

Silicon PNP Power Transistors

2SB903

DESCRIPTION

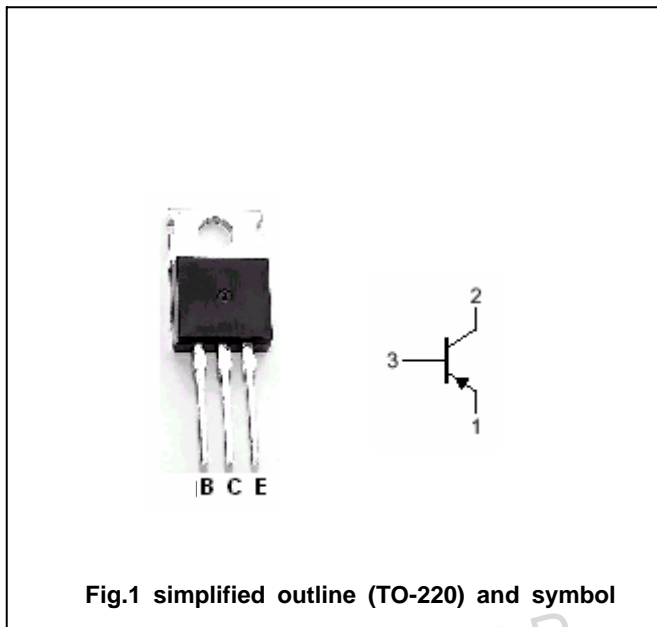
- With TO-220 package
- Low collector saturation voltage
- Large current capacity.
- Complement to type 2SD1212

APPLICATIONS

- Suitable for relay drivers, high-speed inverters, converters, and other general large current switching applications.
- High-speed switching applications

PINNING

PIN	DESCRIPTION
1	Emitter
2	Collector; connected to mounting base
3	Base



Absolute maximum ratings (Ta=25 )

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	-60	V
$V_{CEO}$	Collector-emitter voltage	Open base	-30	V
$V_{EBO}$	Emitter-base voltage	Open collector	-6	V
$I_C$	Collector current		-12	A
$I_{CM}$	Collector current-peak		-20	A
$P_C$	Collector power dissipation		1.75	W
		$T_C=25$	35	
$T_j$	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>(BR)CBO</sub>	Collector-base breakdown voltage	I <sub>C</sub> =-1mA ; I <sub>E</sub> =0	-60			V
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage	I <sub>C</sub> =-1mA ; R <sub>BE</sub> =	-30			V
V <sub>(BR)EBO</sub>	Emitter-base breakdown voltage	I <sub>E</sub> =-1mA ; I <sub>C</sub> =0	-6			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =-5A, I <sub>B</sub> =-0.25A			-0.5	V
I <sub>CBO</sub>	Collector cut-offcurrent	V <sub>CB</sub> =-40V; I <sub>E</sub> =0			-0.1	mA
I <sub>EBO</sub>	Emitter cut-offcurrent	V <sub>EB</sub> =-4V; I <sub>C</sub> =0			-0.1	mA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =-1A ; V <sub>CE</sub> =-2V	70		280	
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =-6A ; V <sub>CE</sub> =-2V	30			
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =-1A ; V <sub>CE</sub> =-5V		120		MHz

## Switching times

t <sub>on</sub>	Turn-on time			0.10		μs
t <sub>stg</sub>	Storage time	I <sub>C</sub> =-5A ; I <sub>B1</sub> =-I <sub>B2</sub> =-0.5A; V <sub>CC</sub> =-10V; R <sub>L</sub> =2		0.30		μs
t <sub>f</sub>	Fall time			0.03		μs

◆ h<sub>FE-1</sub> classifications

Q	R	S
70-140	100-200	140-280

PACKAGE OUTLINE

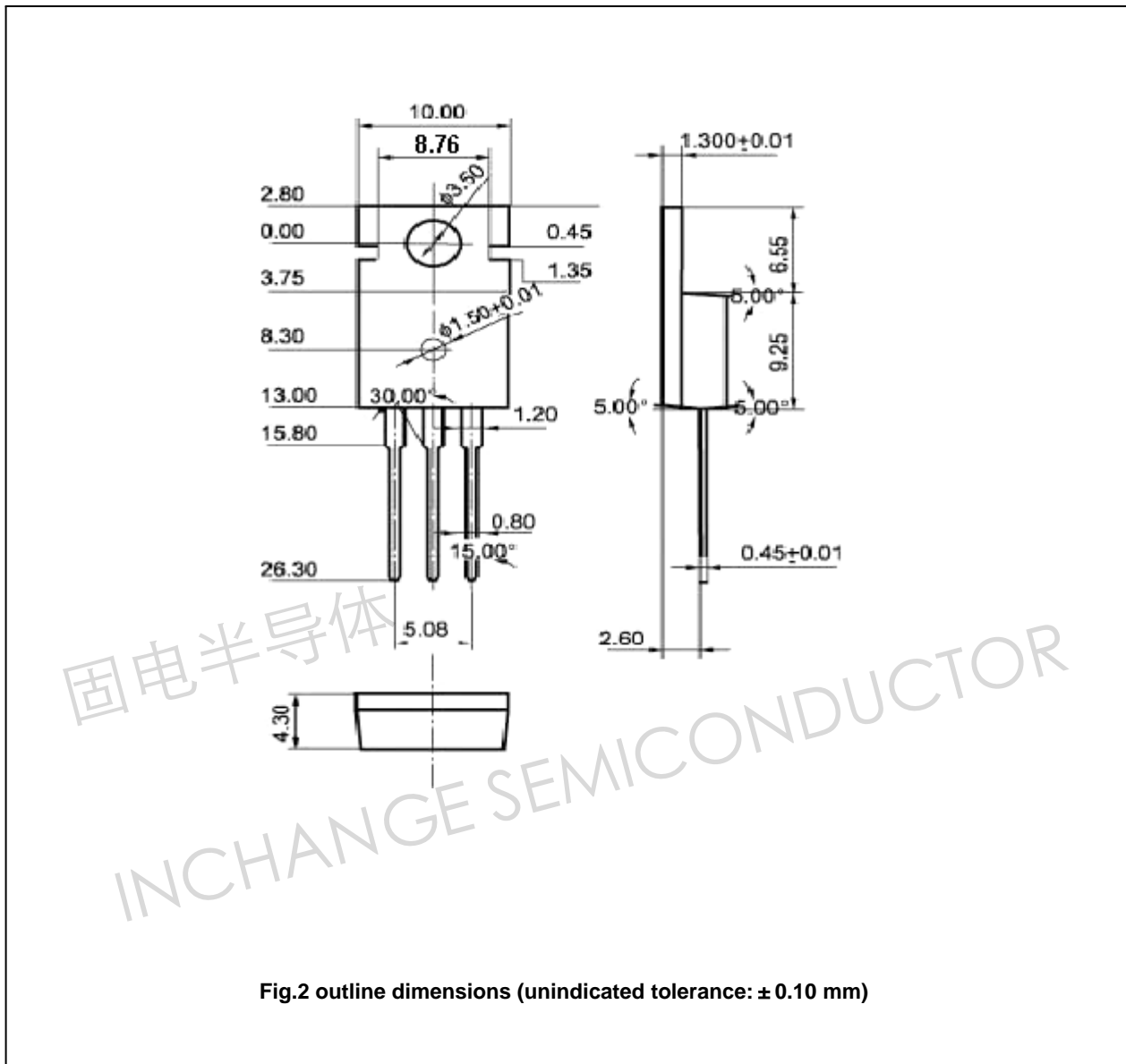


Fig.2 outline dimensions (unindicated tolerance: ± 0.10 mm)

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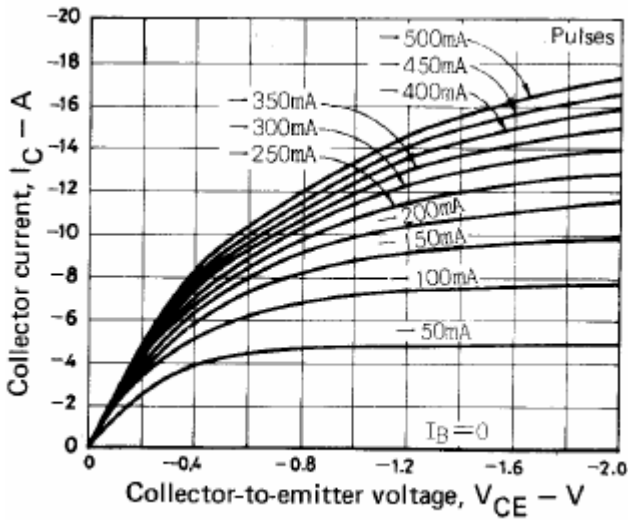


Fig.3 Static Characteristic

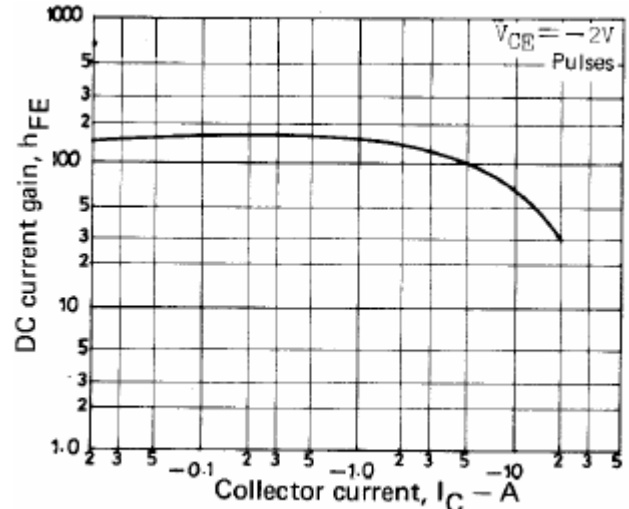


Fig.4 DC current Gain

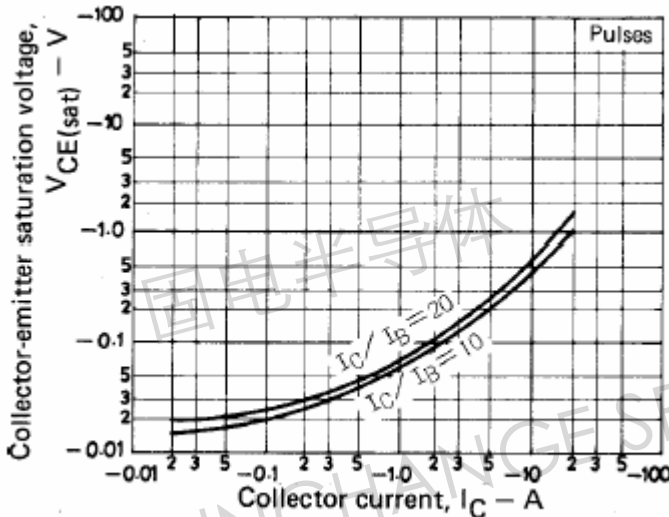


Fig.5 Collector-Emitter Saturation Voltage

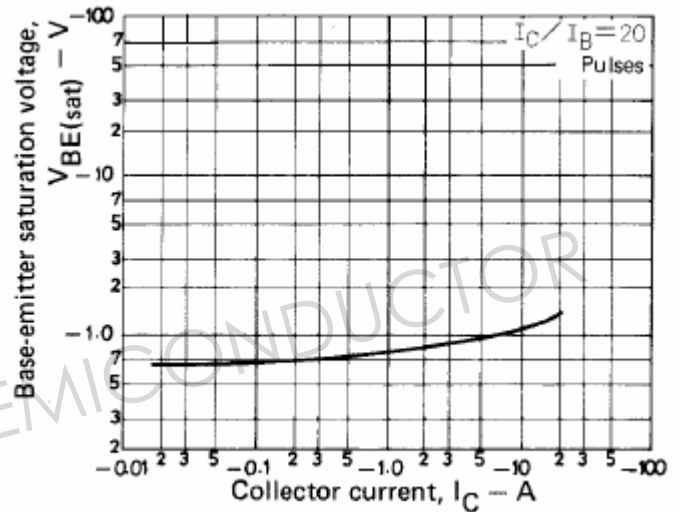


Fig.6 Base-Emitter Saturation Voltage

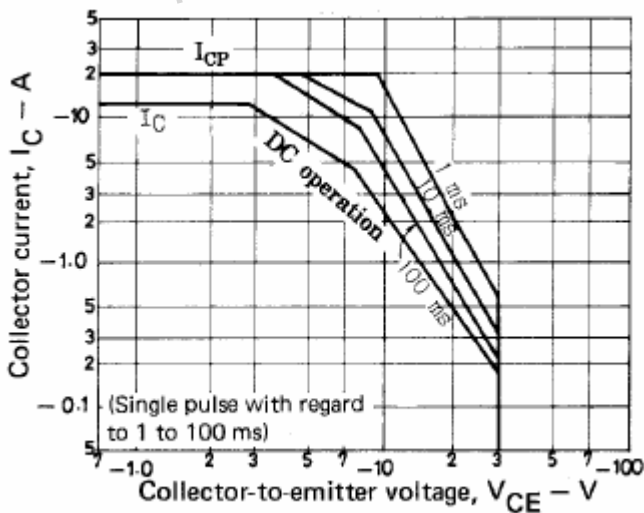


Fig.7 Safe Operating Area