

**Silicon NPN Power Transistors**

**2SC3851 2SC3851A**

**DESCRIPTION**

- With TO-220F package
- Complement to type 2SA1488/1488A

**APPLICATIONS**

- Audio and PPC high voltage power supply ,and general purpose

**PINNING**

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

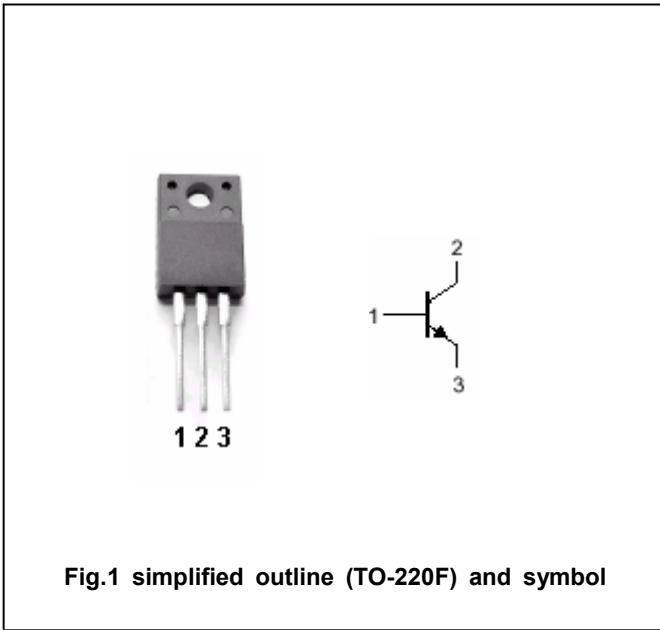


Fig.1 simplified outline (TO-220F) and symbol

**Absolute maximum ratings (Ta=25°C)**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	2SC3851	80	V
		2SC3851A	100	
V <sub>CEO</sub>	Collector-emitter voltage	2SC3851	60	V
		2SC3851A	80	
V <sub>EBO</sub>	Emitter-base voltage	Open collector	6	V
I <sub>C</sub>	Collector current		4	A
I <sub>B</sub>	Base current		1	A
P <sub>C</sub>	Collector dissipation	T <sub>C</sub> =25°C	25	W
T <sub>j</sub>	Junction temperature		150	°C
T <sub>stg</sub>	Storage temperature		-55~150	°C

## Silicon NPN Power Transistors

## 2SC3851 2SC3851A

## 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	2SC3851	I <sub>C</sub> =25mA ; I <sub>B</sub> =0	60			V
		2SC3851A		80			
V <sub>CEsat</sub>	Collector-emitter saturation voltage		I <sub>C</sub> =2.0A; I <sub>B</sub> =0.2A			0.5	V
I <sub>CBO</sub>	Collector cut-off current	2SC3851	V <sub>CB</sub> =80V; I <sub>E</sub> =0			0.1	mA
		2SC3851A	V <sub>CB</sub> =100V; I <sub>E</sub> =0			0.1	mA
I <sub>EBO</sub>	Emitter cut-off current		V <sub>EB</sub> =6V; I <sub>C</sub> =0			0.1	mA
h <sub>FE</sub>	DC current gain		I <sub>C</sub> =1A ; V <sub>CE</sub> =4V	40		320	
f <sub>T</sub>	Transition frequency		I <sub>C</sub> =0.2A ; V <sub>CE</sub> =12V		15		MHz
C <sub>OB</sub>	Output capacitance		I <sub>E</sub> =0 ; V <sub>CB</sub> =10V; f=1MHz		60		pF

## Switching time

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =2.0A I <sub>B1</sub> =-I <sub>B2</sub> =0.2A V <sub>CC</sub> =12V , R <sub>L</sub> =6Ω		0.20		μs
t <sub>s</sub>	Storage time			1.00		μs
t <sub>f</sub>	Fall time			0.30		μs

Silicon NPN Power Transistors

2SC3851 2SC3851A

PACKAGE OUTLINE

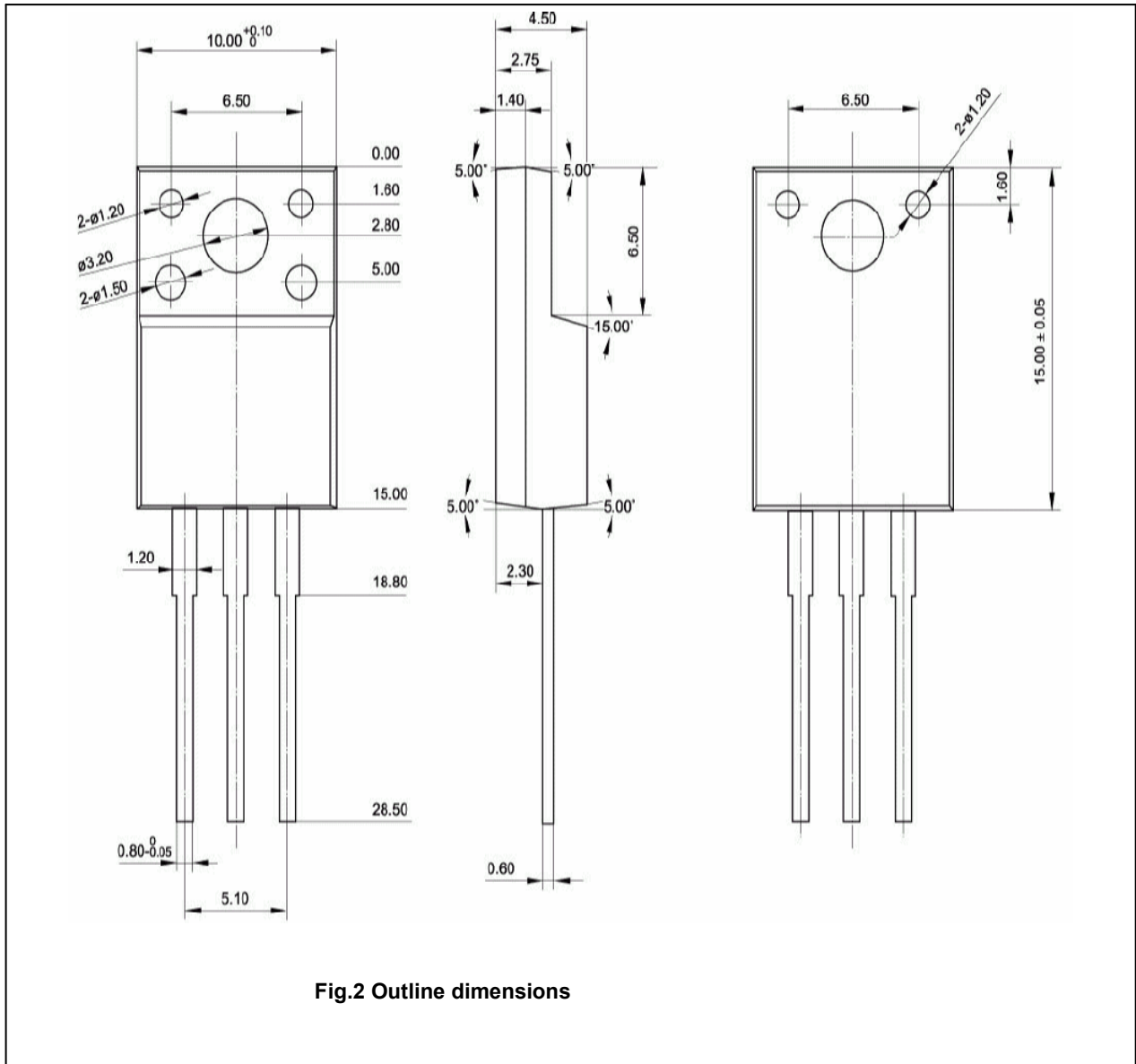


Fig.2 Outline dimensions

Silicon NPN Power Transistors

2SC3851 2SC3851A

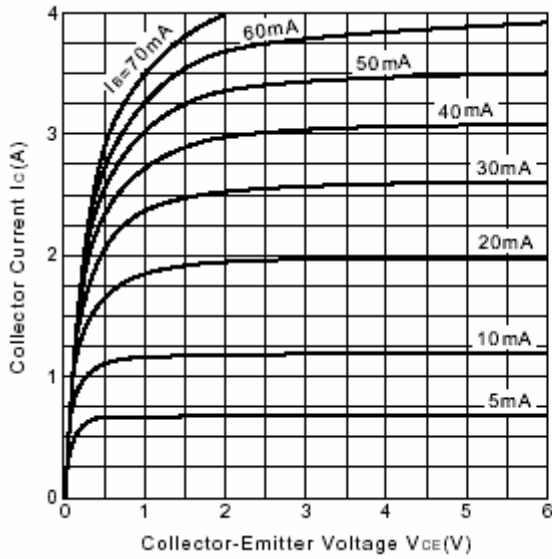


Fig.3 Static Characteristic

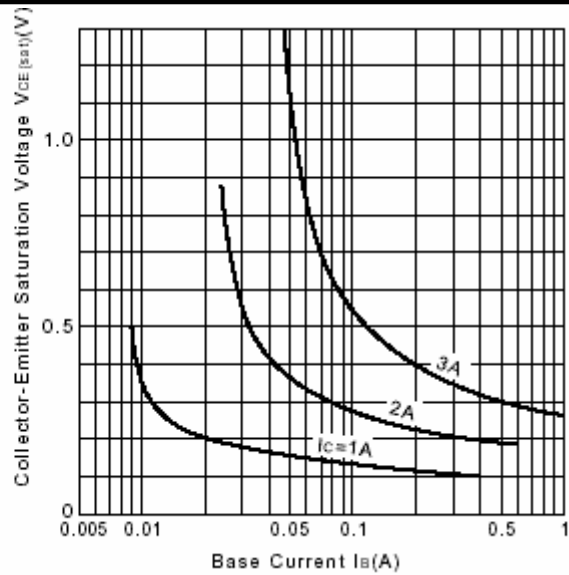


Fig.4  $V_{CE(sat)}-I_B$  Characteristics

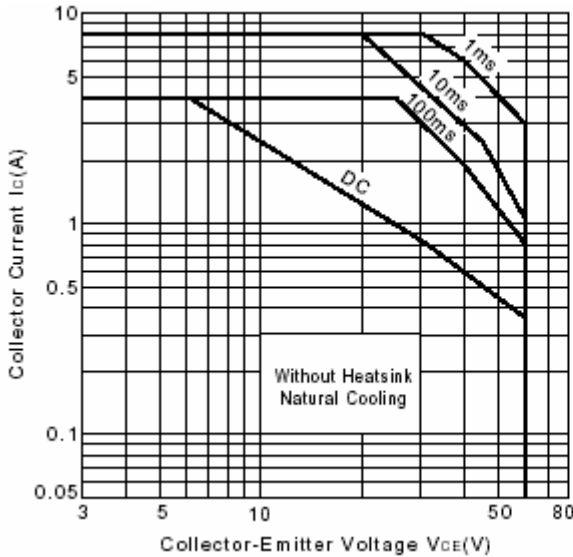


Fig.5 Safe Operating Area

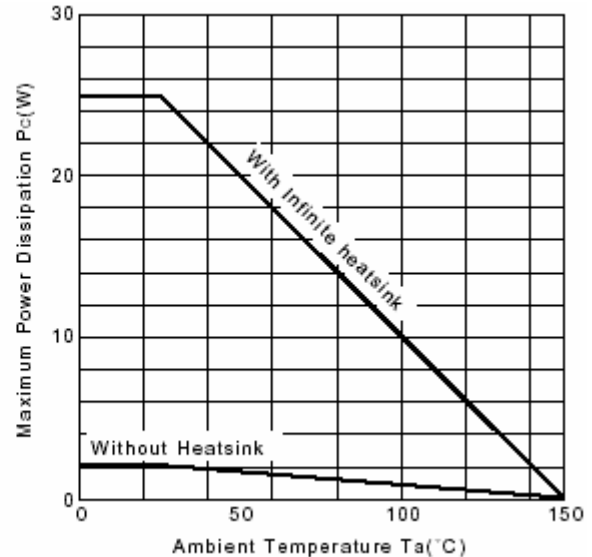


Fig.6  $P_c-T_a$  Derating

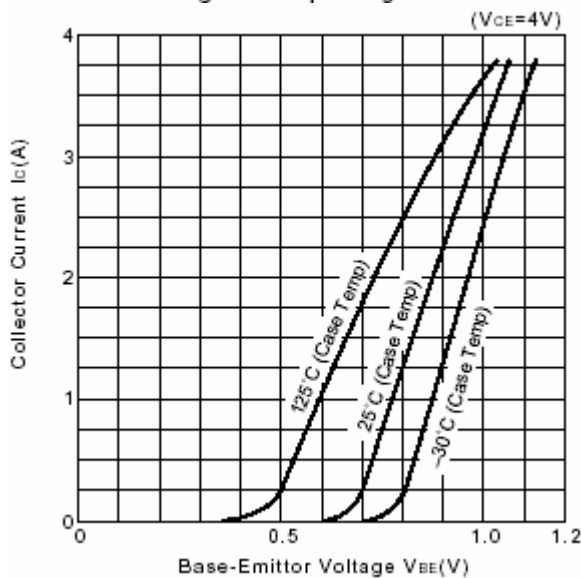


Fig.7  $I_c-V_{BE}$

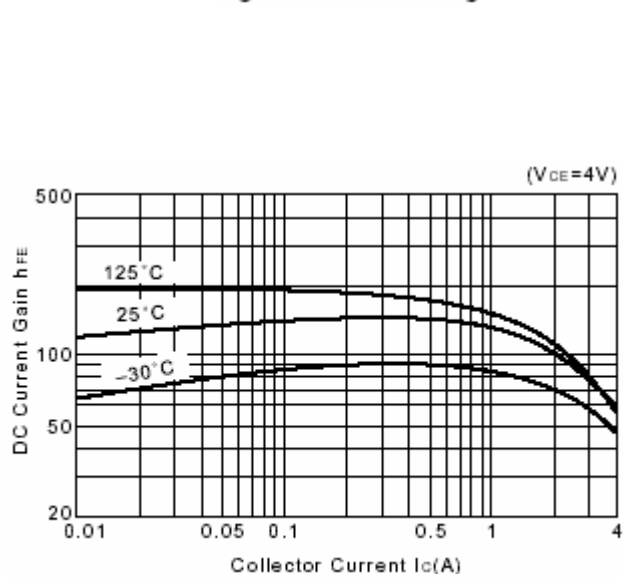


Fig.8 DC current Gain