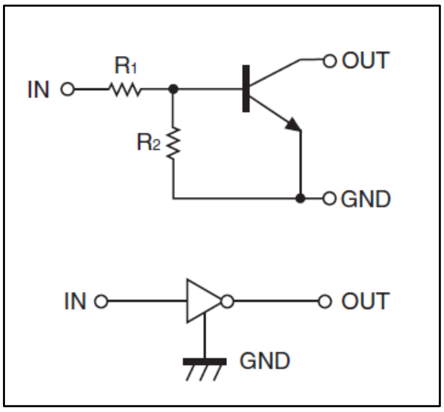
TAIGITON **DTC113ZE/ZUA/ZKA/ZCA**

Digital Transistors (Built-in Resistors)

· **Equivalent Circuit**

DIGITAL TRANSISTOR (NPN)

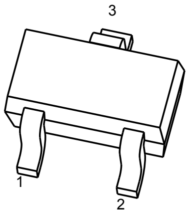


FEATURES

- 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

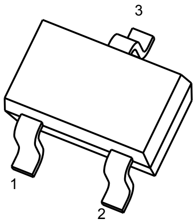
PIN CONNENCTIONS and MARKING

DTC113ZE **SOT-523**



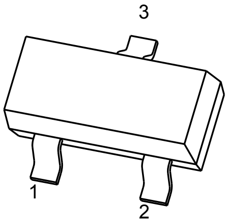
1. IN
2. GND 3
. OUT

DTC113ZUA **SOT-323**



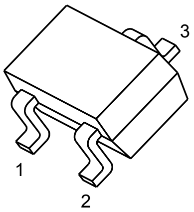
1. IN
2. GND 3
. OUT

DTC113ZCA **SOT-23**



1. IN
2. GND 3
. OUT

DTC113ZKA **SOT-23-3L**



1. IN
2. GND
3. OUT

ORDERING INFORMATION

Part Number	MARKING (1)	Package	Packing Method	Pack Quantity
DTC113ZE	**E21**	SOT-523	Reel	3000pcs/Reel
DTC113ZUA	**Ẹ21**	SOT-323	Reel	3000pcs/Reel
DTC113ZKA	**E21**	SOT-23-3L	Reel	3000pcs/Reel
DTC113ZCA	**Ẹ21**	SOT-23	Reel	3000pcs/Reel

Notes: (1). Solid dot = Green molding compound device, if none, the normal device.
(2). XXX=Code

MAXIMUM RATINGS(Ta=25℃ unless otherwise noted)

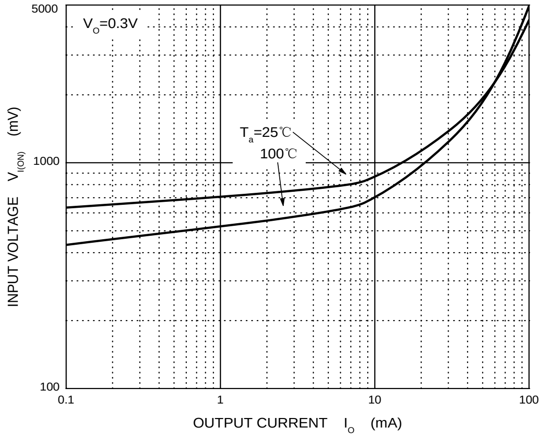
Symbol	Parameter	Limits(DTC113Z□)						Unit
		M	E	UA	CA	KA	SA	
V_{CC}	Supply Voltage	50						V
V_{IN}	Input Voltage	-5～+10						V
I_O	Output Current	100						mA
P_D	Power Dissipation	100	150	200	200	200	300	mW
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55～+150						℃

ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

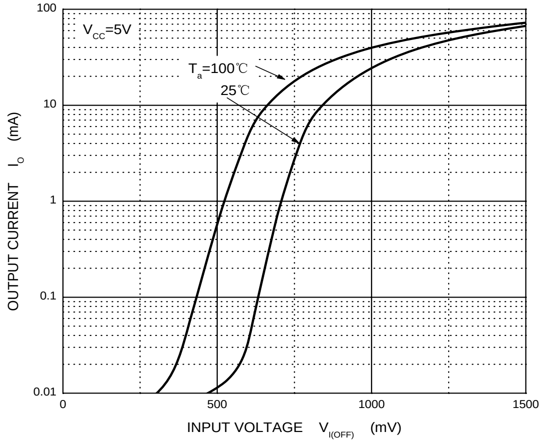
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	$V_{I(off)}$	V_{CC}=5V,I_O=100μA	0.3			V
	$V_{I(on)}$	V_O=0.3V,I_O=20mA			3	V
Output voltage	$V_{O(on)}$	I_O/I_I=10mA/0.5mA			0.3	V
Input current	I_I	V_I=5V			7.2	mA
Output current	$I_{O(off)}$	V_{CC}=50V,V_I=0			0.5	μA
DC current gain	G_I	V_O=5V,I_O=5mA	33			
Input resistance	R_1		0.7	1	1.3	kΩ
Resistance ratio	R_2/R_1		8	10	12	
Transition frequency	f_T	V_O=10V ,I_O=5mA,f=100MHz		250		MHz

Typical Characteristics

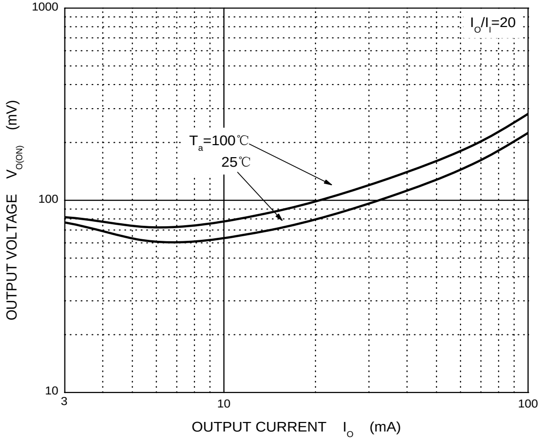
ON Characteristics



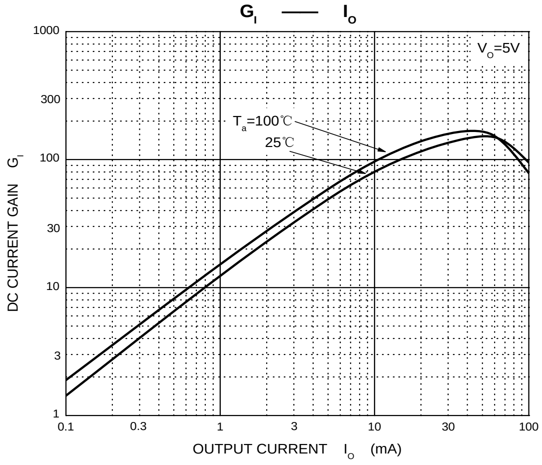
OFF Characteristics



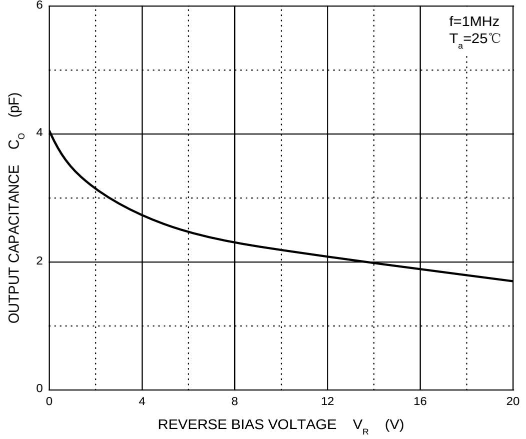
$V_{O(ON)}$ —— I_O



G_I —— I_O



C_O —— V_R



P_D —— T_a