

## Silicon NPN Power Transistors

## 2SC4054

## DESCRIPTION

- With ITO-220 package
- Switching power transistor

## PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

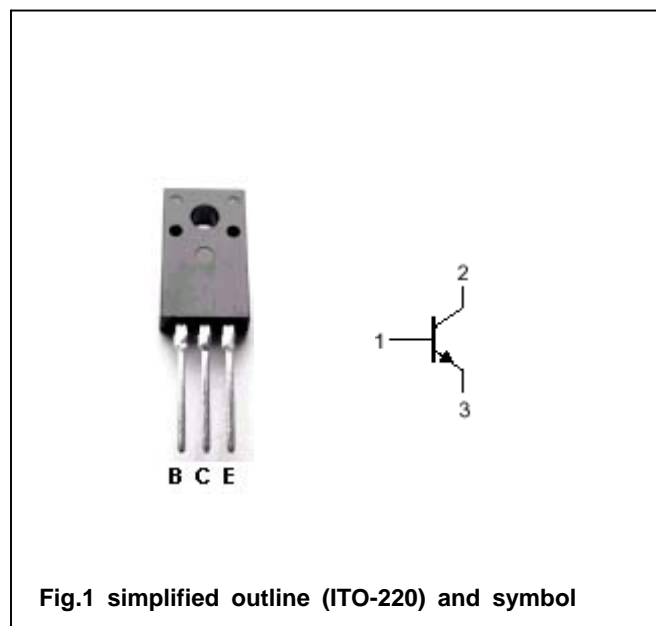


Fig.1 simplified outline (ITO-220) and symbol

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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CB0}$	Collector-base voltage	Open emitter	600	V
$V_{CE0}$	Collector-emitter voltage	Open base	450	V
$V_{EB0}$	Emitter-base voltage	Open collector	7	V
$I_C$	Collector current		5	A
$I_{CM}$	Collector current-Peak		10	A
$I_B$	Base current		2	A
$I_{BM}$	Base current-Peak		4	A
$P_T$	Total power dissipation	$T_C=25$	30	W
$T_j$	Junction temperature		150	
$T_{stg}$	Storage temperature		-55~150	

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-C}$	Thermal resistance junction case	4.16	/W

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## CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CE0(SUS)</sub>	Collector-emitter sustaining voltage	I <sub>C</sub> =0.1A ; I <sub>B</sub> =0	450			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =2.5A; I <sub>B</sub> =0.5A			1.0	V
V <sub>BEsat</sub>	Emitter-base saturation voltage	I <sub>C</sub> =2.5A; I <sub>B</sub> =0.5A			1.5	V
I <sub>CBO</sub>	Collector cut-off current	At rated volatge			0.1	mA
I <sub>CEO</sub>					0.1	mA
I <sub>EBO</sub>	Emitter cut-off current	At rated volatge			0.1	mA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =2.5A ; V <sub>CE</sub> =5V	10			
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =1mA ; V <sub>CE</sub> =5V	5			
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =0.5A ; V <sub>CE</sub> =10V		20		MHz
t <sub>on</sub>	Turn-on time	I <sub>C</sub> =2.5A; I <sub>B1</sub> =0.5A I <sub>B2</sub> =1A , R <sub>L</sub> =60 V <sub>BB2</sub> =4V			0.5	μs
t <sub>s</sub>	Storage time				2.0	μs
t <sub>f</sub>	Fall time				0.2	μs

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PACKAGE OUTLINE

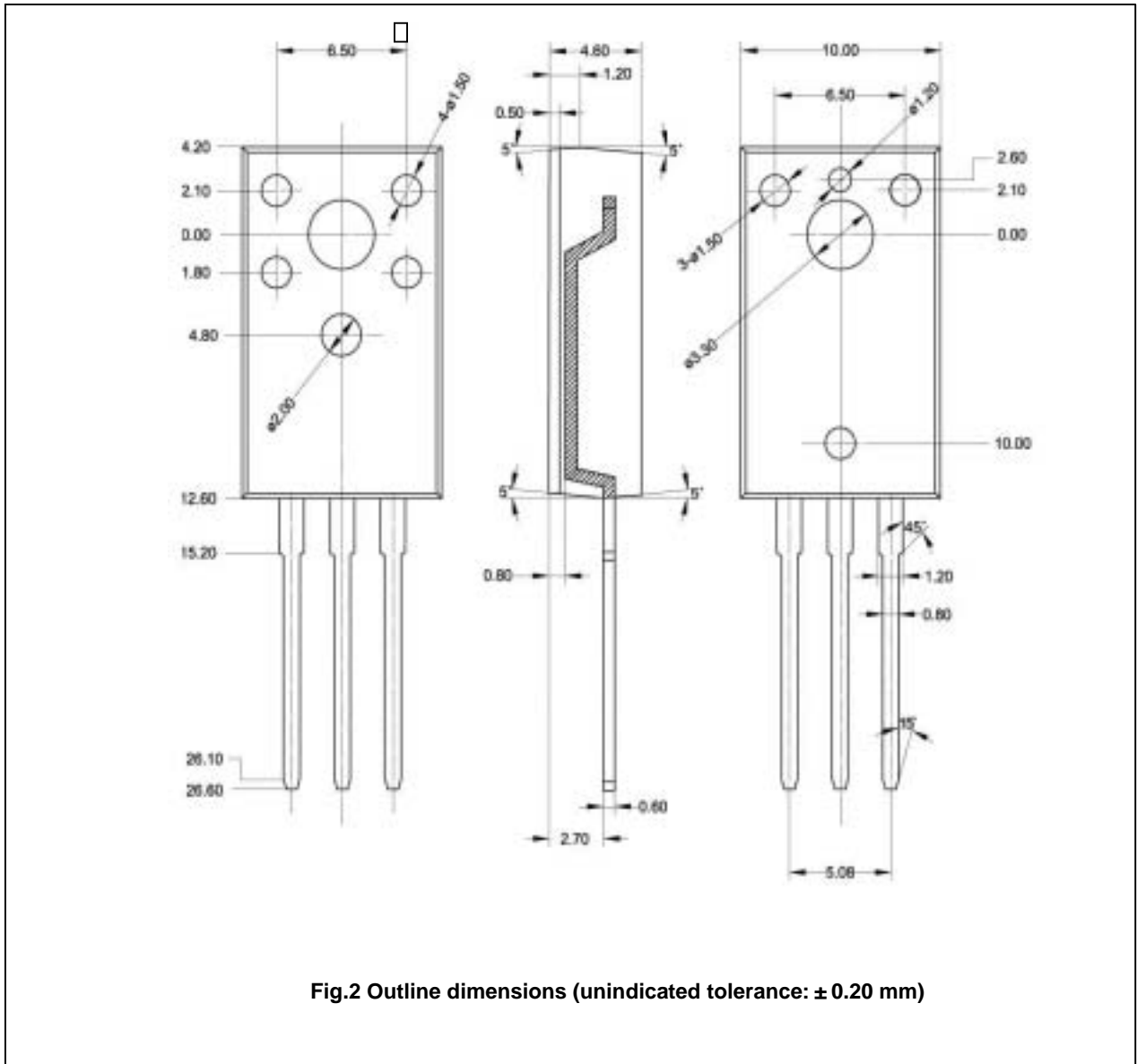


Fig.2 Outline dimensions (unindicated tolerance:  $\pm 0.20$  mm)

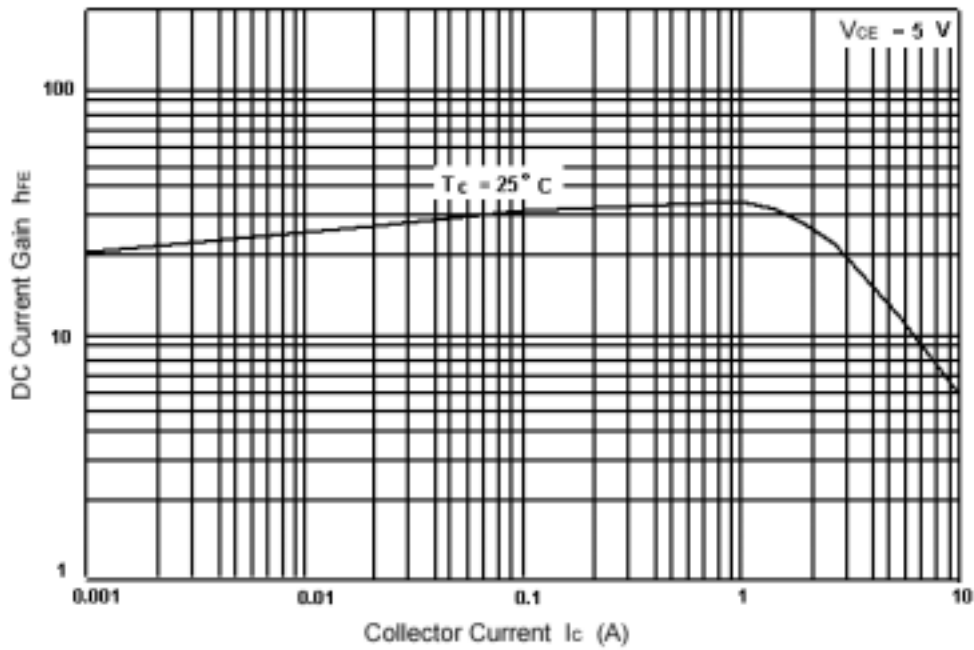


Fig.3  $h_{FE} - I_C$

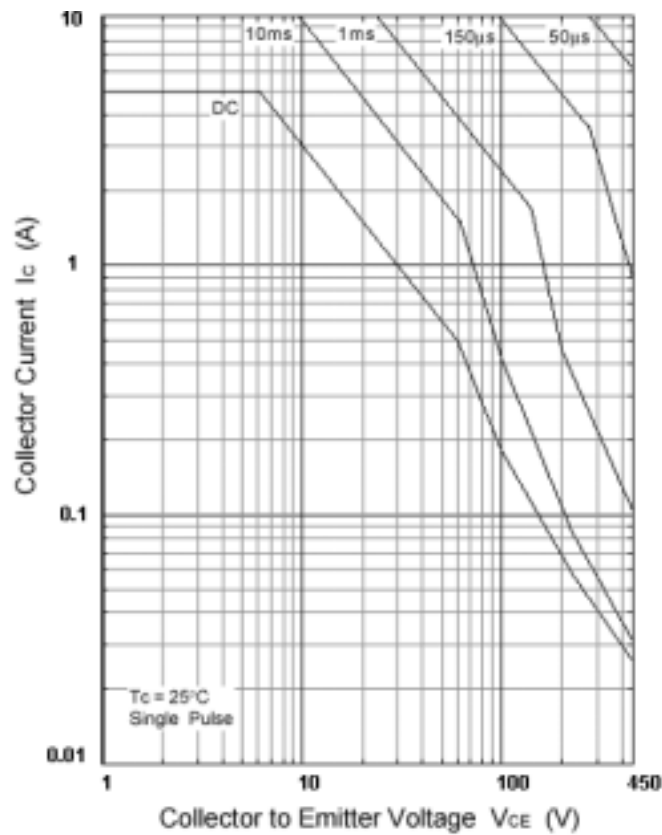


Fig.4 SAFE OPERATING AREA