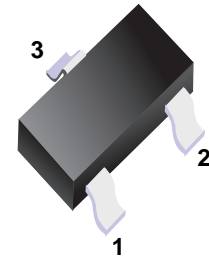
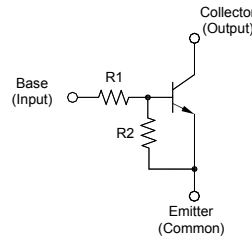


■ **NPN Silicon Epitaxial Planar Digital Transistor**

■ **Features**

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



- 1.Base
- 2.Emitter
- 3.Collector

■ **Simplified outline(SOT-523)**

■ **Absolute Maximum Ratings (T<sub>a</sub> = 25 °C)**

Parameter	Symbol	Value	Unit
Collector Emitter Voltage	V <sub>CEO</sub>	50	V
Input Voltage	V <sub>I</sub>	- 5 to + 30	V
Collector Current	I <sub>C</sub>	100	mA
Power Dissipation	P <sub>tot</sub>	150	mW
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	- 55 to + 150	°C

■ **Characteristics at T<sub>a</sub> = 25 °C**

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V <sub>CE</sub> = 5 V, I <sub>C</sub> = 10 mA	h <sub>FE</sub>	80	-	-	-
Collector Base Cutoff Current at V <sub>CB</sub> = 50 V	I <sub>CBO</sub>	-	-	0.5	μA
Emitter Base Cutoff Current at V <sub>EB</sub> = 5 V	I <sub>EBO</sub>	-	-	1.8	mA
Collector Emitter Saturation Voltage at I <sub>C</sub> = 5 mA, I <sub>B</sub> = 0.25 mA	V <sub>CE(sat)</sub>	-	-	0.3	V
Input on Voltage at V <sub>CE</sub> = 0.3 V, I <sub>C</sub> = 5 mA	V <sub>I(on)</sub>	-	-	1.3	V
Input off Voltage at V <sub>CE</sub> = 5 V, I <sub>C</sub> = 100 μA	V <sub>I(off)</sub>	0.5	-	-	V
Transition frequency at V <sub>CE</sub> = 10 V, -I <sub>E</sub> = 5 mA, f = 100 MHz	f <sub>T</sub>	-	250	-	MHz
Input Resistance	R <sub>1</sub>	3.29	4.7	6.11	KΩ
Resistance Ratio	R <sub>2</sub> / R <sub>1</sub>	8	10	12	-

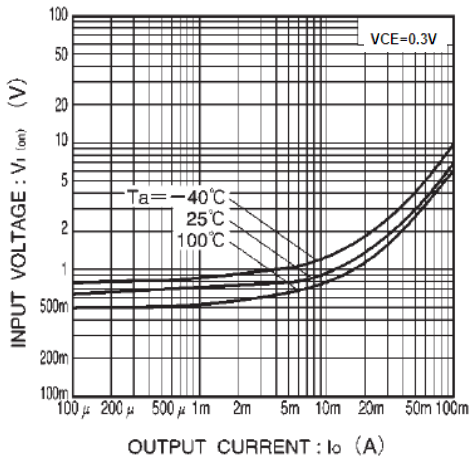


Fig.1 Input voltage vs. output current (ON characteristics)

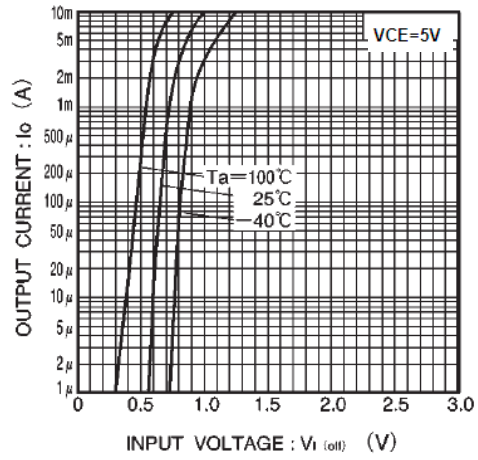


Fig.2 Output current vs. input voltage (OFF characteristics)

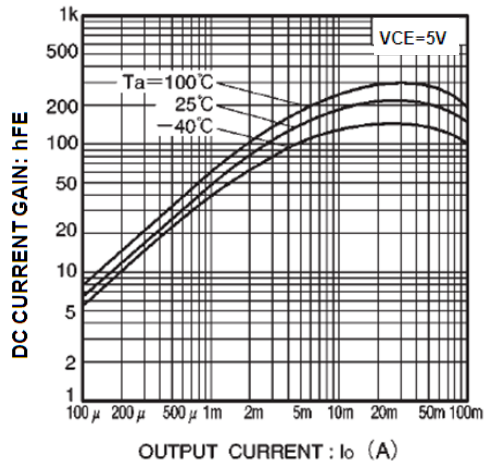


Fig.3 DC current gain vs. output current

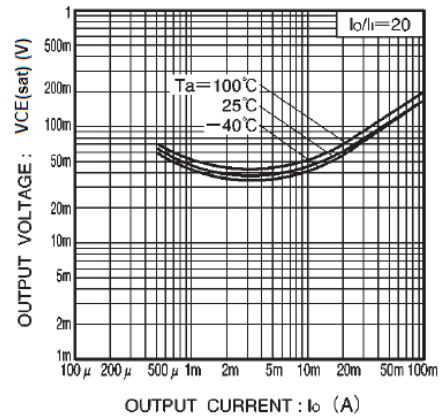
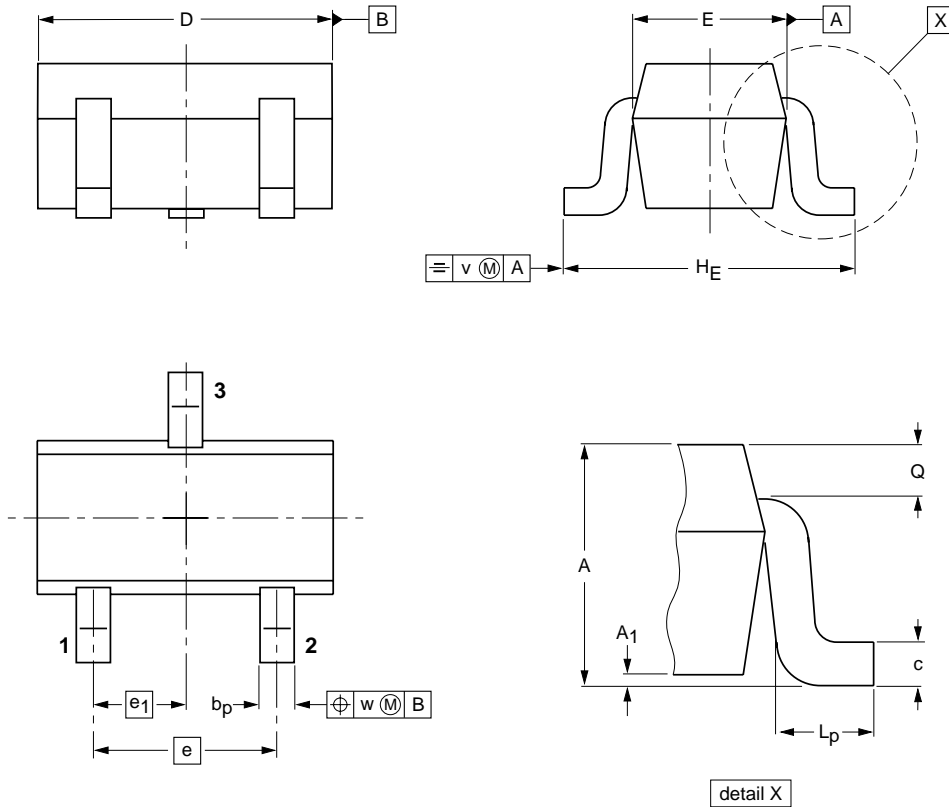


Fig.4 Output voltage vs. output current

**Package Outline**

**SOT-523**



**DIMENSIONS (mm are the original dimensions)**

UNIT	A	A <sub>1</sub> max	bp	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	0.95 0.60	0.1	0.30 0.15	0.25 0.10	1.8 1.4	0.9 0.7	1	0.5	1.75 1.45	0.45 0.15	0.23 0.13	0.2	0.2

**Summary of Packing Options**

Package	Packing Description	Packing Quantity	Industry Standard
SOT-523	Tape/Reel, 7" reel	3000	EIA-481-1