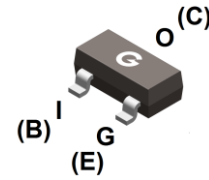
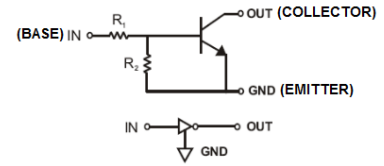


Features

- Epitaxial planar die construction
- Collector Current: 500mA
- Built-in biasing resistors (R_1 : 1k Ω , R_2 : 10k Ω)
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards

HF



SOT-23

Mechanical Data

- Case: SOT-23
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TDTD113ZCA	SOT-23	3000 pcs / Tape & Reel	G21

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

Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	50	V
Input Voltage	V_I	-5 to +10	V
Collector Current	I_C	500	mA

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ($T_A = 25^\circ\text{C}$)	P_D	200	mW
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	625	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +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	$V_{I(\text{OFF})}$	$V_{CC} = 5\text{V}$, $I_O = 100\mu\text{A}$	0.3	-	-	V
Input Voltage	$V_{I(\text{ON})}$	$V_O = 0.3\text{V}$, $I_O = 20\text{mA}$	-	-	1.5	V
Output Voltage	$V_{O(\text{on})}$	$I_O = 50\text{mA}$, $I_I = 2.5\text{mA}$	-	-	0.3	V
Input Current	I_I	$V_I = 5\text{V}$	-	-	7.2	mA
Output Current	$I_{O(\text{off})}$	$V_{CC} = 50\text{V}$, $V_I = 0\text{V}$	-	-	0.5	μA
DC Current Gain	G_I	$V_O = 5\text{V}$, $I_O = 50\text{mA}$	82	-	-	-
Input Resistor	R_1		0.7	1	1.3	k Ω
Resistance ratio	R_2/R_1		8	10	12	-
Gain-Bandwidth Product	f_T	$V_{CE} = 10\text{V}$, $I_E = 50\text{mA}$ $f = 100\text{MHz}$	-	200	-	MHz

Ratings and Characteristic Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

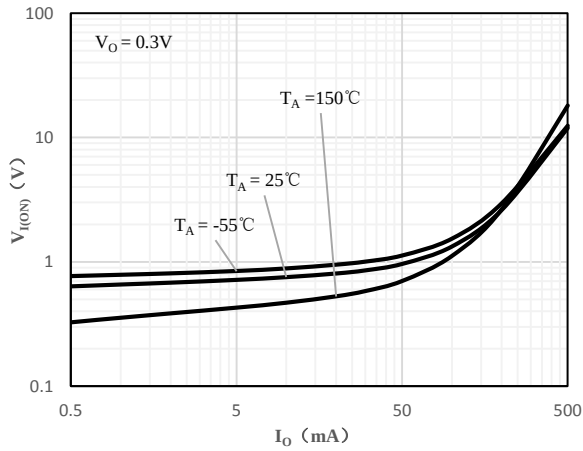


Fig 1 Input Voltage vs Output Current

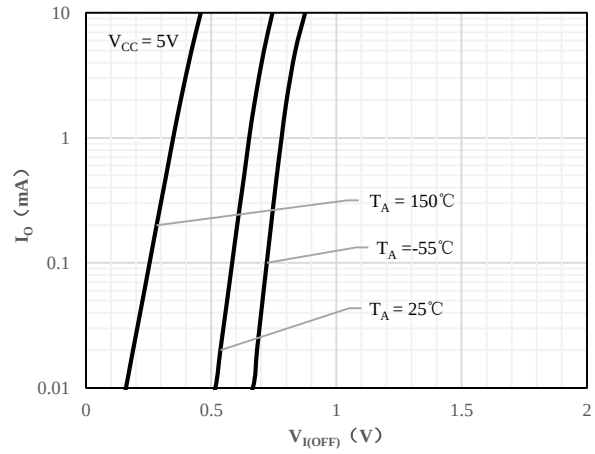


Fig 2 Output Current vs Input Voltage

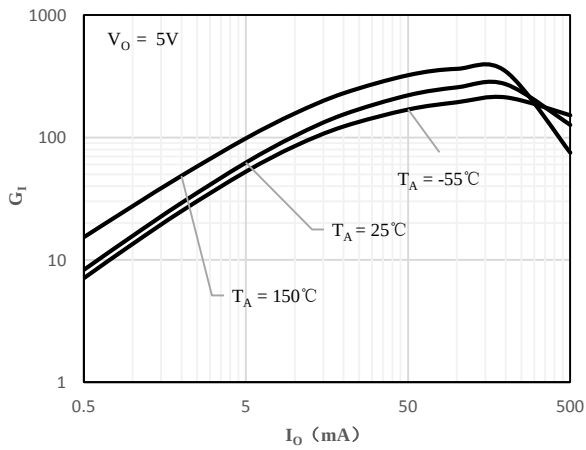


Fig 3 DC Current Gain vs Output Current

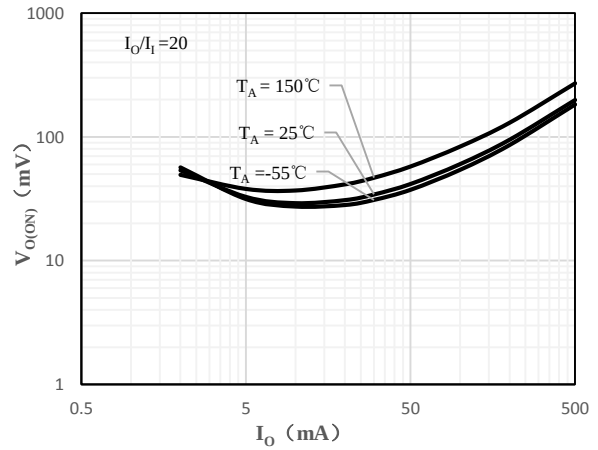


Fig 4 Output Voltage vs Output Current

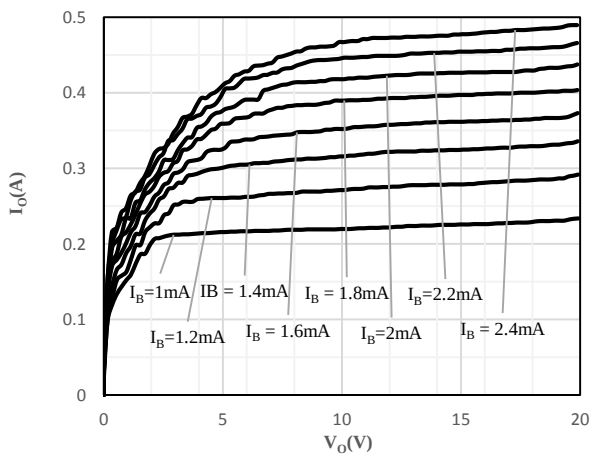


Fig 5 Output Current vs. Output Voltage

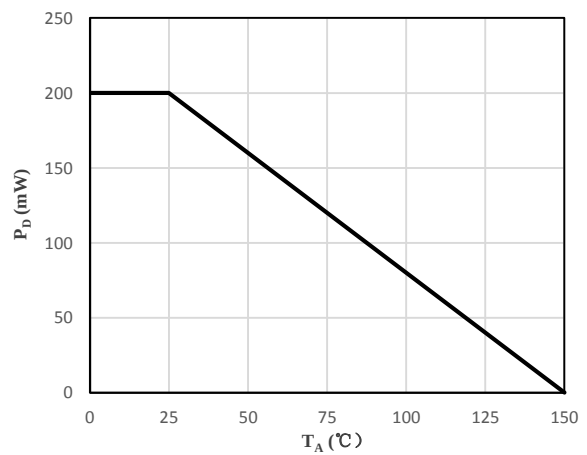
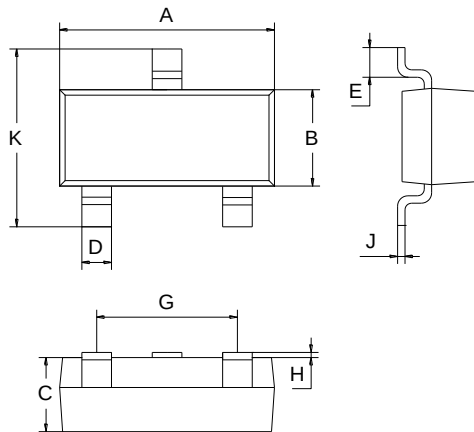


Fig 6 Power Dissipation vs. Air Temperature

Package Outline Dimensions (Unit: mm)



SOT-23		
Dimension	Min.	Max.
A	2.70	3.10
B	1.10	1.50
C	0.9	1.1
D	0.3	0.5
E	0.35	0.48
G	1.80	2.00
H	0.02	0.1
J	0.05	0.15
K	2.20	2.60

Package Outline Dimensions (Unit: mm)

SOT-23

