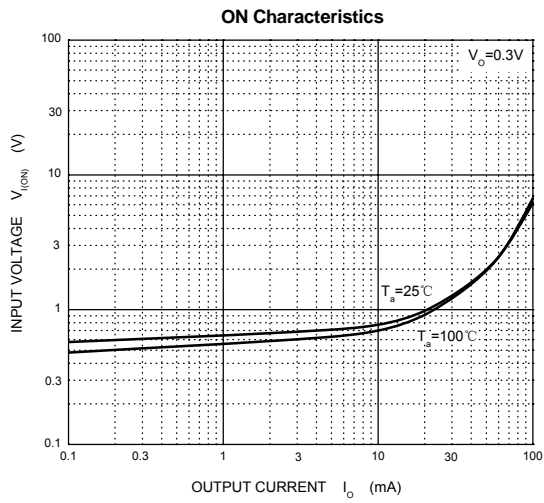
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit)
- The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input.They also have the advantage of almost completely eliminating parasitic effects
- Only the on/off conditions need to be set for operation, making device design easy


**■ Simplified outline(SOT-523)**

**Equivalent Circuit**
**MAXIMUM RATINGS(Ta=25°C unless otherwise noted)**

Symbol	Parameter	DTC123JE	Unit
V <sub>CC</sub>	Supply Voltage	50	V
V <sub>IN</sub>	Input Voltage	-5~+12	V
I <sub>O</sub>	Output Current	100	mA
P <sub>D</sub>	Power Dissipation	150	
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C

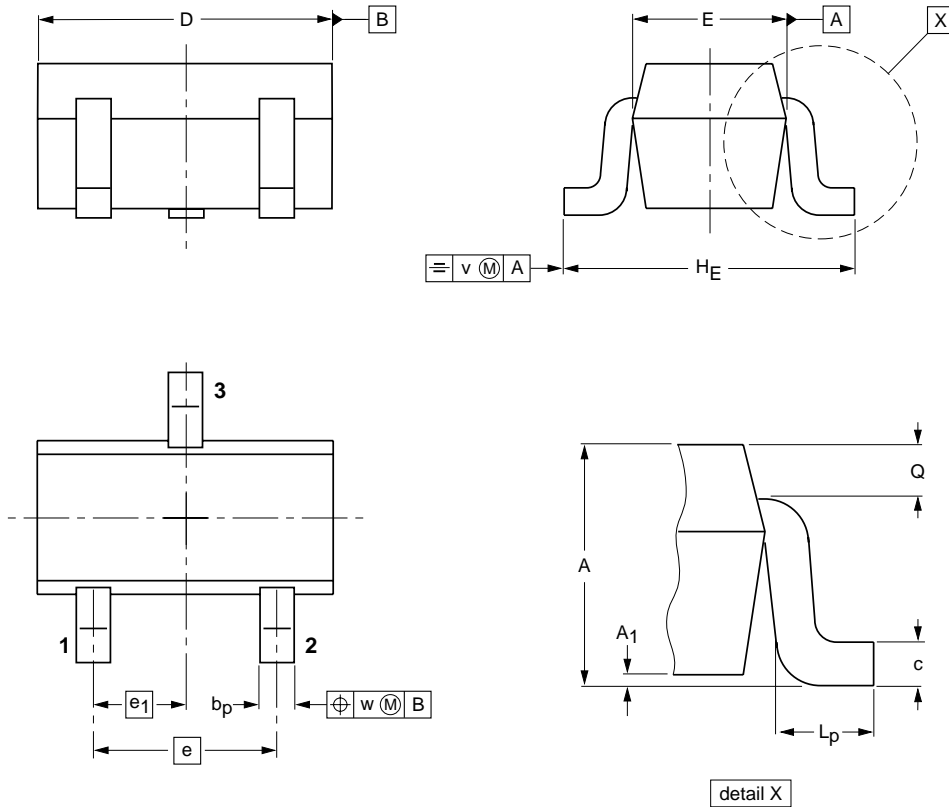
**ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)**

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	V <sub>I(off)</sub>	V <sub>CC</sub> =5V, I <sub>O</sub> =100μA	0.5			V
	V <sub>I(on)</sub>	V <sub>O</sub> =0.3V, I <sub>O</sub> =5mA			1.1	V
Output voltage	V <sub>O(on)</sub>	I <sub>O</sub> /I <sub>I</sub> =5mA/0.25mA		0.1	0.3	V
Input current	I <sub>I</sub>	V <sub>I</sub> =5V			3.6	mA
Output current	I <sub>O(off)</sub>	V <sub>CC</sub> =50V, V <sub>I</sub> =0			0.5	μA
DC current gain	G <sub>1</sub>	V <sub>O</sub> =5V, I <sub>O</sub> =10mA	80			
Input resistance	R <sub>1</sub>		1.54	2.2	2.86	kΩ
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>		17	21	26	
Transition frequency	f <sub>T</sub>	V <sub>O</sub> =10V, I <sub>O</sub> =5mA, f=100MHz		250		MHz



**Package Outline**

**SOT-523**



**DIMENSIONS (mm are the original dimensions)**

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	0.95 0.60	0.1	0.30 0.15	0.25 0.10	1.8 1.4	0.9 0.7	1	0.5	1.75 1.45	0.45 0.15	0.23 0.13	0.2	0.2

**Summary of Packing Options**

Package	Packing Description	Packing Quantity	Industry Standard
SOT-523	Tape/Reel, 7" reel	3000	EIA-481-1