

## Silicon NPN Power Transistors

2SC4538

## DESCRIPTION

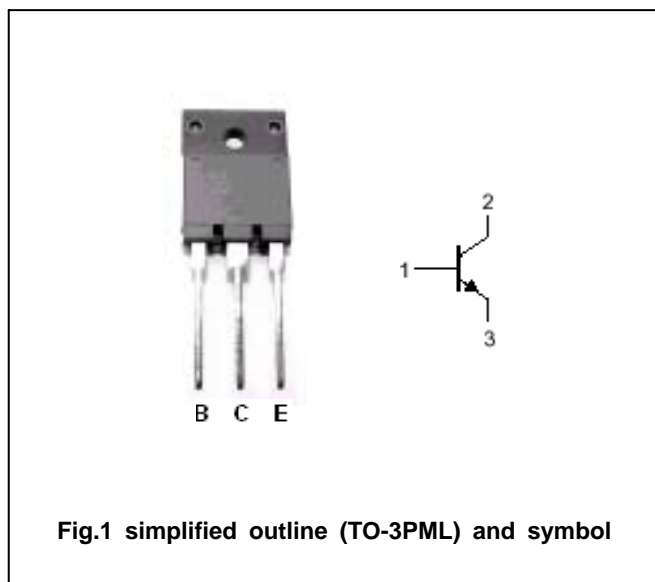
- With TO-3PML package
- High voltage ,high speed switching

## APPLICATIONS

- Switching regulators
- Ultrasonic generators
- High frequency inverters
- General purpose power amplifiers

## PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

Absolute maximum ratings( $T_c=25$  )

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	900	V
$V_{CEO}$	Collector-emitter voltage	Open base	800	V
$V_{EBO}$	Emitter-base voltage	Open collector	10	V
$I_C$	Collector current		5	A
$I_B$	Base current		3	A
$P_C$	Collector power dissipation	$T_C=25$	80	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	1.5	/W

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## CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CBO</sub>	Collector-base breakdown voltage	I <sub>C</sub> =1mA; I <sub>E</sub> =0	900			V
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage	I <sub>C</sub> =10mA; I <sub>B</sub> =0	800			V
V <sub>(BR)EBO</sub>	Emitter-base breakdown voltage	I <sub>E</sub> =1mA; I <sub>C</sub> =0	10			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =2A; I <sub>B</sub> =0.4A			1.0	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =2A; I <sub>B</sub> =0.4A			1.5	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =900V; I <sub>E</sub> =0			1.0	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =10V; I <sub>C</sub> =0			1.0	mA
h <sub>FE</sub>	DC current gain	I <sub>C</sub> =2A; V <sub>CE</sub> =5V	10			
Switching times						
t <sub>on</sub>	Turn-on time	I <sub>C</sub> =3A; R <sub>L</sub> =100 I <sub>B1</sub> =0.6A; I <sub>B2</sub> =-1.2A Pw = 20 μs; Duty 2%			1.0	μs
t <sub>stg</sub>	Storage time				4.0	μs
t <sub>f</sub>	Fall time				0.8	μs

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PACKAGE OUTLINE

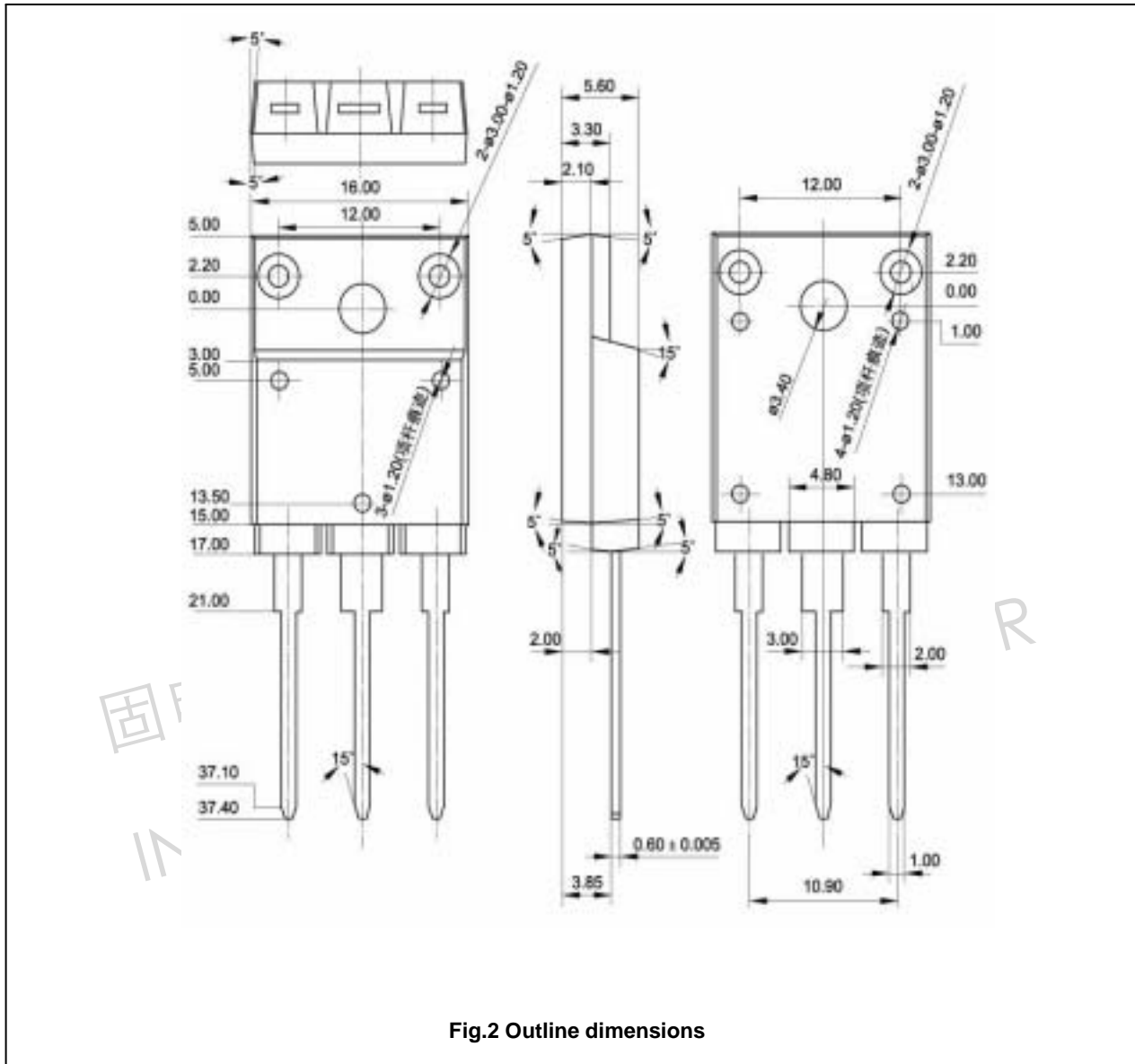


Fig.2 Outline dimensions

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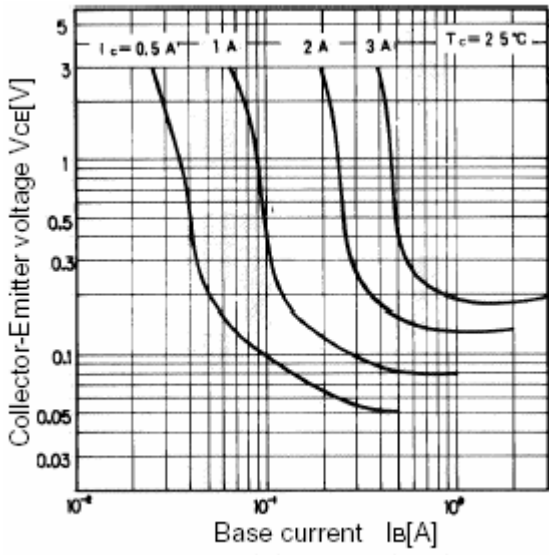


Fig.3 Static Characteristic

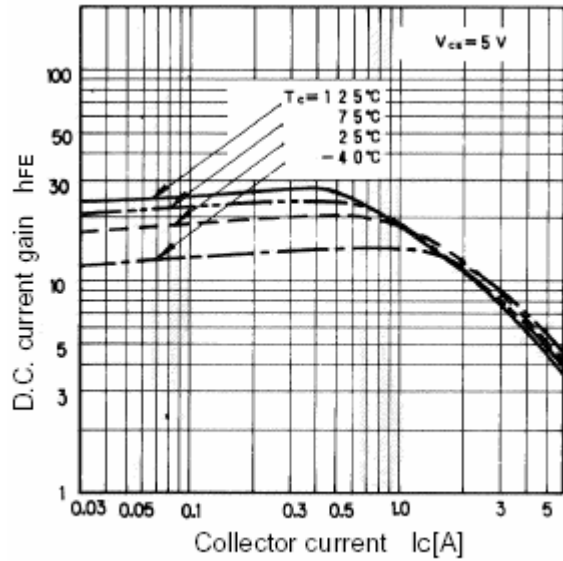


Fig.4 DC current Gain

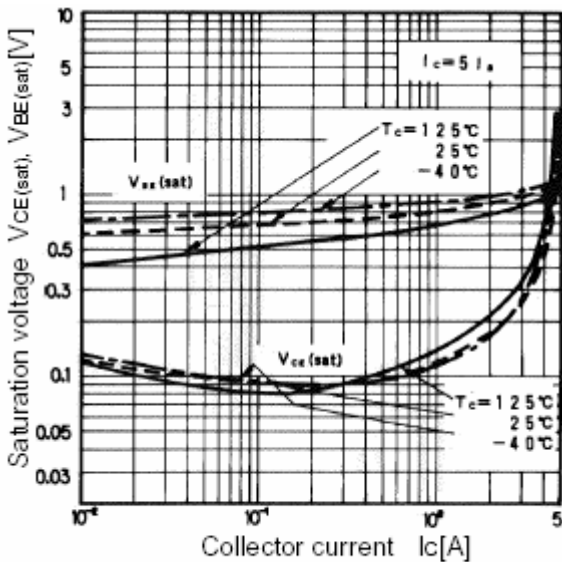


Fig.5 Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

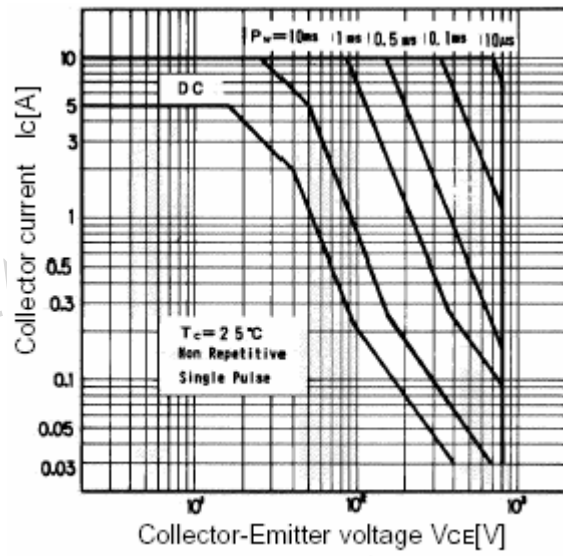


Fig.6 Safe Operating Area