

**Silicon NPN Power Transistors**

**2SC3320**

**DESCRIPTION**

- With TO-3PN package
- High voltage ,high speed switching
- High reliability

**APPLICATIONS**

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

**PINNING**

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

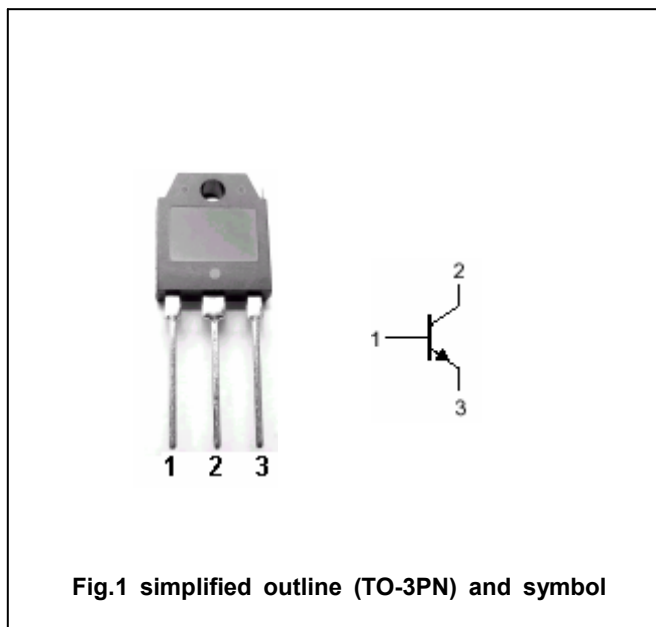


Fig.1 simplified outline (TO-3PN) and symbol

**Absolute maximum ratings(Ta=25°C)**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	Open emitter	500	V
V <sub>CEO</sub>	Collector-emitter voltage	Open base	400	V
V <sub>EBO</sub>	Emitter-base voltage	Open collector	7	V
I <sub>C</sub>	Collector current		15	A
I <sub>B</sub>	Base current		5	A
P <sub>C</sub>	Collector power dissipation	T <sub>C</sub> =25°C	80	W
T <sub>j</sub>	Junction temperature		150	°C
T <sub>stg</sub>	Storage temperature		-65~150	°C

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	VALUE	UNIT
R <sub>th(j-c)</sub>	Thermal resistance from junction to case	1.56	°C/W

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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>(BR)CBO</sub>	Collector-base breakdown voltage	I <sub>C</sub> =1mA ; I <sub>E</sub> =0	500			V
V <sub>(BR)EBO</sub>	Emitter-base breakdown voltage	I <sub>E</sub> =1mA ; I <sub>C</sub> =0	7			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =6A ; I <sub>B</sub> =1.2A			1.0	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =6A ; I <sub>B</sub> =1.2A			1.5	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =500V ; I <sub>E</sub> =0			1.0	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =7V ; I <sub>C</sub> =0			1.0	mA
h <sub>FE</sub>	DC current gain	I <sub>C</sub> =6A ; V <sub>CE</sub> =5V	10			

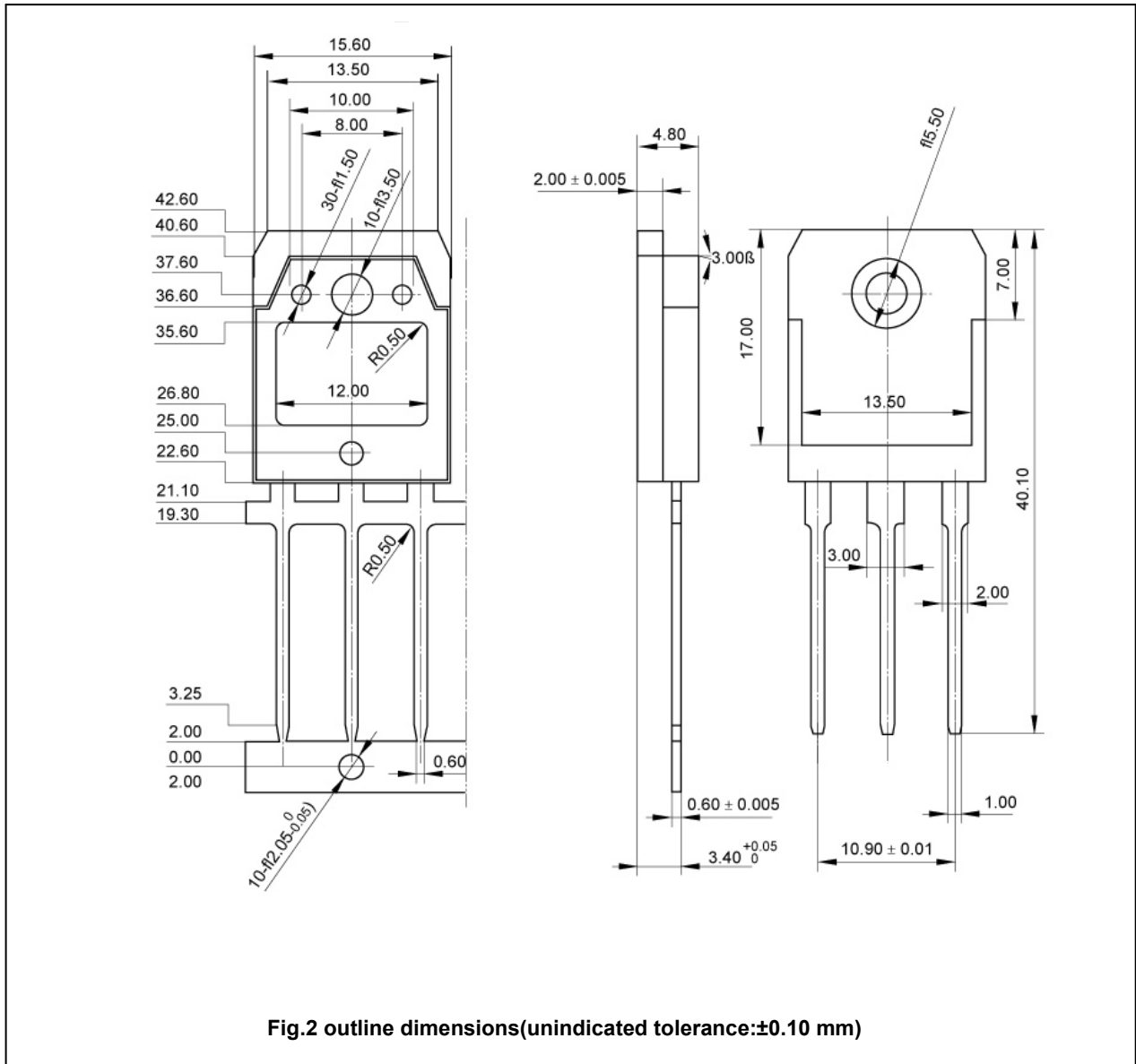
## Switching times resistive load

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =7.5A I <sub>B1</sub> =1.5A I <sub>B2</sub> =-3A R <sub>L</sub> =20Ω P <sub>W</sub> =20μs;Duty=<2%			0.5	μs
t <sub>s</sub>	Storage time				1.5	μs
t <sub>f</sub>	Fall time				0.15	μs

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PACKAGE OUTLINE



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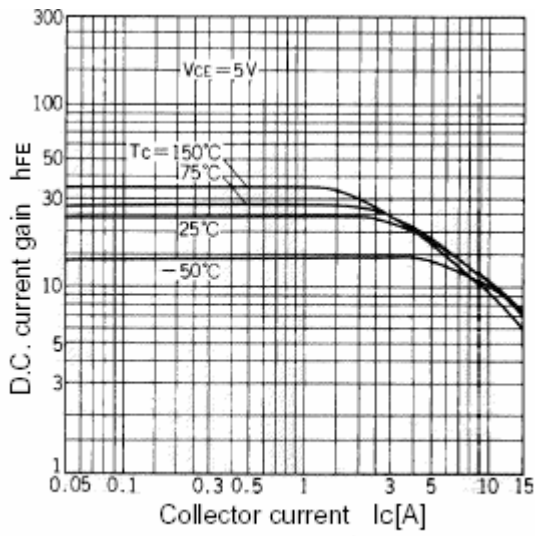


Fig.3 DC current Gain

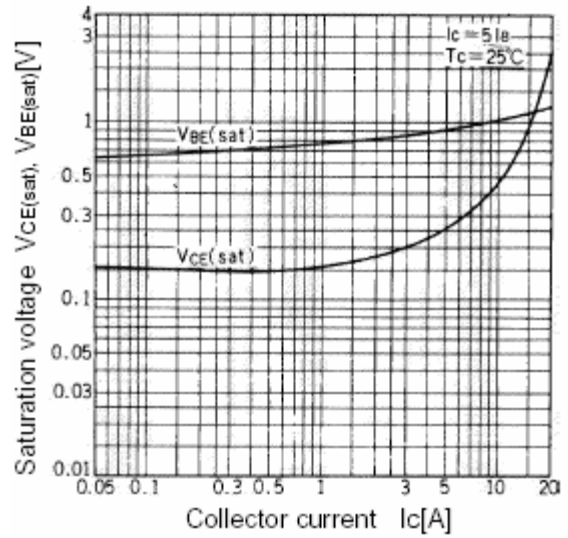


Fig.4 Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

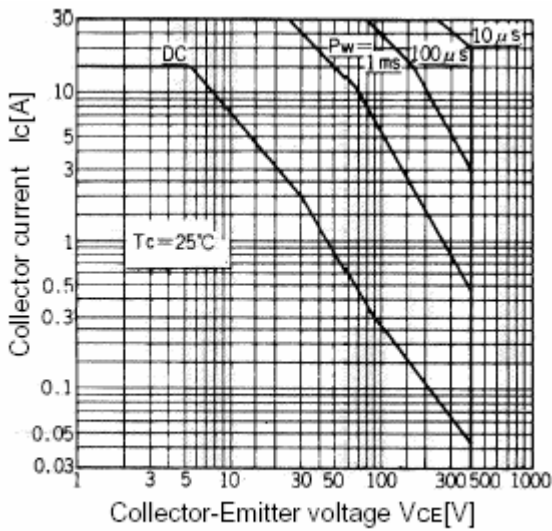


Fig.5 Safe Operating Area