

**Inchange Semiconductor**

**Product Specification**

**Silicon PNP Power Transistors**

**2SA1396**

**DESCRIPTION**

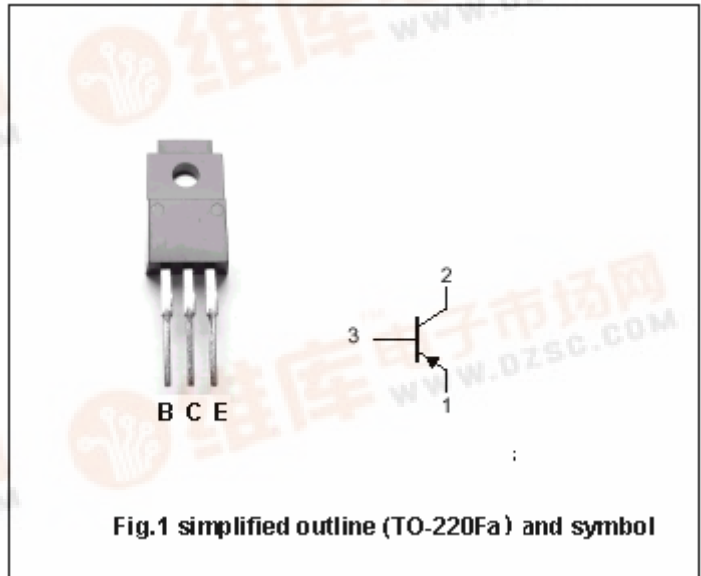
- With TO-220Fa package
- Complement to type 2SC3568
- Low collector saturation voltage
- High switching speed

**APPLICATIONS**

- Switching regulator
- DC-DC converter
- High frequency power amplifier

**PINNING**

PIN	DESCRIPTION
1	Emitter
2	Collector
3	Base



**Absolute maximum ratings (Ta=25°C)**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	Open emitter	-100	V
V <sub>CEO</sub>	Collector-emitter voltage	Open base	-100	V
V <sub>EBO</sub>	Emitter-base voltage	Open collector	-7	V
I <sub>C</sub>	Collector current (DC)		-10	A
I <sub>CM</sub>	Collector current (pulse)		-20	A
I <sub>B</sub>	Base current (DC)		-5	A
P <sub>C</sub>	Collector power dissipation	T <sub>C</sub> =25°C	30	W
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>CEQ(SUS)</sub>	Collector-emitter sustaining voltage	I <sub>C</sub> =-5A; I <sub>B</sub> =-0.5A; L=1mH	-100			V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =-5A; I <sub>B</sub> =-0.5A			-0.6	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =-5A; I <sub>B</sub> =-0.5A			-1.5	V
I <sub>CB0</sub>	Collector cut-off current	V <sub>CB</sub> =-100V; I <sub>E</sub> =0			-10	μ A
I <sub>CER</sub>	Collector cut-off current	V <sub>CE</sub> =-100V; R <sub>BE</sub> =51 Ω; T <sub>a</sub> =125°C			-1	mA
I <sub>CEx</sub>	Collector cut-off current	V <sub>CE</sub> =-100V; V <sub>BE(off)</sub> =1.5V T <sub>a</sub> =125°C			-0.01 -1	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =-5V; I <sub>C</sub> =0			-10	μ A
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =-0.5A; V <sub>CE</sub> =-5V	40		200	
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =-3A; V <sub>CE</sub> =-5V	40		200	
h <sub>FE-3</sub>	DC current gain	I <sub>C</sub> =-5A; V <sub>CE</sub> =-5V	20			

## Switching times

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =-5A; I <sub>B1</sub> =-I <sub>B2</sub> =-0.5A V <sub>CC</sub> ≈50V; R <sub>L</sub> =10 Ω			0.5	μ s
t <sub>s</sub>	Storage time				1.5	μ s
t <sub>f</sub>	Fall time				0.5	μ s

◆ h<sub>FE-2</sub> Classifications

M	L	K
40-80	60-120	100-200

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PACKAGE OUTLINE

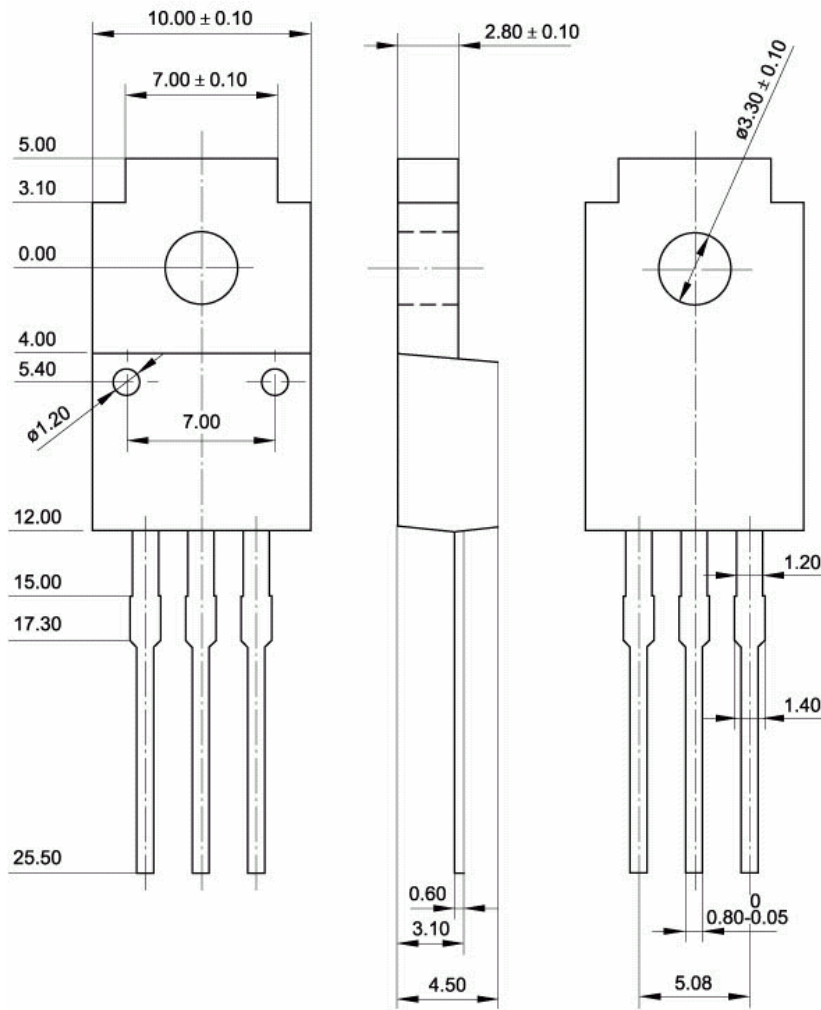


Fig.2 Outline dimensions (unindicated tolerance:  $\pm 0.15$  mm)

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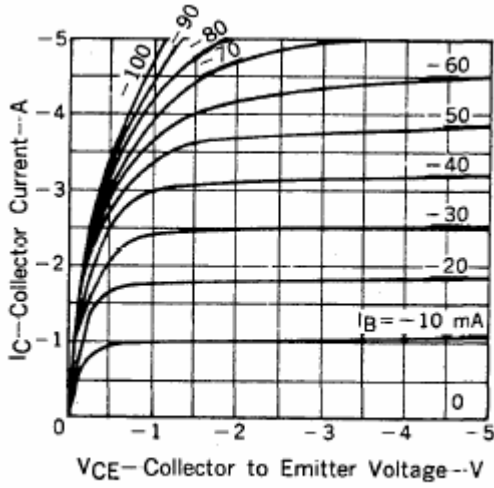


Fig.3 Static Characteristic

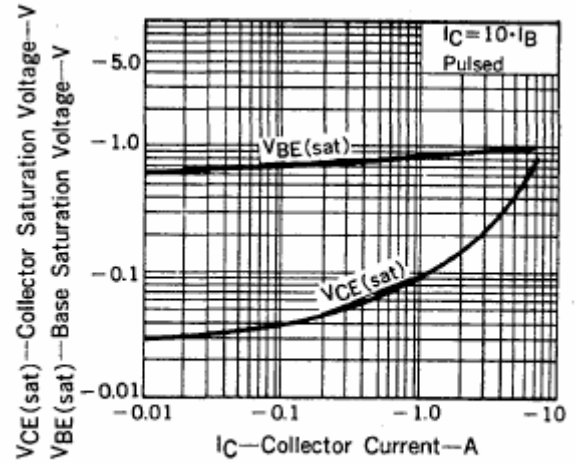


Fig.4 Collector-Emitter Saturation Voltage  
Base-Emitter Saturation Voltage

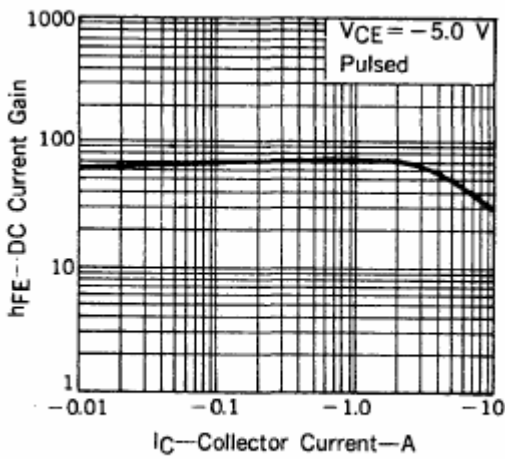


Fig.5 DC current Gain

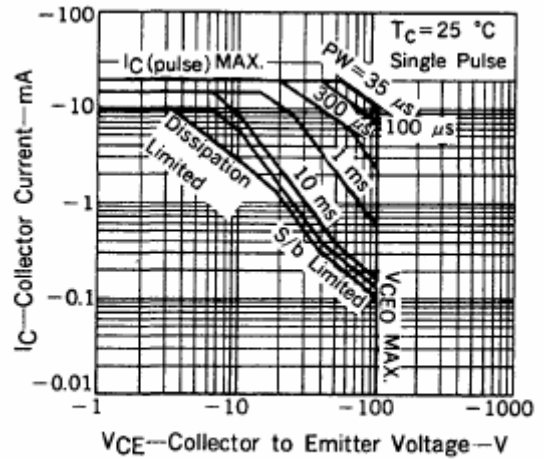


Fig.6 Safe Operating Area