

## Silicon NPN Power Transistors

## 2SC3092

## DESCRIPTION

- With TO-3 package
- High breakdown voltage
- Fast switching speed.
- Wide area of safe operation

## APPLICATIONS

- 500V/7A switching regulator applications

## PINNING(see Fig.2)

PIN	DESCRIPTION
1	Base
2	Emitter
3	Collector

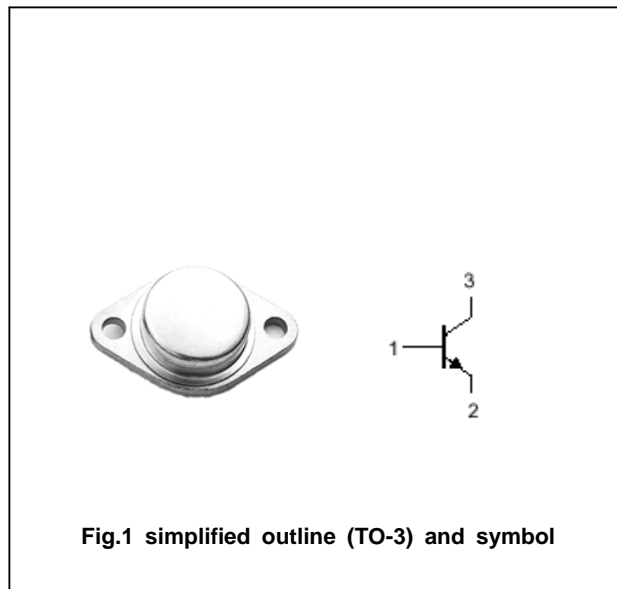


Fig.1 simplified outline (TO-3) and symbol

ABSOLUTE MAXIMUM RATINGS( $T_C=25^\circ\text{C}$ )

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	800	V
$V_{CEO}$	Collector-emitter voltage	Open base	500	V
$V_{EBO}$	Emitter-base voltage	Open collector	7	V
$I_C$	Collector current		7	A
$I_{CP}$	Collector current-peak	$PW \leq 300 \mu s$ , Duty Cycle $\leq 10\%$	14	A
$I_B$	Base current		3	A
$P_C$	Collector power dissipation	$T_C=25^\circ\text{C}$	90	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> =5mA ; R <sub>BE</sub> =∞	500			V
V <sub>(BR)CBO</sub>	Collector-base breakdown voltage	I <sub>C</sub> =1mA ; I <sub>E</sub> =0	800			V
V <sub>(BR)EBO</sub>	Emitter-base breakdown voltage	I <sub>E</sub> =1mA ; I <sub>C</sub> =0	7			V
V <sub>CE(sat)</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =3A ; I <sub>B</sub> =0.6A			1.0	V
V <sub>BE(sat)</sub>	Base-emitter saturation voltage	I <sub>C</sub> =3A ; I <sub>B</sub> =0.6A			1.5	V
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =500V ; I <sub>E</sub> =0			10	μ A
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> =0.6A ; V <sub>CE</sub> =5V	15		50	
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =3A ; V <sub>CE</sub> =5V	8			
C <sub>OB</sub>	Output capacitance	I <sub>E</sub> =0 ; V <sub>CB</sub> =10V, f=1MHz		80		pF
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =0.6 A ; V <sub>CE</sub> =10V		18		MHz

## Switching times

t <sub>on</sub>	Turn-on time	I <sub>C</sub> =4A ; I <sub>B1</sub> =0.8A ; I <sub>B2</sub> =-1.6A V <sub>CC</sub> =200V , R <sub>L</sub> =50 Ω			0.5	μ s
t <sub>s</sub>	Storage time				3.0	μ s
t <sub>f</sub>	Fall time				0.3	μ s

◆ h<sub>FE-1</sub> classifications

L	M	N
15-30	20-40	30-50

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PACKAGE OUTLINE

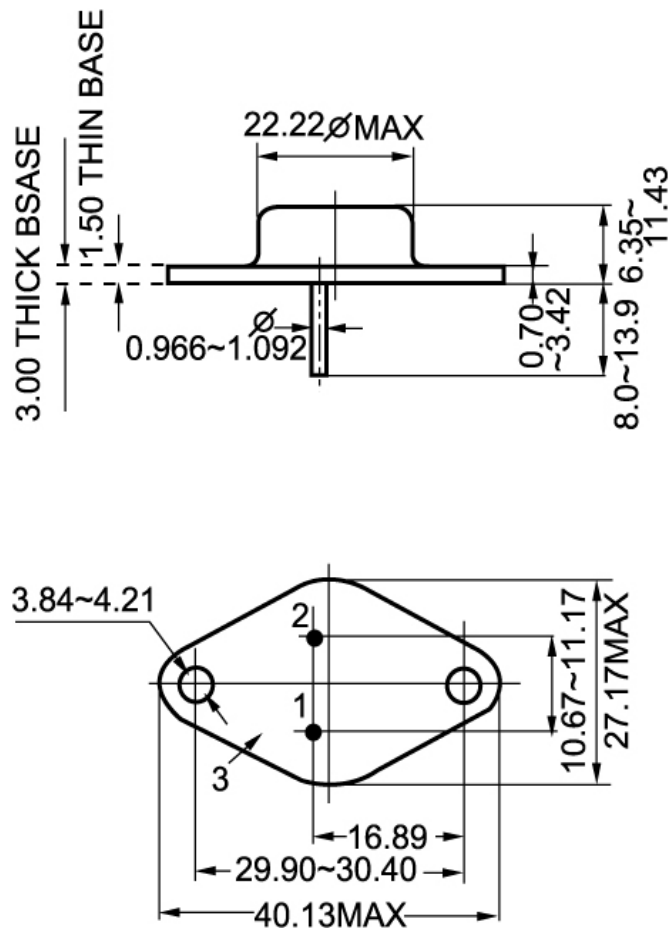


Fig.2 outline dimensions (unindicated tolerance:  $\pm 0.1$ mm)