

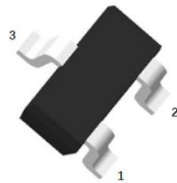
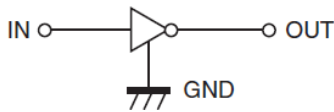
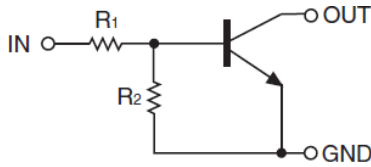
NPN 100mA 50V SOT-523 Digital Transistors NPN (Built-in Resistors)

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
- Device meets MSL 1 requirements

Ordering Information

Part Number	Shipping	Reel Size
PDTC143ZE	3000/Tape & Reel	7 inch



1: IN
2: GND
3: OUT

SOT-523

Equivalent circuit

Top view

Marking: E23

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

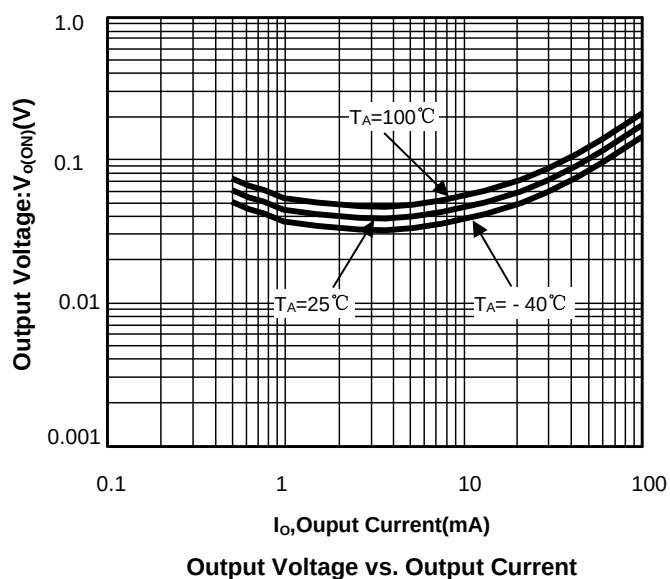
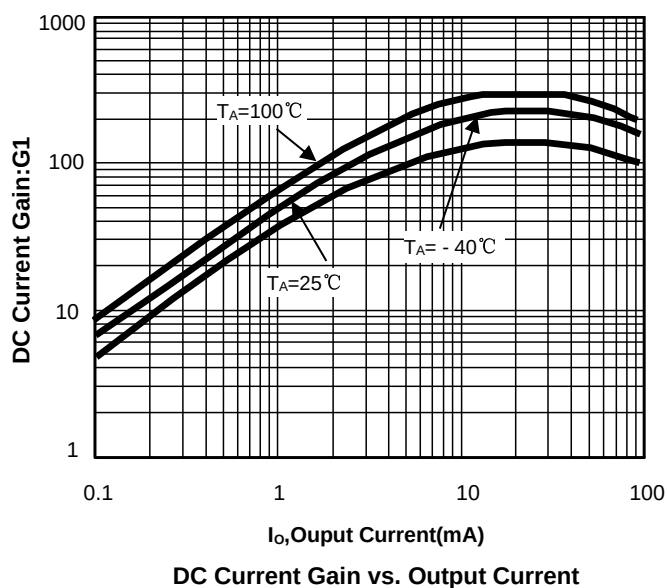
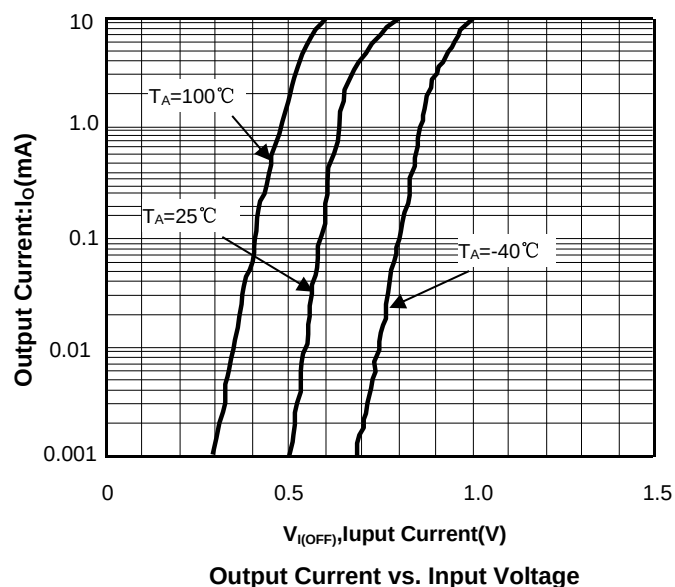
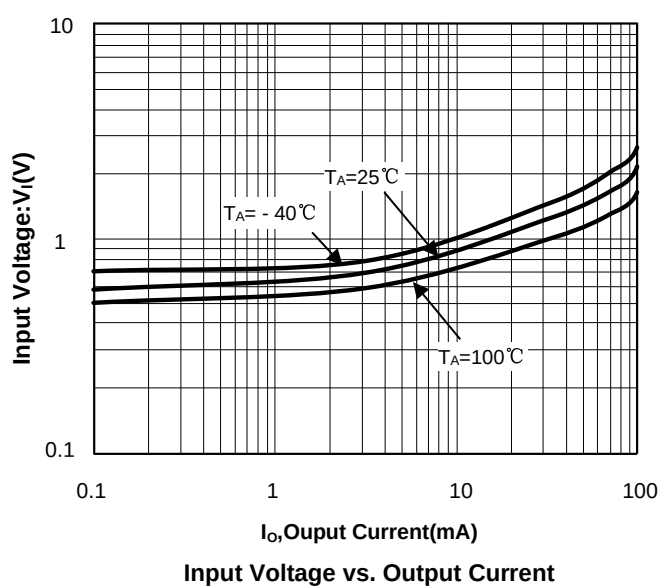
Parameter	Symbol	Value	Unit
Supply voltage	V_{CC}	50	V
Input voltage	V_{IN}	-5~+30	V
Output current	I_O	100	mA
Power Dissipation	P_D	150	mW
Junction temperature	T_j	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-50~ +150	$^{\circ}\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

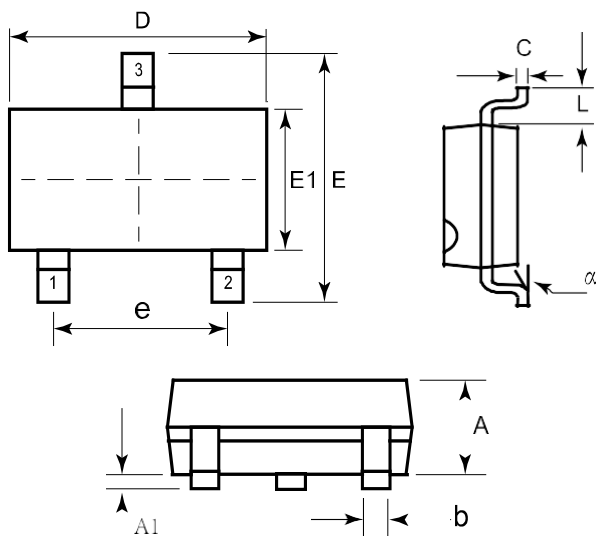
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input voltage	$V_{I(off)}$	$V_{CC}=5V, I_O=100\mu A$	0.5			V
	$V_{I(on)}$	$V_O=0.3V, I_O=5mA$			1.3	V
Output voltage	$V_{O(on)}$	$I_O/I_I=5mA/0.25mA$		0.1	0.3	V
Input current	I_I	$V_I=5V$			1.8	mA

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	$k\Omega$
Resistance ratio	R_2/R_1		8	10	12	
Transition frequency	f_T	$V_O=10V, I_O=5mA, f=100MHz$		250		MHz

Typical Electrical and Thermal Characteristics

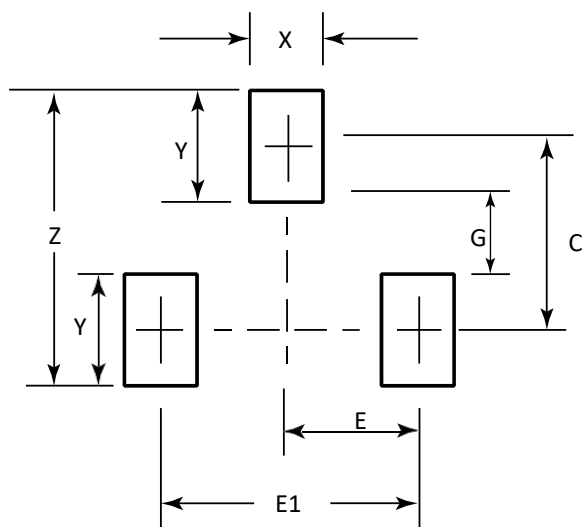


SOT-523 Package Outline Drawing



SYM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.023	0.030	0.031	0.60	0.75	0.80
A1	0.00		0.004	0.00		0.10
b	0.005		0.012	0.15		0.30
C	0.003		0.008	0.10		0.20
D	0.059	0.063	0.067	1.50	1.60	1.70
E	0.057	0.063	0.069	1.45	1.60	1.75
E1	0.029	0.031	0.033	0.75	0.80	0.85
e	0.039 BSC			1.00 BSC		
L	0.009 BSC			0.22 BSC		
α	0°		8°	0°		8°

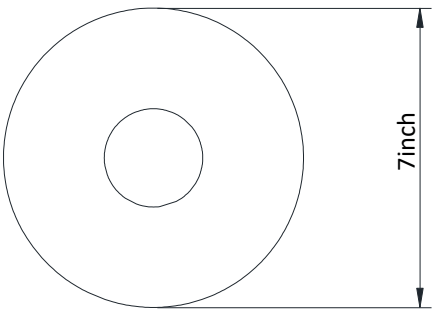
Suggested Land Pattern



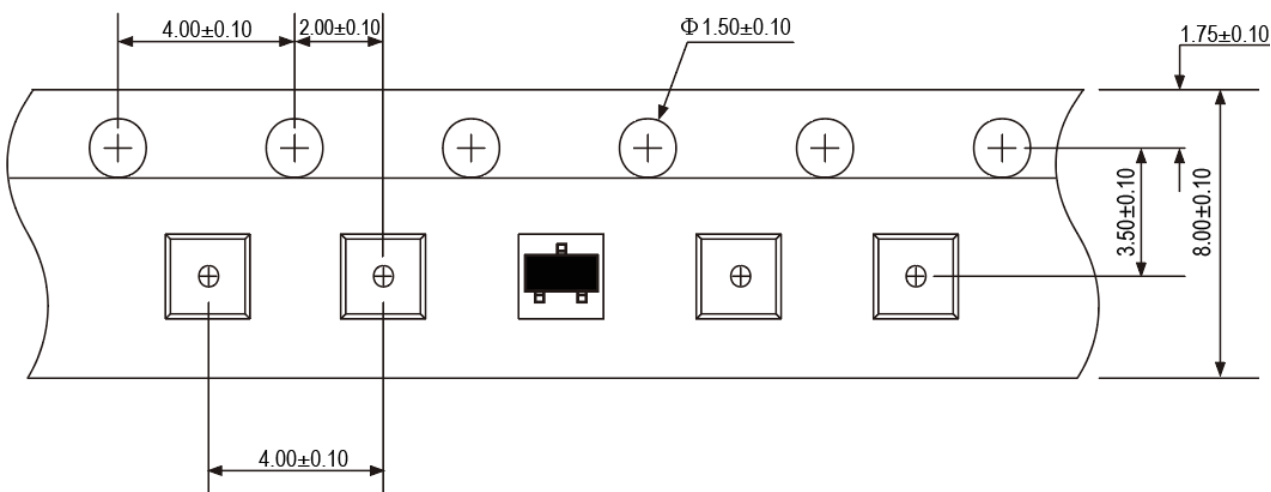
SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	1.40	0.055
E	0.50	0.020
E1	1.00	0.039
G	0.60	0.024
X	0.40	0.016
Y	0.80	0.031
Z	2.20	0.087

TAPE AND REEL INFORMATION

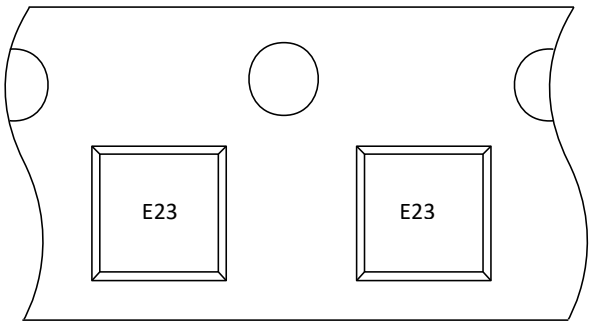
Reel Dimensions



Tape Dimensions



Unit:mm



User Direction of Feed

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Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met. www.pn-silicon.com