

**Silicon NPN Power Transistors**

**2SD1271 2SD1271A**

**DESCRIPTION**

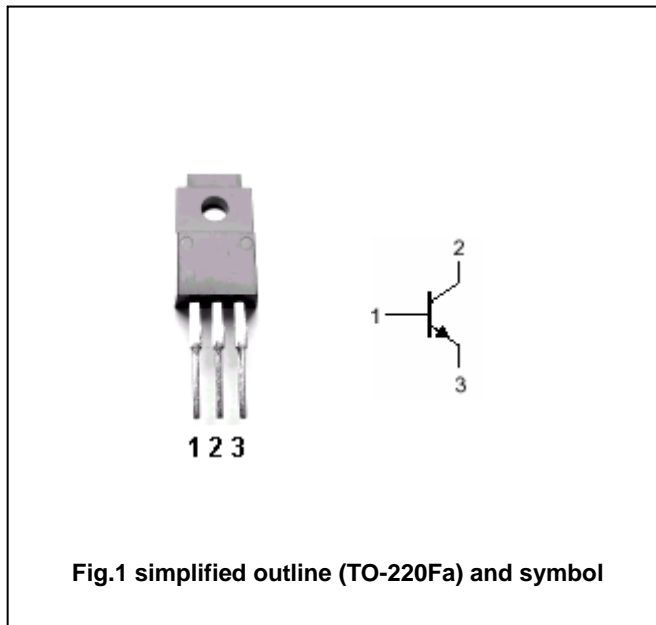
- With TO-220Fa package
- Complement to type 2SB946/946A
- Low collector saturation voltage
- Good linearity of  $h_{FE}$
- Large collector current  $I_C$

**APPLICATIONS**

- For power switching applications

**PINNING**

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter



**ABSOLUTE MAXIMUM RATINGS AT Ta=25**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	2SD1271	130	V
		2SD1271A	150	
$V_{CEO}$	Collector-emitter voltage	2SD1271	80	V
		2SD1271A	100	
$V_{EBO}$	Emitter-base voltage	Open collector	7	V
$I_C$	Collector current (DC)		7	A
$I_{CM}$	Collector current-peak		15	A
$P_C$	Collector power dissipation	$T_C=25$	40	w
		$T_a=25$	2	
$T_j$	Junction temperature		150	
$T_{stg}$	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>CEO</sub>	Collector-emitter voltage	2SD1271	I <sub>C</sub> =10mA, I <sub>B</sub> =0	80			V
		2SD1271A		100			
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> =-I <sub>B2</sub> =0.3A V <sub>CC</sub> =50V		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

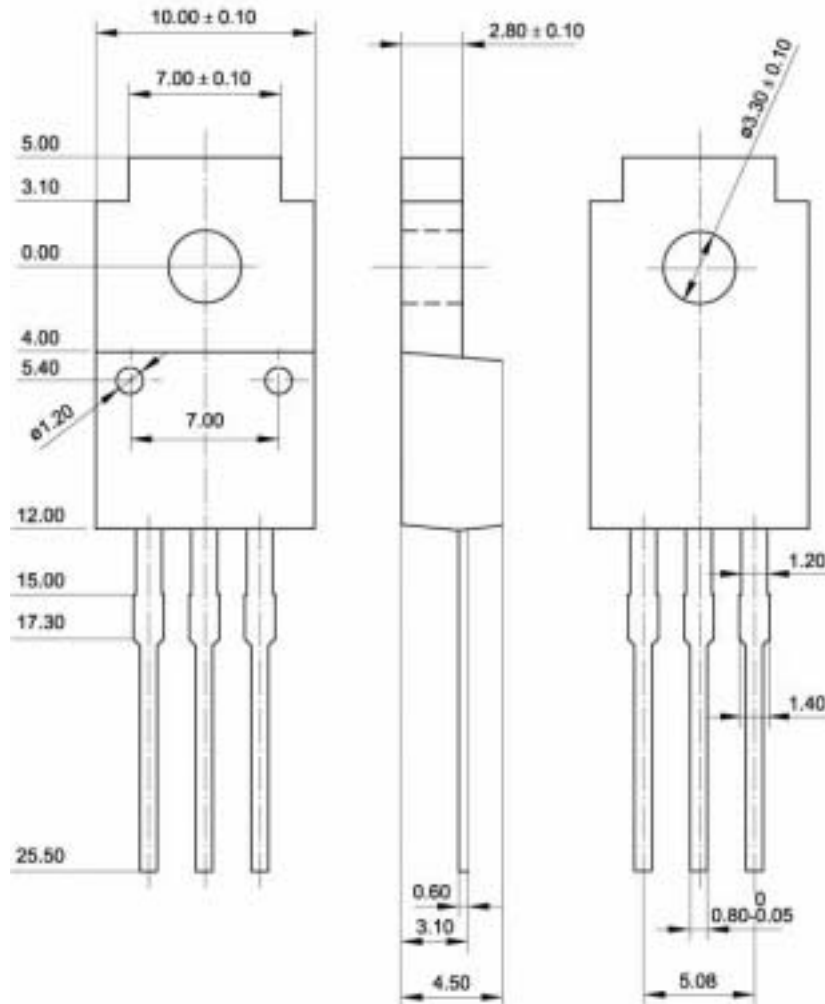


Fig.2 Outline dimensions (unindicated tolerance:  $\pm 0.15$  mm)

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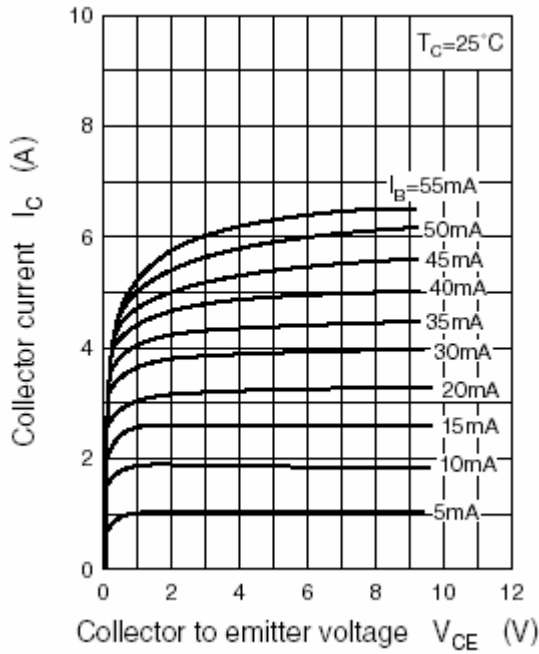


Fig.3 Static Characteristic

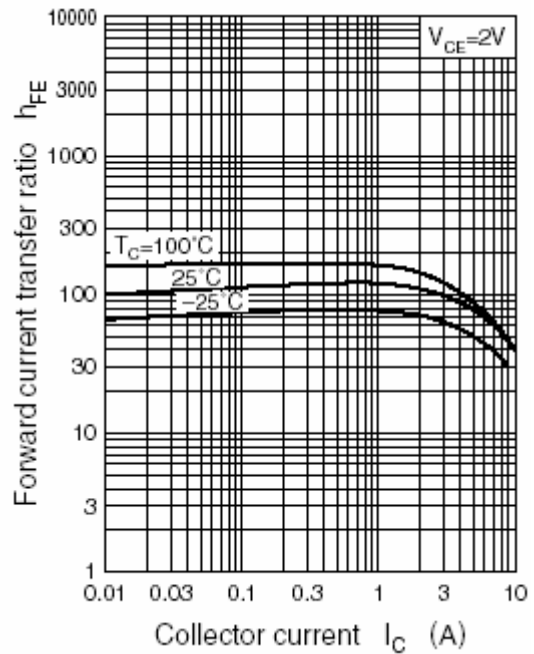


Fig.4 DC current Gain

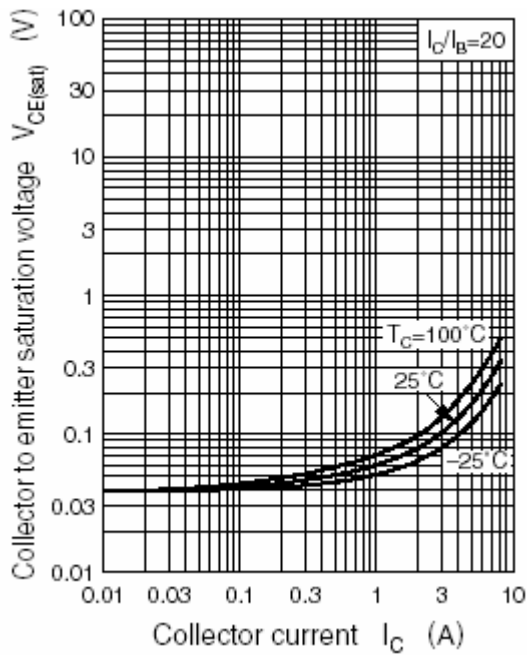


Fig.5 Collector-Emitter Saturation Voltage

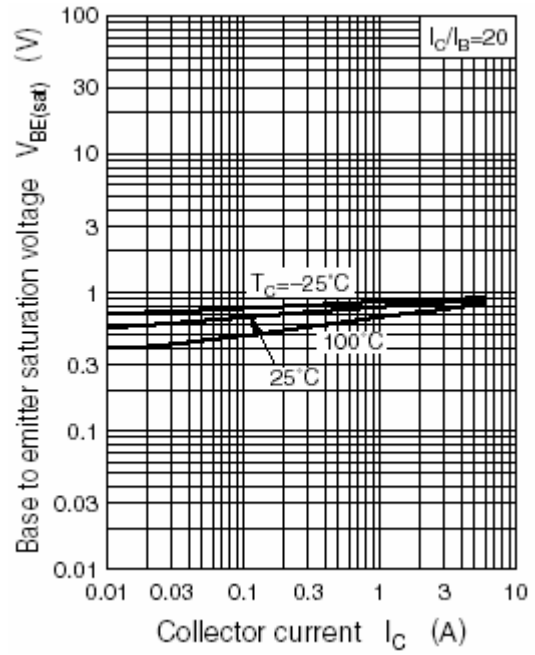


Fig.6 Base-Emitter Saturation Voltage

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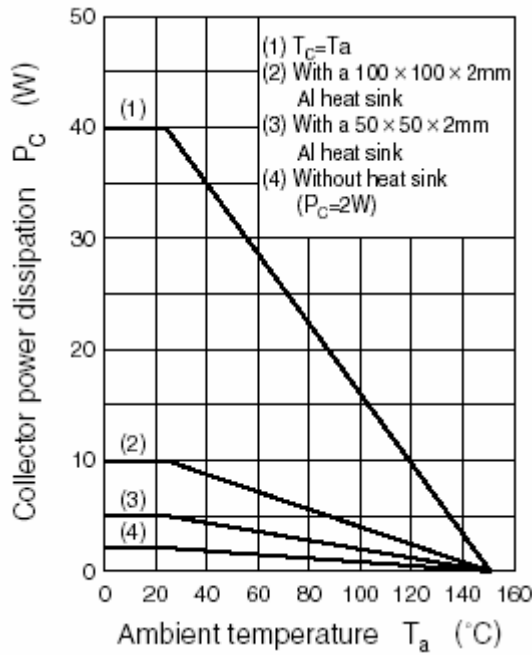


Fig.7 Power Derating

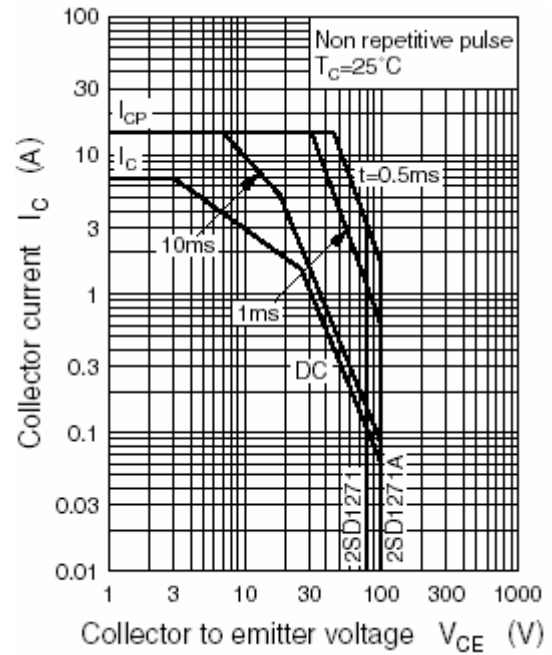


Fig.8 Safe Operating Area