

## Silicon NPN Power Transistors

## 2N6542 2N6543

## DESCRIPTION

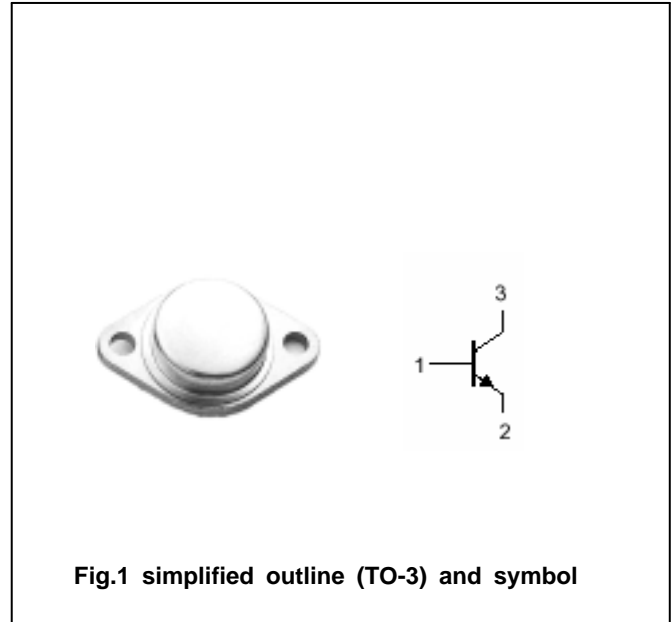
- With TO-3 package
- High voltage,high speed

## APPLICATIONS

- Switching regulators
- PWM inverters and motor controls
- Solenoid and relay drivers
- Deflection circuits

## PINNING

PIN	DESCRIPTION
1	Base
2	Emitter
3	Collector

Absolute maximum ratings( $T_a =$ )

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	2N6542	650	V
		2N6543	850	
$V_{CEO}$	Collector-emitter voltage	2N6542	300	V
		2N6543	400	
$V_{EBO}$	Emitter-base voltage	Open collector	8	V
$I_C$	Collector current		5	A
$I_{CM}$	Collector current-peak		10	A
$I_B$	Base current		5	A
$I_E$	Emitter current		10	A
$I_{EM}$	Emitter current-peak		20	A
$P_D$	Total Power Dissipation	$T_C=25$	100	W
$T_j$	Junction temperature		200	
$T_{stg}$	Storage temperature		-65~200	

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## CHARACTERISTICS

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

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEO(SUS)</sub>	Collector-emitter sustaining voltage	2N6542	I <sub>C</sub> =0.1A ; I <sub>B</sub> =0	300			V
		2N6543		400			
V <sub>CEsat-1</sub>	Collector-emitter saturation voltage		I <sub>C</sub> =3A; I <sub>B</sub> =0.6A			1.0	V
V <sub>CEsat-2</sub>	Collector-emitter saturation voltage		I <sub>C</sub> =5A; I <sub>B</sub> =1.0A			5.0	V
V <sub>BEsat</sub>	Base-emitter saturation voltage		I <sub>C</sub> =3A; I <sub>B</sub> =0.6A			1.4	V
I <sub>CEV</sub>	Collector cut-off current	2N6542	V <sub>CE</sub> =650V; V <sub>BE(off)</sub> =1.5V T <sub>C</sub> =100			0.5 3.0	mA
		2N6543	V <sub>CE</sub> =850V; V <sub>BE(off)</sub> =1.5V T <sub>C</sub> =100			0.5 3.0	
I <sub>EBO</sub>	Emitter cut-off current		V <sub>EB</sub> =8V; I <sub>C</sub> =0			1.0	mA
h <sub>FE-1</sub>	DC current gain		I <sub>C</sub> =1.5A ; V <sub>CE</sub> =2V	12		60	
h <sub>FE-2</sub>	DC current gain		I <sub>C</sub> =3A ; V <sub>CE</sub> =2V	7		35	
f <sub>T</sub>	Transistion frequency		I <sub>C</sub> =0.2A ; V <sub>CE</sub> =10V;f=1MHz	6		35	MHz

## Switching times

t <sub>d</sub>	Delay time	V <sub>CC</sub> =250V; I <sub>C</sub> =3.0A I <sub>B1</sub> =-I <sub>B2</sub> =0.6A; t <sub>p</sub> =0.1ms			0.05	μs
t <sub>r</sub>	Rise time				0.7	μs
t <sub>stg</sub>	Storage time				4.0	μs
t <sub>f</sub>	Fall time				0.8	μs

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
R <sub>th j-c</sub>	Thermal resistance junction to case	1.75	/W

PACKAGE OUTLINE

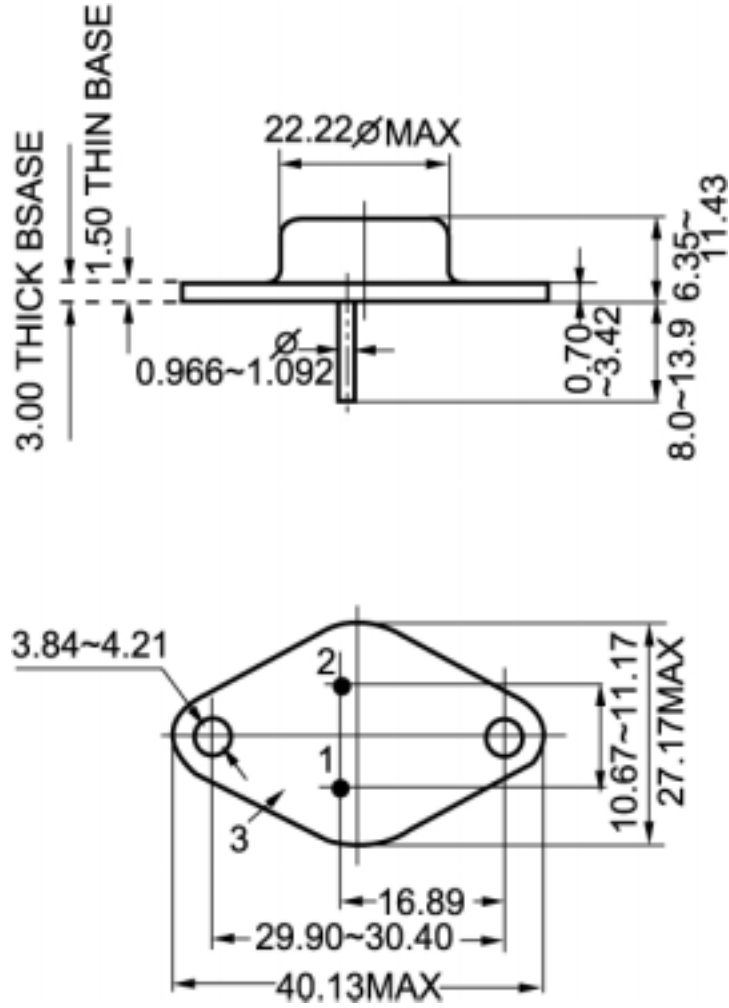


Fig.2 outline dimensions (unindicated tolerance:  $\pm 0.10\text{mm}$ )