

## Silicon NPN Power Transistors

## 2N6676 2N6677 2N6678

## DESCRIPTION

- With TO-3 package
- High voltage capability
- Fast switching speeds
- Low saturation voltage

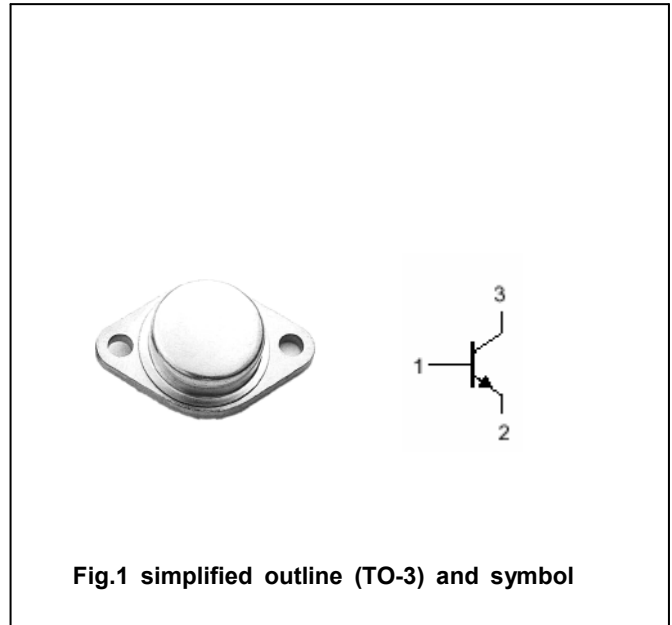
## APPLICATIONS

Designed for high voltage switching applications such as :

- Off-line power supplies
- Converter circuits
- Pulse width modulated regulators

## PINNING (See Fig.2)

PIN	DESCRIPTION
1	Base
2	Emitter
3	Collector

Absolute maximum ratings( $T_a = \square$ )

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	2N6676	450	V
		2N6677	550	
		2N6678	650	
$V_{CEO}$	Collector-emitter voltage	2N6676	300	V
		2N6677	350	
		2N6678	400	
$V_{EBO}$	Emitter-base voltage	Open collector	8	V
$I_C$	Collector current		15	A
$I_{CM}$	Collector current-peak		20	A
$I_B$	Base current		5	A
$P_T$	Total power dissipation	$T_c = 25 \square$	175	W
$T_j$	Junction temperature		200	$\square$
$T_{stg}$	Storage temperature		-65~200	$\square$

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## CHARACTERISTICS

T<sub>j</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CE0(SUS)</sub>	Collector-emitter sustaining voltage	2N6676	I <sub>C</sub> =0.2A ; I <sub>B</sub> =0			V
		2N6677				
		2N6678				
V <sub>CEsat</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =15A; I <sub>B</sub> =3A			1.5	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =15A; I <sub>B</sub> =3A			1.5	V
I <sub>CEV</sub>	Collector cut-off current	V <sub>CE</sub> =Rated V <sub>CEV</sub> ; V <sub>BE(off)</sub> =-1.5V T <sub>C</sub> =100°C			0.1 1.0	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =8V; I <sub>C</sub> =0			2.0	mA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =1A ; V <sub>CE</sub> =5V	15		50	
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =15A ; V <sub>CE</sub> =3V	8			
C <sub>OB</sub>	Output capacitance	I <sub>E</sub> =0 ; V <sub>CB</sub> =10V; f=0.1MHz			500	pF
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =1A ; V <sub>CE</sub> =10V; f=5.0MHz	3			MHz

## Switching times

t <sub>d</sub>	Delay time	I <sub>C</sub> =15A; I <sub>B1</sub> =-I <sub>B2</sub> =3.0A V <sub>CC</sub> =200V; t <sub>p</sub> =20μs; Duty Cycle≤2.0% V <sub>BB</sub> =6V, R <sub>L</sub> =1.35Ω			0.2	μs
t <sub>r</sub>	Rise time				0.6	μs
t <sub>s</sub>	Storage time				2.5	μs
t <sub>f</sub>	Fall time				0.6	μs

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-c</sub>	Thermal resistance from junction to case	1.0	°C/W

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PACKAGE OUTLINE

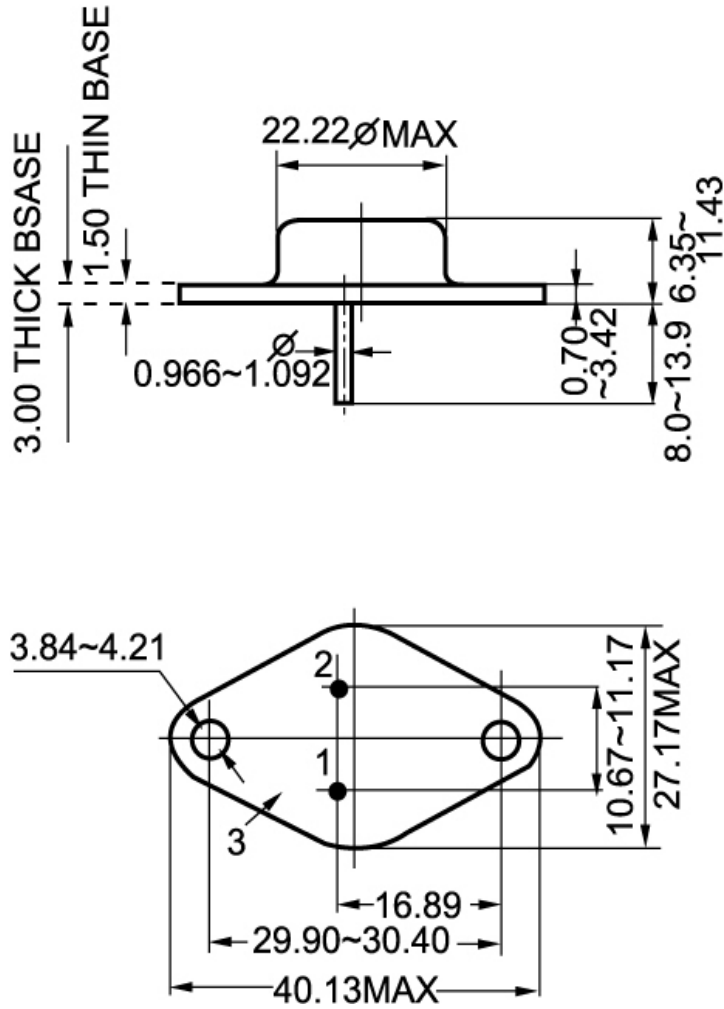


Fig.2 Outline dimensions