

**Silicon PNP Power Transistors**

**2SB631 2SB631K**

**DESCRIPTION**

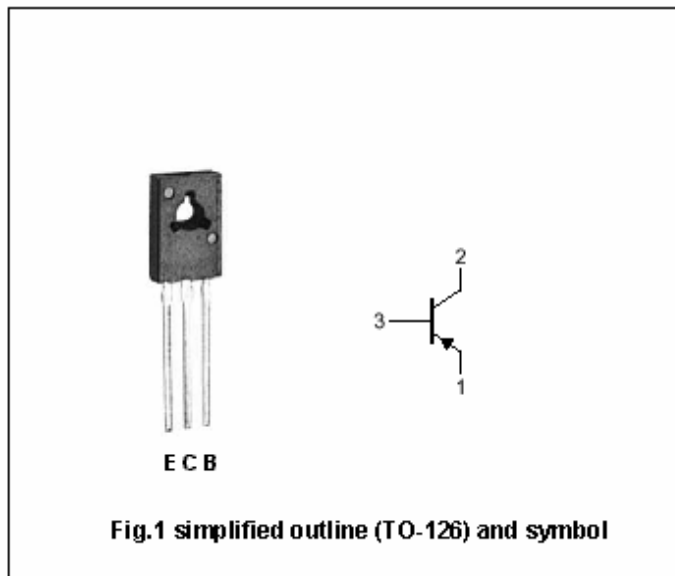
- With TO-126 package
- Complement to type 2SD600/K
- High breakdown voltage  $V_{CEO}$ : -100/-120V
- High current: -1A
- Low saturation voltage, excellent  $h_{FE}$  linearity

**APPLICATIONS**

- For low-frequency power amplifier applications

**PINNING**

PIN	DESCRIPTION
1	Emitter
2	Collector; connected to mounting base
3	Base



**Absolute maximum ratings(Ta=25°C)**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	2SB631	-100	V
		2SB631K	-120	
$V_{CEO}$	Collector-emitter voltage	2SB631	-100	V
		2SB631K	-120	
$V_{EBO}$	Emitter-base voltage	Open collector	-5	V
$I_C$	Collector current (DC)		-1	A
$I_{CM}$	Collector current-Peak		-2	A
$P_D$	Total power dissipation	$T_a=25^\circ\text{C}$	1	W
		$T_C=25^\circ\text{C}$	8	
$T_j$	Junction temperature		150	°C
$T_{stg}$	Storage temperature		-55~150	°C

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## CHARACTERISTICS

T<sub>j</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT	
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage	2SB631	I <sub>C</sub> =-1mA; R <sub>BE</sub> =∞	-100			V
		2SB631K		-120			
V <sub>(BR)CBO</sub>	Collector-base breakdown voltage	2SB631	I <sub>C</sub> =-10μA; I <sub>E</sub> =0	-100			V
		2SB631K		-120			
V <sub>(BR)EBO</sub>	Emitter-base breakdown voltage	I <sub>E</sub> =-10μA; I <sub>C</sub> =0	-5			V	
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =-0.5A; I <sub>B</sub> =-50mA			-0.4	V	
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =-0.5A; I <sub>B</sub> =-50mA			-1.2	V	
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =-50V; I <sub>E</sub> =0			-1	μA	
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =-4V; I <sub>C</sub> =0			-1	μA	
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =-50mA; V <sub>CE</sub> =-5V	60		320		
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =-0.5A; V <sub>CE</sub> =-5V	20				
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =-50mA; V <sub>CE</sub> =-10V		110		MHz	
C <sub>OB</sub>	Collector output capacitance	f=1MHz; V <sub>CB</sub> =-10V		30		pF	

## Switching times

t <sub>f</sub>	Fall time	I <sub>C</sub> =-500mA; V <sub>CE</sub> =-12V I <sub>B1</sub> =-I <sub>B2</sub> =-50mA		0.08		μs
t <sub>off</sub>	Turn-off time			0.10		μs
t <sub>stg</sub>	Storage time			0.60		μs

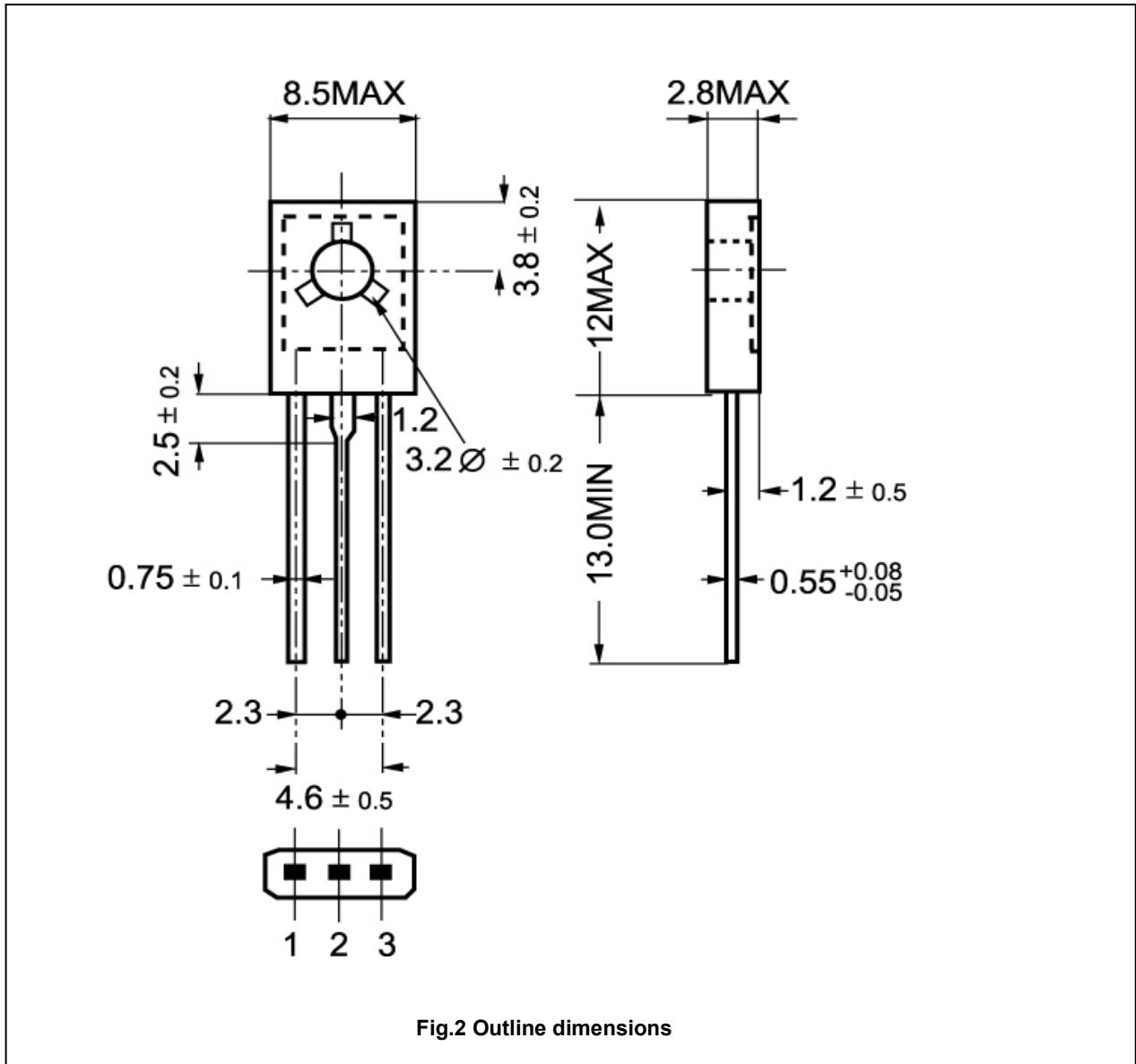
◆ h<sub>FE-1</sub> Classifications

D	E	F
60-120	100-200	160-320

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PACKAGE OUTLINE



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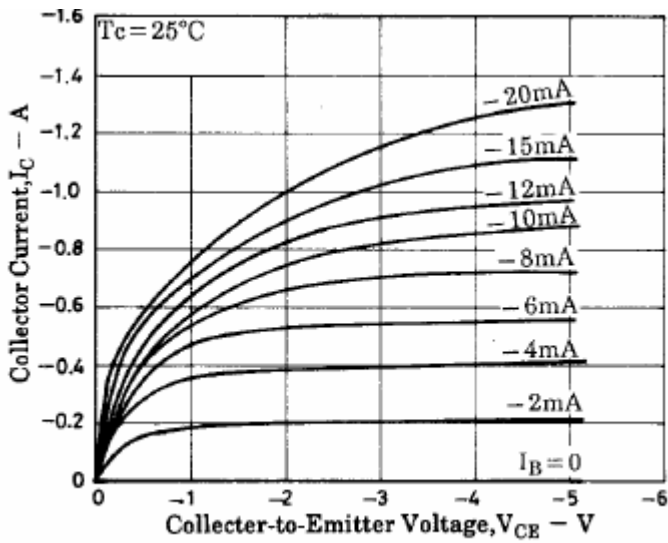


Fig.3 Static Characteristic

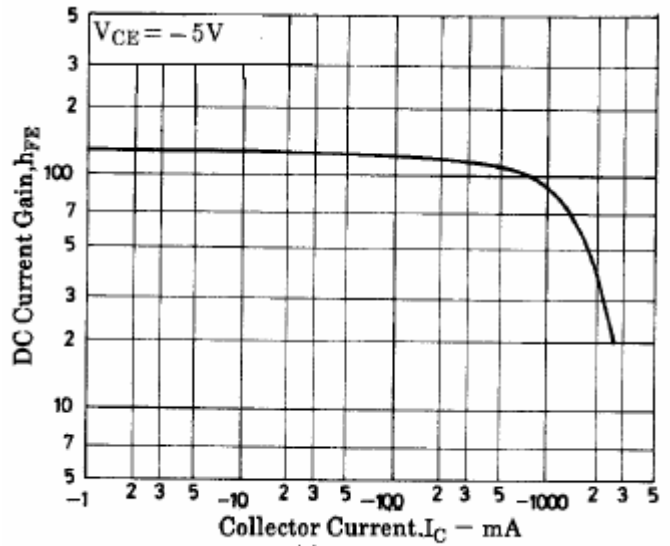


Fig.4 DC current Gain

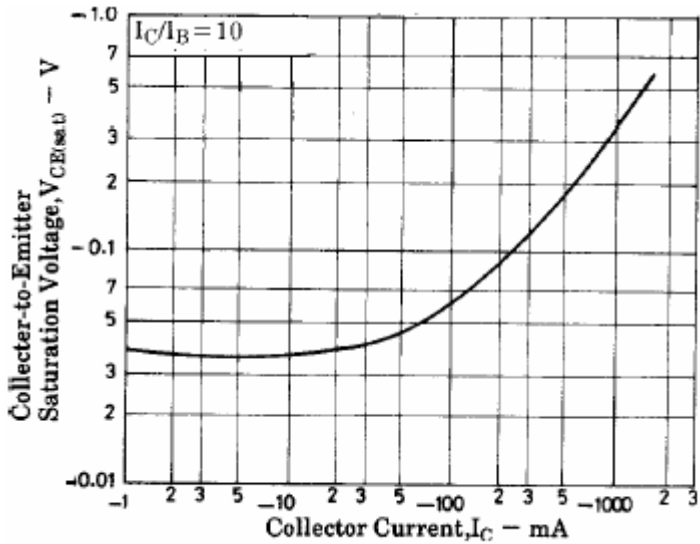


Fig.5 Collector-Emmitter Saturation Voltage

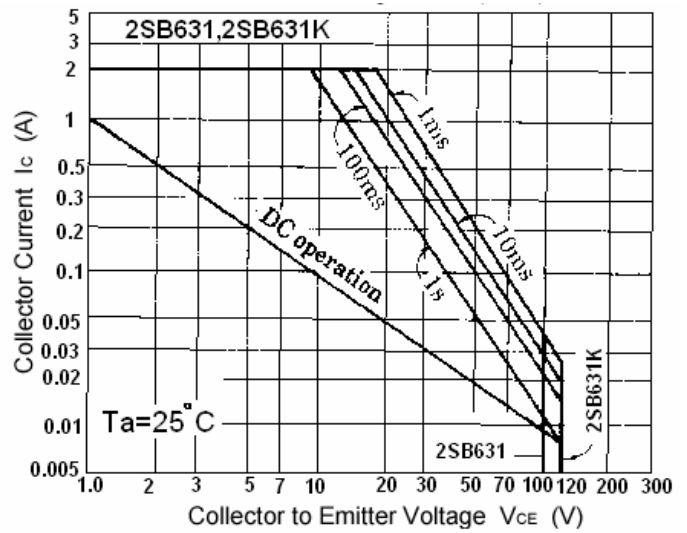


Fig.6 Safe Operating Area