

## Silicon PNP Power Transistors

2SA1651

## DESCRIPTION

- With TO-220Fa package
- Fast switching speed
- Low collector saturation voltage

## APPLICATIONS

- For use in switching power supplies,DC-DC converters,motor drivers,solenoid drivers, and other low-voltage power supply devices, as well as for high current switching

## PINNING

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

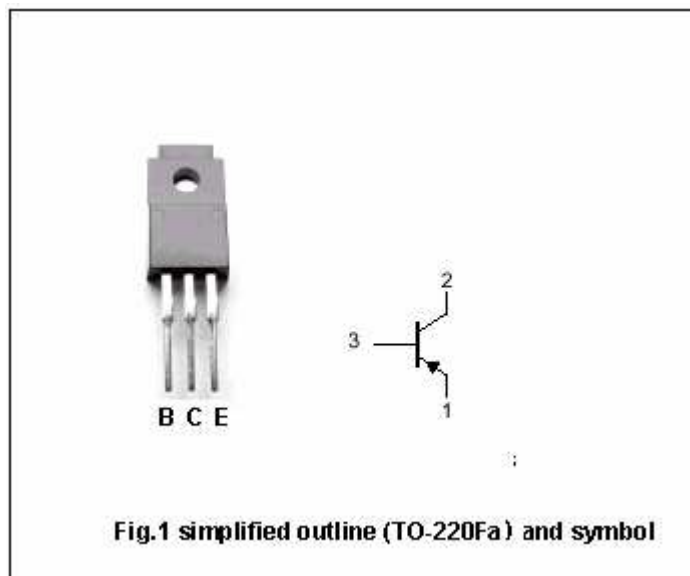


Fig.1 simplified outline (TO-220Fa) and symbol

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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	-150	V
$V_{CEO}$	Collector-emitter voltage	Open base	-100	V
$V_{EBO}$	Emitter-base voltage	Open collector	-7	V
$I_C$	Collector current		-7	A
$I_{CM}$	Collector current-peak	$PW \leq 300\mu\text{s}$ , duty cycle $\leq 10\%$	-14	A
$I_B$	Base current		-3.5	A
$P_T$	Total power dissipation	$T_a=25^\circ\text{C}$	1.5	W
		$T_c=25^\circ\text{C}$	25	
$T_j$	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>CEsat-1</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =-4A; I <sub>B</sub> =-0.2A			-0.3	V
V <sub>CEsat-2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =-6A; I <sub>B</sub> =-0.3A			-0.5	V
V <sub>BE sat-1</sub>	Base-emitter saturation voltage	I <sub>C</sub> =-4A; I <sub>B</sub> =-0.2A			-1.2	V
V <sub>BE sat-2</sub>	Base-emitter saturation voltage	I <sub>C</sub> =-6A; I <sub>B</sub> =-0.3A			-1.5	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =-100V; I <sub>E</sub> =0			-10	μA
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> =-0.5A; V <sub>CE</sub> =-2V	100			
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =-1.5A; V <sub>CE</sub> =-2V	100		400	
h <sub>FE-3</sub>	DC current gain	I <sub>C</sub> =-4A; V <sub>CE</sub> =-2V	60			
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =-1.5A; V <sub>CE</sub> =-10V		150		MHz
C <sub>OB</sub>	Collector capacitance	I <sub>E</sub> =-0; V <sub>CB</sub> =-10V; f=1MHz		150		pF

## Switching times

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =-4A; I <sub>B1</sub> =-I <sub>B2</sub> =-0.2A R <sub>L</sub> =12.5Ω; V <sub>CC</sub> =-50V		0.3		μs
t <sub>s</sub>	Storage time			1.5		μs
t <sub>f</sub>	Fall time			0.4		μs

◆ h<sub>FE-2</sub> Classifications

M	L	K
100-200	150-300	200-400

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PACKAGE OUTLINE

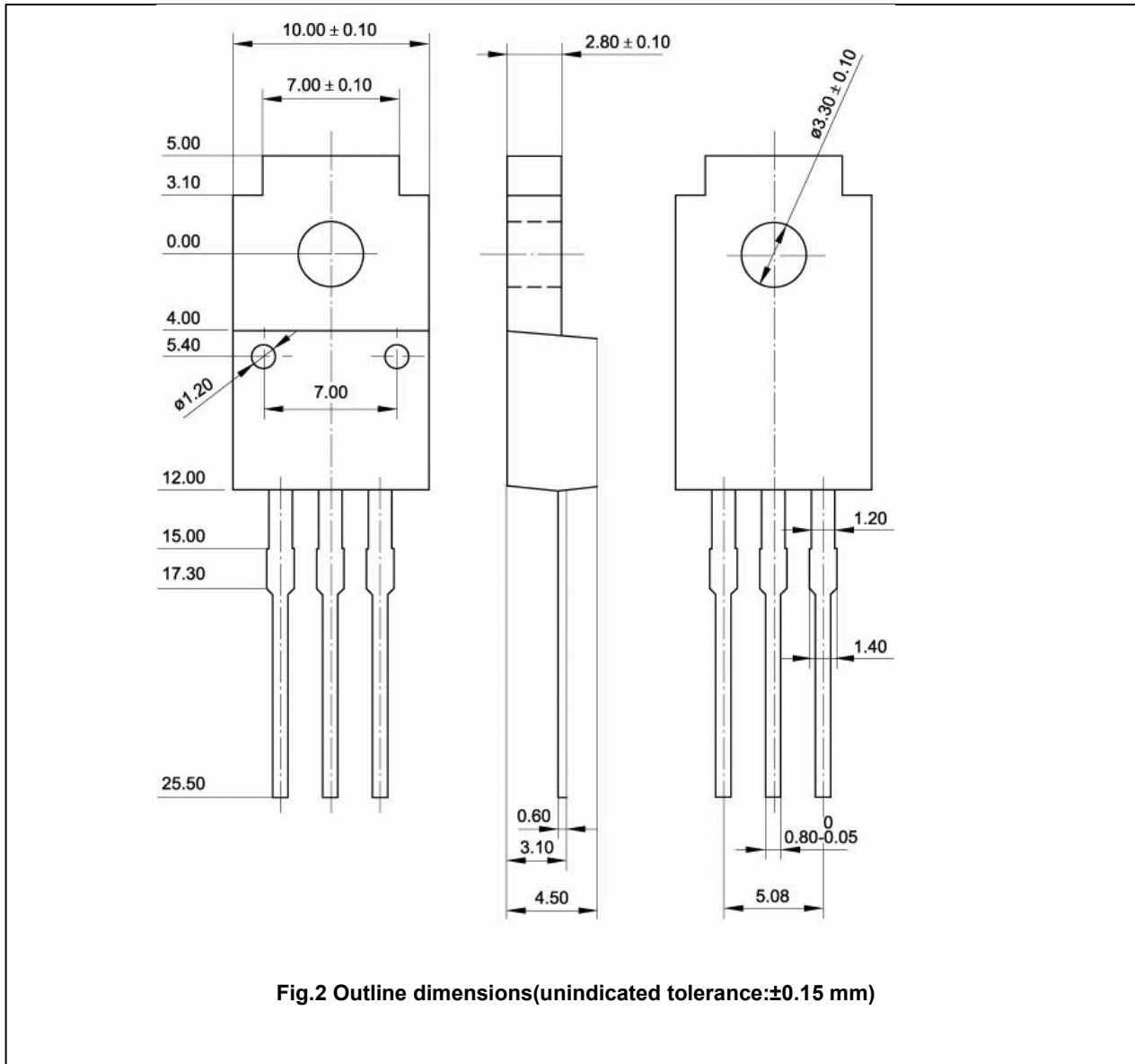


Fig.2 Outline dimensions(unindicated tolerance:±0.15 mm)