

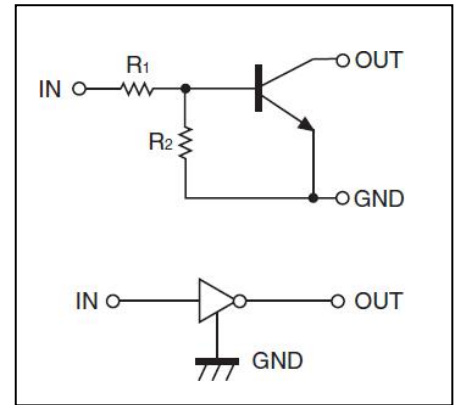
Digital Transistors (Built-in Resistors)

• Equivalent Circuit

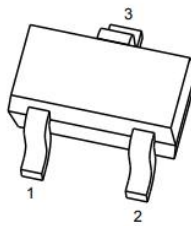
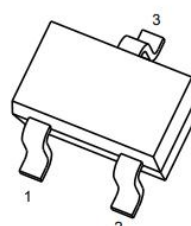
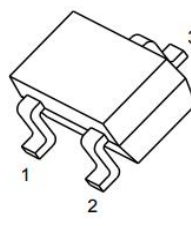
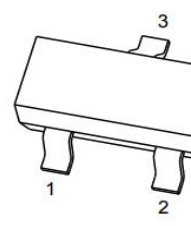
DIGITAL TRANSISTOR (NPN)

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



PIN CONNENCTIONS and MARKING

<p>DTC123JE</p>  <p>SOT-523</p> <p>1. IN 2. GND 3. OUT</p>	<p>DTC123JUA</p>  <p>SOT-323</p> <p>1. IN 2. GND 3. OUT</p>
<p>DTC123JKA</p>  <p>SOT-23-3L</p> <p>1. IN 2. GND 3. OUT</p>	<p>DTC123JCA</p>  <p>SOT-23</p> <p>1. IN 2. GND 3. OUT</p>

ORDERING INFORMATION

Part Number	MARKING	Package	Packing Method	Pack Quantity
DTC123JE	E42	SOT-523	Reel	3000pcs/Reel
DTC123JUA	E42	SOT-323	Reel	3000pcs/Reel
DTC123JKA	E42	SOT-23-3L	Reel	3000pcs/Reel
DTC123JCA	E42	SOT-23	Reel	3000pcs/Reel

MAXIMUM RATINGS($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Limits(DTC123J□)						Unit
		M	E	UA	KA	CA	SA	
V_{CC}	Supply Voltage	50						V
V_{IN}	Input Voltage	-5~+12						V
I_o	Output Current	100						mA
P_D	Power Dissipation	100	150	200	200	200	300	mW
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55~+150						$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	$V_{I(off)}$	$V_{CC}=5V, I_o=100\mu\text{A}$	0.5			V
	$V_{I(on)}$	$V_o=0.3V, I_o=5\text{mA}$			1.1	V
Output voltage	$V_{O(on)}$	$I_o/I_i=5\text{mA}/0.25\text{mA}$		0.1	0.3	V
Input current	I_i	$V_i=5V$			3.6	mA
Output current	$I_{O(off)}$	$V_{CC}=50V, V_i=0$			0.5	μA
DC current gain	G_1	$V_o=5V, I_o=10\text{mA}$	80			
Input resistance	R_1		1.54	2.2	2.86	$\text{k}\Omega$
Resistance ratio	R_2/R_1		17	21	26	
Transition frequency	f_r	$V_o=10V, I_o=5\text{mA}, f=100\text{MHz}$		250		MHz



Typical Characteristics

