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

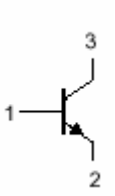

Fig.1 simplified outline (TO-3) and symbol

Absolute maximum ratings(Ta=℃)

SYMBOL	PARAMETER		CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	2N5301	Open emitter	40	V
		2N5302		60	
		2N5303		80	
V_{CEO}	Collector-emitter voltage	2N5301	Open base	40	V
		2N5302		60	
		2N5303		80	
V_{EBO}	Emitter-base voltage		Open collector	5	V
I_C	Collector current	2N5301/5302		30	A
		2N5303		20	
I_B	Base current			7.5	A
P_D	Total power dissipation		T_C=25℃	200	W
T_j	Junction temperature			200	℃
T_{stg}	Storage temperature			-65~200	℃

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j\text{-}c}$	Thermal resistance junction to case	0.875	℃/W

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CHARACTERISTICS

Tj=25℃ unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-emitter sustaining voltage	2N5301	I_C=0.2A ;I_B=0	40			V
		2N5302		60			
		2N5303		80			
$V_{CEsat-1}$	Collector-emitter saturation voltage	2N5301/5302	I_C=10A; I_B=1A			0.75	V
		2N5303				1.0	
$V_{CEsat-2}$	Collector-emitter saturation voltage	2N5301/5302	I_C=20A ;I_B=2A			2.0	V
		2N5303	I_C=15A ;I_B=1.5A			1.5	
$V_{CEsat-3}$	Collector-emitter saturation voltage	2N5301/5302	I_C=30A ;I_B=6A			3.0	V
		2N5303	I_C=20A ;I_B=4A			2.0	
$V_{BEsat-1}$	Base-emitter saturation voltage		I_C=10A; I_B=1A			1.7	V
$V_{BEsat-2}$	Base-emitter saturation voltage	2N5301/5302	I_C=15A ;I_B=1.5A			1.8	V
		2N5303				2.0	
$V_{BEsat-3}$	Base-emitter saturation voltage	2N5301/5302	I_C=20A ;I_B=2A			2.5	V
		2N5303	I_C=20A ;I_B=4A				
V_{BE-1}	Base-emitter on voltage	2N5301/5302	I_C=15A ; V_{CE}=2V			1.7	V
		2N5303	I_C=10A ; V_{CE}=2V			1.5	
V_{BE-2}	Base-emitter on voltage	2N5301/5302	I_C=30A ; V_{CE}=4V			3.0	V
		2N5303	I_C=20A ; V_{CE}=4V			2.5	
I_{CEX}	Collector cut-off current		V_{CE}= Rated V_{CEO}; $V_{BE(off)}$=1.5V T_C=150℃			1.0 10	mA
I_{CEO}	Collector cut-off current		V_{CE}=Rated V_{CEO}; I_B=0			5.0	mA
I_{CBO}	Collector cut-off current		V_{CB}=Rated V_{CBO}; I_E=0			1.0	mA
I_{EBO}	Emitter cut-off current		V_{EB}=5V; I_C=0			5.0	mA
h_{FE-1}	DC current gain		I_C=1A ; V_{CE}=2V	40			
h_{FE-2}	DC current gain	2N5303	I_C=10A ; V_{CE}=2V	15		60	
		2N5301/5302	I_C=15A ; V_{CE}=2V				
h_{FE-3}	DC current gain	2N5303	I_C=20A ; V_{CE}=4V	5			
		2N5301/5302	I_C=30A ; V_{CE}=4V				
f_T	Transition frequency		I_C=1A ; V_{CE}=10V;f=1.0MHz	2			MHz

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PACKAGE OUTLINE

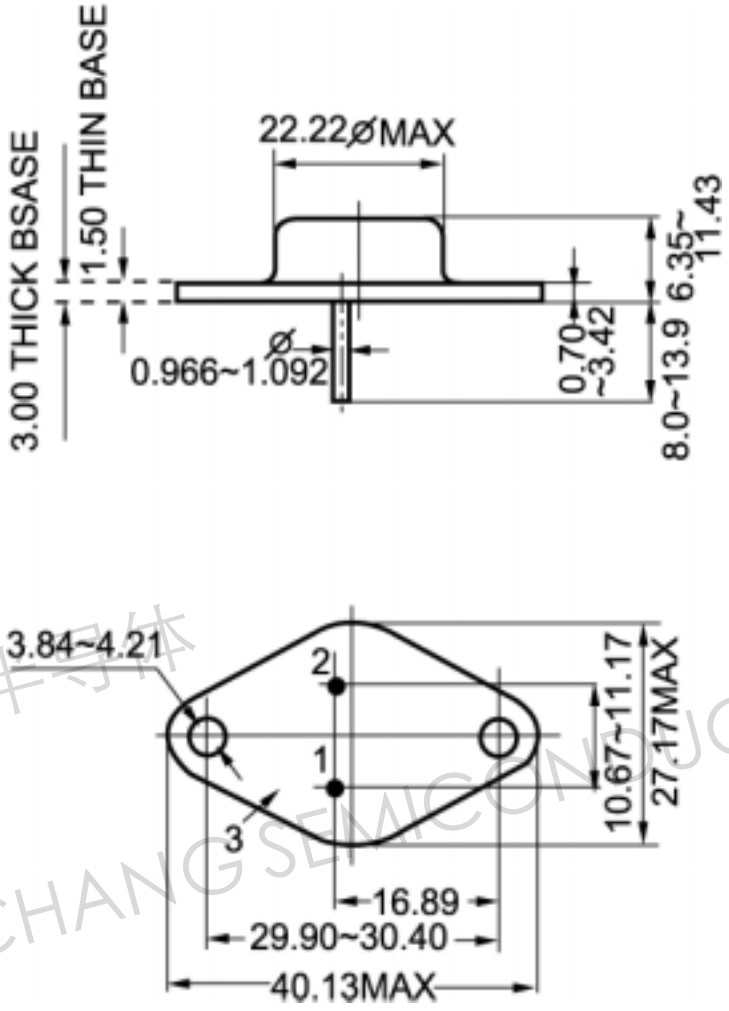

Fig.2 outline dimensions (unindicated tolerance:±0.1mm)