

Silicon NPN Power Transistors

2SD2000

DESCRIPTION

- With TO-220Fa package
- High-speed switching
- Large collector power dissipation

APPLICATIONS

- For power switching applications

PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

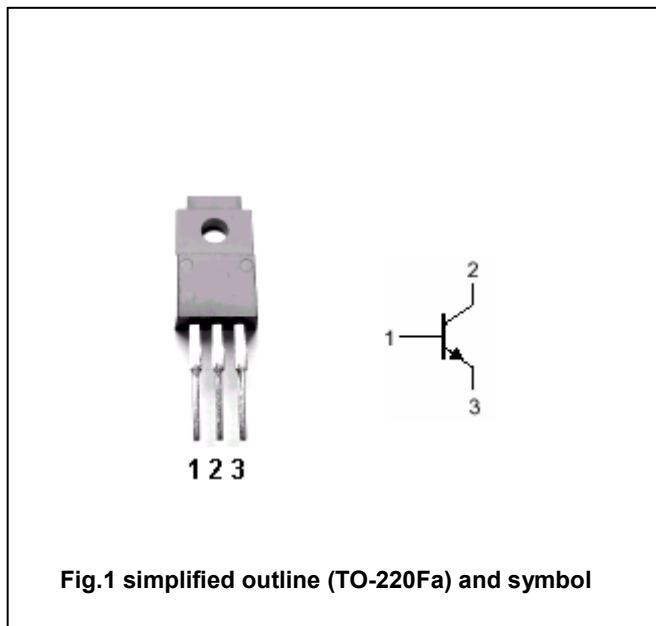


Fig.1 simplified outline (TO-220Fa) and symbol

ABSOLUTE MAXIMUM RATINGS AT Tc=25°C

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V _{CB0}	Collector-base voltage	Open emitter	80	V
V _{CEO}	Collector-emitter voltage	Open base	60	V
V _{EBO}	Emitter-base voltage	Open collector	6	V
I _C	Collector current		4	A
I _{CM}	Collector current-peak		8	A
I _B	Base current		1	A
P _C	Collector power dissipation	T _C =25°C	35	W
		T _a =25°C	2	
T _j	Junction temperature		150	°C
T _{stg}	Storage temperature		-55~150	°C

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CHARACTERISTICS

T_j=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{(BR)CEO}	Collector-emitter breakdown voltage	I _C =25mA, I _B =0	60			V
V _{CEsat}	Collector-emitter saturation voltage	I _C =4A; I _B =0.4A			1.5	V
V _{BEsat}	Base-emitter saturation voltage	I _C =4A; I _B =0.4A			2.0	V
I _{CBO}	Collector cut-off current	V _{CB} =80V; I _E =0			100	μA
I _{EBO}	Emitter cut-off current	V _{EB} =6V; I _C =0			100	μA
h _{FE-1}	DC current gain	I _C =1A; V _{CE} =4V	70		250	
h _{FE-2}	DC current gain	I _C =4A; V _{CE} =4V	20			
f _T	Transition frequency	I _C =0.2A; V _{CE} =12V; f=10MHz		80		MHz

Switching times

t _{on}	Turn-on time	I _C =4A; I _{B1} =0.4A I _{B2} =-0.4A; V _{CC} =50V		0.3		μs
t _s	Storage time			1.0		μs
t _f	Fall time			0.2		μs

◆ h_{FE-1} Classifications

Q	P
70-150	120-250

PACKAGE OUTLINE

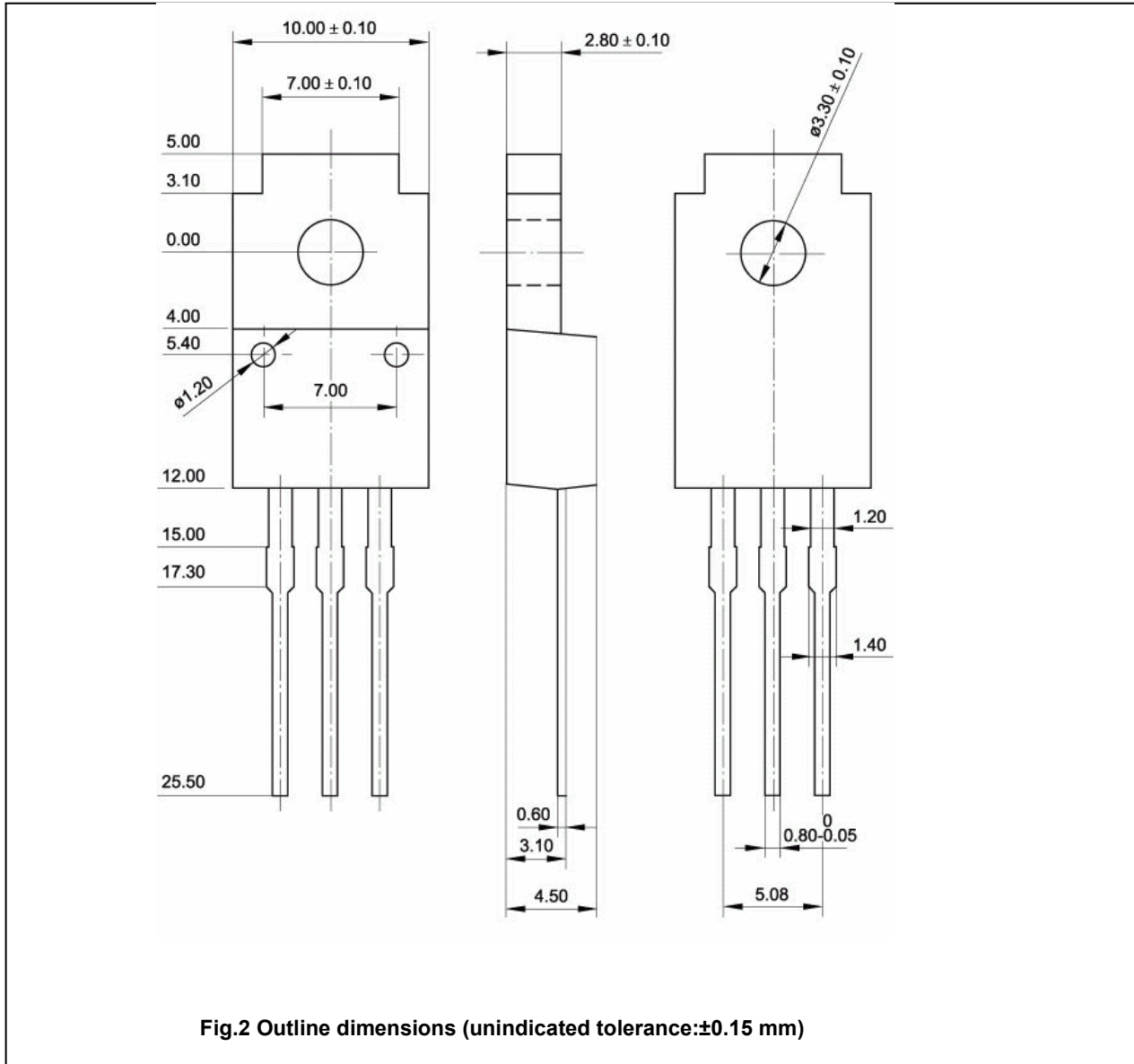


Fig.2 Outline dimensions (unindicated tolerance: ± 0.15 mm)

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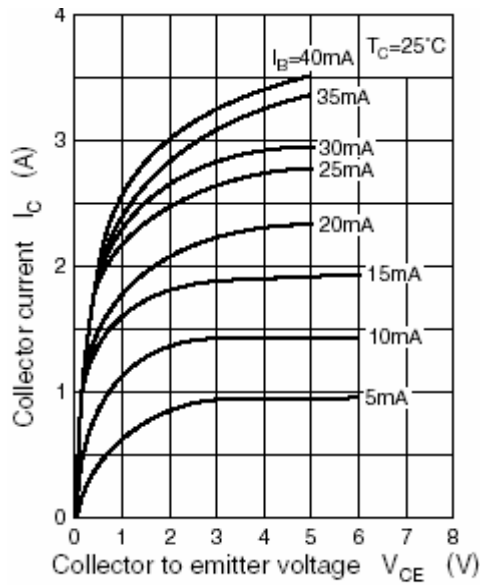


Fig.3 Static Characteristic

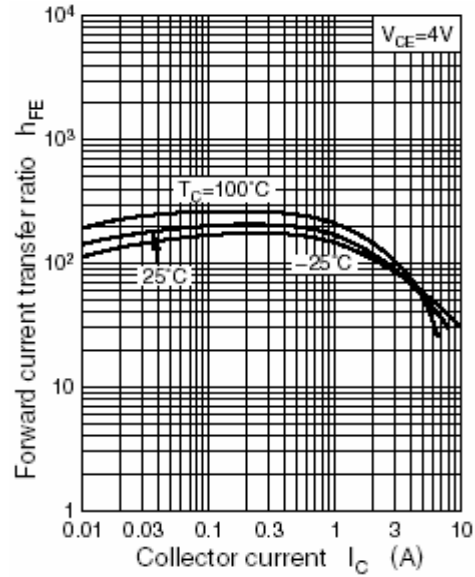


Fig.4 DC current Gain

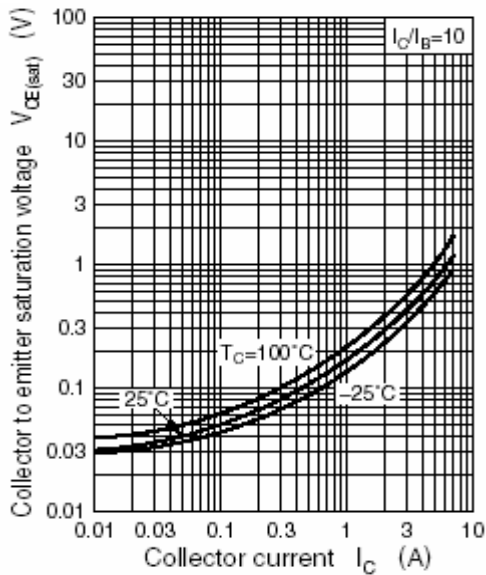


Fig.5 Collector-Emitter Saturation Voltage

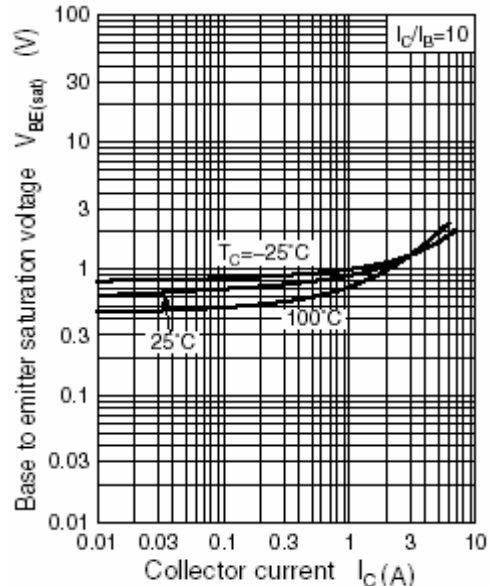


Fig.6 Base-Emitter Saturation Voltage

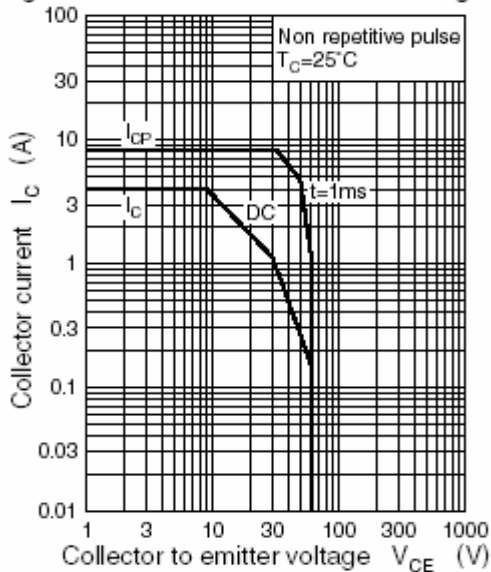


Fig.7 Safe Operating Area