

DATA SHEET

DTC113ZCA

DIGITAL TRANSISTORS (NPN)

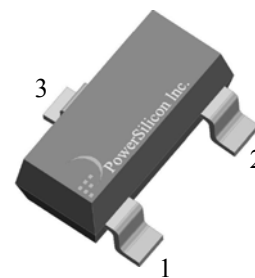
VOLTAGE 50 Volts **CURRENT** 100 mA

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_A=25°C UNLESS OTHERWISE NOTED)

PARAMETER	SYMBOL	VALUE	UNITS
Supply Voltage	V _{CC}	50	V
Input Voltage	V _{IN}	-10~30	V
Output Current	I _O	100	mA
	I _{C(MAX)}	100	mA
Power Dissipation	P _D	200	mW
Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	- 55 to + 150	°C

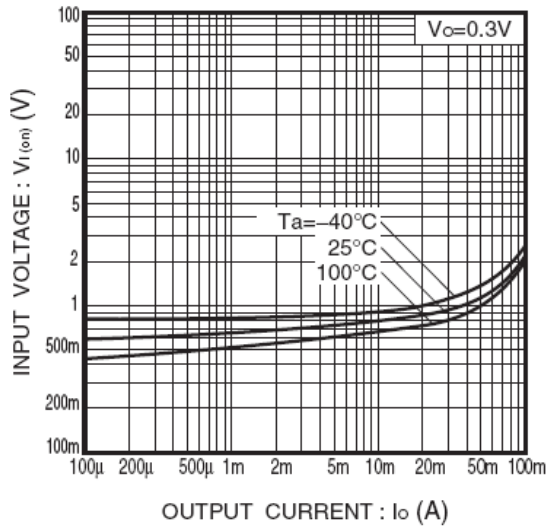
ELECTRICAL CHARACTERISTICS (AT T_A =25°C UNLESS OTHERWISE NOTED)

PARAMETER	CONDITIONS	SYMBOL	MIN.	TYP	MAX.	UNIT
Input Voltage	V _{CC} =5V, I _O =100uA	V _{I(off)}	-	-	0.3	V
	V _O =0.3V, I _O =20mA	V _{I(on)}	3	-	-	V
Output Voltage	I _O /I _I =10mA/0.5mA	V _{O(on)}	-	-	0.3	V
Input Current	V _I =5V	I _I	-	-	7.2	mA
Output Current	V _{CC} =50V, V _I =0V	I _{O(off)}	-	-	0.5	μA
DC Current Gain	V _O =5V, I _O =5mA	G _I	33	-	-	-
Resistance Ratio	-	R ₂ /R ₁	8	10	12	-
Transition Frequency	V _O =10V, I _O =5mA, f=100MHz	f _T	-	250	-	MHz
Input Resistance	-	R _I	0.7	1.0	1.3	KΩ

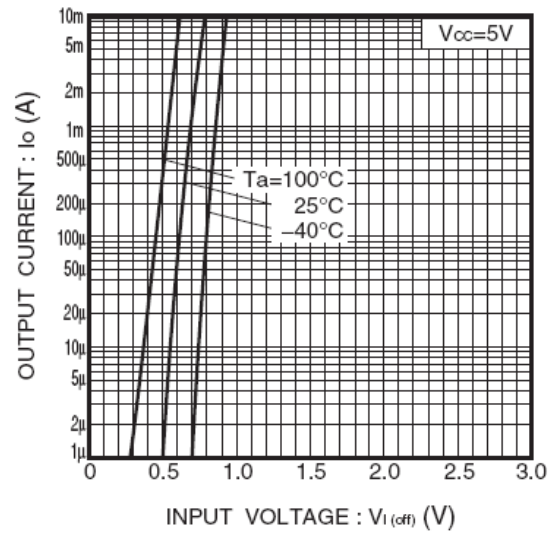
ELECTRICAL CHARACTERISTIC CURVES

All figures are measured at $T_A = 25^\circ\text{C}$, unless otherwise noted.

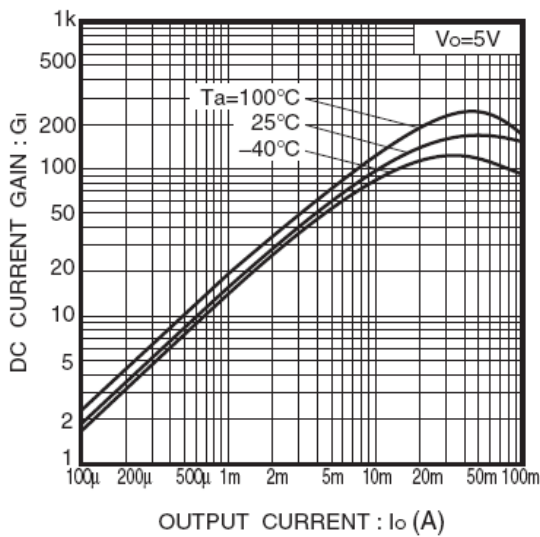
(1). $V_{I(on)}$ vs. I_O
(On Characteristics)



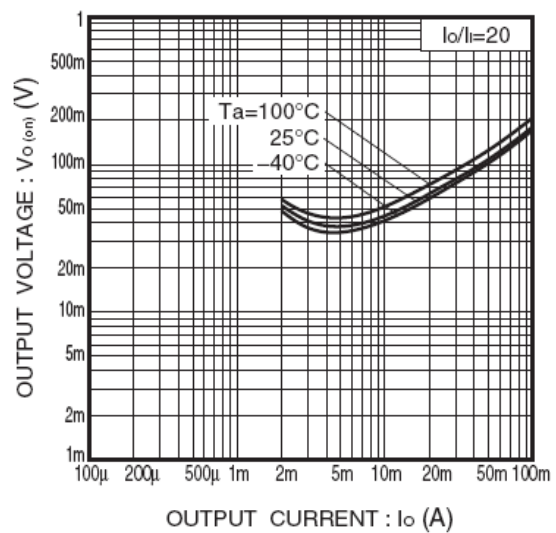
(2). I_O vs. $V_{I(off)}$
(Off Characteristics)



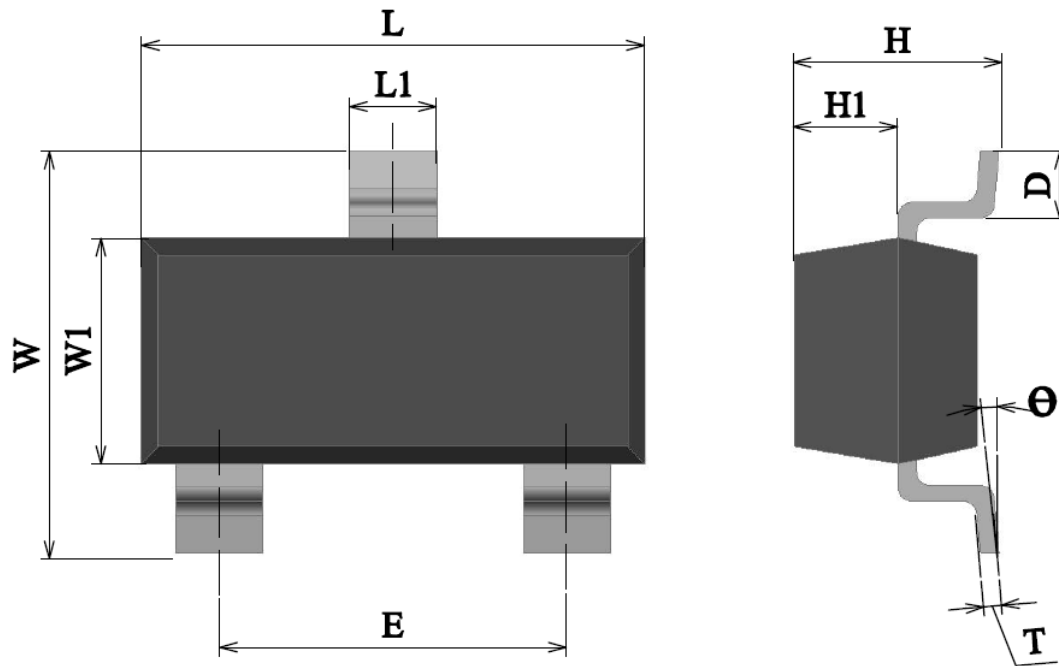
(3). DC Current Gain vs. I_O



(4). $V_{O(on)}$ vs. I_O



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°