

**Silicon PNP Power Transistors**

**2SB946**

**DESCRIPTION**

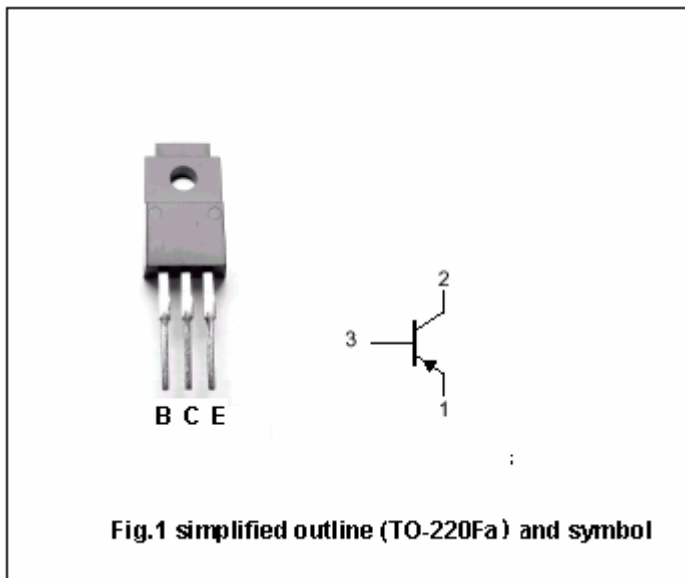
- With TO-220Fa package
- Complement to type 2SD1271
- Low saturation voltage
- Good linearity of  $h_{FE}$
- High current

**APPLICATIONS**

- For power switching applications

**PINNING**

PIN	DESCRIPTION
1	Emitter
2	Collector
3	Base



**Absolute maximum ratings(T<sub>a</sub>=25 )**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	Open emitter	-130	V
V <sub>CEO</sub>	Collector-emitter voltage	Open base	-80	
V <sub>EBO</sub>	Emitter-base voltage	Open collector	-7	V
I <sub>C</sub>	Collector current (DC)		-7	A
I <sub>CM</sub>	Collector current-Peak		-15	A
P <sub>C</sub>	Collector power dissipation	T <sub>C</sub> =25	40	W
		T <sub>a</sub> =25	2	
T <sub>j</sub>	Junction temperature		150	
T <sub>stg</sub>	Storage temperature		-55~150	

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## CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage	I <sub>C</sub> =-10mA, I <sub>B</sub> =0	-80			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =-5A; I <sub>B</sub> =-0.25A			-0.5	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =-5A; I <sub>B</sub> =-0.25A			-1.5	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =-100V; I <sub>E</sub> =0			-10	μA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =-5V; I <sub>C</sub> =0			-50	μA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =-0.1A; V <sub>CE</sub> =-2V	45			
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =-3A; V <sub>CE</sub> =-2V	60		260	
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =-0.5A; V <sub>CE</sub> =-10V		30		MHz

## Switching times

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =-3A; I <sub>B1</sub> =-0.3A I <sub>B2</sub> =0.3A		0.5		μs
t <sub>s</sub>	Storage time			1.5		μs
t <sub>f</sub>	Fall time			0.1		μs

◆ h<sub>FE-2</sub> Classifications

R	Q	P
60-120	90-180	130-260

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PACKAGE OUTLINE

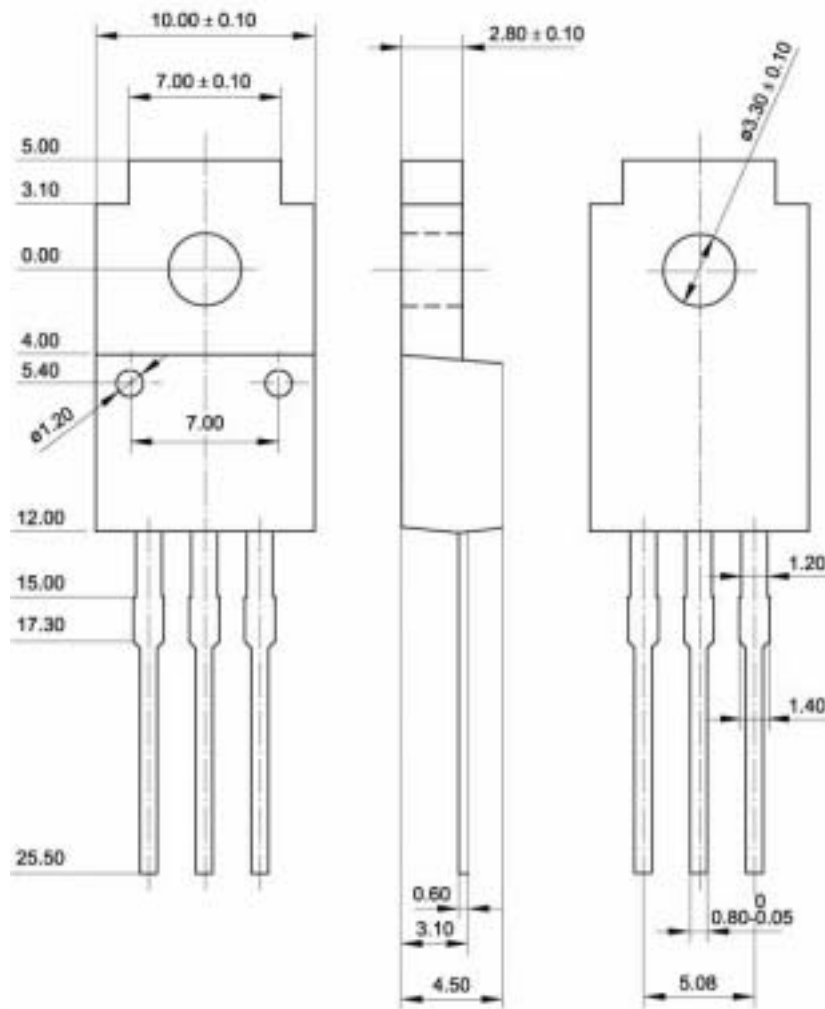


Fig.2 Outline dimensions (unindicated tolerance:  $\pm 0.15$  mm)

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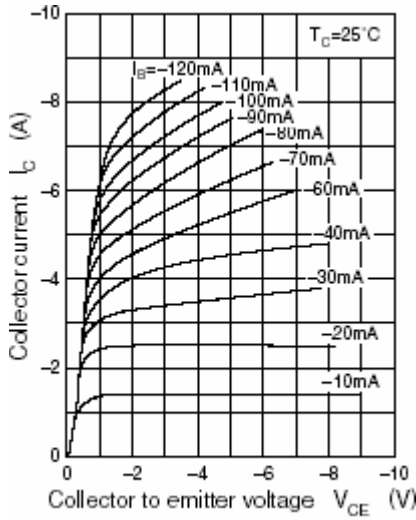


Fig.3 Static Characteristic

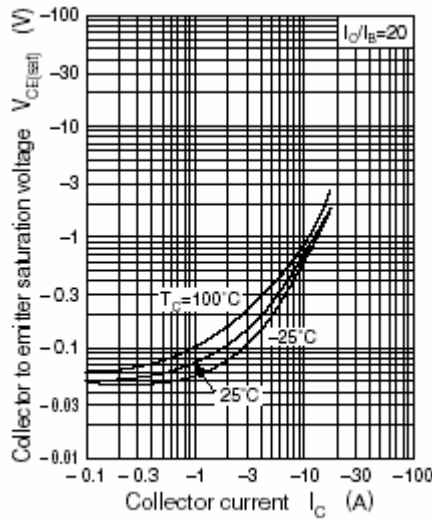


Fig.4 Collector-Emitter Saturation Voltage

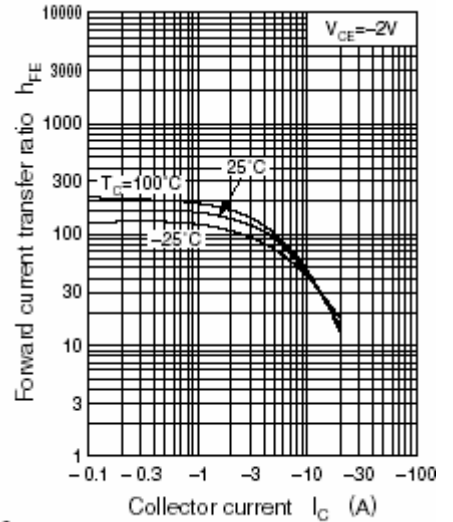


Fig.5 DC current Gain

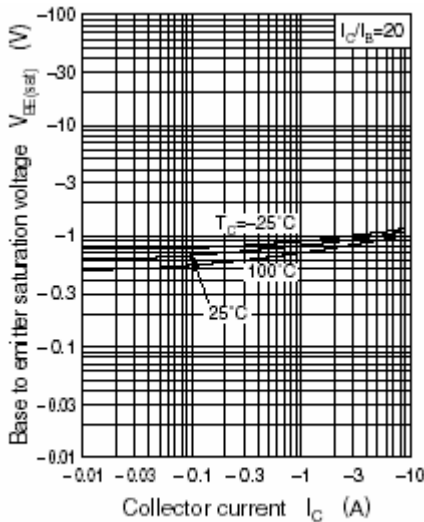


Fig.6 Base-Emitter Saturation Voltage

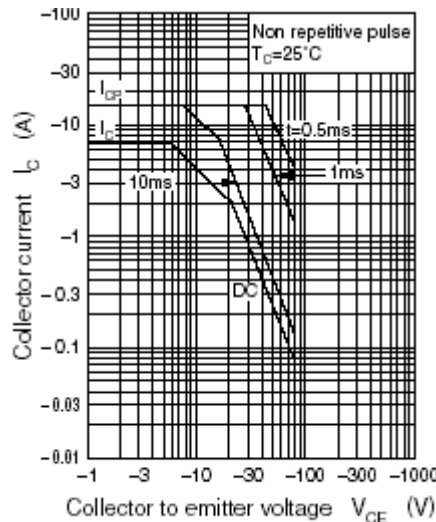


Fig.7 Safe Operating Area