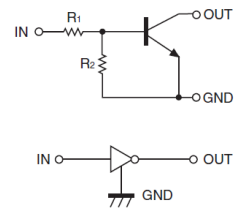


## Features

- 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

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Schematic

## MAXIMUM RATINGS(Ta=25°C unless otherwise noted)

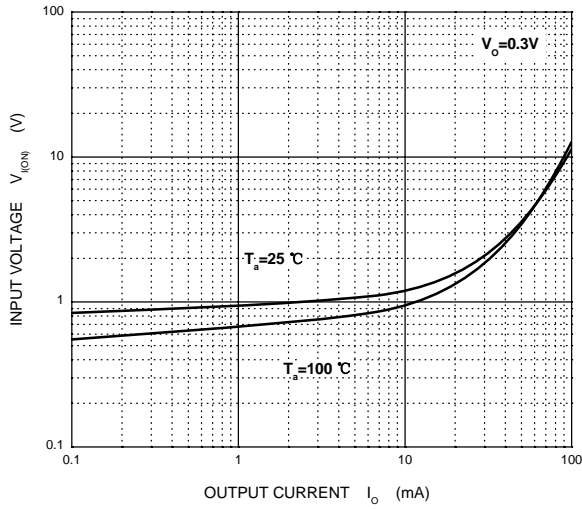
Symbol	Parameter	Limits(DTC143X□)						Unit
		M	E	UA	CA	KA	SA	
V <sub>CC</sub>	Supply Voltage	50						V
V <sub>IN</sub>	Input Voltage	-7~+20						V
I <sub>O</sub>	Output Current	100						mA
P <sub>D</sub>	Power Dissipation	100	150	200	200	200	300	mW
T <sub>j</sub>	Junction Temperature	150						°C
T <sub>stg</sub>	Storage Temperature	-55~+150						°C

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

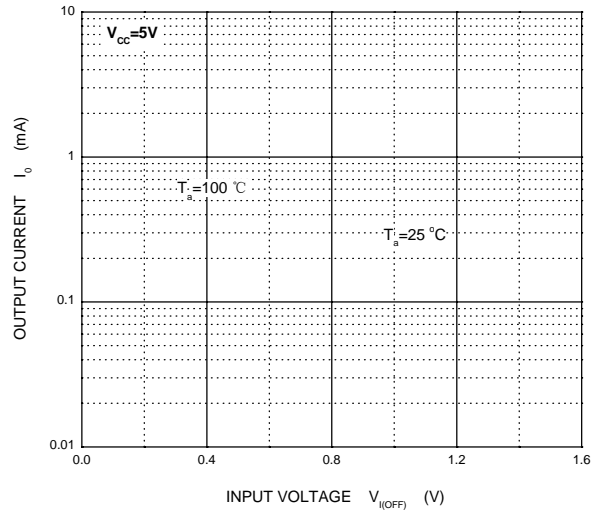
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	V <sub>I(off)</sub>	V <sub>CC</sub> =5V, I <sub>O</sub> =100μA	0.3			V
	V <sub>I(on)</sub>	V <sub>O</sub> =0.3V, I <sub>O</sub> =20mA			2.5	V
Output voltage	V <sub>O(on)</sub>	I <sub>O</sub> /I <sub>I</sub> =10mA/0.5mA		0.1	0.3	V
Input current	I <sub>I</sub>	V <sub>I</sub> =5V			1.8	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> =10mA	30			
Input resistance	R <sub>1</sub>		3.29	4.7	6.11	kΩ
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>		1.7	2.1	2.6	
Transition frequency	f <sub>T</sub>	V <sub>O</sub> =10V, I <sub>O</sub> =5mA, f=100MHz		250		MHz

RATING AND CHARACTERISTIC CURVES

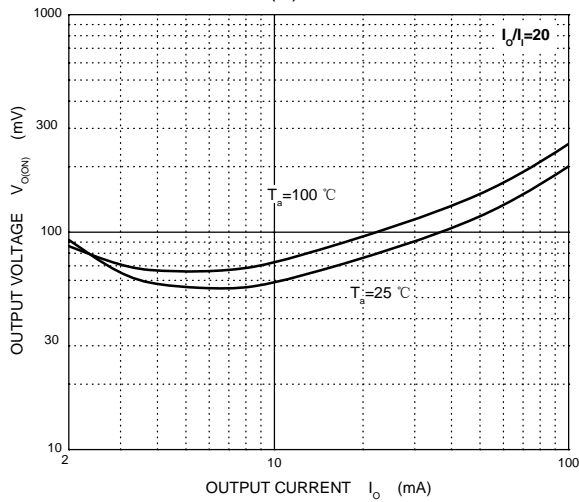
ON Characteristics



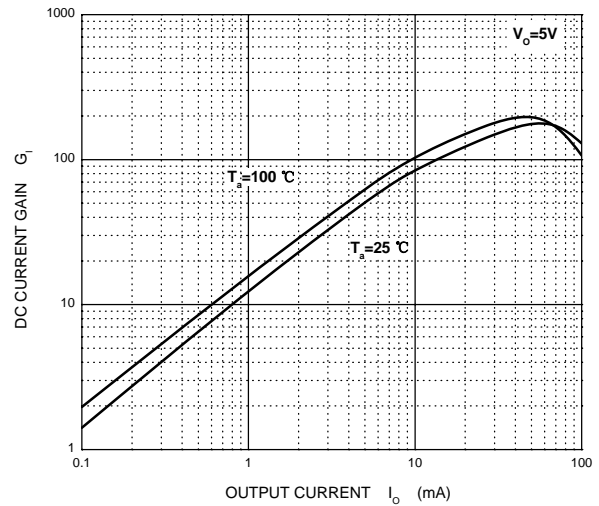
OFF Characteristics



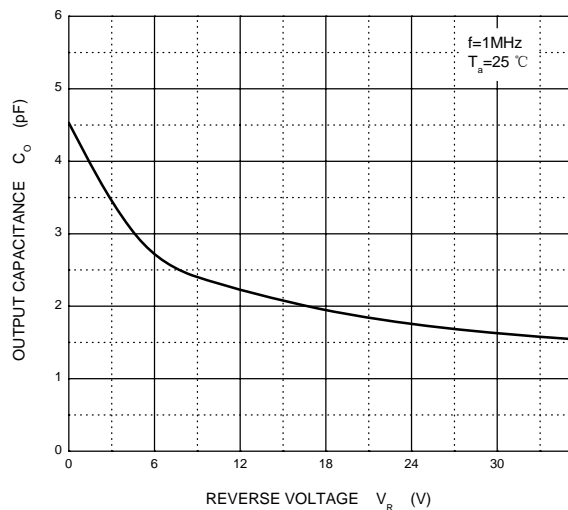
$V_{O(ON)}$  —  $I_O$



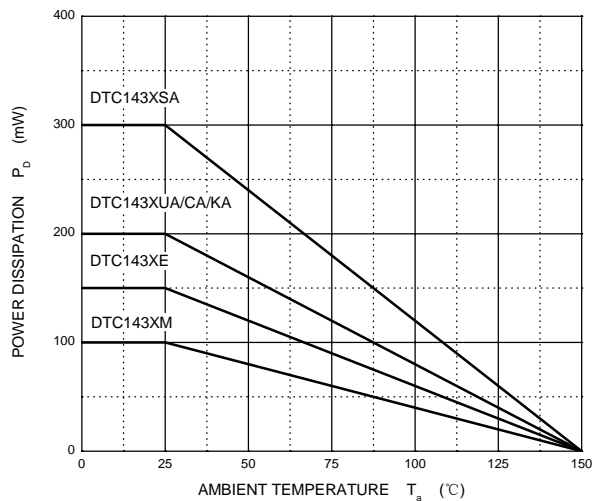
$G_I$  —  $I_O$



$C_O$  —  $V_R$



$P_D$  —  $T_a$



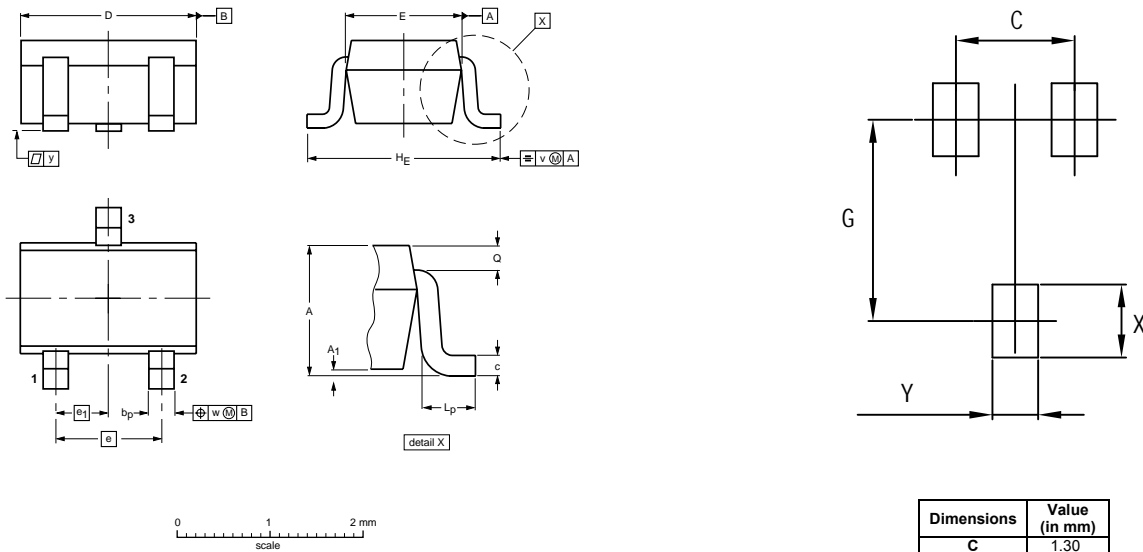
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150 °C
	-Temperature Max ( $T_{s(max)}$ )	+200 °C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak)		3 °C/sec. Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3 °C/sec. Max
Reflow	-Temperature ( $T_L$ ) (Liquid us)	+217 °C
	-Temperature ( $t_L$ )	60-150 secs.
Peak Temp ( $T_P$ )		+260(+0/-5) °C
Time within 5 °C of actual Peak Temp ( $t_p$ )		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp ( $T_P$ )		8 min. Max
Do not exceed		+260 °C



Package Dimensions & Suggested Pad Layout

SOT-323



Dimensions	Value (in mm)
C	1.30
G	2.00
X	0.90
Y	0.65

DIMENSIONS (mm are the original dimensions)

UNIT	A	A1 max	bp	c	D	E	e	e1	HE	Lp	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

Tape & reel specification

Tape		Symbol	Dimension (mm)
		P0	4.00±0.20
		P1	4.00±0.20
		P2	2.00±0.20
		D0	1.55±0.20
		D1	1.00±0.20
		E	1.55±0.25
		F	3.60±0.20
		W	8.00±0.20
		A0	2.50±0.20
		B0	2.60±0.20
		K0	1.40±0.20
		T	0.20±0.20
		D2	177.0±5.0
		D3	55Min.
		D4	R24.6±2.0
G	R82.0±2.0		
I	13.0±2.0		
W1	10.20±3.0		
Quantity: 3000PCS			

7" Reel

