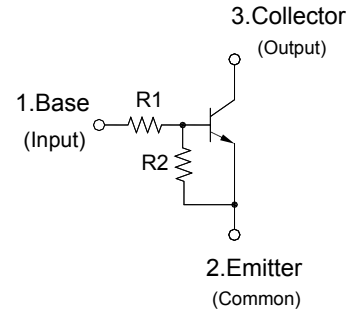




## NPN Silicon Epitaxial Planar Digital Transistor

### Features

- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process



**MARKING: G 21**

**SOT-23**

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Collector Emitter Voltage	$V_{CEO}$	50	V
Input Voltage	$V_i$	- 10 to + 10	V
Collector Current	$I_C$	500	mA
Power Dissipation	$P_{tot}$	200	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

### Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 5\text{ V}$ , $I_C = 50\text{ mA}$	$h_{FE}$	82	-	-	-
Collector Base Cutoff Current at $V_{CB} = 50\text{ V}$	$I_{CBO}$	-	-	500	nA
Emitter Base Cutoff Current at $V_{EB} = 5\text{ V}$	$I_{EBO}$	-	-	7.2	mA
Collector Emitter Saturation Voltage at $I_C = 50\text{ mA}$ , $I_B = 2.5\text{ mA}$	$V_{CE(sat)}$	-	-	0.3	V
Input on Voltage at $V_{CE} = 0.3\text{ V}$ , $I_C = 20\text{ mA}$	$V_{I(on)}$	-	-	1.5	V
Input off Voltage at $V_{CE} = 5\text{ V}$ , $I_C = 100\text{ }\mu\text{A}$	$V_{I(off)}$	0.3	-	-	V
Transition frequency at $V_{CE} = 10\text{ V}$ , $-I_E = 5.0\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	-	200	-	MHz
Input Resistance	$R_1$	0.7	1	1.3	K $\Omega$
Resistance Ratio	$R_2 / R_1$	0.8	1	1.2	-



●Electrical characteristic curves(Ta = 25°C)

Fig.1 Input voltage vs. output current (ON characteristics)

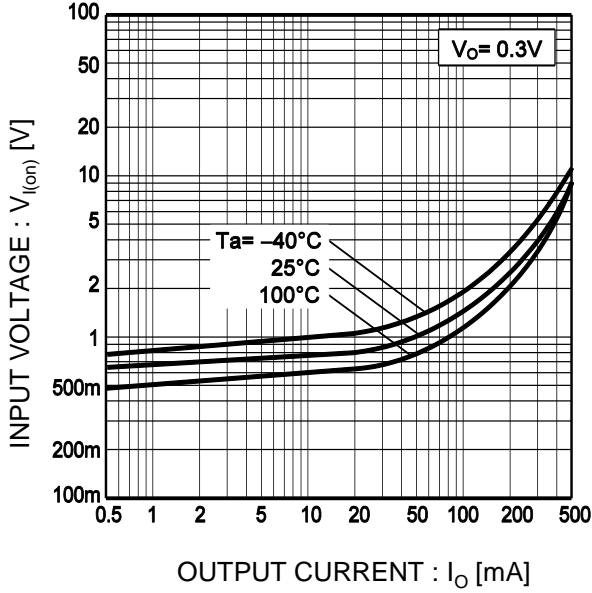


Fig.2 Output current vs. input voltage (OFF characteristics)

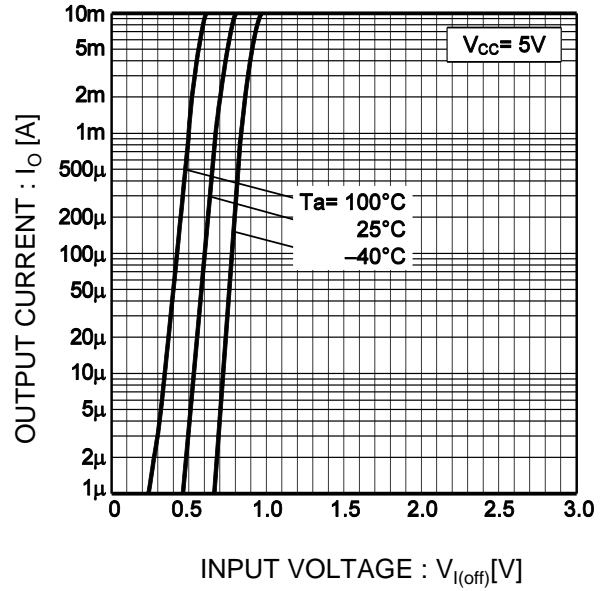


Fig.3 Output current vs. output voltage

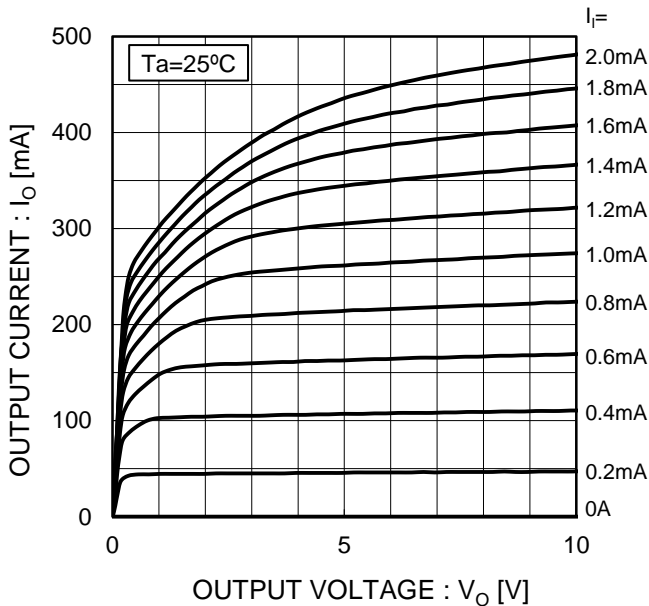
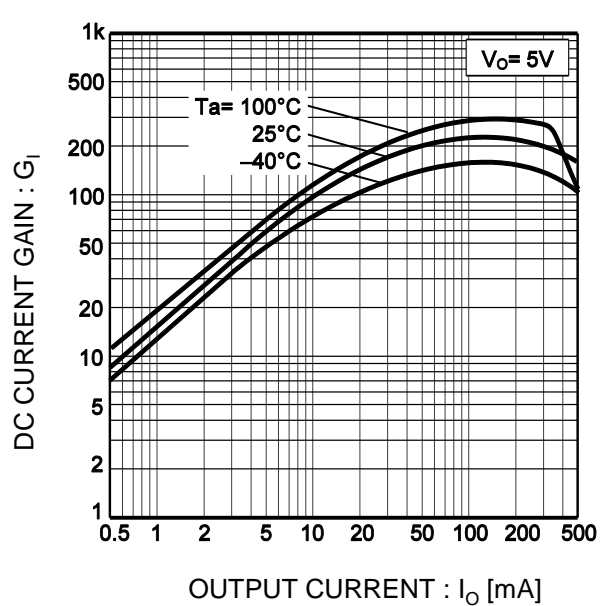


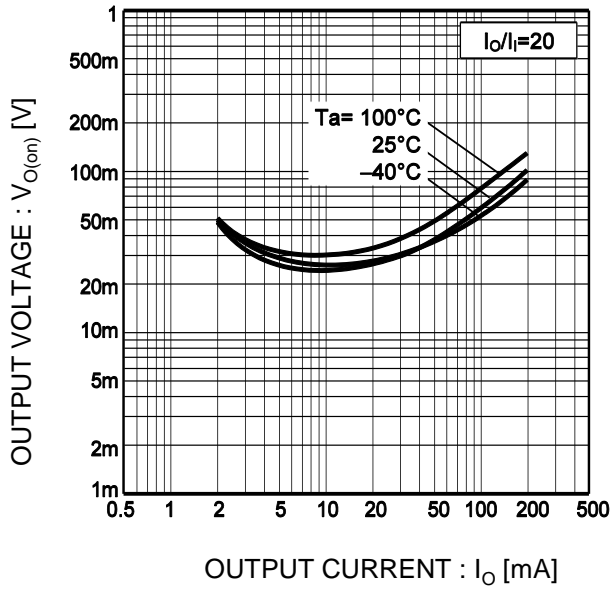
Fig.4 DC current gain vs. output current





●Electrical characteristic curves(Ta = 25°C)

Fig.5 Output voltage vs. output current

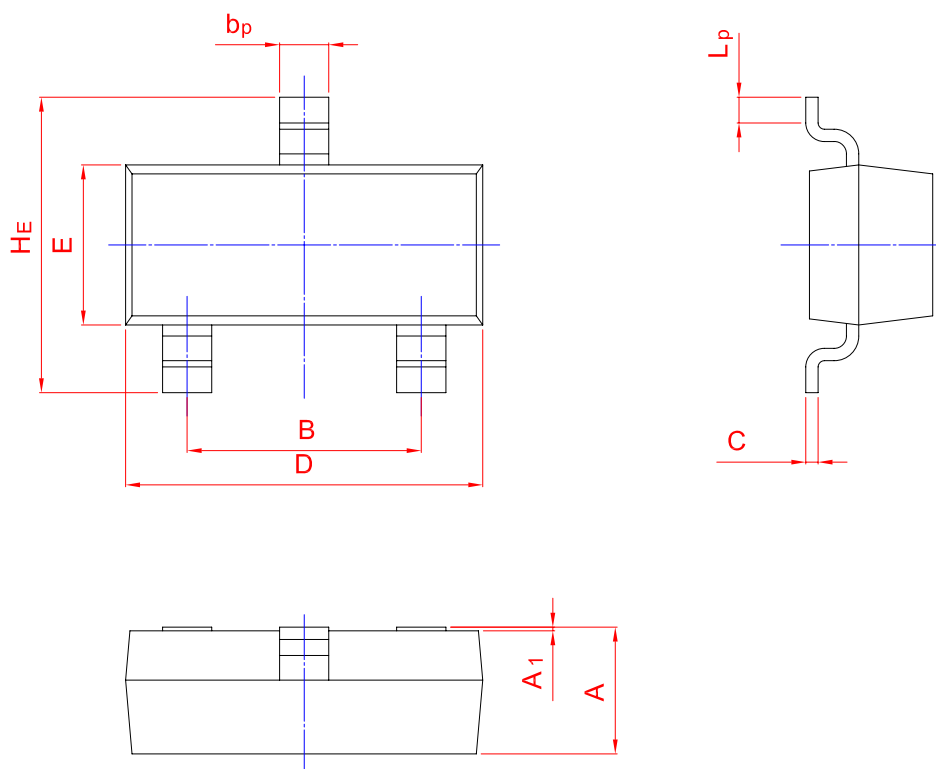




## PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	$b_p$	C	D	E	$H_E$	$A_1$	$L_p$
mm	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50
	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20