

**Silicon NPN Power Transistors**

**2SC3559**

**DESCRIPTION**

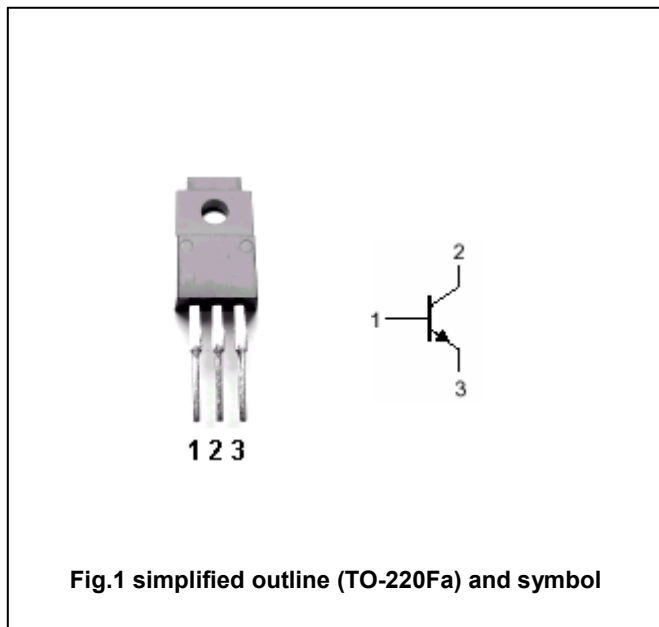
- With TO-220Fa package
- High breakdown voltage
- High speed switching

**APPLICATIONS**

- Switching regulator and high voltage switching applications
- High speed DC-DC converter applications

**PINNING**

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter



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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	Open emitter	900	V
V <sub>CEO</sub>	Collector-emitter voltage	Open base	800	V
V <sub>EBO</sub>	Emitter-base voltage	Open collector	7	V
I <sub>C</sub>	Collector current (DC)		3	A
I <sub>CM</sub>	Collector current-Peak		5	A
I <sub>B</sub>	Base current		1	A
P <sub>C</sub>	Collector power dissipation	T <sub>C</sub> =25°C	30	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	800			V
V <sub>(BR)CBO</sub>	Collector-base breakdown voltage	I <sub>C</sub> =1mA, I <sub>E</sub> =0	900			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =0.8A; I <sub>B</sub> =0.16A			0.6	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =0.8A; I <sub>B</sub> =0.16A			1.2	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =800V; I <sub>E</sub> =0			0.1	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =7V; I <sub>C</sub> =0			1.0	mA
h <sub>FE</sub>	DC current gain	I <sub>C</sub> =0.8A; V <sub>CE</sub> =5V	10			

## Switching times

t <sub>r</sub>	Rise time	I <sub>B1</sub> =0.08A; I <sub>B2</sub> =-0.2A V <sub>CC</sub> ≈400V; R <sub>L</sub> =500Ω			1.0	μs
t <sub>s</sub>	Storage time				4.0	μs
t <sub>f</sub>	Fall time				1.0	μs

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PACKAGE OUTLINE

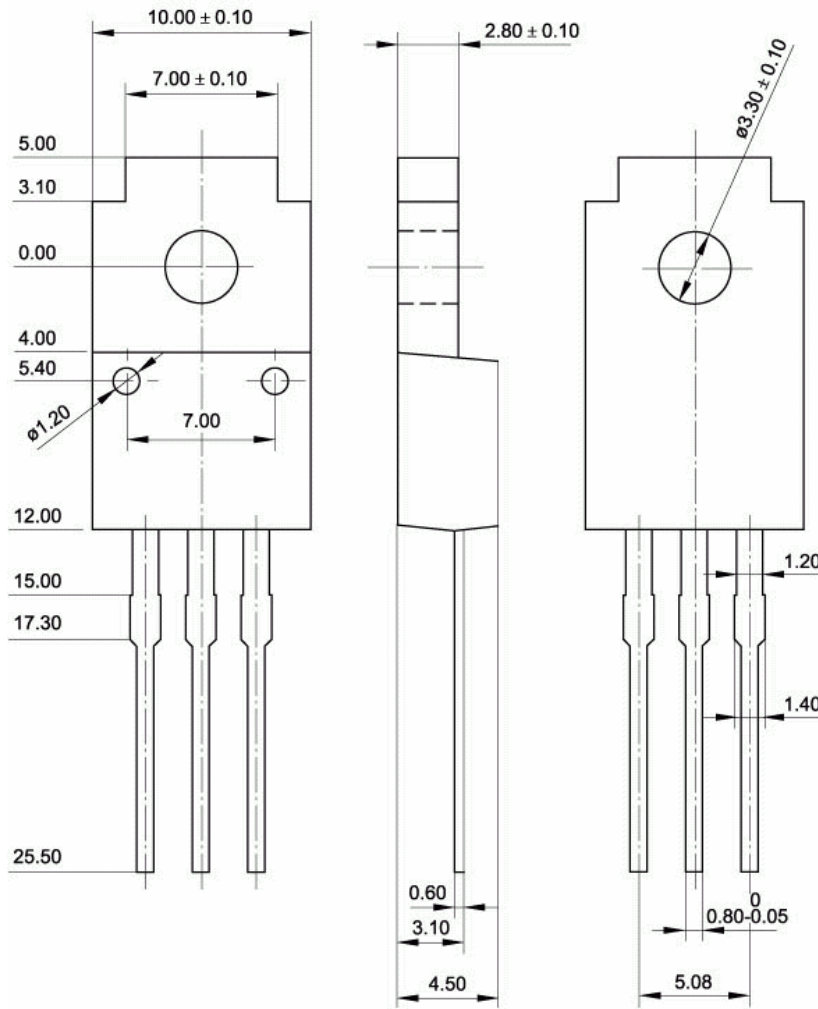


Fig.2 Outline dimensions (unindicated tolerance:  $\pm 0.15$  mm)

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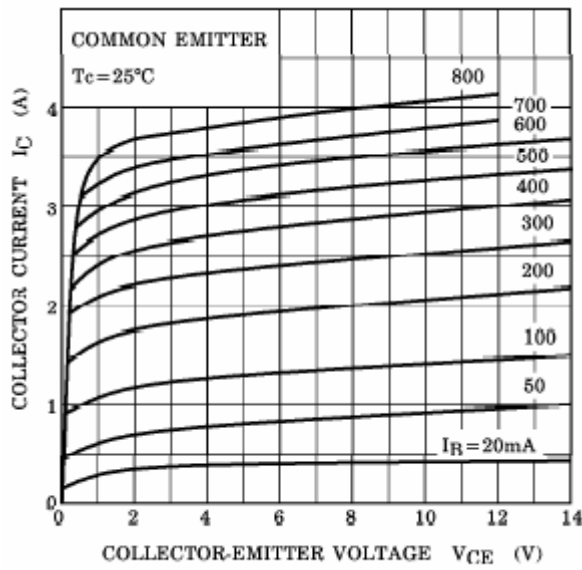


Fig.3 Static Characteristic

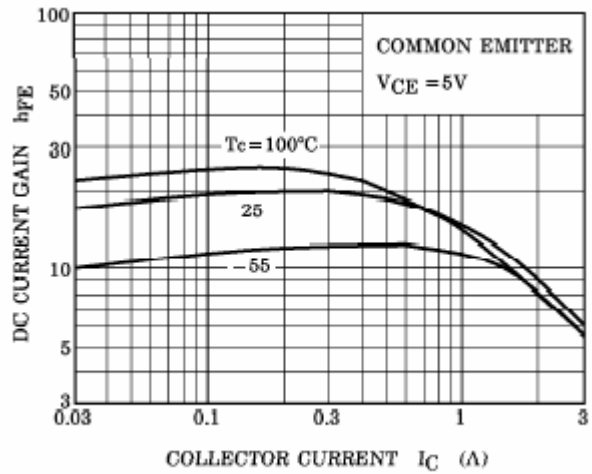


Fig.4 DC current Gain

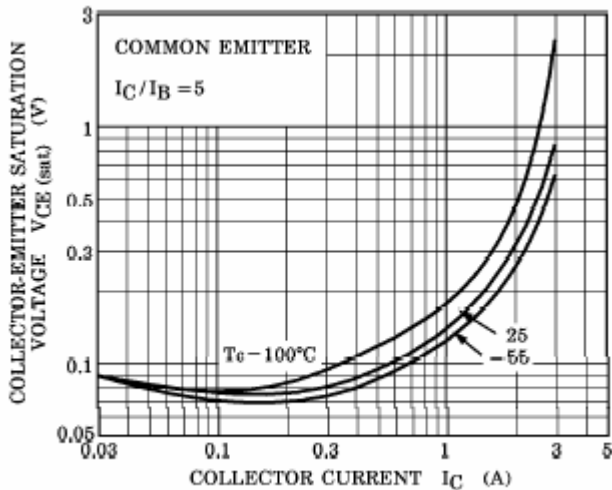


Fig.5 Collector-Emitter Saturation Voltage

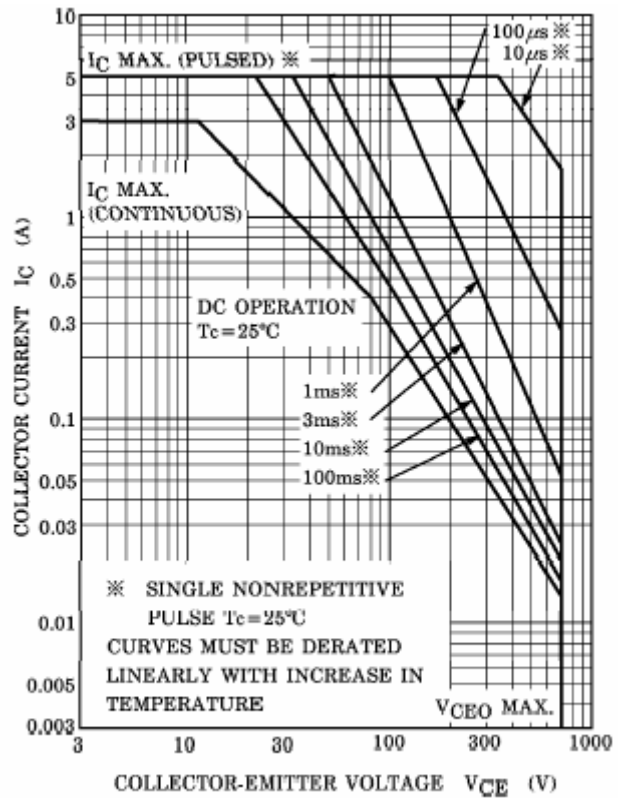


Fig.7 Safe Operating Area

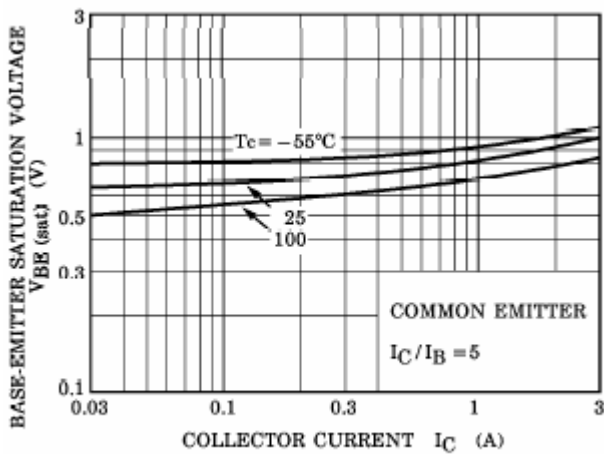


Fig.6 Base-Emitter Saturation Voltage