

**Silicon NPN Power Transistors**

**2SC3902**

**DESCRIPTION**

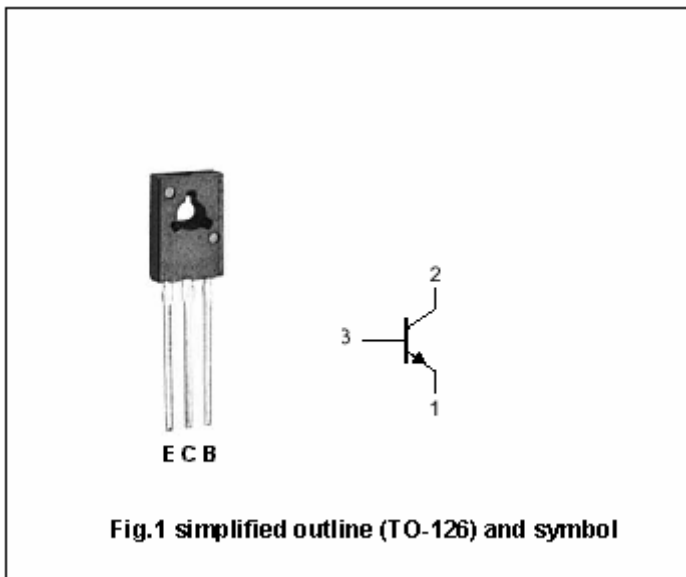
- With TO-126 package
- Complement to type 2SA1507
- Large current capacity
- High breakdown voltage

**APPLICATIONS**

- Color TV audio output ,converters, inverters

**PINNING**

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



**Absolute maximum ratings(Ta=25°C)**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CB0</sub>	Collector-base voltage	Open emitter	180	V
V <sub>CEO</sub>	Collector-emitter voltage	Open base	160	V
V <sub>EBO</sub>	Emitter-base voltage	Open collector	6	V
I <sub>C</sub>	Collector current		1.5	A
I <sub>CM</sub>	Collector current-peak		2.5	A
P <sub>D</sub>	Total power dissipation	T <sub>a</sub> =25°C	1.5	W
		T <sub>C</sub> =25°C	10	
T <sub>j</sub>	Junction temperature		150	°C
T <sub>stg</sub>	Storage temperature		-55°C+150	°C

## Silicon NPN Power Transistors

## 2SC3902

## CHARACTERISTICS

T<sub>j</sub>=25 °C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage	I <sub>C</sub> =1mA ; R <sub>BE</sub> =∞	160			V
V <sub>(BR)CBO</sub>	Collector-base breakdown voltage	I <sub>C</sub> =10μA ; I <sub>E</sub> =0	180			V
V <sub>(BR)EBO</sub>	Emitter-base breakdown voltage	I <sub>E</sub> =10μA ; I <sub>C</sub> =0	6			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =500mA ; I <sub>B</sub> =50mA			0.45	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =500mA ; I <sub>B</sub> =50mA			1.2	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =120V ; I <sub>E</sub> =0			0.1	μA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =4V ; I <sub>C</sub> =0			0.1	μA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =100mA ; V <sub>CE</sub> =5V	100		400	
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =10mA ; V <sub>CE</sub> =5V	90			
C <sub>ob</sub>	Output capacitance	I <sub>E</sub> =0 ; V <sub>CB</sub> =10V f=1MHz		14		pF
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =50mA ; V <sub>CE</sub> =10V		120		MHz

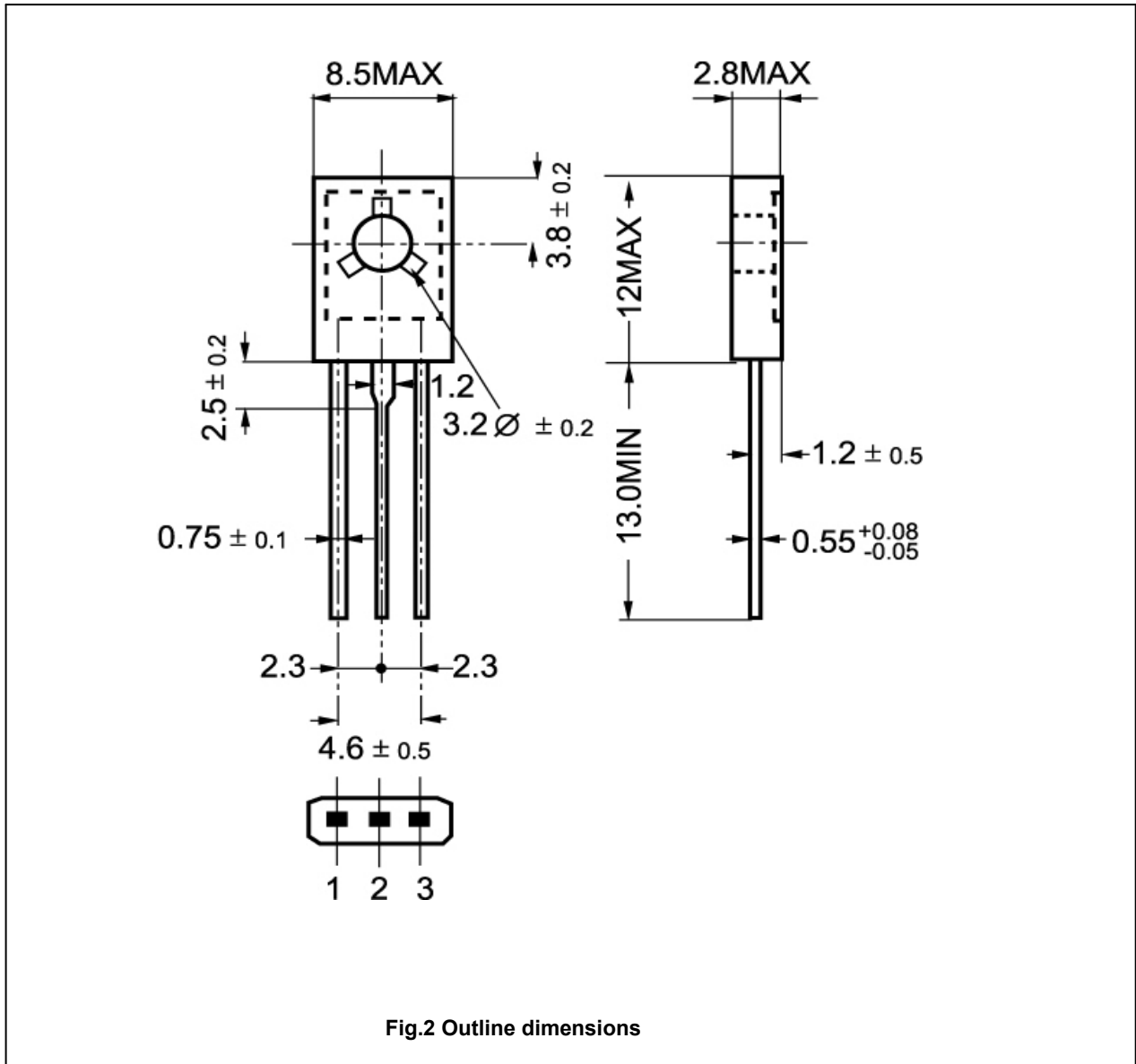
## Switching times

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =0.7A ; I <sub>B1</sub> =-I <sub>B2</sub> =0.07A V <sub>CC</sub> =100V , R <sub>L</sub> =14.3Ω		0.04		μs
t <sub>s</sub>	Storage time			1.2		μs
t <sub>f</sub>	Fall time			0.08		μs

◆ h<sub>FE-1</sub> Classifications

R	S	T
100-200	140-280	200-400

PACKAGE OUTLINE



Silicon NPN Power Transistors

2SC3902

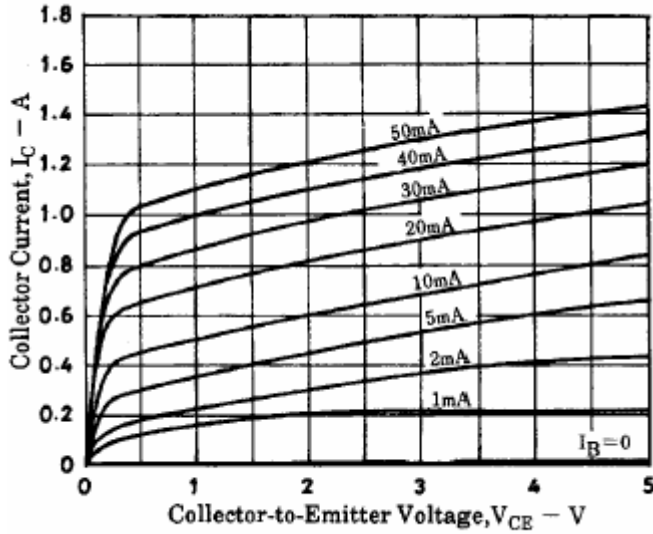


Fig.3 Static Characteristic

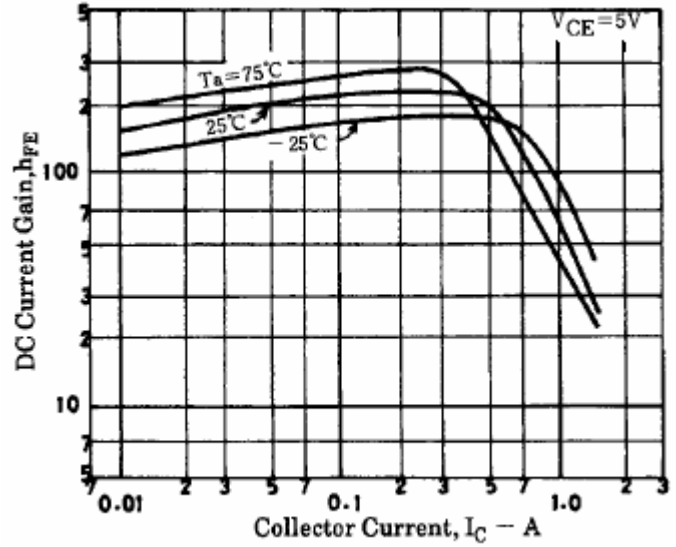


Fig.4 DC current Gain

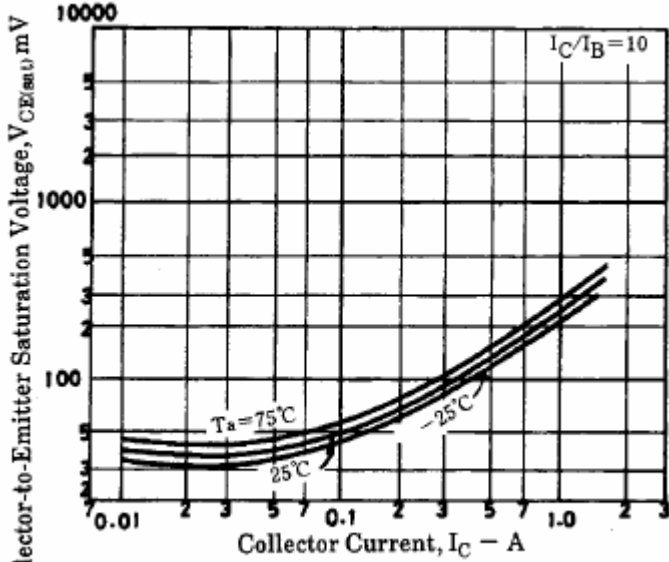


Fig.5 Collector-Emmitter Saturation Voltage

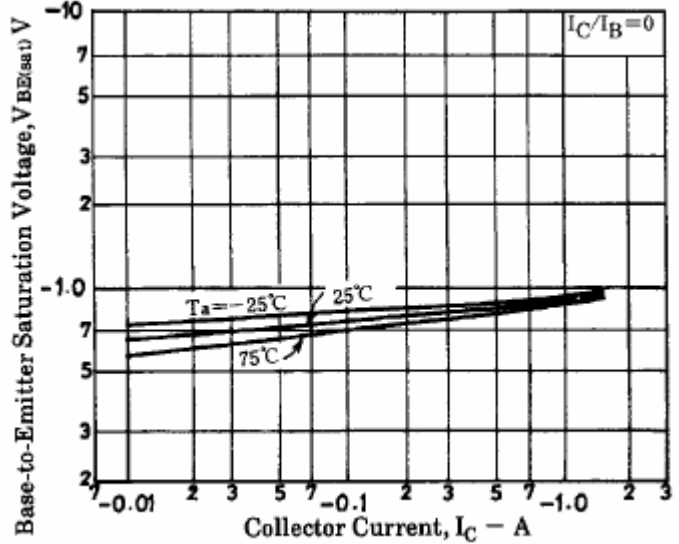


Fig.6 Base-Emmitter Saturation Voltage

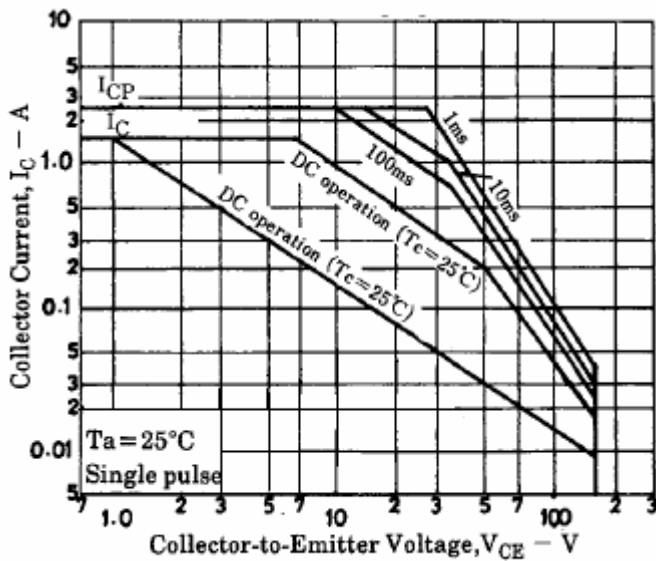


Fig.7 Safe Operating Area