

Silicon NPN Power Transistors

2SD1271 2SD1271A

DESCRIPTION

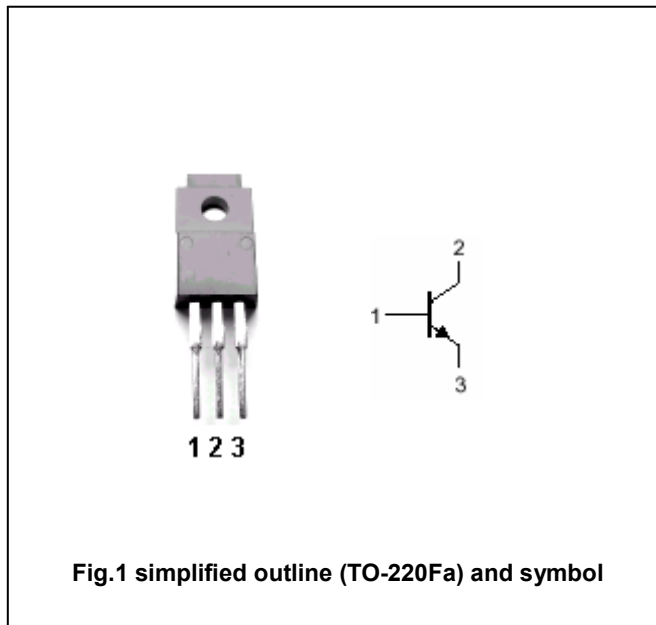
- With TO-220Fa package
- Complement to type 2SB946/946A
- Low collector saturation voltage
- Good linearity of h_{FE}
- Large collector current I_C

APPLICATIONS

- For power switching applications

PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter



ABSOLUTE MAXIMUM RATINGS AT $T_a=25^\circ\text{C}$

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	$T_C=25^\circ\text{C}$	40	W
		$T_a=25^\circ\text{C}$	2	
T_j	Junction temperature		150	$^\circ\text{C}$
T_{stg}	Storage temperature		-55~150	$^\circ\text{C}$

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2SD1271 2SD1271A

CHARACTERISTICS

T_j=25 °C unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CEO}	Collector-emitter voltage	2SD1271	I _C =10mA, I _B =0	80			V
		2SD1271A		100			
V _{CEsat}	Collector-emitter saturation voltage		I _C =5A; I _B =0.25A			0.5	V
V _{BEsat}	Base-emitter saturation voltage		I _C =5A; I _B =0.25A			1.5	V
I _{CBO}	Collector cut-off current		V _{CB} =100V; I _E =0			10	μA
I _{EBO}	Emitter cut-off current		V _{EB} =5V; I _C =0			50	μA
h _{FE-1}	DC current gain		I _C =0.1A; V _{CE} =2V	45			
h _{FE-2}	DC current gain		I _C =3A; V _{CE} =2V	60		260	
f _T	Transition frequency		I _C =0.5A; V _{CE} =10V		30		MHz

Switching times

t _{on}	Turn-on time	I _C =3A; I _{B1} =-I _{B2} =0.3A V _{CC} =50V		0.5		μs
t _s	Storage time			1.5		μs
t _f	Fall time			0.1		μs

◆ h_{FE-2} Classifications

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

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PACKAGE OUTLINE

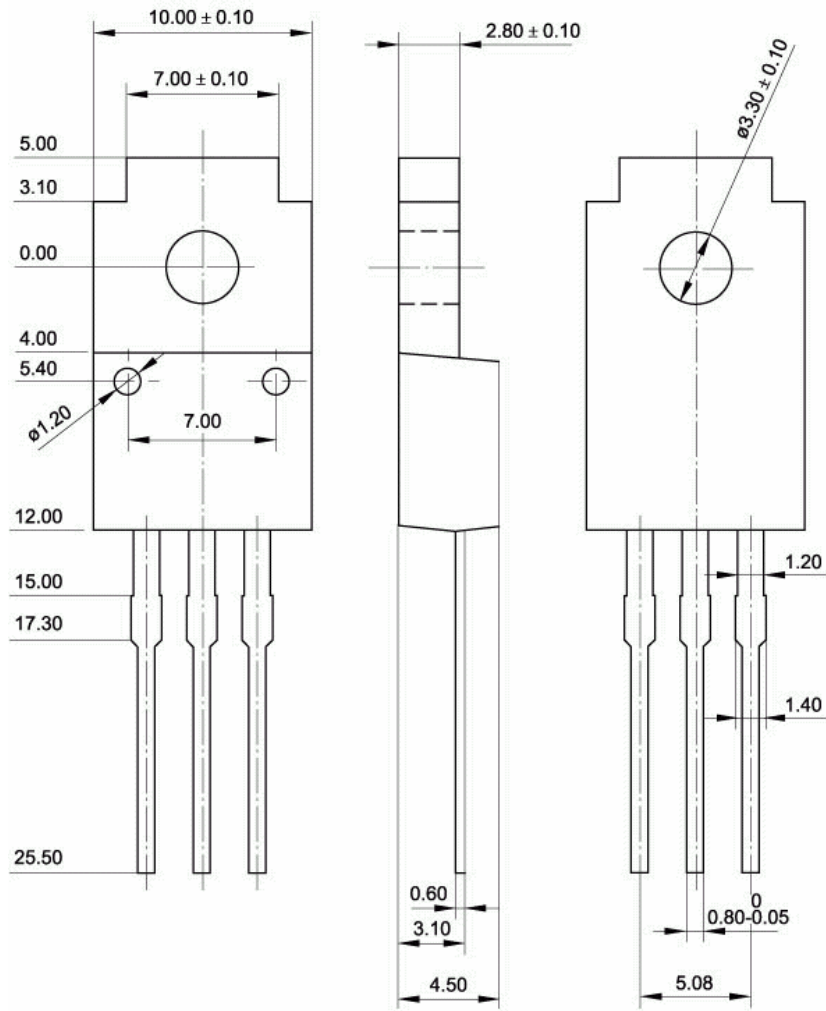


Fig.2 Outline dimensions (unindicated tolerance: ± 0.15 mm)

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2SD1271 2SD1271A

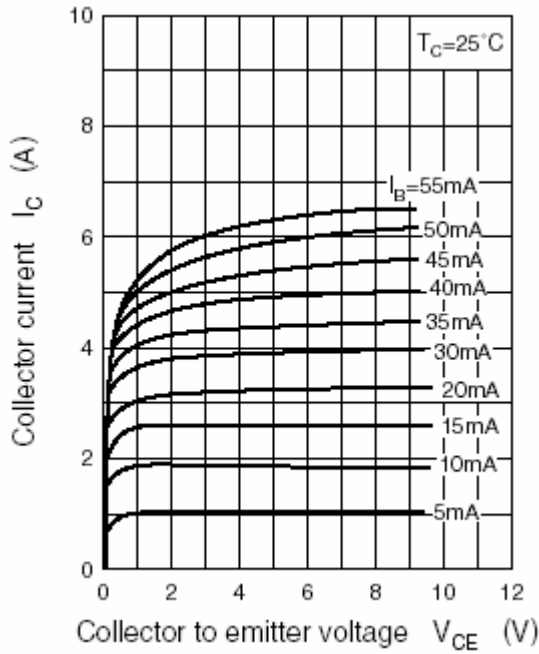


Fig.3 Static Characteristic

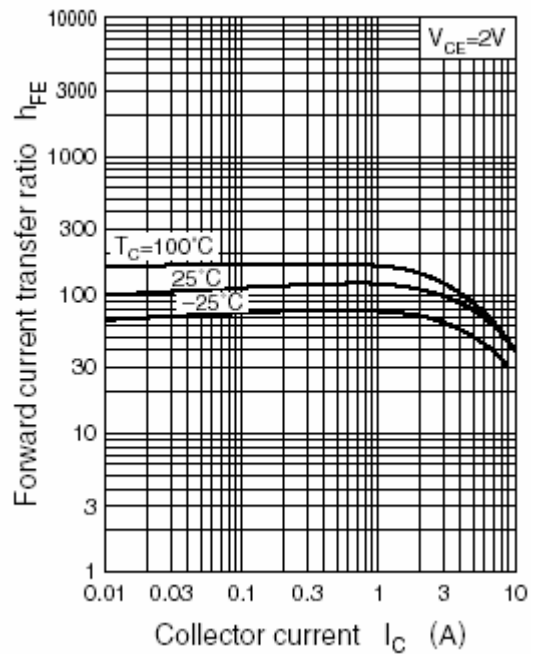


Fig.4 DC current Gain

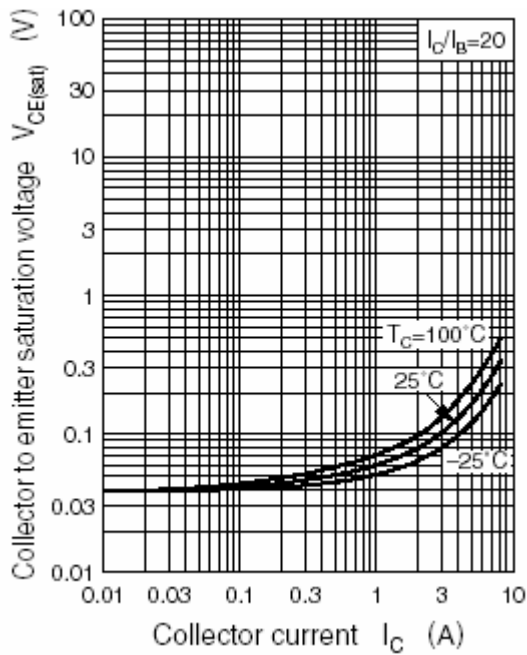


Fig.5 Collector-Emitter Saturation Voltage

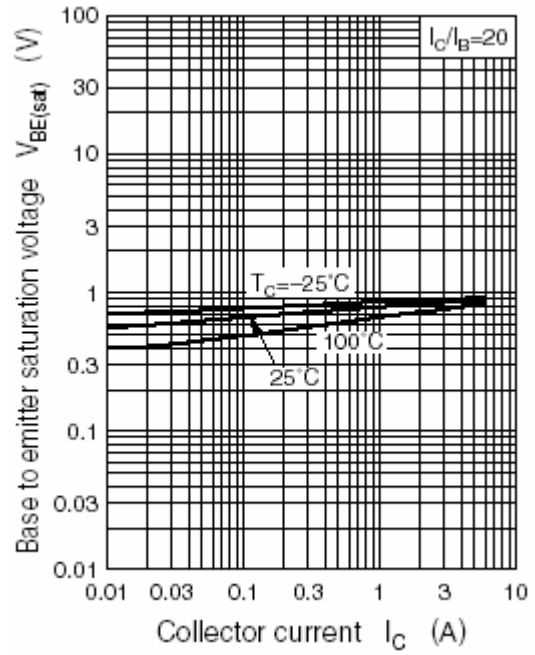


Fig.6 Base-Emitter Saturation Voltage

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2SD1271 2SD1271A

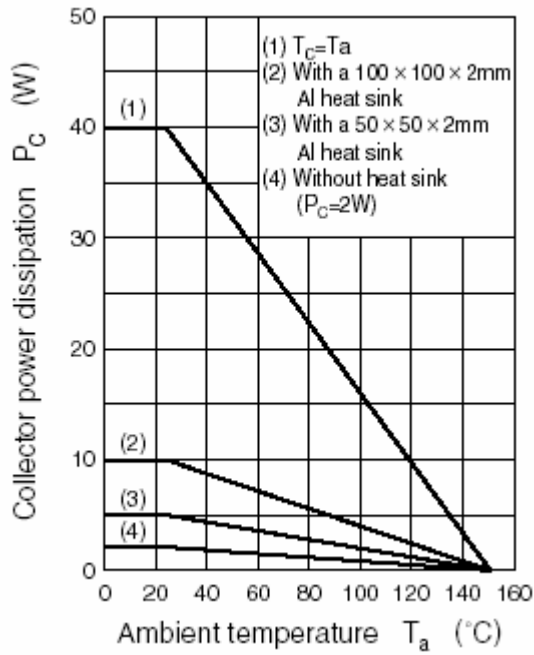


Fig.7 Power Derating

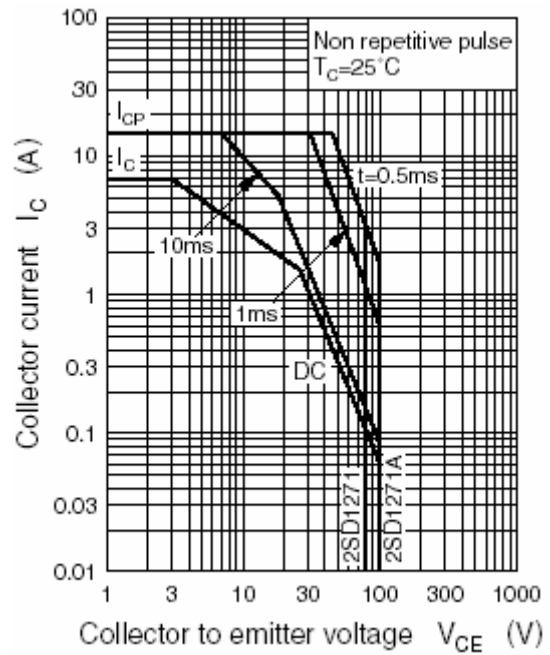


Fig.8 Safe Operating Area