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

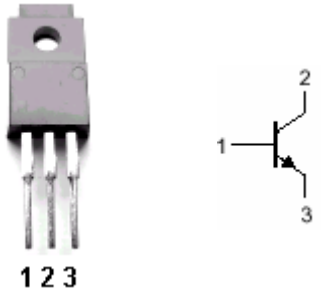

Fig.1 simplified outline (TO-220Fa) and symbol

ABSOLUTE MAXIMUM RATINGS AT Tc=25□

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	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□	35	W
		T_a=25□	2	
T_j	Junction temperature		150	□
T_{stg}	Storage temperature		-55~150	□

CHARACTERISTICS

Tj=25□ 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

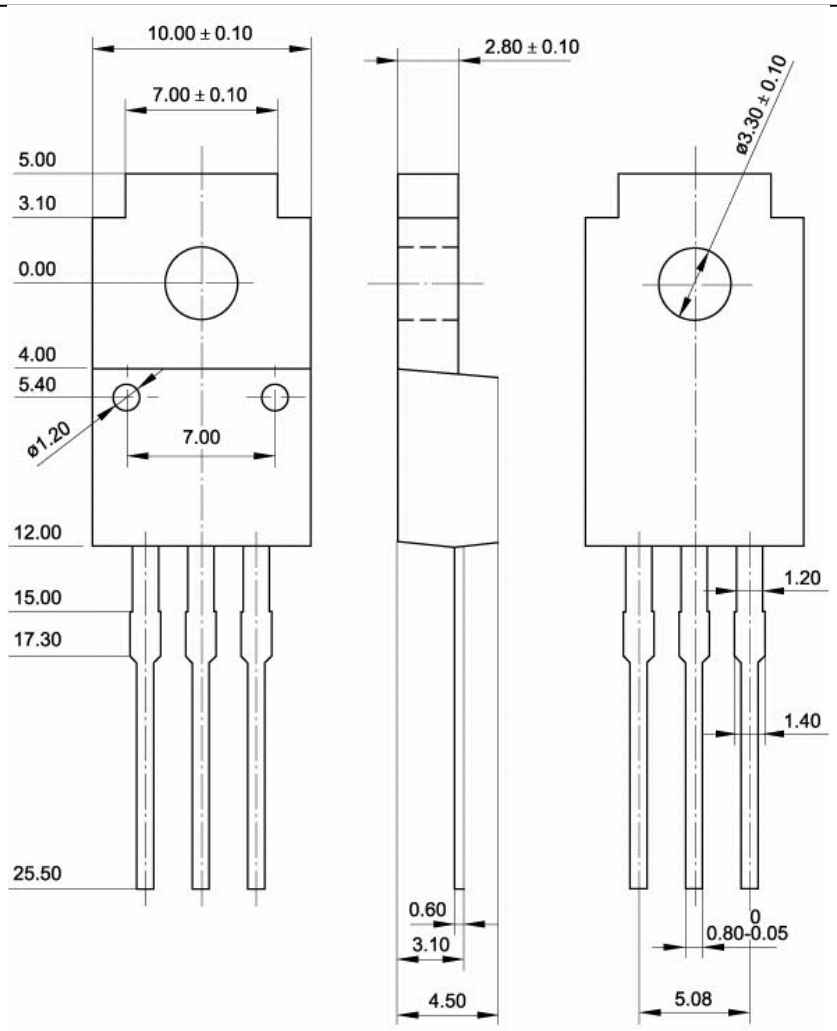

Fig.2 Outline dimensions (unindicated tolerance:±0.15 mm)

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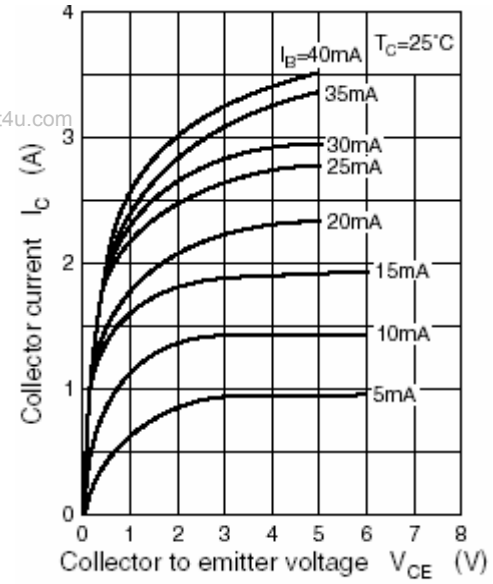

Fig.3 Static Characteristic

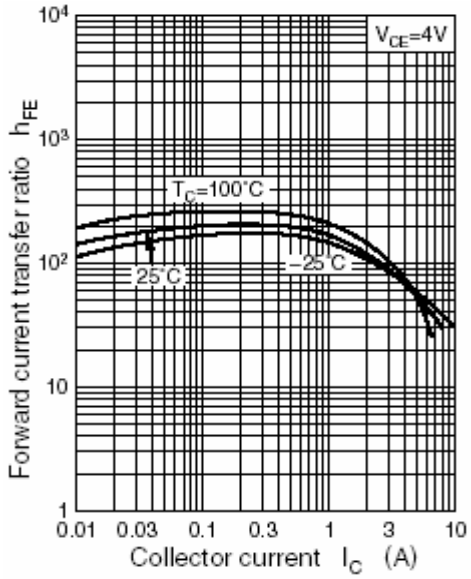

Fig.4 DC current Gain

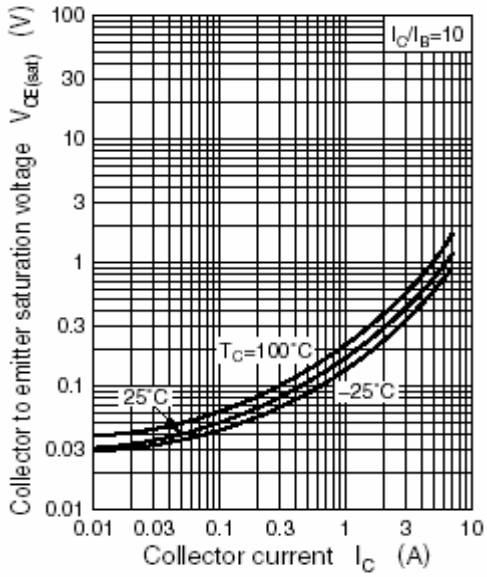

Fig.5 Collector-Emitter Saturation Voltage

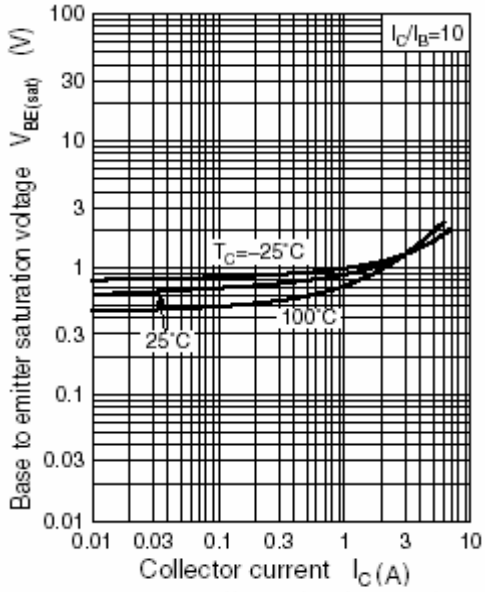

Fig.6 Base-Emitter Saturation Voltage

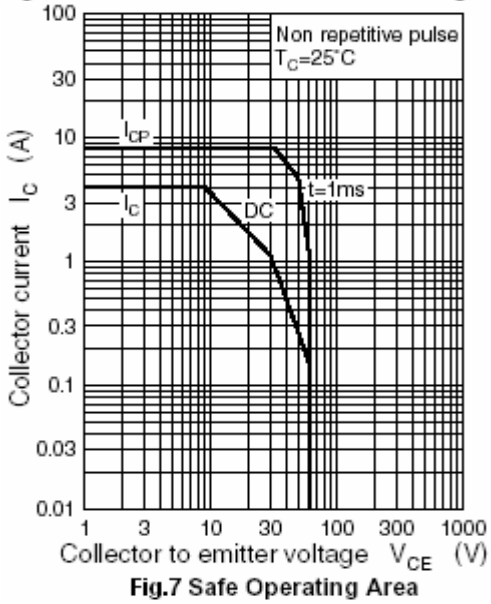

Fig.7 Safe Operating Area