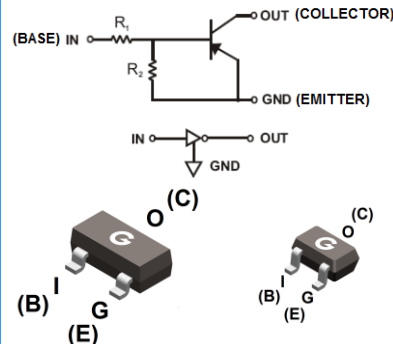


Features

- Epitaxial planar die construction
- Collector Current: 500mA
- Built-in biasing resistors (R_1 : 2.2k Ω , R_2 : 10k Ω)
- Halogen free
- Qualified to AEC-Q101 standards for high reliability

HF



TDTB123YCA

TDTB123YUA

SOT-23

SOT-323

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

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TDTB123YCA	SOT-23	3000 pcs / Tape & Reel	F52
TDTB123YUA	SOT-323	3000 pcs / Tape & Reel	F52

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	-12 to 5		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	$V_{I(\text{OFF})}$	$V_{CC} = -5\text{V}$, $I_O = -100\mu\text{A}$	-0.3	-	-	V
Input Voltage	$V_{I(\text{ON})}$	$V_O = -0.3\text{V}$, $I_O = -20\text{mA}$	-	-	-2	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	$V_I = -5\text{V}$	-	-	-3.6	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		1.54	2.2	2.86	k Ω
Resistance ratio	R_2/R_1		3.6	4.5	5.5	-
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)

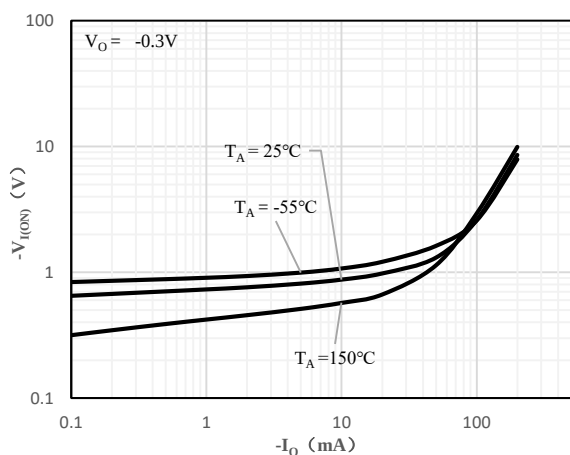


Fig 1 Input Voltage vs Output Current

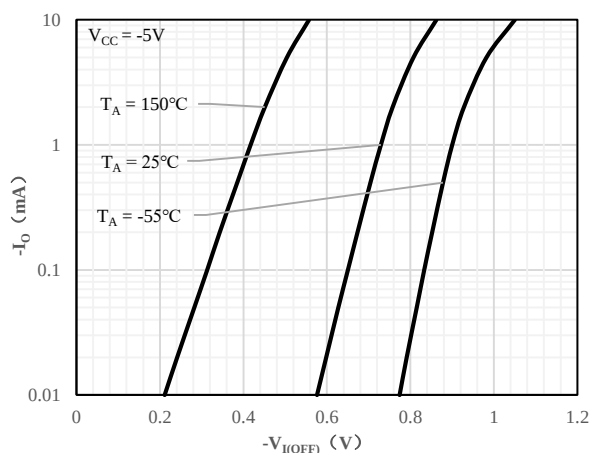


Fig 2 Output Current vs Input Voltage

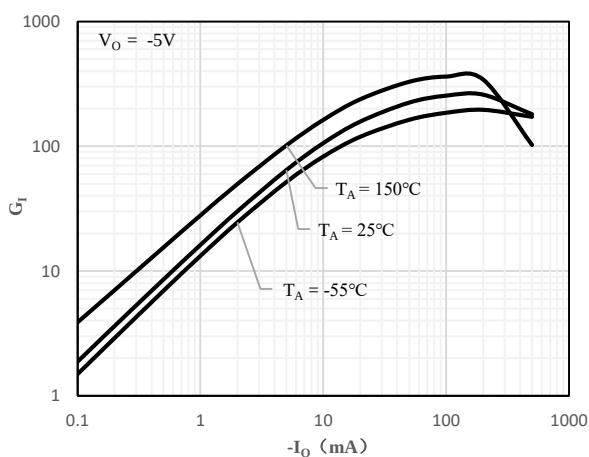


Fig 3 DC Current Gain vs Output Current

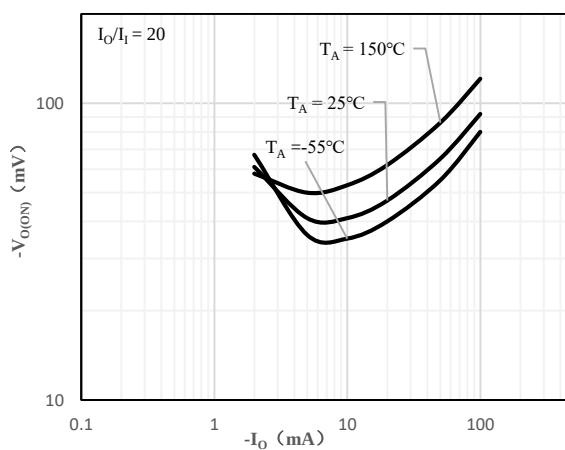


Fig 4 Output Voltage vs Output Current

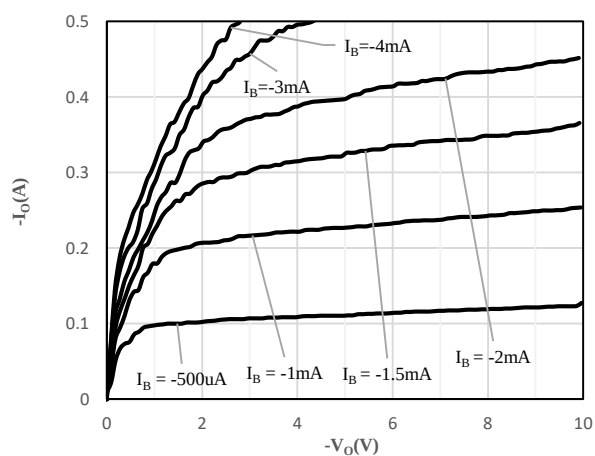


Fig 5 Output Current vs. Output Voltage

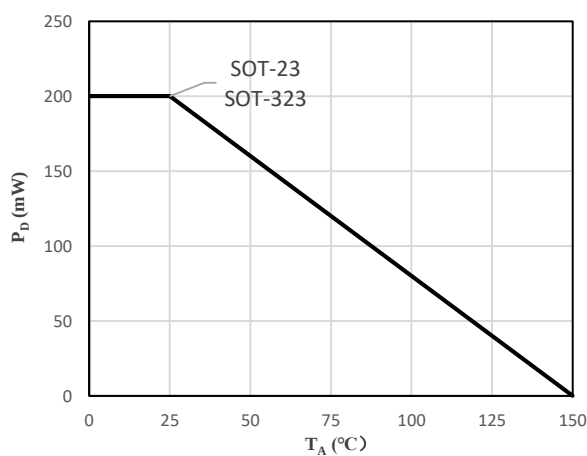
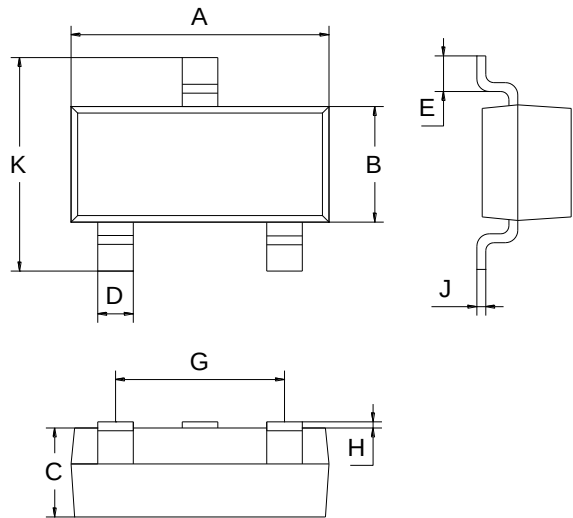
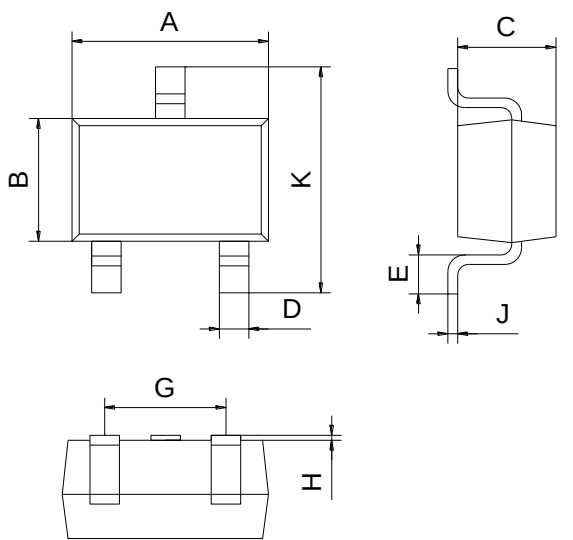


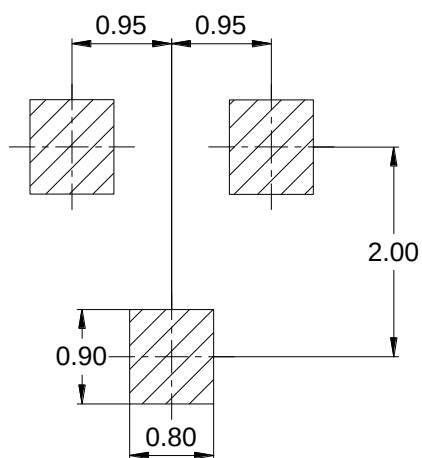
Fig 6 Power Dissipation vs. Air Temperature

Package Outline Dimensions (Unit: mm)

 Diagram showing the SOT-23 package outline dimensions. The top view shows dimensions A (width), B (height), and K (total height). The side view shows dimensions D (lead width), E (lead height), and J (lead length). The bottom view shows dimensions G (lead spacing) and H (lead thickness).		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
 Diagram showing the SOT-323 package outline dimensions. The top view shows dimensions A (width), B (height), and K (total height). The side view shows dimensions C (lead width), D (lead height), and J (lead length). The bottom view shows dimensions G (lead spacing) and H (lead thickness).		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

