

## Silicon PNP Power Transistors

## 2SA1011

## DESCRIPTION

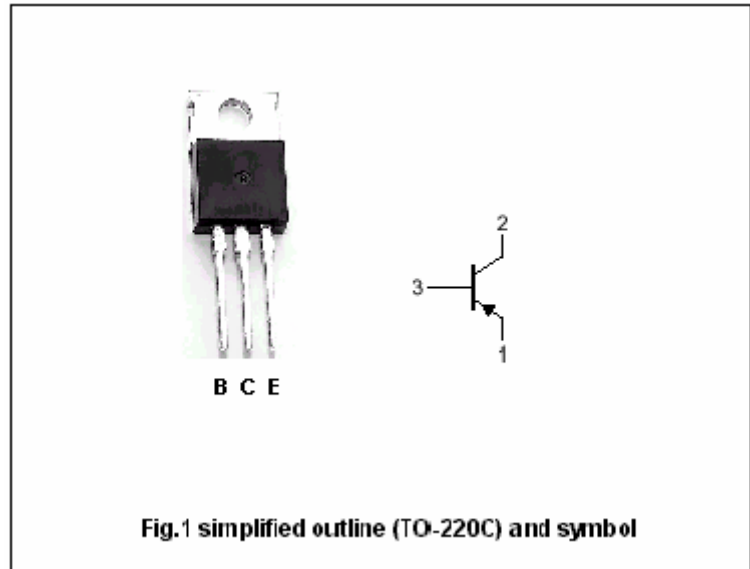
- With TO-220 package
- Complement to type 2SC2344

## APPLICATIONS

- High voltage switching ,
- Audio frequency power amplifier;
- 100W output predriver applications

## PINNING

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

Absolute maximum ratings( $T_a=25^\circ\text{C}$ )

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	-180	V
$V_{CEO}$	Collector-emitter voltage	Open base	-160	V
$V_{EBO}$	Emitter-base voltage	Open collector	-6	V
$I_C$	Collector current		-1.5	A
$I_{CM}$	Collector current-Peak		-3.0	A
$P_C$	Collector power dissipation	$T_C=25^\circ\text{C}$	25	W
$T_j$	Junction temperature		150	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-55~150	$^\circ\text{C}$

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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> =-10mA, R <sub>BE</sub> =∞	-160			V
V <sub>(BR)CBO</sub>	Collector-base breakdown voltage	I <sub>C</sub> =-1mA; I <sub>E</sub> =0	-180			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> =-0.5A; I <sub>B</sub> =-50mA		-0.5		V
V <sub>BE</sub>	Base-emitter voltage	I <sub>C</sub> =-10mA; V <sub>CE</sub> =-5V		-1.5		V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =-120V; I <sub>E</sub> =0			-10	μA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =-4V; I <sub>C</sub> =0			-10	μA
h <sub>FE</sub>	DC current gain	I <sub>C</sub> =-0.3A; V <sub>CE</sub> =-5V	60		200	
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =-50mA; V <sub>CE</sub> =-10V		100		MHz
C <sub>ob</sub>	Output capacitance	I <sub>E</sub> =0; f=1MHz; V <sub>CB</sub> =-10V		30		pF

Switching times resistive load

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =-0.5A; I <sub>B1</sub> =-I <sub>B2</sub> =-50mA V <sub>CC</sub> =20V; R <sub>L</sub> =40Ω		0.29		μs
t <sub>s</sub>	Storage time			0.48		μs
t <sub>f</sub>	Fall time			0.19		μs

◆ h<sub>FE</sub> Classifications

D	E
60-120	100-200

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PACKAGE OUTLINE

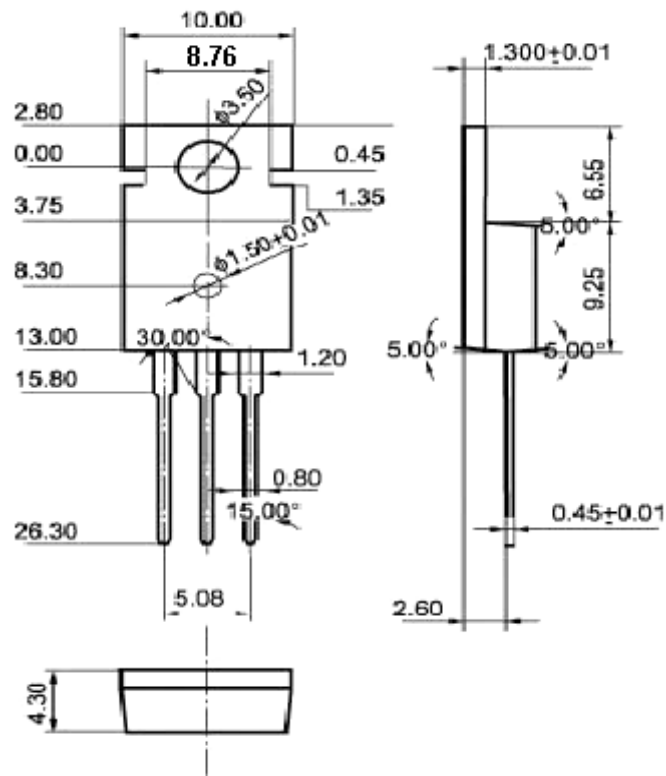


Fig.2 Outline dimensions(unindicated tolerance:  $\pm 0.10$  mm)

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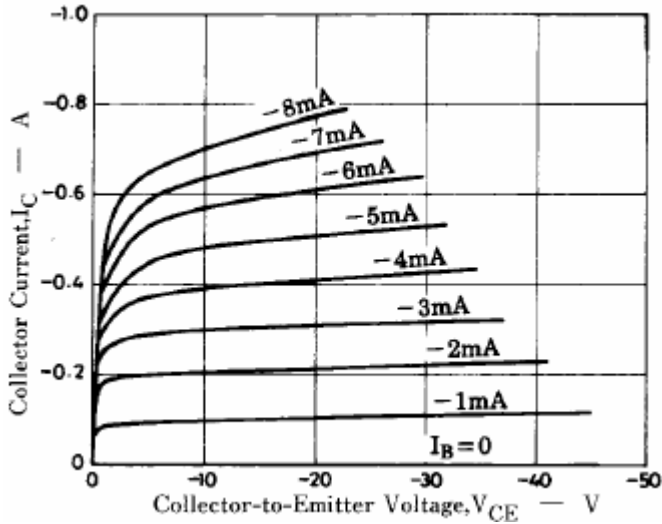


Fig.3 Static Characteristic

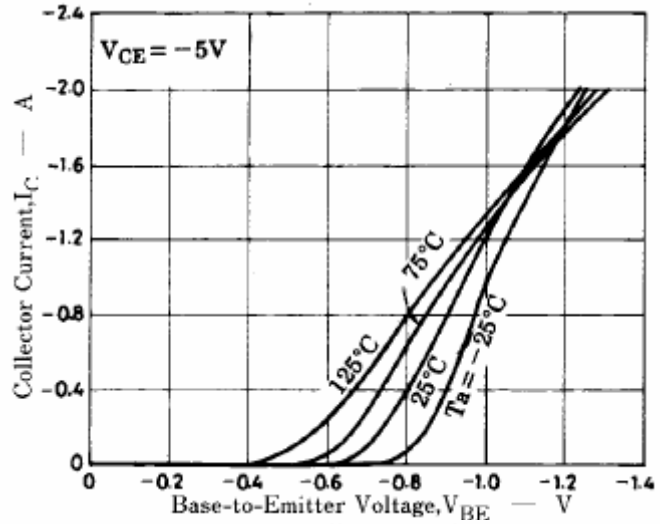


Fig.4 Base-Emitter On Voltage

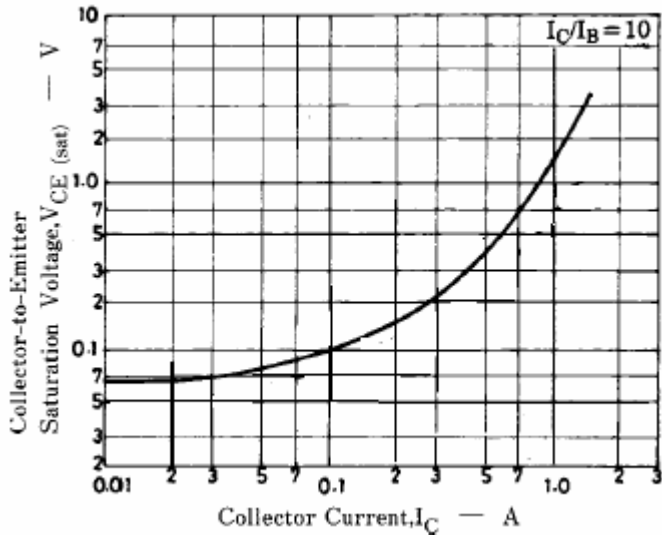


Fig.5 Collector-Emitter Saturation Voltage

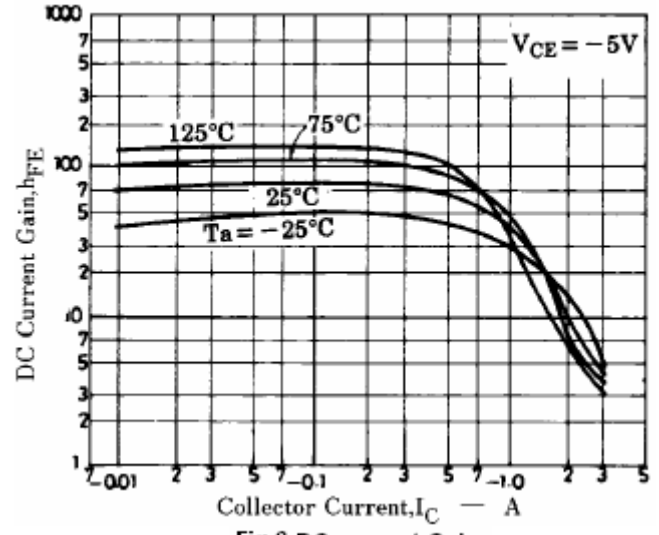


Fig.6 DC current Gain

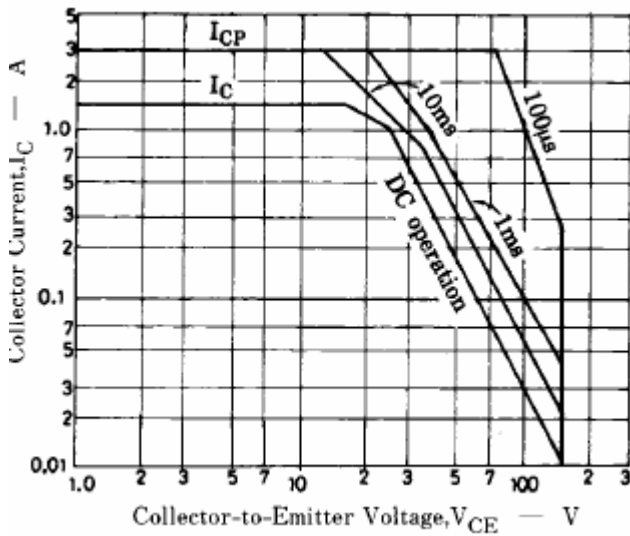


Fig.7 Safe Operating Area