

Silicon NPN Power Transistors

2SC4552

**DESCRIPTION**

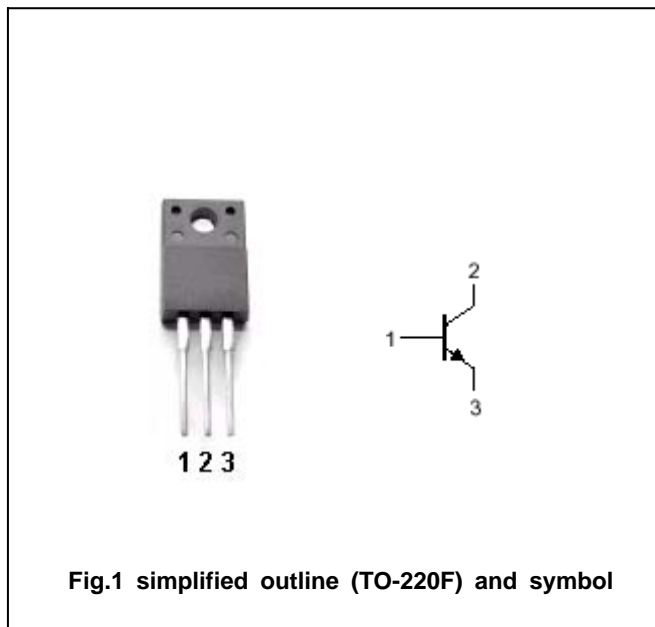
- With TO-220F package
- High  $h_{FE}$  and low  $V_{CE(sat)}$

**APPLICATIONS**

- For high-speed switching
- For use in drivers such as DC-DC converters and actuators.

**PINNING**

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter



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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	100	V
$V_{CEO}$	Collector-emitter voltage	Open base	60	V
$V_{EBO}$	Emitter-base voltage	Open collector	7	V
$I_C$	Collector current		15	A
$I_{CM}$	Collector current-peak		30	A
$I_B$	Base current		7.5	A
$P_T$	Total power dissipation	$T_C=25^\circ\text{C}$	30	W
		$T_a=25^\circ\text{C}$	2	
$T_j$	Junction temperature		150	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-55~150	$^\circ\text{C}$

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## CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CE0(SUS)</sub>	Collector-emitter sustaining voltage	I <sub>C</sub> =8A; I <sub>B</sub> =0.8A; L=1mH	60			V
V <sub>CE(sat)1</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =8A; I <sub>B</sub> =0.4A			0.3	V
V <sub>CE(sat)2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =12A; I <sub>B</sub> =0.6A			0.5	V
V <sub>BE(sat)1</sub>	Base-emitter saturation voltage	I <sub>C</sub> =8A; I <sub>B</sub> =0.4A			1.2	V
V <sub>BE(sat)2</sub>	Base-emitter saturation voltage	I <sub>C</sub> =12A; I <sub>B</sub> =0.6A			1.5	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =60V; I <sub>E</sub> =0			10	μA
I <sub>CER</sub>	Collector cut-off current	V <sub>CB</sub> =60V; R <sub>BE</sub> =50Ω; Ta=125°C			1.0	mA
I <sub>CEx1</sub>	Collector cut-off current	V <sub>CB</sub> =60V; V <sub>BE</sub> =-1.5V			10	μA
I <sub>CEx2</sub>	Collector cut-off current	V <sub>CB</sub> =60V; V <sub>BE</sub> =-1.5V; Ta=125°C			1.0	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =5V; I <sub>C</sub> =0			10	μA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =1.5A; V <sub>CE</sub> =2V	100			
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =3.0A; V <sub>CE</sub> =2V	100		400	
h <sub>FE-3</sub>	DC current gain	I <sub>C</sub> =8.0A; V <sub>CE</sub> =2V	60			
C <sub>ob</sub>	Collector capacitance	V <sub>CB</sub> =10V; I <sub>E</sub> =0; f=1.0MHz		180		pF
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =1.5A; V <sub>CE</sub> =10V		120		MHz

## Switching times

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =8.0A; I <sub>B1</sub> =-I <sub>B2</sub> =0.4A V <sub>CC</sub> =50V, R <sub>L</sub> =6.3Ω			0.3	μs
t <sub>s</sub>	Storage time				1.5	μs
t <sub>f</sub>	Fall time				0.3	μs

◆ h<sub>FE-2</sub> Classifications

M	L	K
100-120	150-300	200-400

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PACKAGE OUTLINE

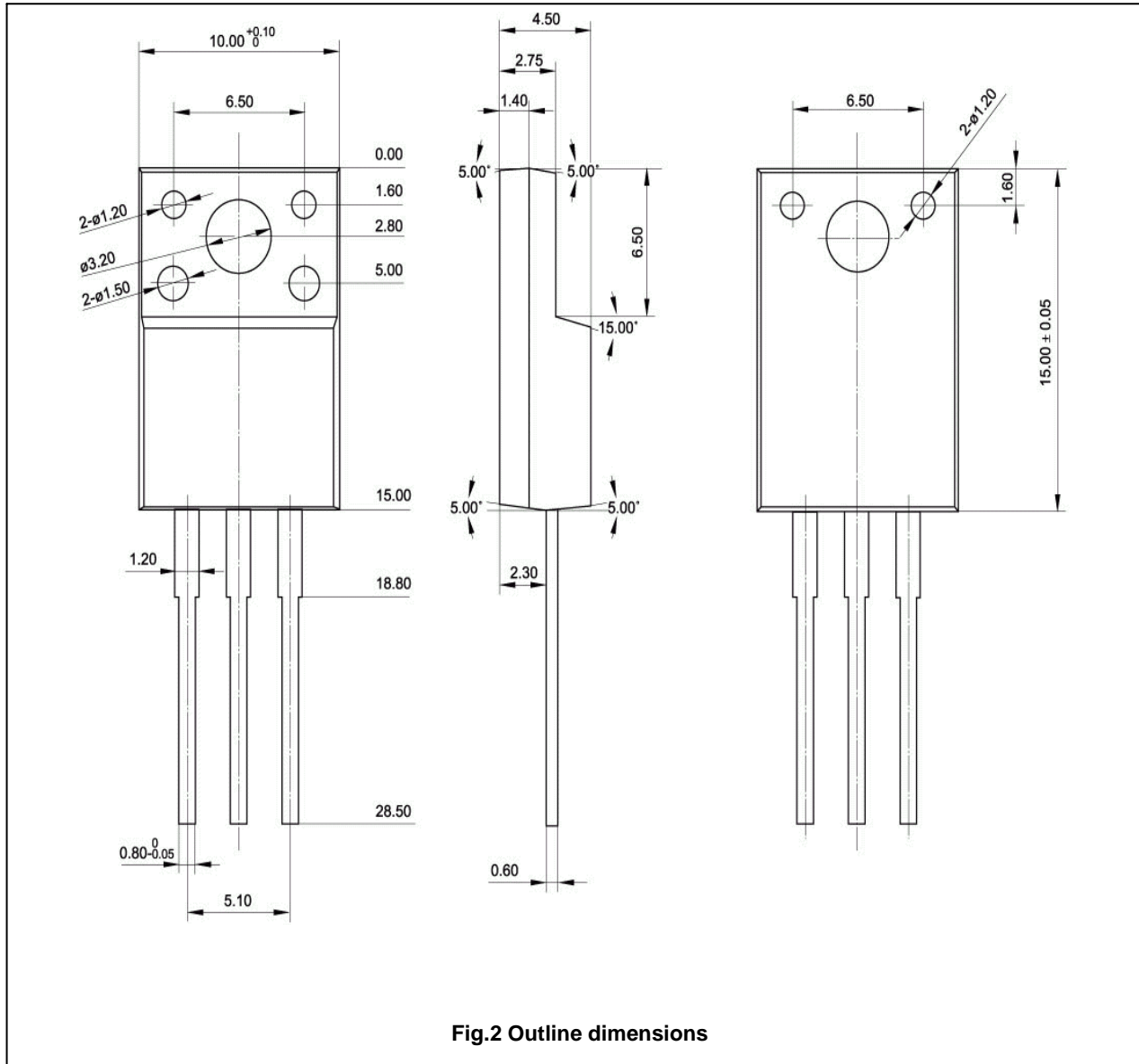


Fig.2 Outline dimensions

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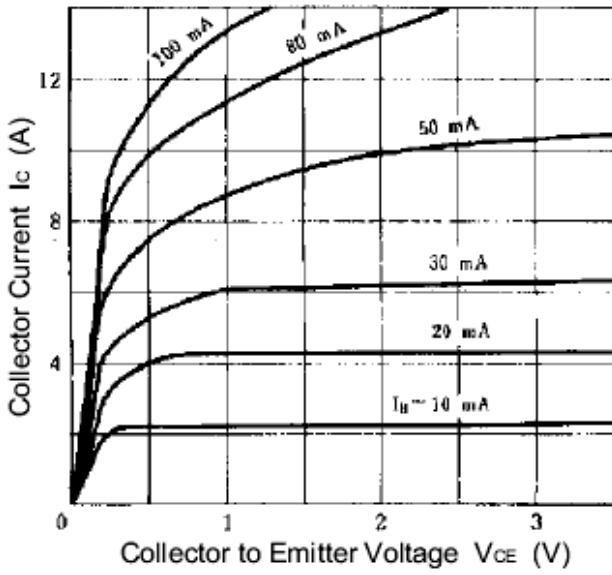


Fig.3 Static Characteristic

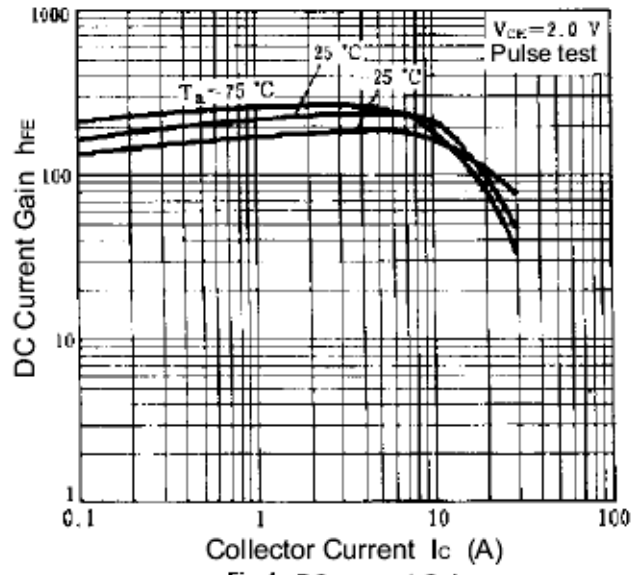


Fig.4 DC current Gain

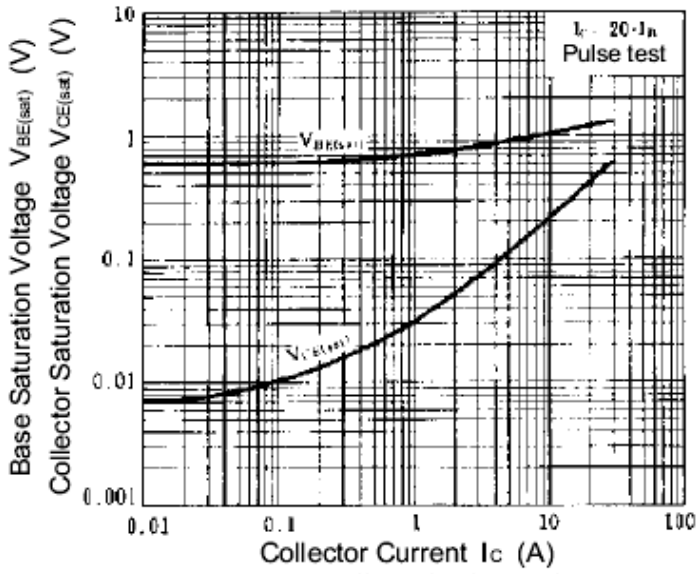


Fig.5 Base-Emmitter Saturation Voltage  
Collector-Emmitter Saturation Voltage

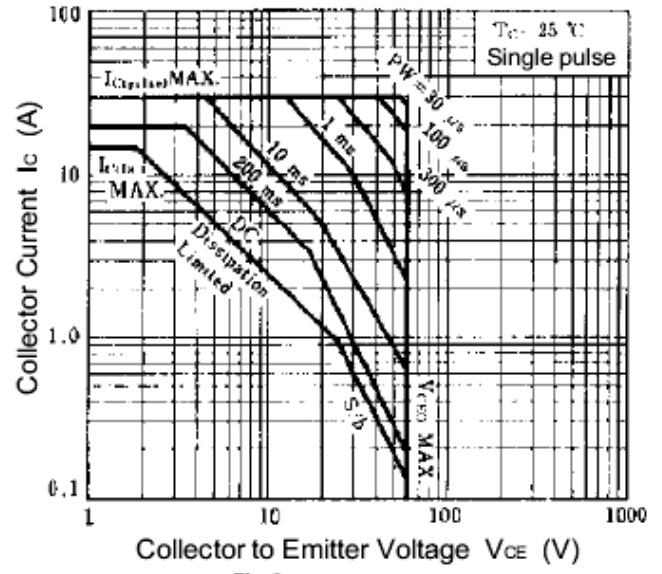


Fig.6 Safe Operating Area