

## Silicon NPN Power Transistors

2SD553

## DESCRIPTION

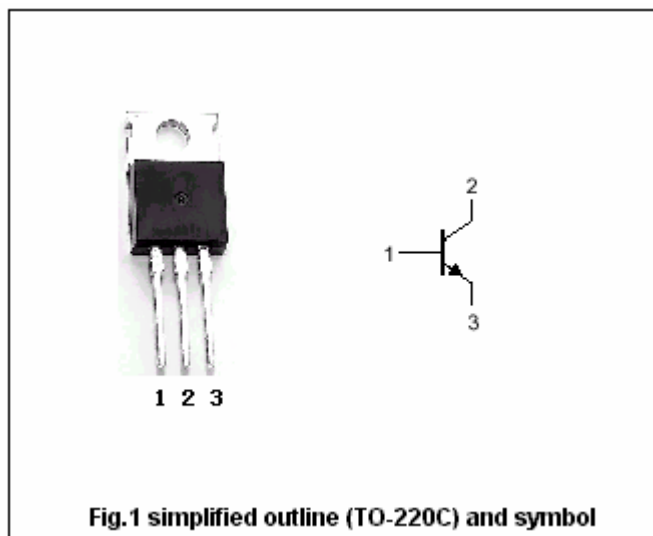
- With TO-220C package
- Complement to type 2SB553
- Low collector saturation voltage

## APPLICATIONS

- High current switching applications
- Power amplifier applications

## PINNING

PIN	DESCRIPTION
1	Base
2	Collector;connected to mounting base
3	Emitter

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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	70	V
$V_{CEO}$	Collector-emitter voltage	Open base	50	V
$V_{EBO}$	Emitter-base voltage	Open collector	5	V
$I_C$	Collector current		7	A
$I_B$	Base current		1	A
$P_C$	Collector power dissipation	$T_C=25^\circ\text{C}$	40	W
		$T_a=25^\circ\text{C}$	1.5	
$T_j$	Junction temperature		150	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-50~150	$^\circ\text{C}$

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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> =50mA; I <sub>B</sub> =0	50			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =4A; I <sub>B</sub> =0.4A		0.2	0.4	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =4A; I <sub>B</sub> =0.4A		0.9	1.2	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =70V; I <sub>E</sub> =0			30	μA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =5V; I <sub>C</sub> =0			50	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> =4A; V <sub>CE</sub> =1V	30			
C <sub>OB</sub>	Output capacitance	I <sub>E</sub> =0; V <sub>CB</sub> =10V; f=1MHz		250		pF
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =1A; V <sub>CE</sub> =4V		10		MHz

## Switching times

t <sub>on</sub>	Turn-on time	I <sub>B1</sub> =- I <sub>B2</sub> =0.3A R <sub>L</sub> =10Ω; V <sub>CC</sub> =30V		0.2		μs
t <sub>s</sub>	Storage time			2.5		μs
t <sub>f</sub>	Fall time			0.5		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:  $\pm 0.10$ mm)

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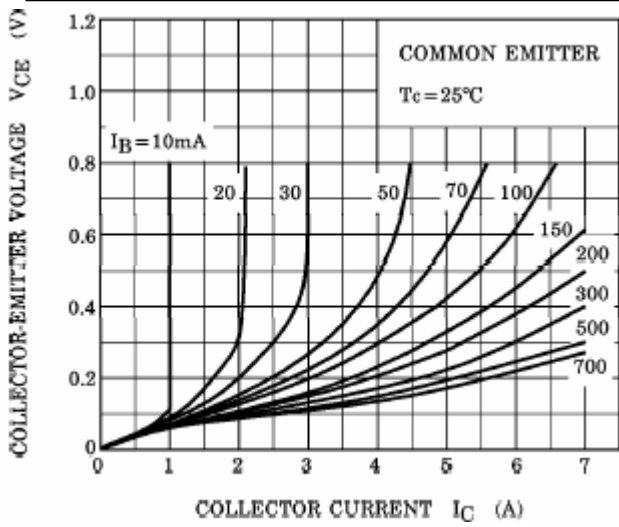


Fig.3 Static Characteristic

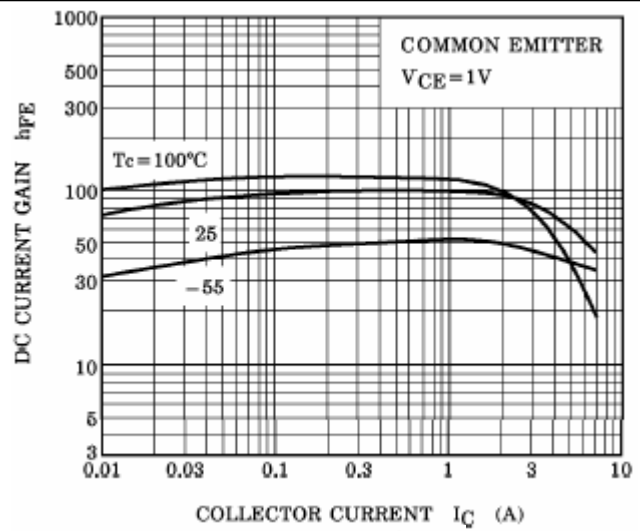


Fig.4 DC current Gain

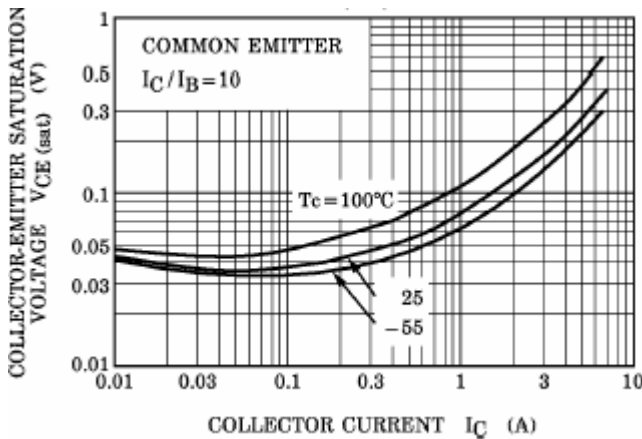


Fig.5 Collector-Emitter Saturation Voltage

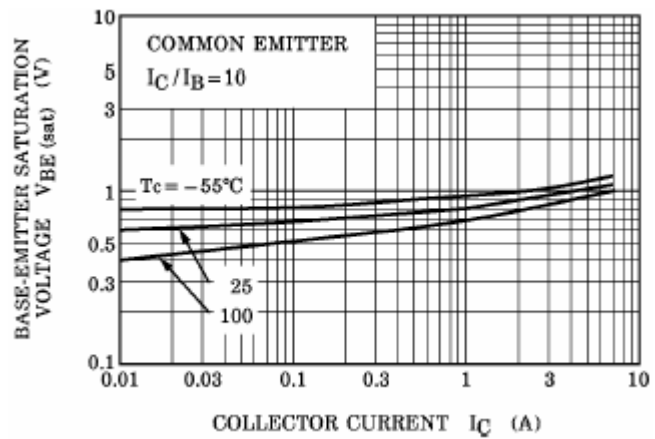


Fig.6 Base-Emitter Saturation Voltage

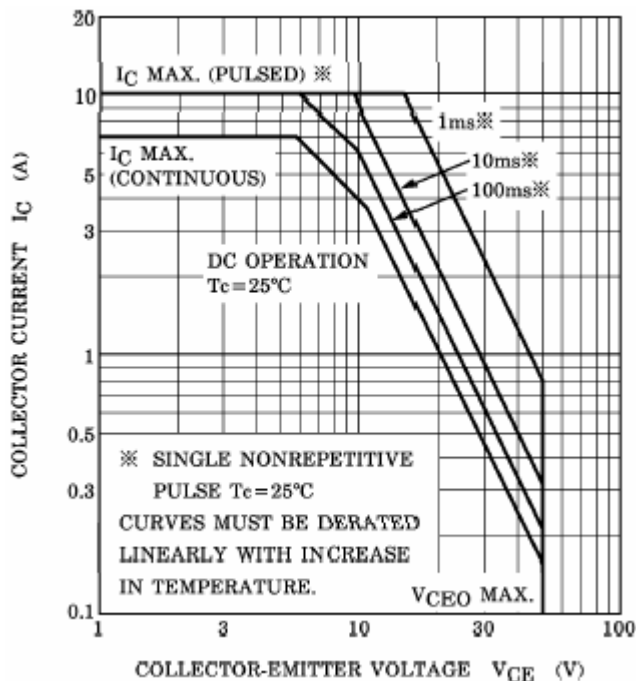


Fig.7 Safe Operating Area