



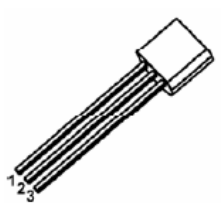
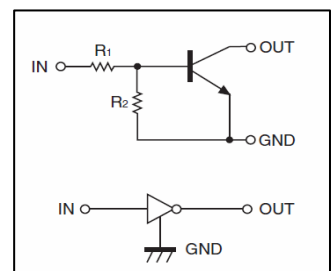
**Digital Transistors (Built-in Resistors)**

**DTC113ZVA** DIGITAL TRANSISTOR (NPN)

**FEATURE**

- 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 EQUIVALENT CIRCUIT**

<p><b>DTC113ZVA</b></p> 	<p><b>TO-92</b></p> <ol style="list-style-type: none"> <li>1. GND</li> <li>2. OUT</li> <li>3. IN</li> </ol>	<p><b>Equivalent Circuit</b></p> 
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**MAXIMUM RATINGS(Ta=25°C unless otherwise noted)**

Symbol	Parameter	Limit	Unit
V <sub>CC</sub>	Supply Voltage	50	V
V <sub>IN</sub>	Input Voltage	-5~+10	V
I <sub>O</sub>	Output Current	100	mA
P <sub>D</sub>	Power Dissipation	625	mW
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	Test conditions	Min	Typ	Max	Unit
Input voltage	V <sub>I(off)</sub>	V <sub>CC</sub> =5V, I <sub>O</sub> =100μA	0.3			V
	V <sub>I(on)</sub>	V <sub>O</sub> =0.3V, I <sub>O</sub> =20mA			3	V
Output voltage	V <sub>O(on)</sub>	I <sub>O</sub> /I <sub>I</sub> =10mA/0.5mA			0.3	V
Input current	I <sub>I</sub>	V <sub>I</sub> =5V			7.2	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>I</sub>	V <sub>O</sub> =5V, I <sub>O</sub> =5mA	33			
Input resistance	R <sub>1</sub>		0.7	1	1.3	kΩ
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>		8	10	12	
Transition frequency	f <sub>T</sub>	V <sub>O</sub> =10V, I <sub>O</sub> =5mA, f=100MHz		250		MHz

# Typical Characteristics

# DTC113ZVA

