



Digital Transistors (Built-in Resistors)

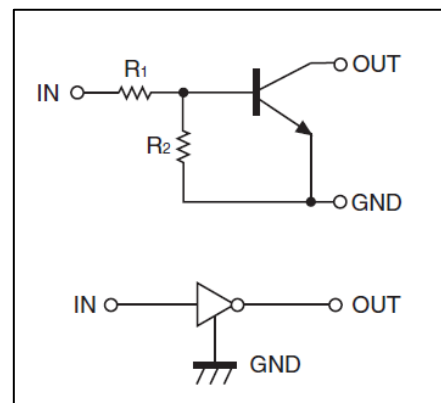
DTC143ZM/DTC143ZE/DTC143ZUA DTC143ZKA /DTC143ZCA/DTC143ZSA

DIGITAL TRANSISTOR (NPN)

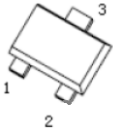
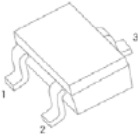
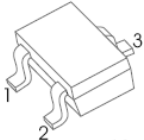
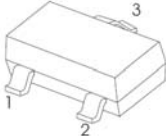
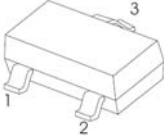
FEATURES

- 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

• Equivalent Circuit



PIN CONNENCTIONS and MARKING

DTC143ZM  MARKING:E23	SOT-723 1. IN 2. GND 3. OUT	DTC143ZE  MARKING: E23	SOT-523 1. IN 2. GND 3. OUT
DTC143ZUA  MARKING: E23	SOT-323 1. IN 2. GND 3. OUT	DTC143ZKA  MARKING: E23	SOT-23-3L 1. IN 2. GND 3. OUT
DTC143ZCA  MARKING: E23	SOT-23 1.IN 2.GND 3.OUT	DTC143ZSA  123	TO-92S 1. GND 2. OUT 3. IN

MAXIMUM RATINGS(Ta=25°C 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	Junction Temperature	150						°C
T_{stg}	Storage Temperature	-55~+150						°C

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	$V_{I(off)}$	$V_{CC}=5V, I_O=100\mu A$	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	k Ω
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

DTC143ZXX

