

SavantIC Semiconductor

Product Specification

Silicon NPN Power Transistors

2N5301 2N5302 2N5303

DESCRIPTION

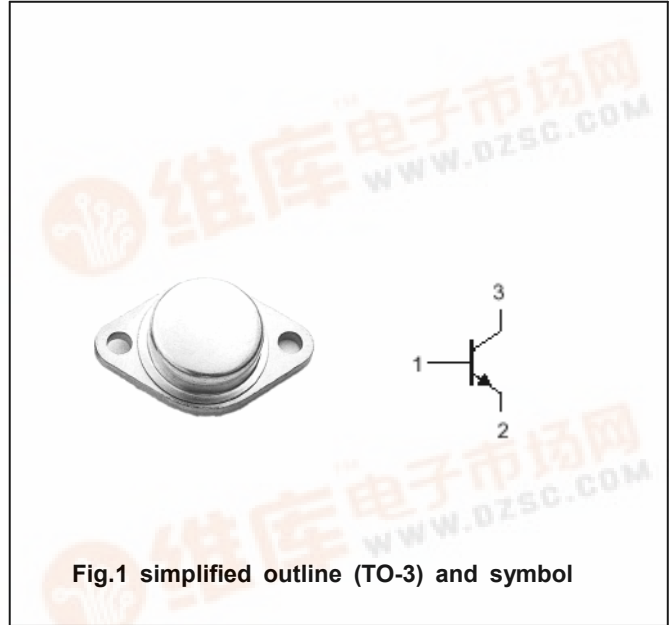
- With TO-3 package
- Complement to type 2N4398/4399/5745
- Low collector/saturation voltage
- Excellent safe operating area

APPLICATIONS

- For use in power amplifier and switching circuits applications.

PINNING

PIN	DESCRIPTION
1	Base
2	Emitter
3	Collector



Absolute maximum ratings(Ta=□)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	2N5301	40	V
		2N5302	60	
		2N5303	80	
V <sub>CEO</sub>	Collector-emitter voltage	2N5301	40	V
		2N5302	60	
		2N5303	80	
V <sub>EBO</sub>	Emitter-base voltage	Open collector	5	V
I <sub>C</sub>	Collector current	2N5301/5302	30	A
		2N5303	20	
I <sub>B</sub>	Base current		7.5	A
P <sub>D</sub>	Total power dissipation	T <sub>C</sub> =25□	200	W
T <sub>j</sub>	Junction temperature		200	□
T <sub>stg</sub>	Storage temperature		-65~200	□

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
R <sub>th j-c</sub>	Thermal resistance junction to case	0.875	□/W

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## CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEO(SUS)</sub>	Collector-emitter sustaining voltage	2N5301	I <sub>C</sub> =0.2A ; I <sub>B</sub> =0			V
		2N5302				
		2N5303				
V <sub>CEsat-1</sub>	Collector-emitter saturation voltage	2N5301/5302	I <sub>C</sub> =10A; I <sub>B</sub> =1A			V
		2N5303				
V <sub>CEsat-2</sub>	Collector-emitter saturation voltage	2N5301/5302	I <sub>C</sub> =20A ; I <sub>B</sub> =2A			V
		2N5303	I <sub>C</sub> =15A ; I <sub>B</sub> =1.5A			
V <sub>CEsat-3</sub>	Collector-emitter saturation voltage	2N5301/5302	I <sub>C</sub> =30A ; I <sub>B</sub> =6A			V
		2N5303	I <sub>C</sub> =20A ; I <sub>B</sub> =4A			
V <sub>BEsat-1</sub>	Base-emitter saturation voltage	I <sub>C</sub> =10A; I <sub>B</sub> =1A			1.7	V
V <sub>BEsat-2</sub>	Base-emitter saturation voltage	2N5301/5302	I <sub>C</sub> =15A ; I <sub>B</sub> =1.5A			V
		2N5303				
V <sub>BEsat-3</sub>	Base-emitter saturation voltage	2N5301/5302	I <sub>C</sub> =20A ; I <sub>B</sub> =2A			V
		2N5303	I <sub>C</sub> =20A ; I <sub>B</sub> =4A			
V <sub>BE-1</sub>	Base-emitter on voltage	2N5301/5302	I <sub>C</sub> =15A ; V <sub>CE</sub> =2V			V
		2N5303	I <sub>C</sub> =10A ; V <sub>CE</sub> =2V			
V <sub>BE-2</sub>	Base-emitter on voltage	2N5301/5302	I <sub>C</sub> =30A ; V <sub>CE</sub> =4V			V
		2N5303	I <sub>C</sub> =20A ; V <sub>CE</sub> =4V			
I <sub>CEX</sub>	Collector cut-off current	V <sub>CE</sub> = Rated V <sub>CEO</sub> ; V <sub>BE(off)</sub> =1.5V T <sub>C</sub> =150°C			1.0 10	mA
I <sub>CEO</sub>	Collector cut-off current	V <sub>CE</sub> =Rated V <sub>CEO</sub> ; I <sub>B</sub> =0			5.0	mA
I <sub>CBO</sub>	Collector cut-off current	V <sub>CB</sub> =Rated V <sub>CBO</sub> ; I <sub>E</sub> =0			1.0	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =5V; I <sub>C</sub> =0			5.0	mA
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =1A ; V <sub>CE</sub> =2V	40			
h <sub>FE-2</sub>	DC current gain	2N5303	I <sub>C</sub> =10A ; V <sub>CE</sub> =2V	15	60	
		2N5301/5302	I <sub>C</sub> =15A ; V <sub>CE</sub> =2V			
h <sub>FE-3</sub>	DC current gain	2N5303	I <sub>C</sub> =20A ; V <sub>CE</sub> =4V	5		
		2N5301/5302	I <sub>C</sub> =30A ; V <sub>CE</sub> =4V			
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =1A ; V <sub>CE</sub> =10V; f=1.0MHz	2			MHz

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PACKAGE OUTLINE

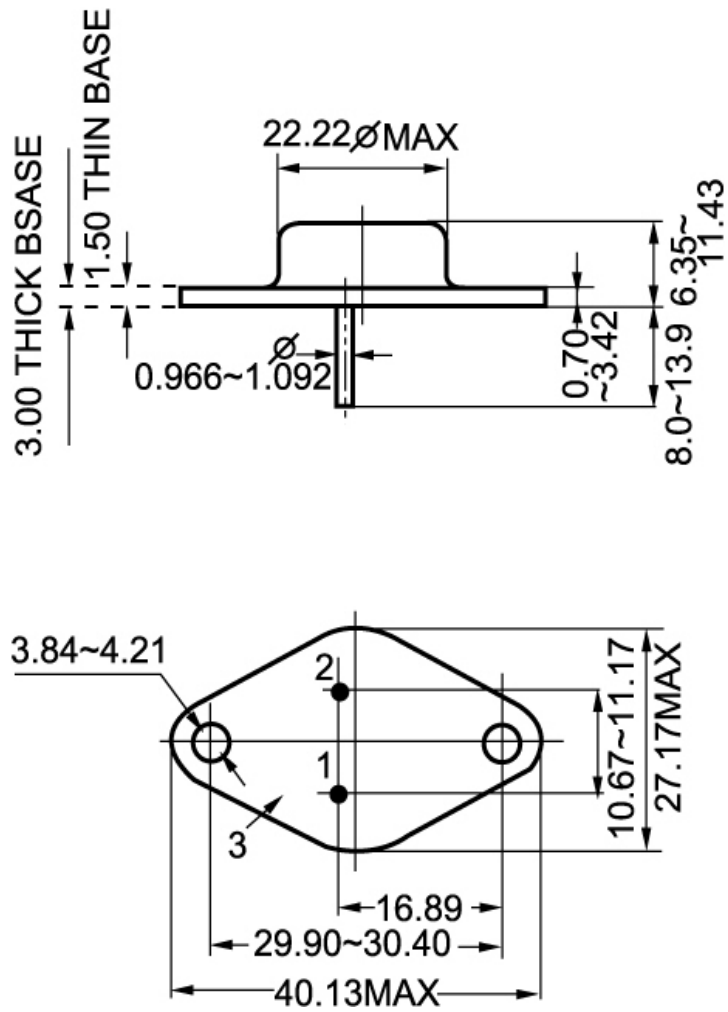


Fig.2 outline dimensions (unindicated tolerance:  $\pm 0.1$ mm)