

Silicon NPN Power Transistors

2SD1406

DESCRIPTION

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- With TO-220Fa package
- Collector power dissipation
: $P_C=25W@T_C=25^\circ C$
- Low collector saturation voltage
- Complement to type 2SB1015

APPLICATIONS

- For audio frequency power amplifier applications

PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

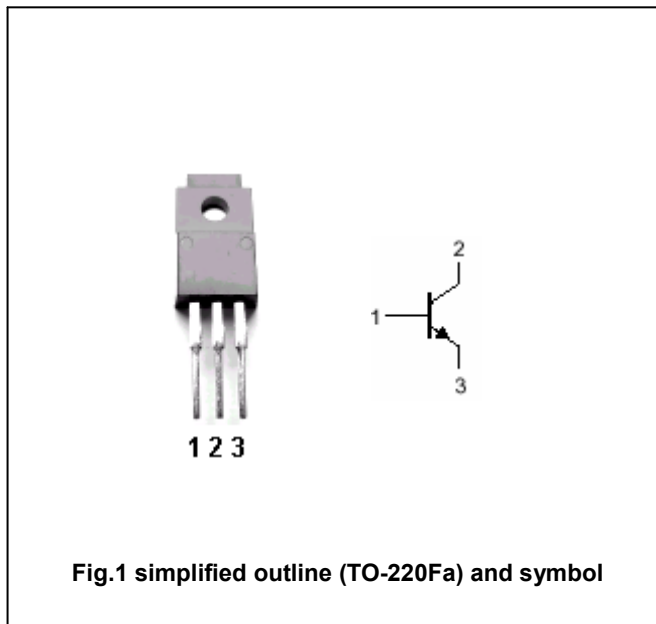


Fig.1 simplified outline (TO-220Fa) and symbol

Absolute maximum ratings($T_a=25^\circ C$)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	Open emitter	60	V
V_{CEO}	Collector -emitter voltage	Open base	60	V
V_{EBO}	Emitter-base voltage	Open collector	7	V
I_C	Collector current		3	A
I_B	Base current		0.5	A
P_C	Collector power dissipation	$T_a=25^\circ C$	2.0	W
		$T_C=25^\circ C$	25	
T_j	Junction temperature		150	$^\circ C$
T_{stg}	Storage temperature		-55~150	$^\circ C$

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CHARACTERISTICS

T_j=25°C unless otherwise specified

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SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{(BR)CEO}	Collector-emitter breakdown voltage	I _C =50mA; I _B =0	60			V
V _{CEsat}	Collector-emitter saturation voltage	I _C =3A; I _B =0.3A		0.25	1.0	V
V _{BE}	Base-emitter voltage	I _C =0.5A; V _{CE} =5V		0.7	1.0	V
I _{CBO}	Collector cut-off current	V _{CB} =60V; I _E =0			100	μA
I _{EBO}	Emitter cut-off current	V _{EB} =7V; I _C =0			100	μA
h _{FE-1}	DC current gain	I _C =0.5A; V _{CE} =5V	60		300	
h _{FE-2}	DC current gain	I _C =3A; V _{CE} =5V	20			
f _T	Transition frequency	I _C =0.5A; V _{CE} =5V		3		MHz
C _{OB}	Collector output capacitance	I _E =0; f=1MHz; V _{CB} =10V		70		pF

Switching times

t _{on}	Trun-on time	R _L =15Ω; V _{CC} =30V I _{B1} =-I _{B2} =0.2A		0.8		μs
t _s	Storage time			1.5		μs
t _f	Fall time			0.8		μs

◆ h_{FE-1} Classifications

O	Y	GR
60-120	100-200	150-300

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PACKAGE OUTLINE

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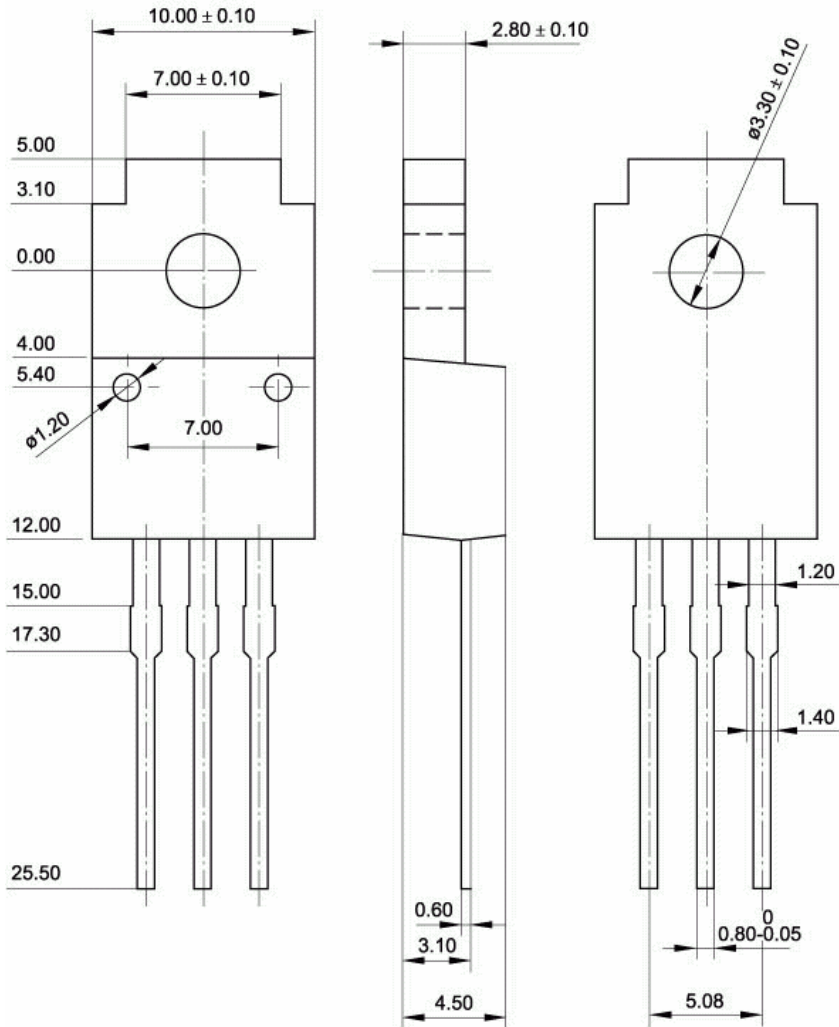


Fig.2 Outline dimensions (unindicated tolerance: ± 0.15 mm)

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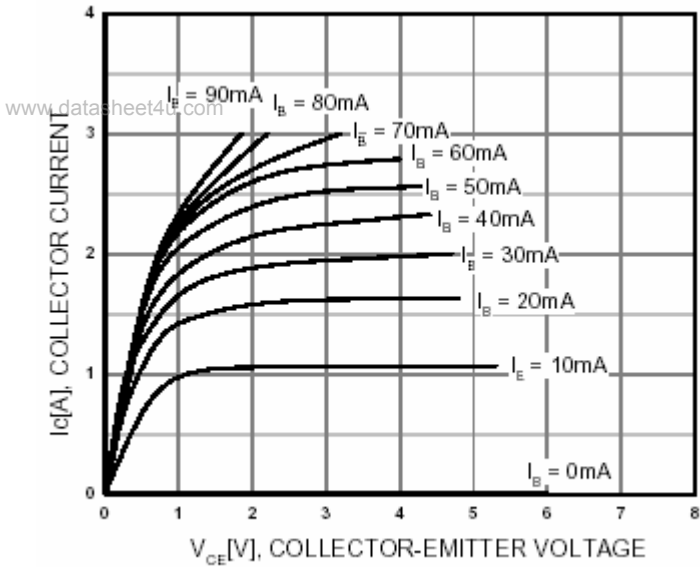


Fig.3 Static Characteristic

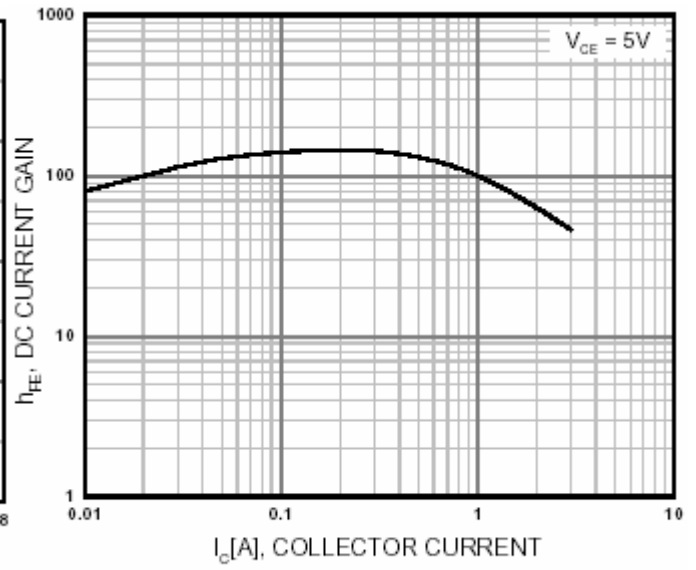


Fig.4 DC current Gain

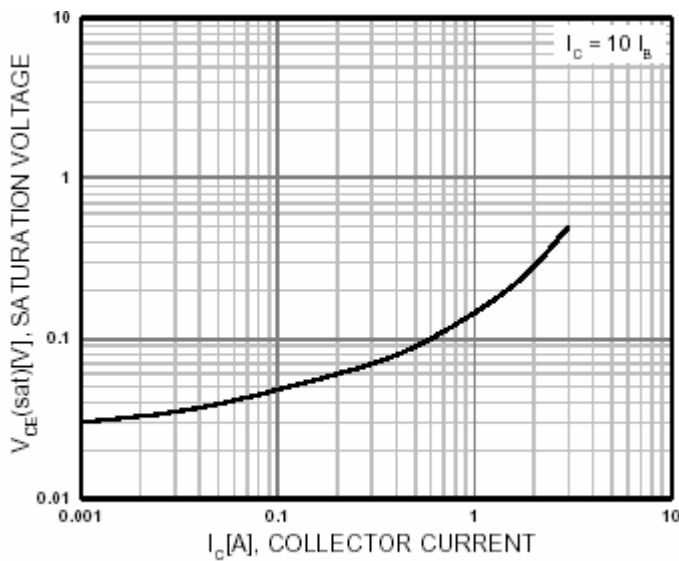


Fig.5 Collector-Emitter Saturation Voltage

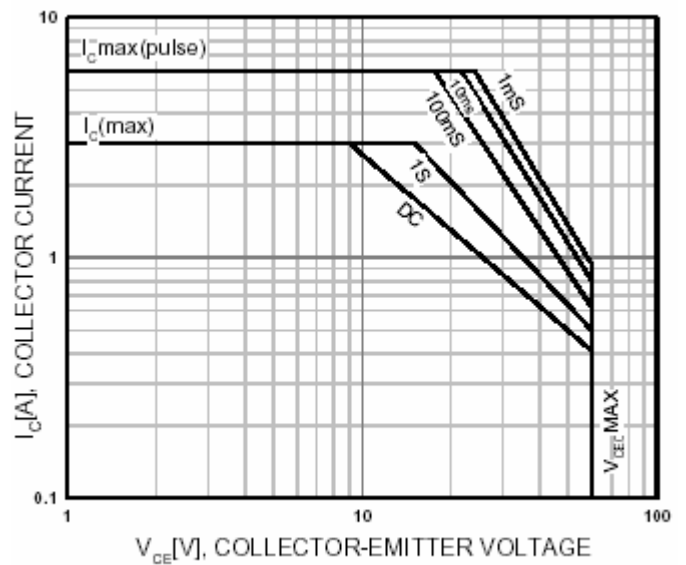


Fig.6 Safe Operating Area