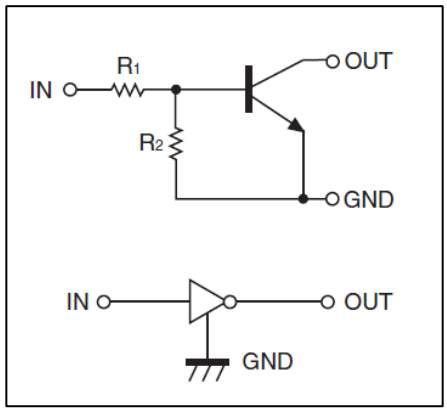
DTC143ZM/DTC143ZE/DTC143ZUA
DTC143ZKA /DTC143ZCA/DTC143ZSA

DIGITAL TRANSISTOR (NPN)

• **Equivalent Circuit**

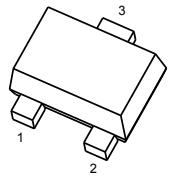


Features

- 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

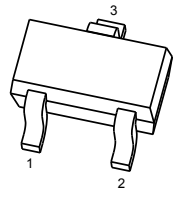
PIN CONNENCTIONS and MARKING

DTC143ZM — **SOT-723**



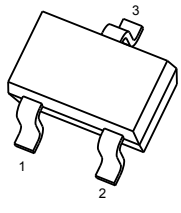
1. IN
2. GND
3. OUT

DTC143ZE — **SOT-523**



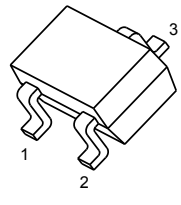
1. IN
2. GND
3. OUT

DTC143ZUA — **SOT-323**



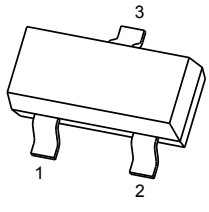
1. IN
2. GND
3. OUT

DTC143ZKA — **SOT-23-3L**



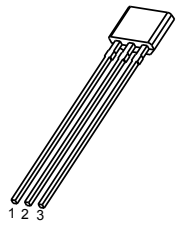
1. IN
2. GND
3. OUT

DTC143ZCA — **SOT-23**



1. IN
2. GND
3. OUT

DTC143ZSA — **TO-92S**



1. GND
2. OUT
3. IN

ORDERING INFORMATION

Part Number	MARKING (1)	Package	Packing Method	Pack Quantity
DTC143ZM	E23	SOT-723	Reel	8000pcs/Reel
DTC143ZE	E23	SOT-523	Reel	3000pcs/Reel
DTC143ZUA	E23	SOT-323	Reel	3000pcs/Reel
DTC143ZKA	E23	SOT-23-3L	Reel	3000pcs/Reel
DTC143ZCA	E23	SOT-23	Reel	3000pcs/Reel
DTC143ZSA	C143 Z	TO-92S	Bulk	1000pcs/Bag
DTC143ZSA-TA	C143 Z	TO-92S	Tape	3000pcs/Box

MAXIMUM RATINGS(Ta=25℃ unless otherwise noted)

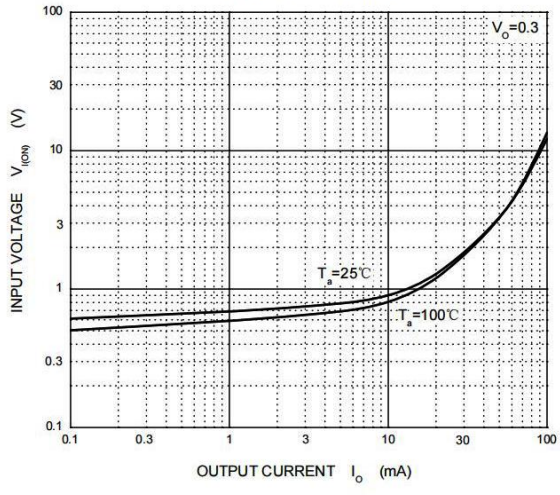
Symbol	Parameter	Limits(DTC143Z□)						Unit
		M	E	UA	CA	KA	SA	
V_{CC}	Supply Voltage	50						V
V_{IN}	Input Voltage	-5～+30						V
I_O	Output Current	100						mA
P_D	Power Dissipation	100	150	200	200	200	300	mW
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55～+150						℃

ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

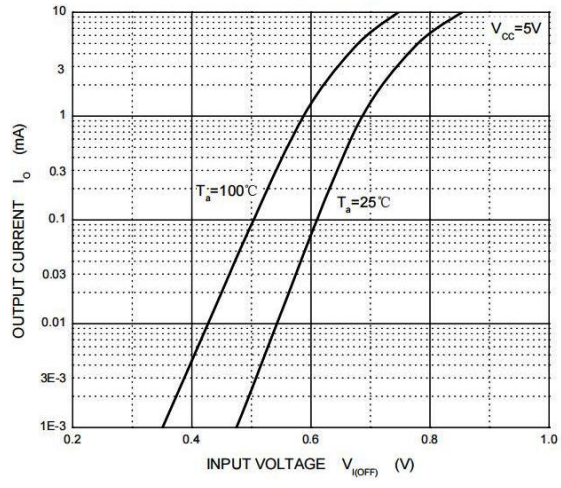
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	$V_{I(off)}$	V_{CC}=5V,I_O=100μA	0.5			V
	$V_{I(on)}$	V_O=0.3V ,I_O=5mA			1.3	V
Output voltage	$V_{O(on)}$	I_O/I_I=5mA/0.25mA		0.1	0.3	V
Input current	I_I	V_I=5V			1.8	mA
Output current	$I_{O(off)}$	V_{CC}=50V,V_I=0			0.5	μA
DC current gain	G_I	V_O=5V,I_O=10mA	80			
Input resistance	R_1		3.29	4.7	6.11	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

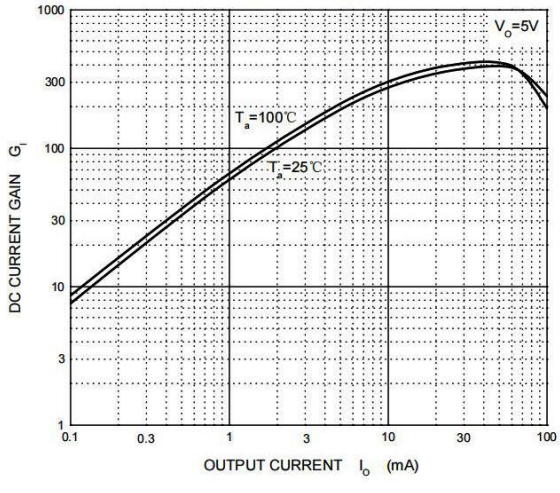
ON Characteristics



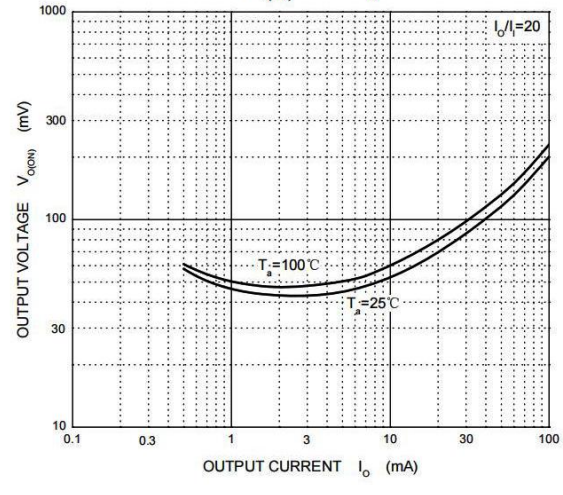
OFF Characteristics



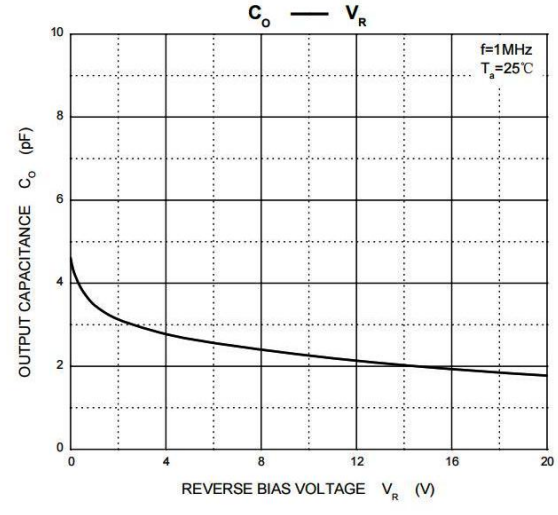
G_I — I_O



$V_{O(ON)}$ — I_O



C_O — V_R



P_D — T_a