

**DESCRIPTION**

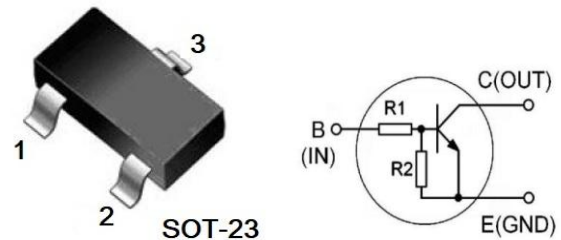
The DTD113Z is available in SOT-23 package.

FEATURE

- Built-In Biasing Resistors, $R_1 = 1k\Omega$, $R_2 = 10k\Omega$
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.
- Only the on/off conditions need to be set for operation, making the circuit design easy.

ORDERING INFORMATION

Package Type	Part Number
SOT-23	DTD113Z
Note	SPQ: 3,000pcs/Reel
AiT provides all RoHS Compliant Products	

PIN DESCRIPTION

PIN#	DESCRIPTION
1	BASE (IN)
2	EMITTER (GND)
3	COLLECTOR (OUT)

ABSOLUTE MAXIMUM RATINGS

$T_A = 25^\circ\text{C}$, unless otherwise noted.

V_{CC} , Supply Voltage		50V
V_{IN} , Input Voltage		-5V ~ +10V
I_{OUT} , Output Current		500mA
P_D , Power Dissipation		200mW
T_J , Junction Temperature		150°C
T_{STG} , Storage Temperature		-55°C~+150°C

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



ELECTRICAL CHARACTERISTICS

$T_A = 25^\circ\text{C}$, unless otherwise noted.

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Input Voltage	$V_{IN(OFF)}$	$V_{CC} = 5V, I_O = 100\mu A$	-	-	0.3	V
	$V_{IN(ON)}$	$V_O = 0.3V, I_O = 20mA$	1.5	-	-	
Output Voltage	$V_{OUT(ON)}$	$I_{OUT} = 50mA, I_{IN} = 2.5mA$	-	0.1	0.3	V
Input Current	I_I	$V_{IN} = 5V$	-	-	7.2	mA
Collector Cut-Off Current	$I_{OUT(off)}$	$V_{CC} = 50V, V_I = 0$	-	-	0.5	μA
DC Current Gain	h_{FE}	$V_{OUT} = 5V, I_{OUT} = 50mA$	82	-	-	-
Transition Frequency	f_T	$V_{CE} = 10V, I_E = 50mA, f = 100MHz$	-	200	-	MHz
Input Resistance	R_1	-	0.7	1	1.3	K Ω
Resistance Ratio	R_1/R_2	-	8	10	12	-

TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. ON Characteristic

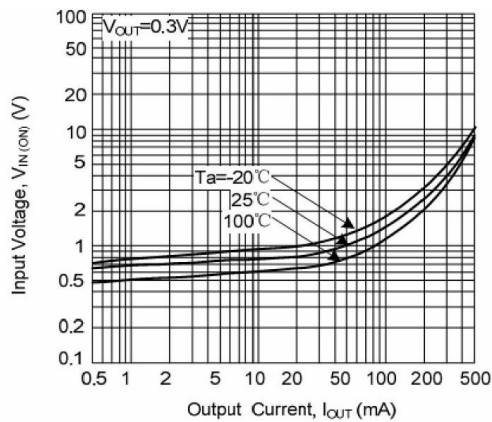


Fig 2. DC Current Gain

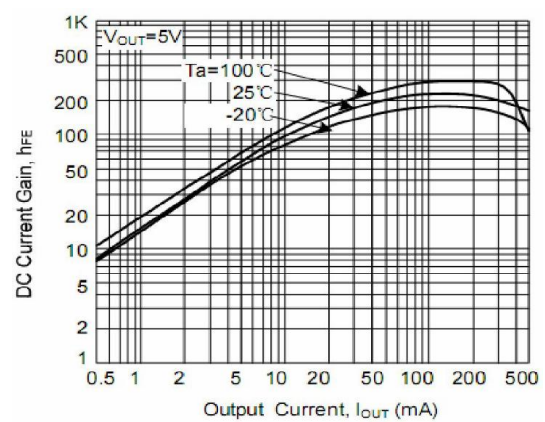


Fig 3. Output Voltage vs. Output Current

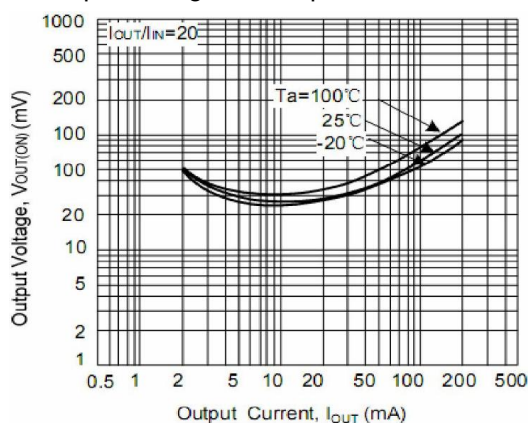
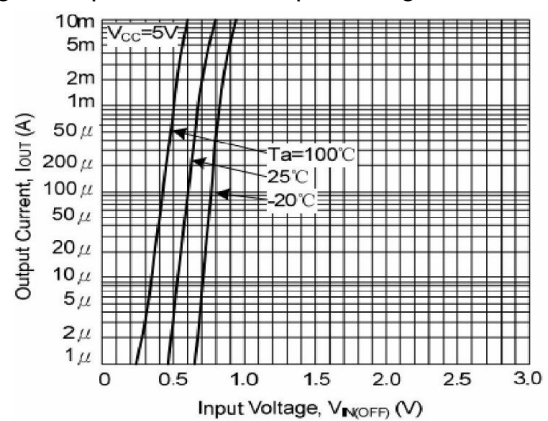


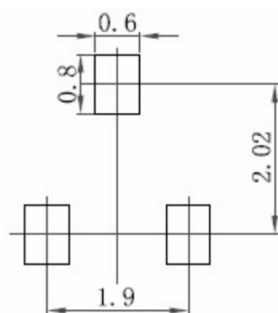
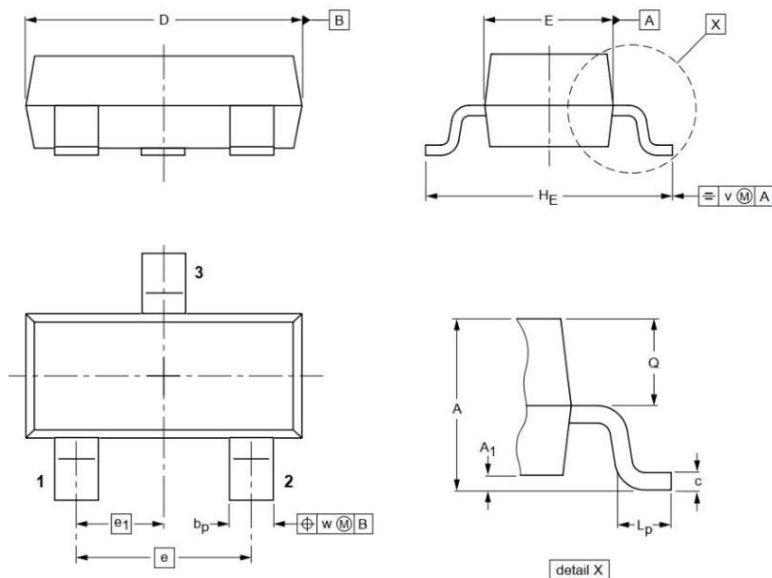
Fig 4. Output Current vs. Input Voltage





PACKAGE INFORMATION

Dimension in SOT-23 Package (Unit: mm)



The recommended mounting pad size

SYMBOL	MIN	MAX
A	0.900	1.150
A1	0.100	
b _p	0.380	0.480
C	0.090	0.150
D	2.800	3.000
E	1.200	1.400
E	1.900	
E1	0.950	
H _E	2.100	2.550
L _p	0.150	0.450
Q	0.450	0.550
V	0.200	
W	0.100	



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