

## Silicon NPN Power Transistors

2SC2335

## DESCRIPTION

- With TO-220C package
- Collector-emitter sustaining voltage  
 $V_{CEO(sus)}=400V(\text{Min})$
- Collector-emitter saturation voltage  
 $V_{CE(sat)}=1.0V(\text{Max.})@I_C=3.0A, I_B=0.6A$
- Switching time- $t_f=1.0\mu s(\text{Max.})@I_C=3.0A$

## APPLICATIONS

- Designed for use in high-voltage ,high-speed ,power switching in inductive circuit, particularly suited for 115 and 220V switch-mode applications such as switching regulator's ,inverters,,DC-DC and converter

## PINNING

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

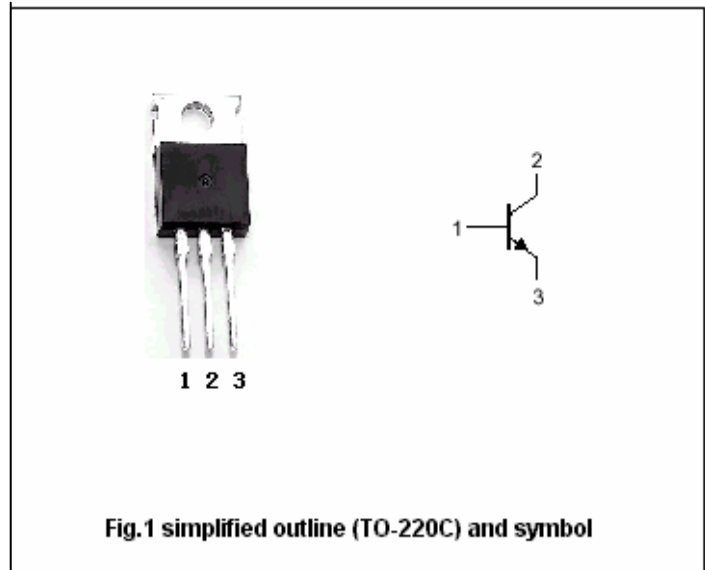


Fig.1 simplified outline (TO-220C) and symbol

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		7	A
$I_{CM}$	Collector current-peak		15	A
$I_B$	Base current		3.5	A
$P_D$	Total power dissipation	$T_C=25$	40	W
$T_j$	Junction temperature		150	
$T_{stg}$	Storage temperature		-50~150	

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-C}$	Thermal resistance junction to case	3.125	/W

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## CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(SUS)CEO</sub>	Collector-emitter sustaining voltage	I <sub>C</sub> =3.0A ; I <sub>B1</sub> =0.6A, L=1mH	400			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =3A; I <sub>B</sub> =0.6A			1.0	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =3A; I <sub>B</sub> =0.6A			1.2	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =400V ; I <sub>E</sub> =0			10	μA
I <sub>CEX</sub>	Collector cut-off current	V <sub>CE</sub> =400V ; V <sub>BE(off)</sub> =-1.5V T <sub>C</sub> =125			10 5.0	μA 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> =0.1A ; V <sub>CE</sub> =5V	20		80	
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =1.0A ; V <sub>CE</sub> =5V	20		80	
h <sub>FE-3</sub>	DC current gain	I <sub>C</sub> =3.0A ; V <sub>CE</sub> =5V	10			

## Switching times

t <sub>on</sub>	Turn-on time	V <sub>CC</sub> =150V; I <sub>C</sub> =3.0A; I <sub>B1</sub> =-I <sub>B2</sub> =600mA; R <sub>L</sub> =50			1.0	μs
t <sub>stg</sub>	Storage time				2.5	μs
t <sub>f</sub>	Fall time				1.0	μs

◆ h<sub>FE-2</sub> Classifications

M	L	K
20-40	30-60	40-80



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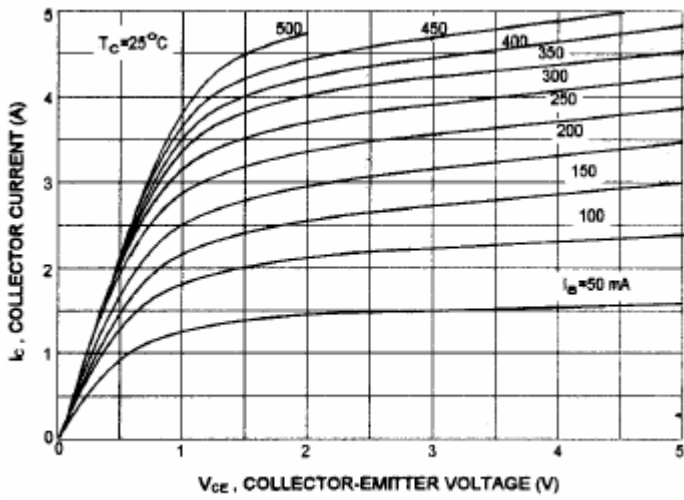


Fig.3 Static Characteristic

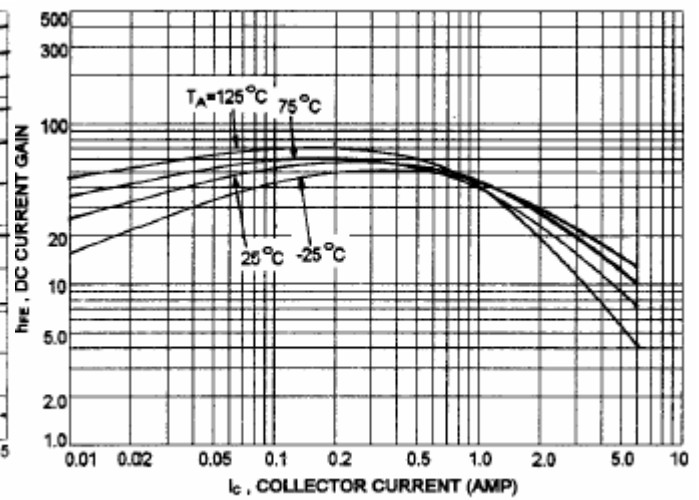


Fig.4 DC current Gain

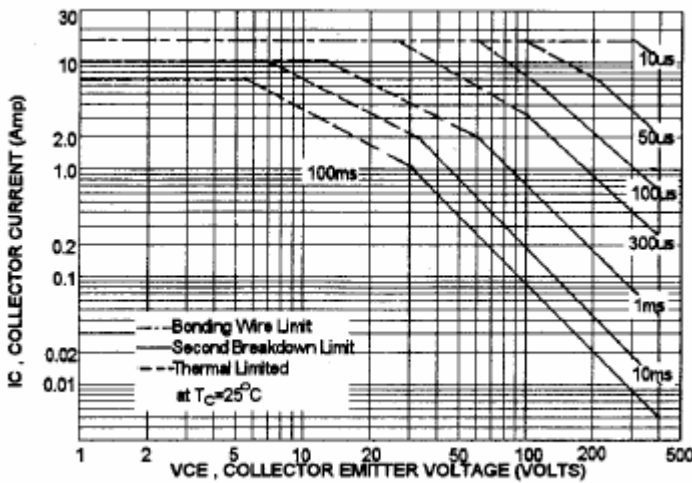


Fig.5 Safe Operating Area