

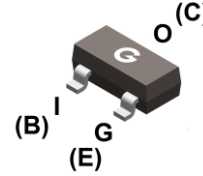
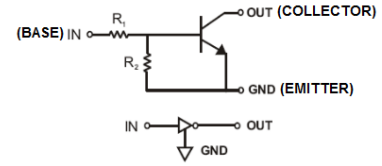
Features

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

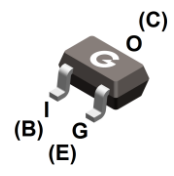
HF

Mechanical Data

- Case: SOT-23, SOT-323
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



SOT-23



SOT-323

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TDTD114ECA	SOT-23	3000 pcs / Tape & Reel	F24
TDTD114EUA	SOT-323	3000 pcs / Tape & Reel	F24

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

Parameter	Symbol	Value		Unit
		SOT-23	SOT-323	
Supply Voltage	V_{CC}	50		V
Input Voltage	V_I	-10 to +40		V
Output Current	I_O	500		mA
Power Dissipation	P_D	200	200	mW
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	625	625	$^\circ\text{C/W}$
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	$V_{I(\text{OFF})}$	$V_{CC} = 5\text{V}$, $I_O = 100\mu\text{A}$	0.5	-	-	V
Input Voltage	$V_{I(\text{ON})}$	$V_O = 0.3\text{V}$, $I_O = 10\text{mA}$	-	-	3	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	$V_I = 5\text{V}$	-	-	0.88	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	$V_O = 5\text{V}$, $I_O = 50\text{mA}$	56	-	-	-
Input Resistor	R_1		7	10	13	k Ω
Resistance ratio	R_2/R_1		0.8	1	1.2	-
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)

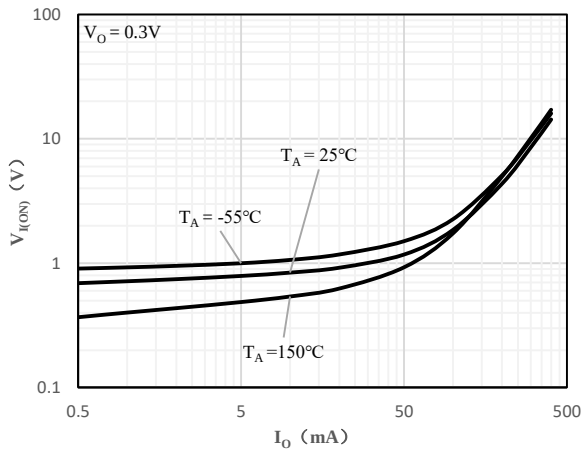


Fig 1 Input Voltage vs Output Current

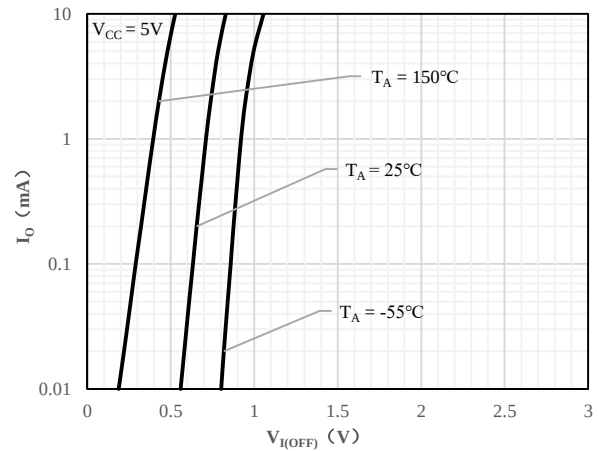


Fig 2 Output Current vs Input Voltage

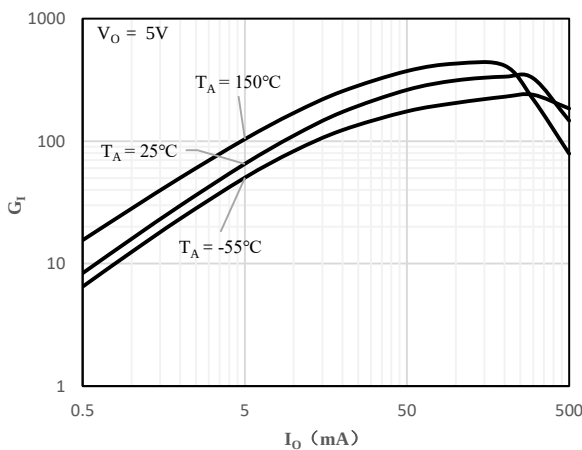


Fig 3 DC Current Gain vs Output Current

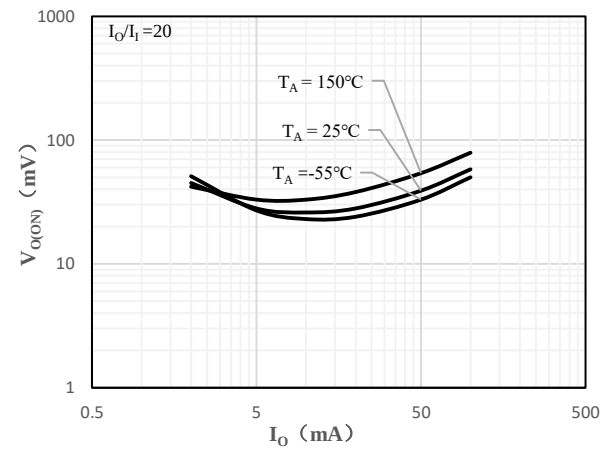


Fig 4 Output Voltage vs Output Current

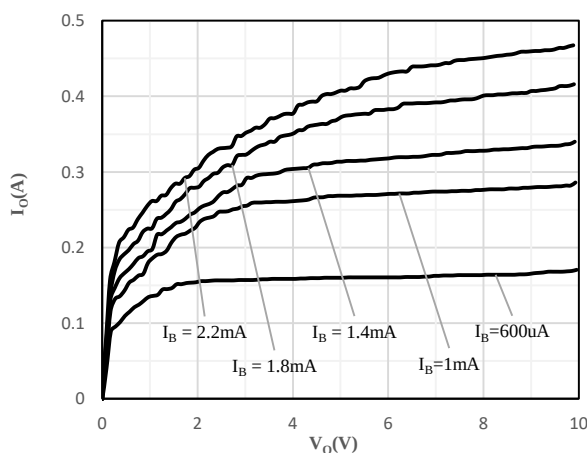


Fig 5 Output Current vs. Output Voltage

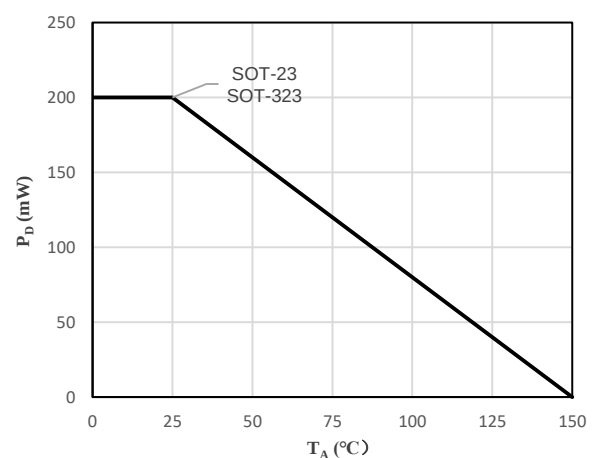
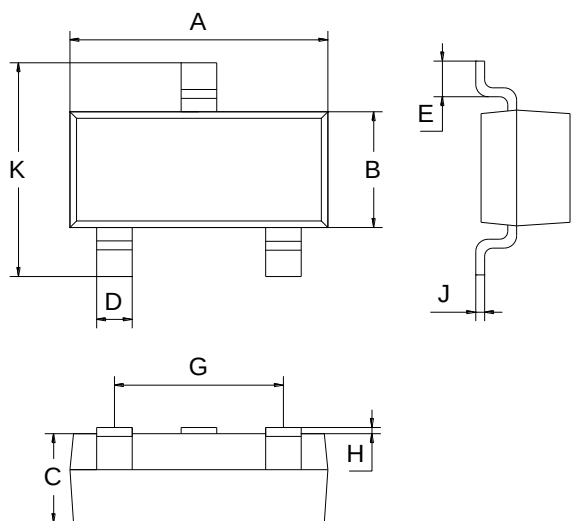
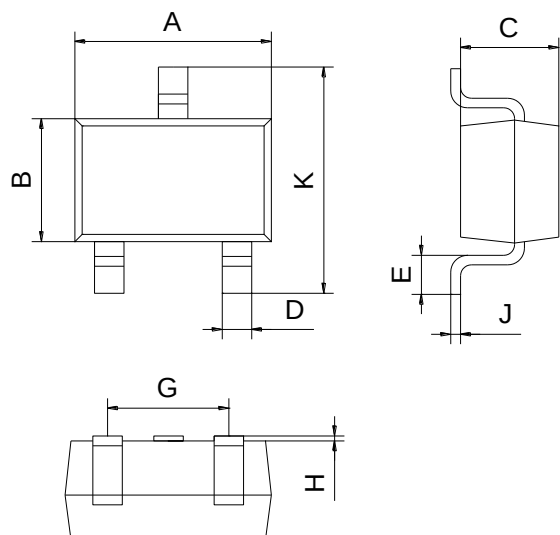


Fig 6 Power Dissipation vs. Air Temperature

Package Outline Dimensions (Unit: mm)



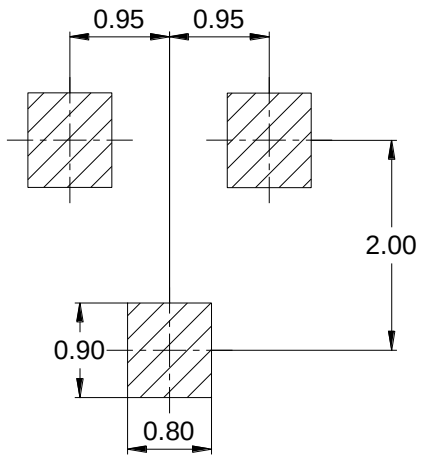
SOT-23		
Dimension	Min.	Max.
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60



SOT-323		
Dimension	Min.	Max.
A	2.00	2.20
B	1.15	1.35
C	0.90	1.10
D	0.15	0.35
E	0.25	0.40
G	1.20	1.40
H	0.02	0.10
J	0.05	0.15
K	2.20	2.40

Mounting Pad Layout (Unit: mm)

SOT-23



SOT-323

