

**DESCRIPTION**

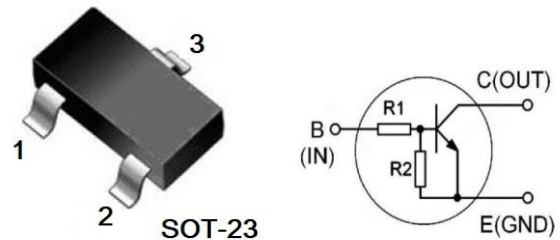
The DTD113Z is available in SOT-23 package.

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°C, unless otherwise noted.

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Input Voltage	V _{IN(OFF)}	V _{CC} = 5V, I _O = 100μA	-	-	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	KΩ
Resistance Ratio	R ₁ /R ₂	-	8	10	12	-

TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. ON Characteristic

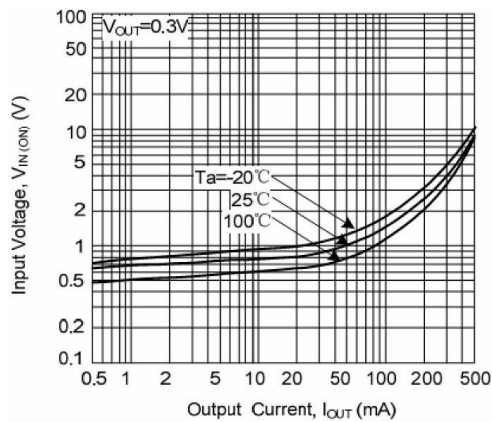


Fig 2. DC Current Gain

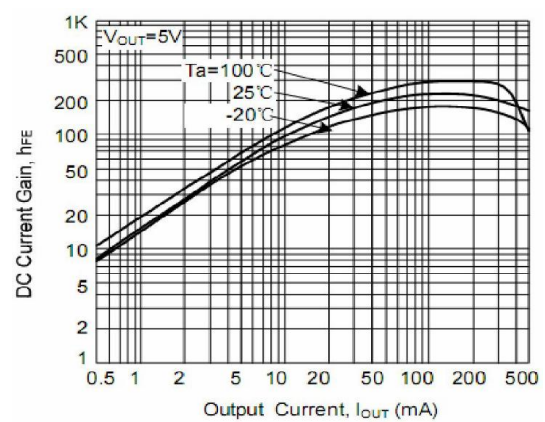


Fig 3. Output Voltage vs. Output Current

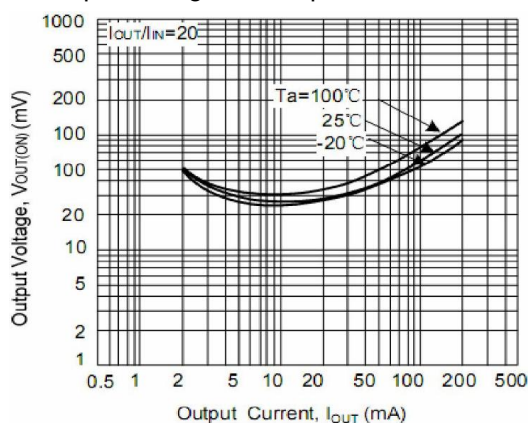
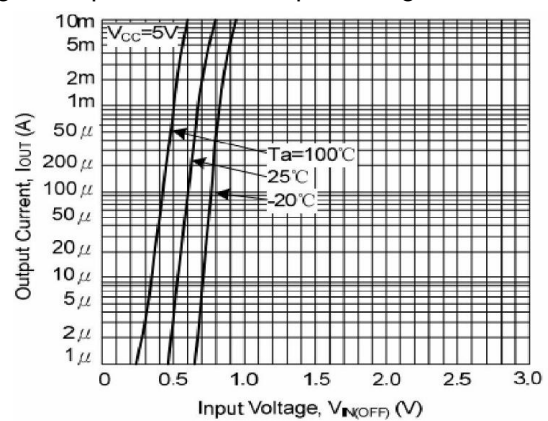


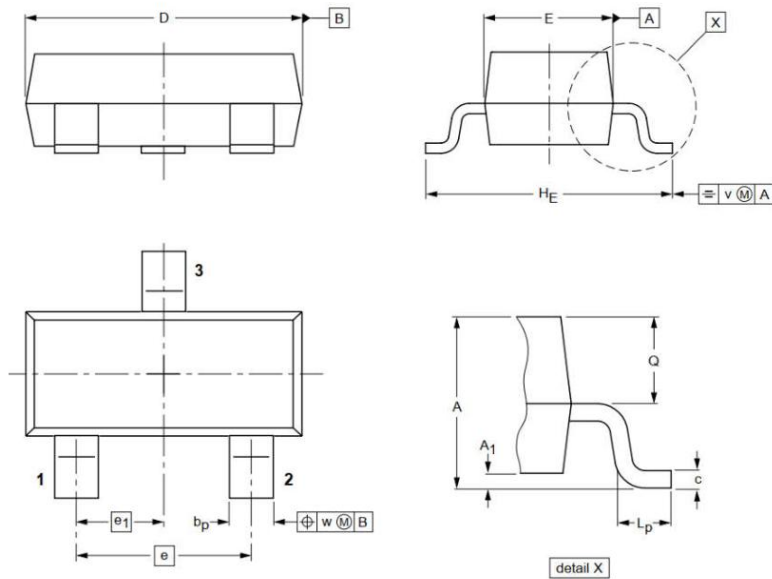
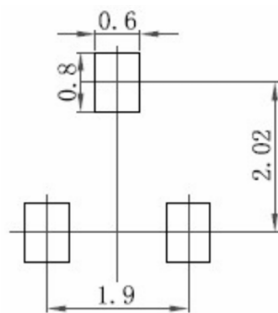
Fig 4. Output Current vs. Input Voltage





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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