

**Silicon NPN Power Transistors**

**2SC3299**

**DESCRIPTION**

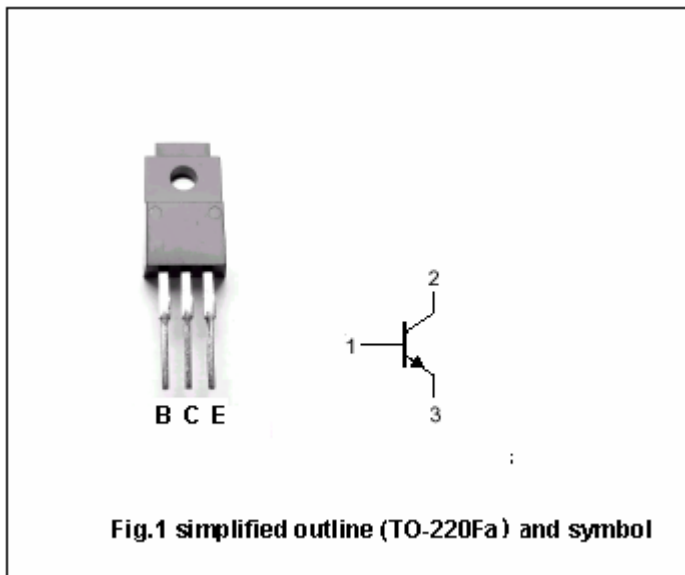
- With TO-220Fa package
- Complement to type 2SA1307
- Low saturation voltage
- High speed switching time

**APPLICATIONS**

- High current switching applications

**PINNING**

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter



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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	Open emitter	60	V
V <sub>CEO</sub>	Collector-emitter voltage	Open base	50	V
V <sub>EBO</sub>	Emitter-base voltage	Open collector	5	V
I <sub>C</sub>	Collector current		5	A
I <sub>B</sub>	Base current		1	A
P <sub>C</sub>	Collector power dissipation	T <sub>C</sub> =25°C	20	W
		T <sub>a</sub> =25°C	2	
T <sub>j</sub>	Junction temperature		150	°C
T <sub>stg</sub>	Storage temperature		-55~150	°C

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## 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> =10mA, I <sub>B</sub> =0	50			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =3A; I <sub>B</sub> =0.15A			0.4	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =3A; I <sub>B</sub> =0.15A			1.2	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =50V; I <sub>E</sub> =0			1.0	μA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =5V; I <sub>C</sub> =0			1.0	μA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =1A; V <sub>CE</sub> =1V	70		240	
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =3A; V <sub>CE</sub> =1V	30			
C <sub>ob</sub>	Output capacitance	I <sub>E</sub> =0; V <sub>CB</sub> =10V, f=1MHz		80		pF
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =1A; V <sub>CE</sub> =4V		120		MHz

## Switching times

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =3A; I <sub>B1</sub> =0.15A I <sub>B2</sub> =-0.15A, V <sub>CC</sub> =30V R <sub>L</sub> =10Ω		0.1		μs
t <sub>s</sub>	Storage time			1.0		μs
t <sub>f</sub>	Fall time			0.1		μs

◆ h<sub>FE-1</sub> Classifications

O	Y
70-140	120-240

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PACKAGE OUTLINE

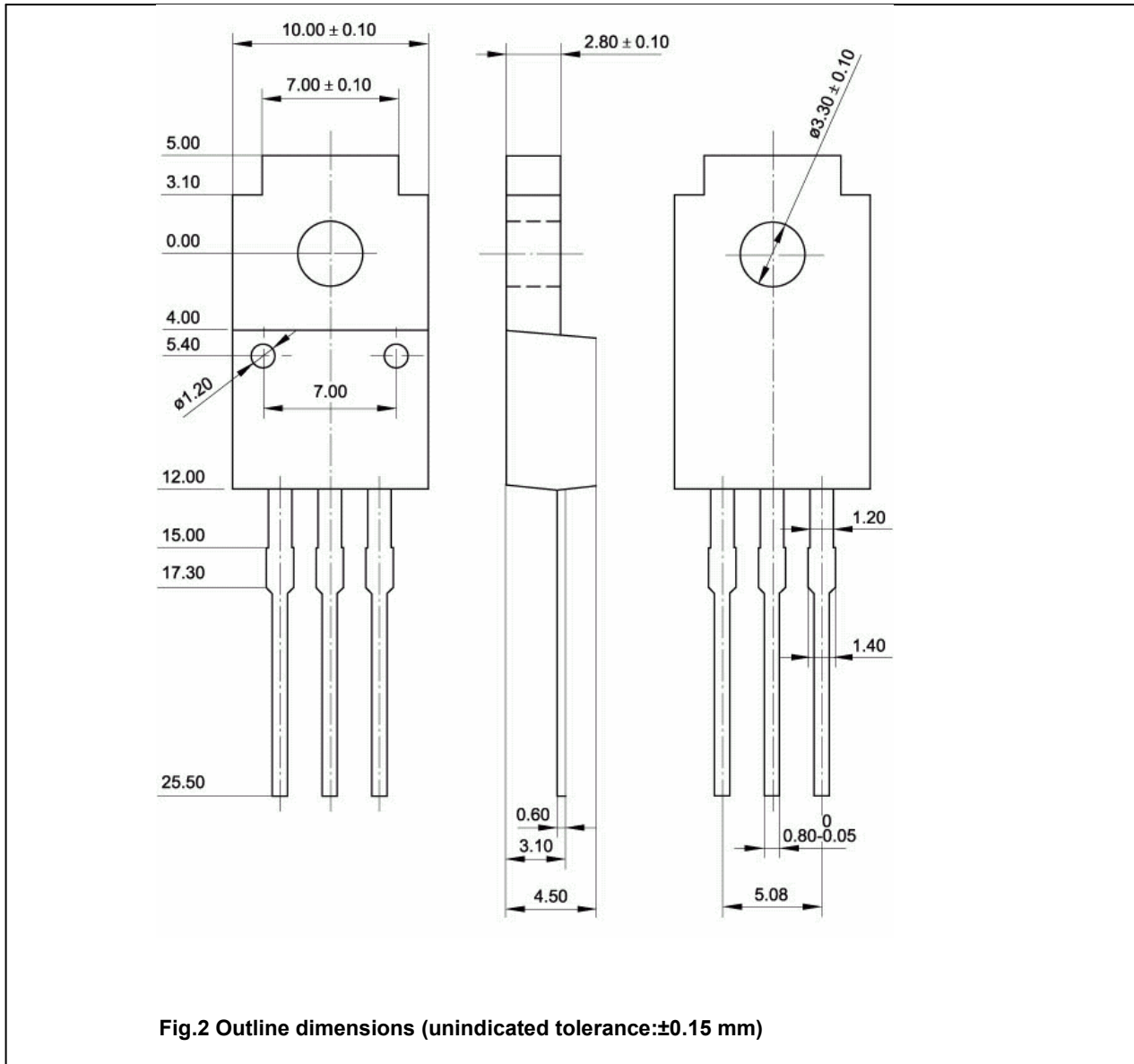


Fig.2 Outline dimensions (unindicated tolerance:±0.15 mm)

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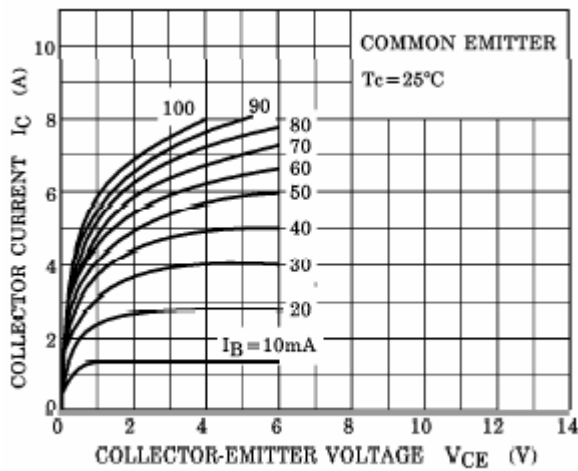


Fig.3 Static Characteristic

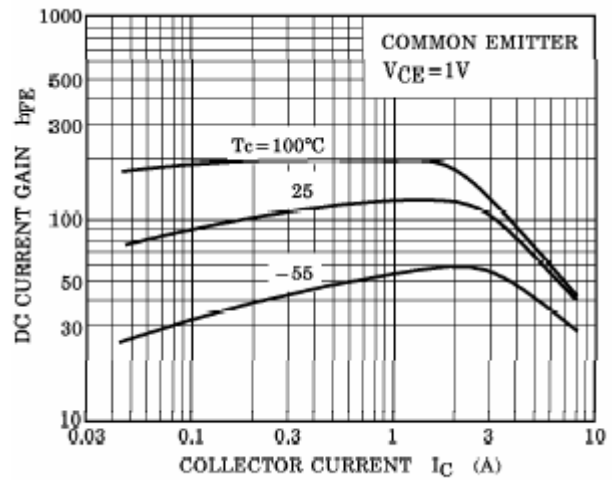


Fig.4 DC current Gain

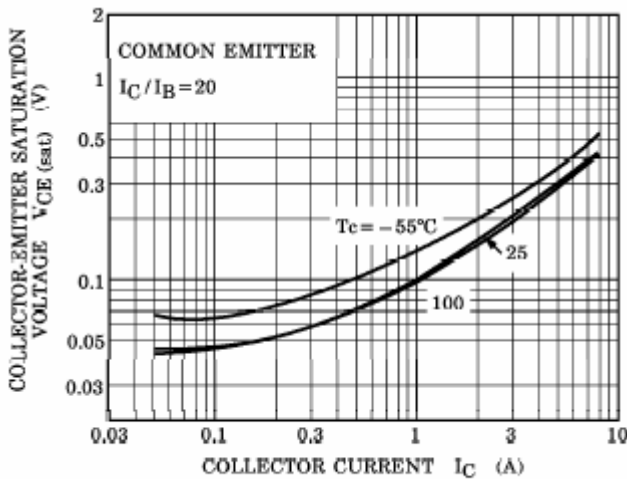


Fig.5 Collector-Emitter Saturation Voltage

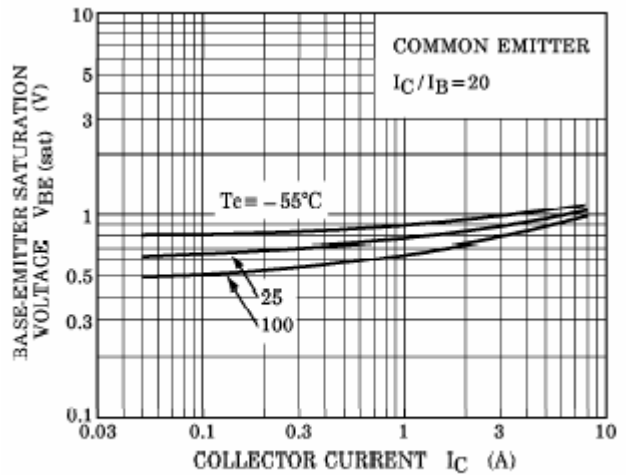


Fig.6 Base-Emitter Saturation Voltage

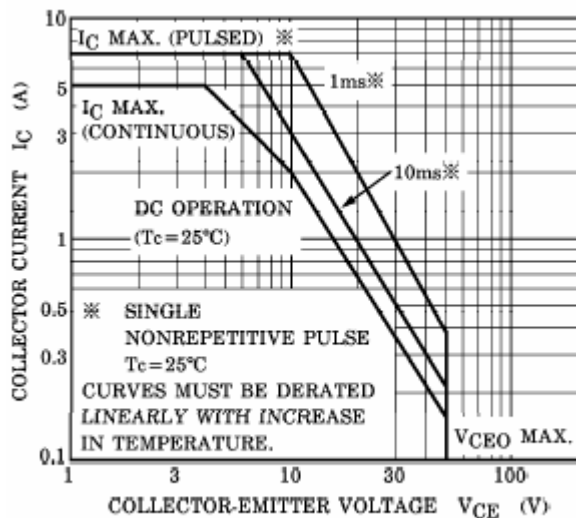


Fig.7 Safe Operating Area