

## Silicon NPN Power Transistors

2SC3691

## DESCRIPTION

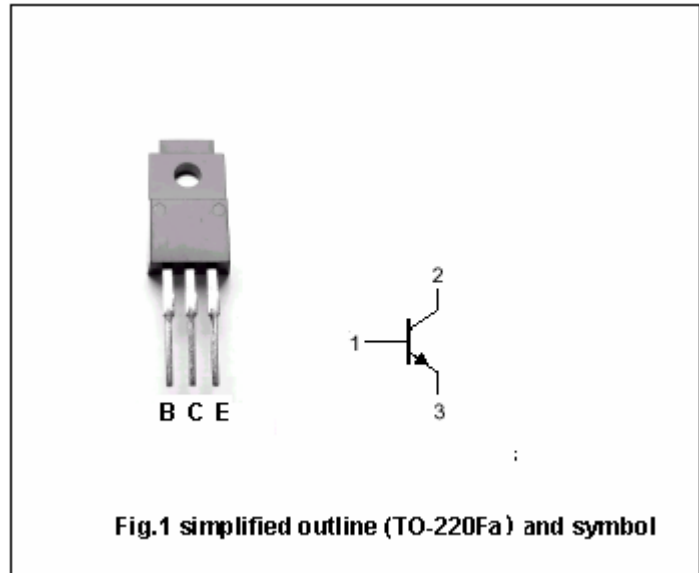
- With TO-220Fa package
- Large current ,high speed
- Low saturation voltage

## APPLICATIONS

- Designed for high speed and power switching applications

## PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	100	V
$V_{CEO}$	Collector-emitter voltage	Open base	60	V
$V_{EBO}$	Emitter-base voltage	Open collector	7	V
$I_C$	Collector current (DC)		5	A
$I_{CM}$	Collector current-peak		10	A
$I_B$	Base current		2.5	A
$P_T$	Total power dissipation	$T_a=25^\circ\text{C}$	2	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>CEQ(SUS)</sub>	Collector-emitter sustaining voltage	I <sub>C</sub> =3A; I <sub>B</sub> =0.3A, L=1mH	60			V
V <sub>CEsat-1</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =3A; I <sub>B</sub> =0.15 A			0.3	V
V <sub>CEsat-2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =4A; I <sub>B</sub> =0.2A			0.5	V
V <sub>BEsat-1</sub>	Base-emitter saturation voltage	I <sub>C</sub> =3A; I <sub>B</sub> =0.15 A			1.2	V
V <sub>BEsat-2</sub>	Base-emitter saturation voltage	I <sub>C</sub> =4A; I <sub>B</sub> =0.2A			1.5	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =60V; I <sub>E</sub> =0			10	μA
I <sub>CEX</sub>	Collector cut-off current	V <sub>CE</sub> =60V; V <sub>BE</sub> =-1.5V T <sub>a</sub> =125°C			10 1.0	μA mA
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> =1A; V <sub>CE</sub> =2V	100	200	400	
h <sub>FE-3</sub>	DC current gain	I <sub>C</sub> =3A; V <sub>CE</sub> =2V	60			
C <sub>OB</sub>	Output capacitance	I <sub>E</sub> =0; V <sub>CB</sub> =10V; f=1MHz		70		pF
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =0.5A; V <sub>CE</sub> =10V		150		MHz

## Switching times

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =3A; R <sub>L</sub> =17Ω I <sub>B1</sub> =-I <sub>B2</sub> =0.15A V <sub>CC</sub> ≈50V			0.3	μs
t <sub>s</sub>	Storage time				1.5	μs
t <sub>f</sub>	Fall time				0.3	μs

◆ h<sub>FE-2</sub> classifications

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

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PACKAGE OUTLINE

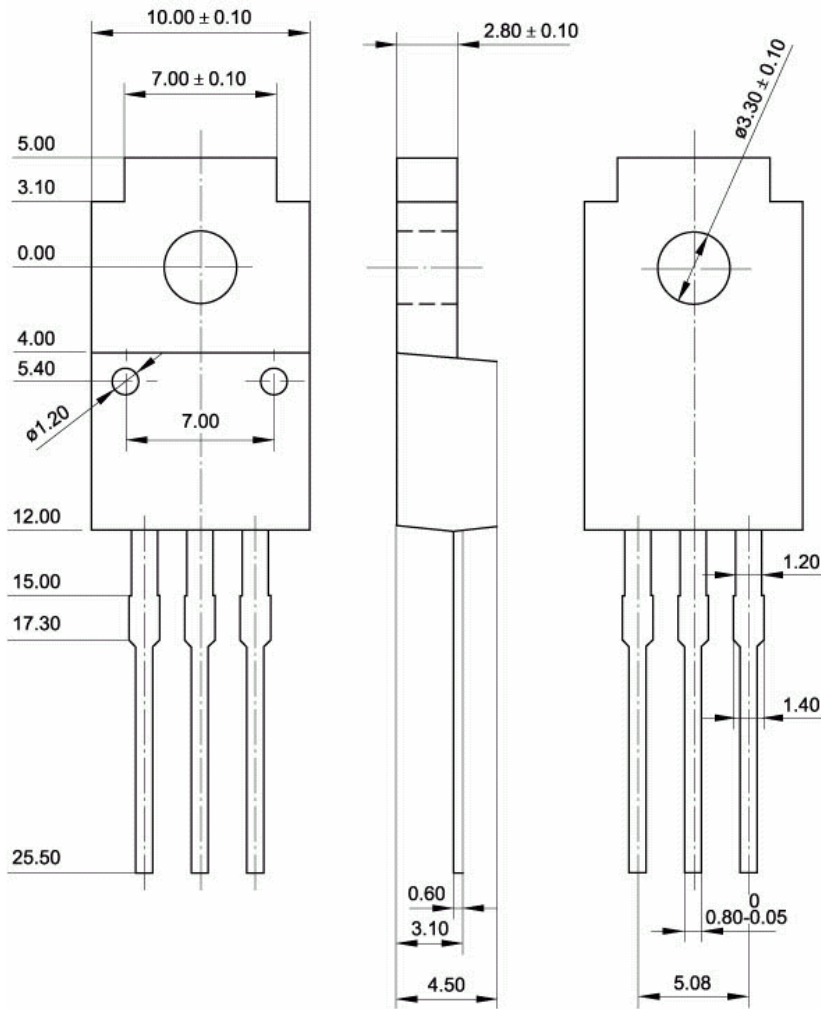


Fig.2 Outline dimensions (unindicated tolerance:  $\pm 0.15$  mm)