

Silicon NPN Power Transistors

2SC4533

DESCRIPTION

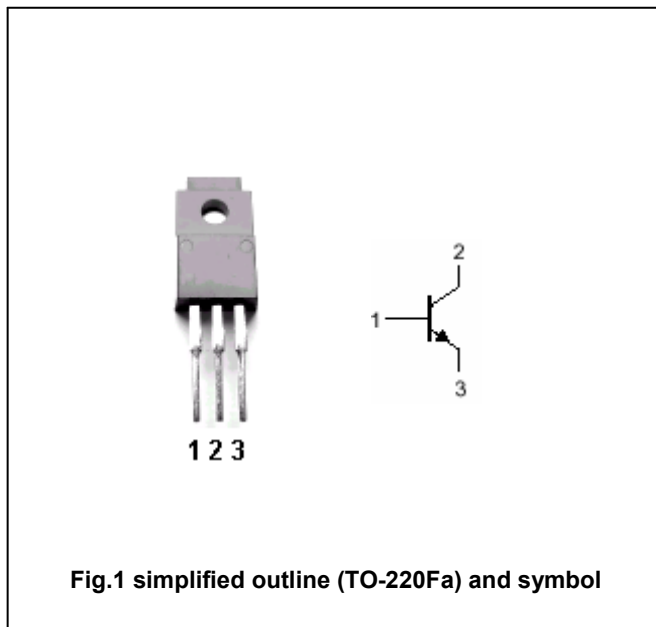
- With TO-220Fa package
- High speed switching
- High  $V_{CBO}$
- Wide area of safe operation

APPLICATIONS

- For high breakdown voltage ,high-speed switching applications

PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter



Absolute maximum ratings ( $T_a=25^\circ\text{C}$ )

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	500	V
$V_{CEO}$	Collector-emitter voltage	Open base	400	V
$V_{EBO}$	Emitter-base voltage	Open collector	7	V
$I_C$	Collector current (DC)		3	A
$I_{CM}$	Collector current-Peak		6	A
$I_B$	Base current		1.2	A
$P_C$	Collector 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>(BR)CEO</sub>	Collector-emitter breakdown voltage	I <sub>C</sub> =10mA, I <sub>B</sub> =0	400			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =1.5A; I <sub>B</sub> =0.3A			1.0	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =1.5A; I <sub>B</sub> =0.3A			1.5	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =500V; I <sub>E</sub> =0			0.1	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =5V; I <sub>C</sub> =0			0.1	mA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =0.1A; V <sub>CE</sub> =5V	10			
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =1.2A; V <sub>CE</sub> =2V	8		40	
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =0.2A; V <sub>CE</sub> =10V; f=1MHz		10		MHz

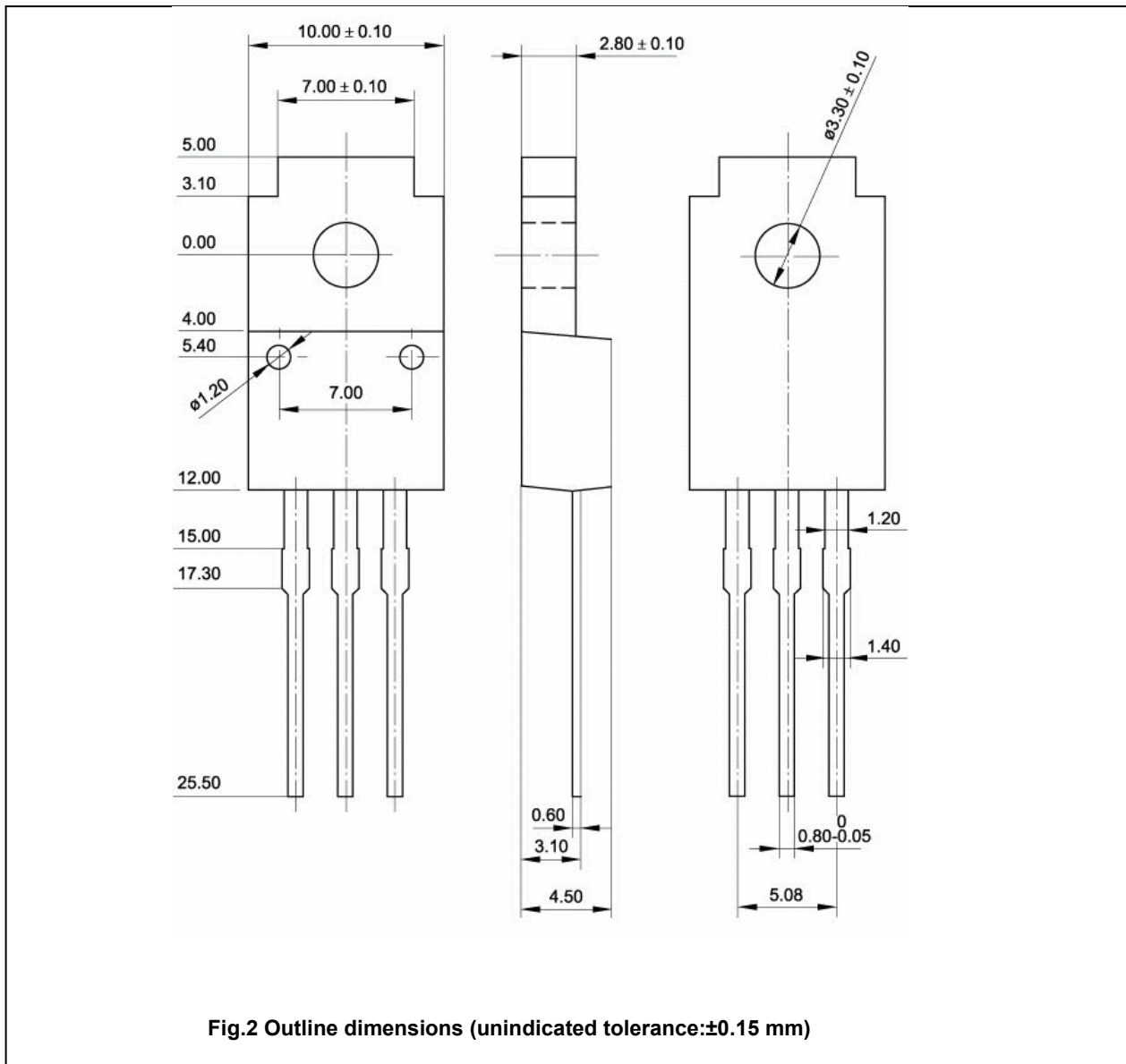
## Switching times

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =1.5A; I <sub>B1</sub> =0.15A I <sub>B2</sub> =-0.3A; V <sub>CC</sub> =200V			1.0	μs
t <sub>s</sub>	Storage time				3.0	μs
t <sub>f</sub>	Fall time				0.3	μs

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PACKAGE OUTLINE



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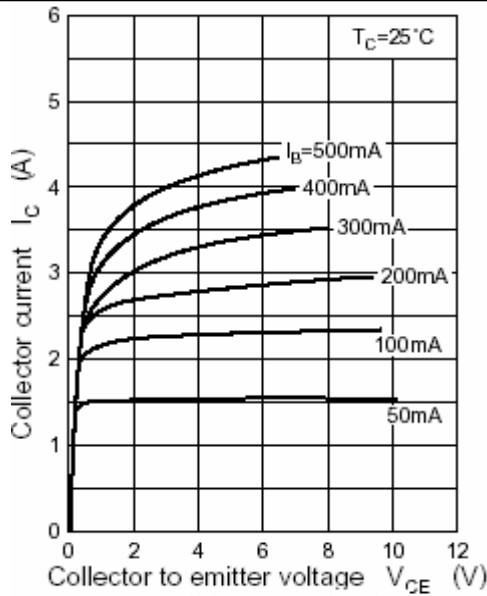


Fig.3 Static Characteristic

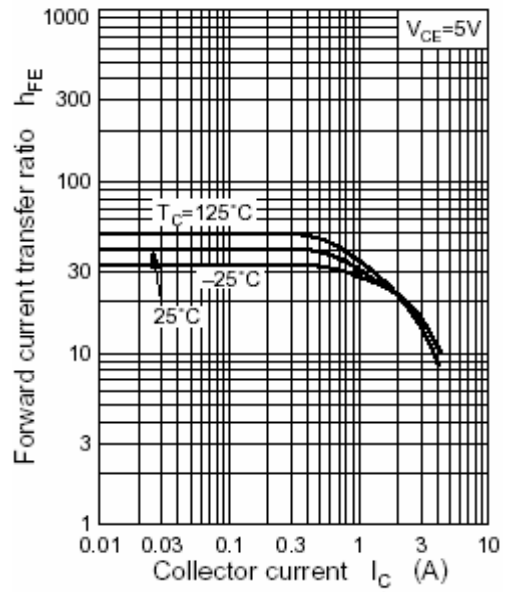


Fig.4 DC current Gain

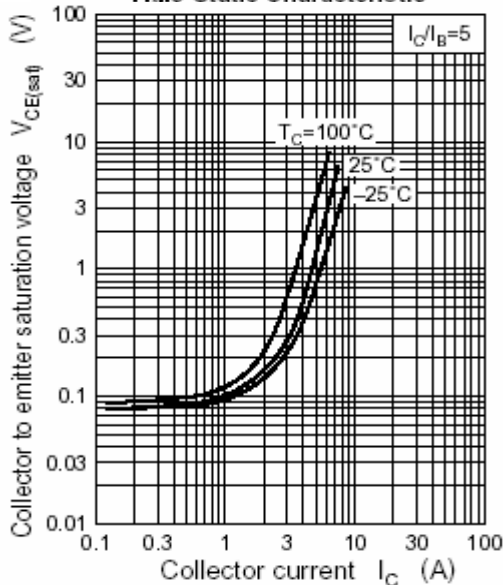


Fig.5 Collector-Emitter Saturation Voltage

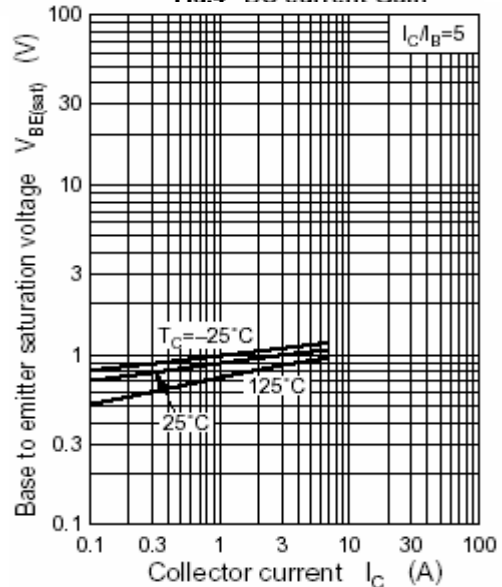


Fig.6 Base-Emitter Saturation Voltage

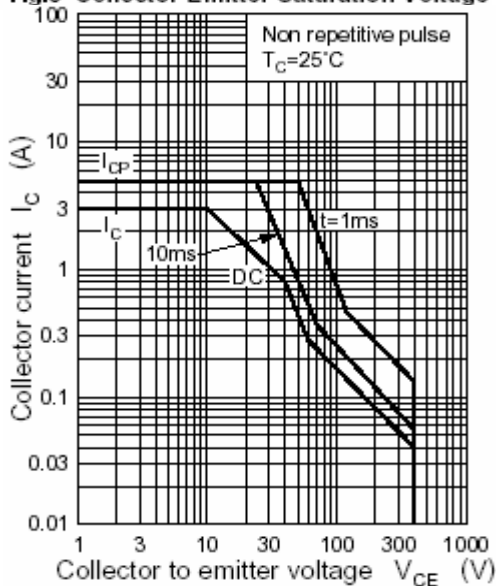


Fig.7 Safe Operating Area