

## DATA SHEET

### DTC123YCA

#### DIGITAL TRANSISTORS (NPN)

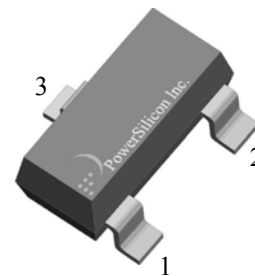
**VOLTAGE** 50 Volts **CURRENT** 100 mA

#### FEATURES

- Built-in bias resistor enable the configuration of an inverter circuit without connecting external input resistors
- 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.
- Lead free and halogen-free.

#### MECHANICAL DATA

- NPN digital transistor
- Built-in resistor types



(1) IN  
(2) GND  
(3) OUT

CASE : SOT-23

#### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTIC

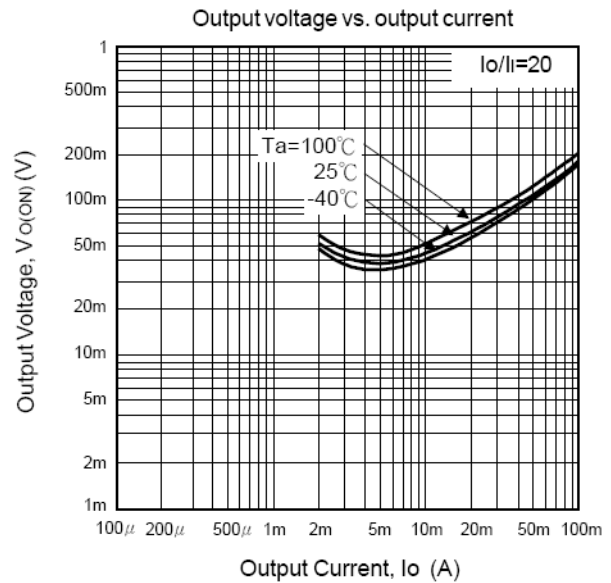
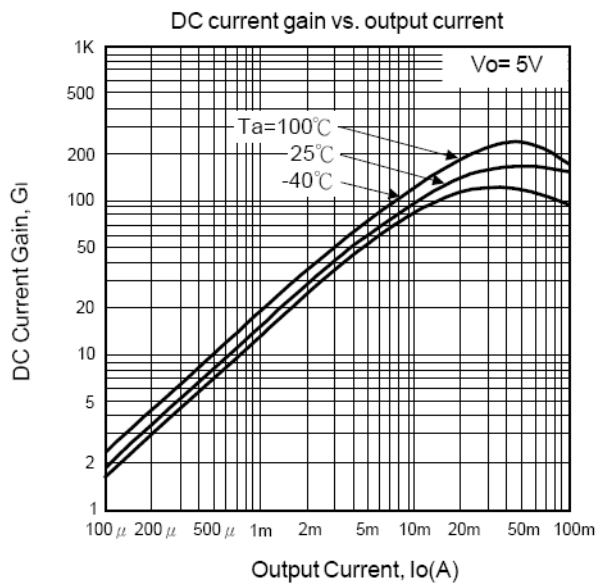
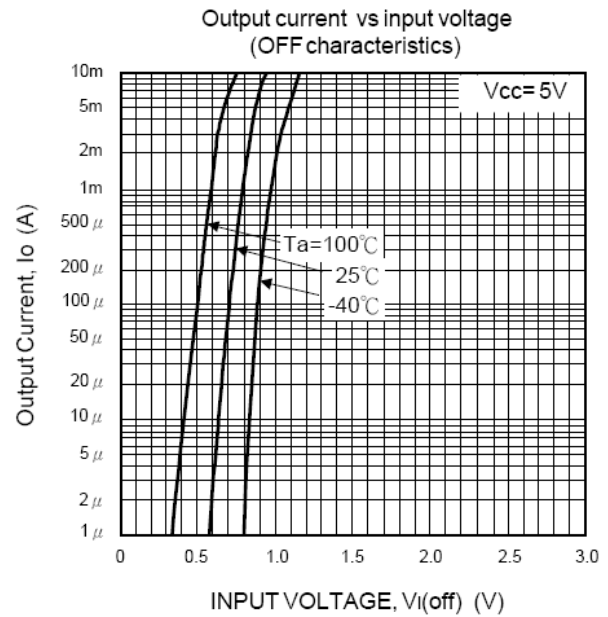
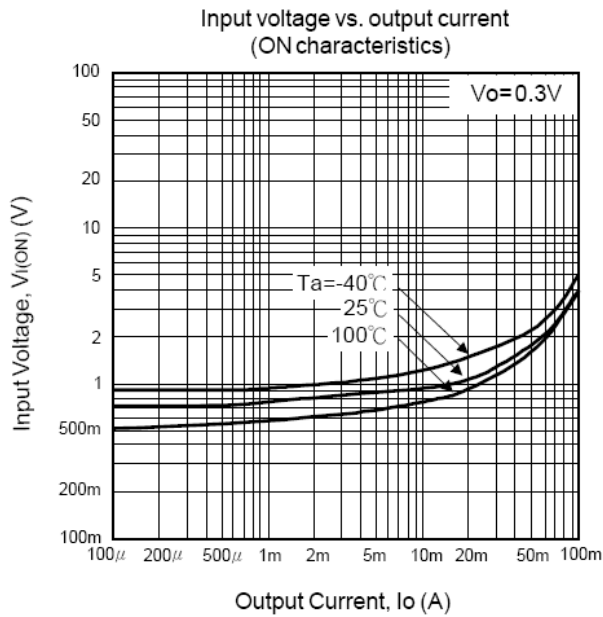
##### MAXIMUM RATINGS(@ T<sub>A</sub>=25°C UNLESS OTHERWISE NOTED)

PARAMETER	SYMBOL	VALUE	UNITS
Supply Voltage	V <sub>CC</sub>	50	V
Input Voltage	V <sub>IN</sub>	-10~30	V
Output Current	I <sub>O</sub>	100	mA
	I <sub>C(MAX)</sub>	100	mA
Power Dissipation	P <sub>D</sub>	200	mW
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>STG</sub>	- 55 to + 150	°C

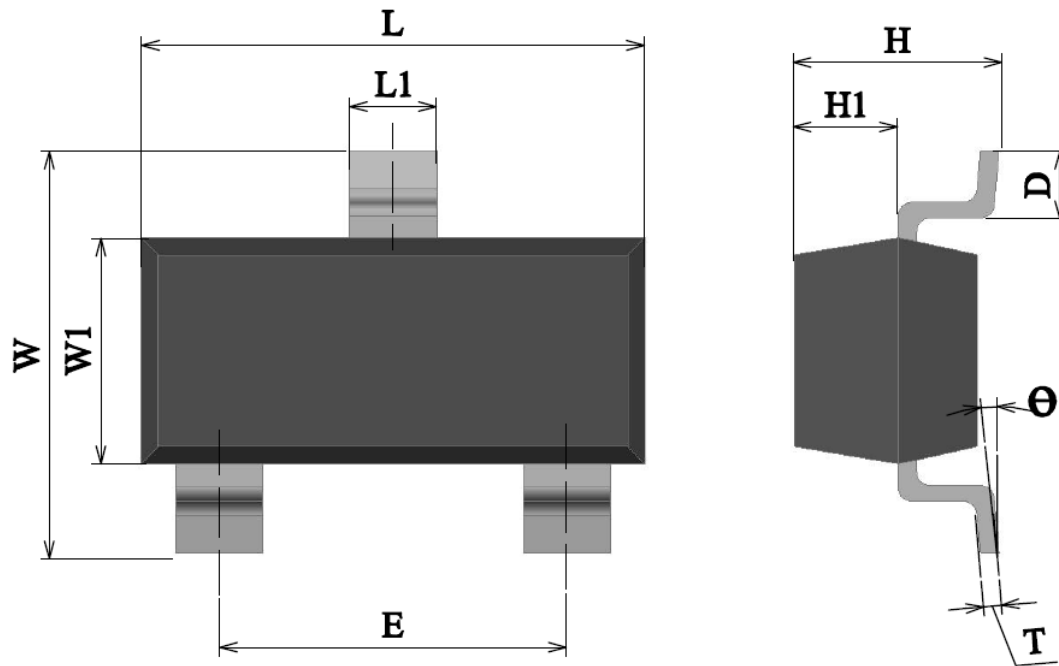
##### ELECTRICAL CHARACTERISTICS (AT T<sub>A</sub> =25°C UNLESS OTHERWISE NOTED)

PARAMETER	CONDITIONS	SYMBOL	MIN.	TYP	MAX.	UNIT
Input Voltage	V <sub>CC</sub> =5V, I <sub>O</sub> =100uA	V <sub>I(off)</sub>	-	-	0.3	V
	V <sub>O</sub> =0.3V, I <sub>O</sub> =20mA	V <sub>I(on)</sub>	3	-	-	V
Output Voltage	I <sub>O</sub> /I <sub>I</sub> =10mA/0.5mA	V <sub>O(on)</sub>	-	-	0.3	V
Input Current	V <sub>I</sub> =5V	I <sub>I</sub>	-	-	3.8	mA
Output Current	V <sub>CC</sub> =50V, V <sub>I</sub> =0V	I <sub>O(off)</sub>	-	-	0.5	μA
DC Current Gain	V <sub>O</sub> =5V, I <sub>O</sub> =5mA	G <sub>I</sub>	33	-	-	-
Resistance Ratio	-	R <sub>2</sub> /R <sub>1</sub>	3.6	4.5	5.5	-
Transition Frequency	V <sub>O</sub> =10V, I <sub>O</sub> =5mA, f=100MHz	f <sub>T</sub>	-	250	-	MHz
Input Resistance	-	R <sub>I</sub>	1.54	2.2	2.86	KΩ

## ELECTRICAL CHARACTERISTIC CURVES



## SOT-23 DIMENSION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
L	2.80	3.10	0.110	0.122
L1	0.30	0.50	0.012	0.020
W	2.25	2.54	0.089	0.100
W1	1.20	1.40	0.047	0.055
E	1.80	2.00	0.071	0.079
H	0.90	1.15	0.035	0.045
H1	0.40	0.80	0.016	0.031
D	0.30	0.50	0.012	0.020
T	0.08	0.15	0.003	0.006
θ	0°	8°	0°	8°