

## Silicon NPN Power Transistors

## 2SD1668

## DESCRIPTION

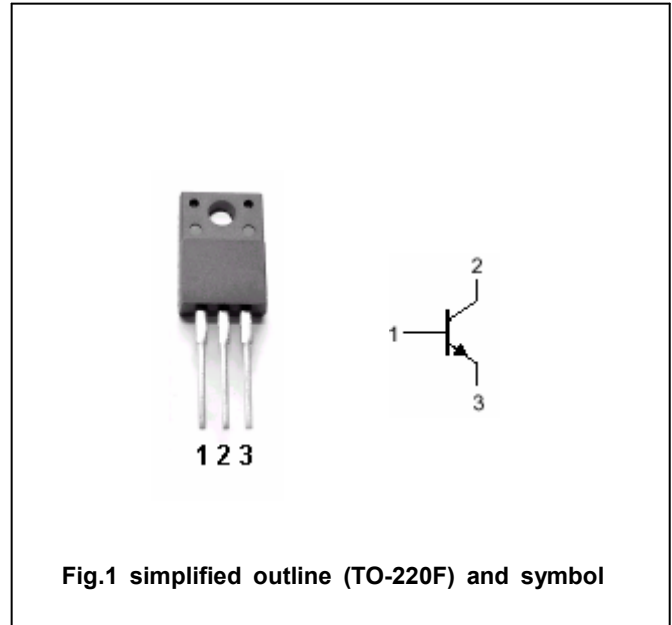
- With TO-220F package
- Complement to type 2SB1135
- Low collector saturation voltage
- Wide safe operating area

## APPLICATIONS

- For relay drivers,high-speed inverters, converters,and other general high-current switching applications

## PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter



## Absolute maximum ratings (Ta=25°C)

SYMBOL	PARAMETER	CONDITIONS	MAX	UNIT
V <sub>CBO</sub>	Collector-base voltage	Open emitter	60	V
V <sub>CEO</sub>	Collector-emitter voltage	Open base	50	V
V <sub>EBO</sub>	Emitter-base voltage	Open collector	6	V
I <sub>C</sub>	Collector current		7	A
I <sub>CM</sub>	Collector current-peak		12	A
P <sub>C</sub>	Collector dissipation	T <sub>a</sub> =25°C	2	W
		T <sub>C</sub> =25°C	30	
T <sub>j</sub>	Junction temperature		150	°C
T <sub>stg</sub>	Storage temperature		-55~150	°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> =1mA ; R <sub>BE</sub> =∞	50			V
V <sub>(BR)CBO</sub>	Collector-base breakdown voltage	I <sub>C</sub> =1mA ; I <sub>E</sub> =0	60			V
V <sub>(BR)EBO</sub>	Emitter-base breakdown voltage	I <sub>E</sub> =1mA ; I <sub>C</sub> =0	6			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =4A ; I <sub>B</sub> =0.4A			0.4	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =40V ; I <sub>E</sub> =0			100	μA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =4V ; I <sub>C</sub> =0			100	μA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =1A ; V <sub>CE</sub> =2V	70		280	
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =5A ; V <sub>CE</sub> =2V	30			
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =1A ; V <sub>CE</sub> =5V		10		MHz

## Switching times

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =2.0A ; I <sub>B1</sub> =-I <sub>B2</sub> =0.2A V <sub>CC</sub> =20V ; R <sub>L</sub> =10Ω		0.20		μs
t <sub>s</sub>	Storage time			0.90		μs
t <sub>f</sub>	Fall time			0.30		μs

◆ h<sub>FE-1</sub> Classifications

Q	R	S
70-140	100-200	140-280

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PACKAGE OUTLINE

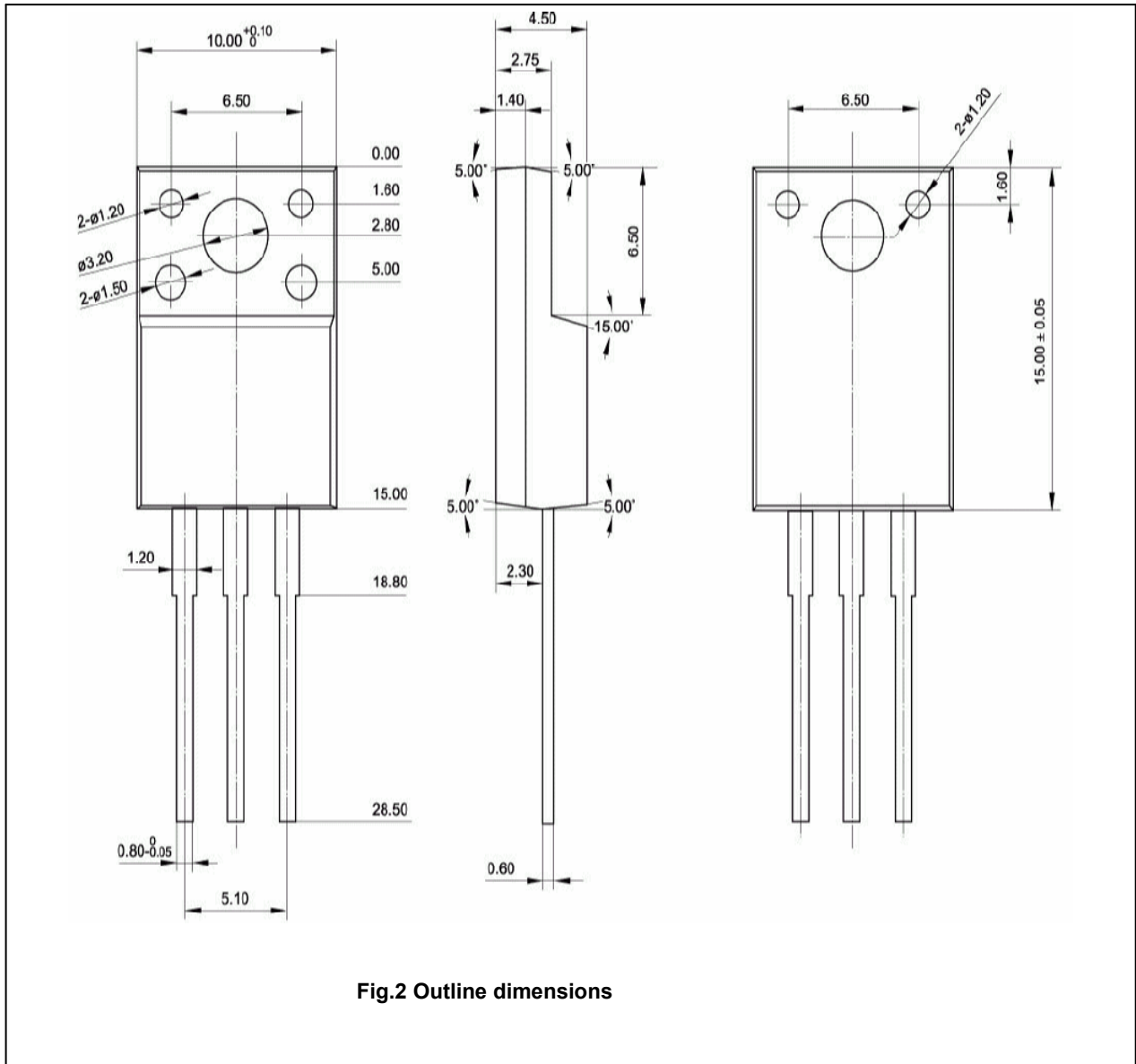


Fig.2 Outline dimensions