

Silicon NPN Power Transistors

2N5989 2N5990 2N5991

DESCRIPTION

- With TO-3PN package
- Complement to type 2N5986 2N5987 2N5988
- Low collector-emitter saturation voltage

APPLICATIONS

- Designed for use in general purpose power amplifier and switching circuits.

PINNING

PIN	DESCRIPTION
1	Base
2	Collector;connected to mounting base
3	Emitter

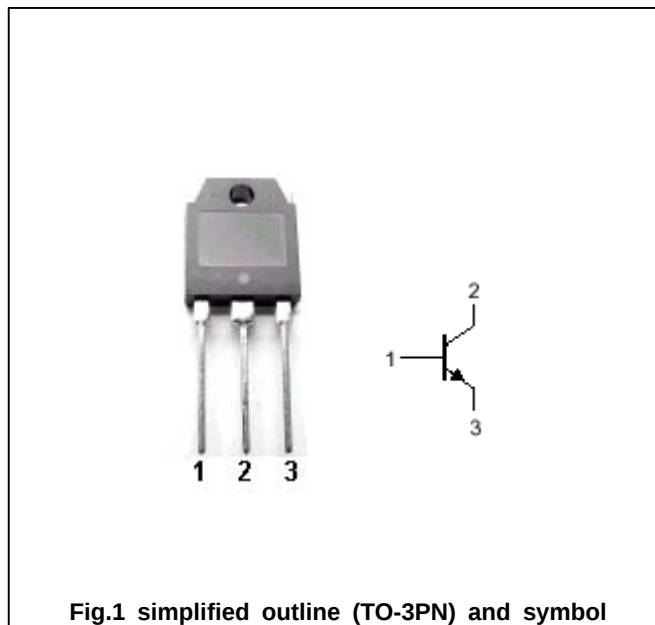


Fig.1 simplified outline (TO-3PN) and symbol

Absolute maximum ratings($T_a =$)

SYMBOL	PARAMETER		CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	2N5989	Open emitter	60	V
		2N5990		80	
		2N5991		100	
V_{CEO}	Collector-emitter voltage	2N5989	Open base	40	V
		2N5990		60	
		2N5991		80	
V_{EBO}	Emitter-base voltage		Open collector	5	V
I_C	Collector current			12	A
I_{CM}	Collector current-peak			20	A
I_B	Base current			4	A
P_C	Collector power dissipation		$T_C = 25$	100	W
T_j	Junction temperature			150	
T_{stg}	Storage temperature			-65~150	

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal resistance junction to case	1.25	/W

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CHARACTERISTICS

T_j=25 unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CEO}	Collector-emitter sustaining voltage	2N5989	I _C =0.2A ; I _B =0	40			V
		2N5990		60			
		2N5991		80			
V _{CEsat-1}	Collector-emitter saturation voltage		I _C =6A ; I _B =0.6A			0.6	V
V _{CEsat-2}	Collector-emitter saturation voltage		I _C =12A ; I _B =1.8A			1.7	V
V _{BEsat}	Base-emitter saturation voltage		I _C =12A ; I _B =1.8A			2.5	V
V _{BE}	Base-emitter on voltage		I _C =6A ; V _{CE} =2V			1.4	V
I _{CEO}	Collector cut-off current	2N5989	V _{CE} =20V ; I _B =0			2.0	mA
		2N5990	V _{CE} =30V ; I _B =0				
		2N5991	V _{CE} =40V ; I _B =0				
I _{CEX}	Collector cut-off current		V _{CE} =RatedV _{CE} ; V _{BE} =-1.5V T _C =125			0.2 2.0	mA
I _{EBO}	Emitter cut-off current		V _{EB} =5V ; I _C =0			1.0	mA
h _{FE-1}	DC current gain		I _C =1.5A ; V _{CE} =2V	40			
h _{FE-2}	DC current gain		I _C =6A ; V _{CE} =2V	20		120	
h _{FE-3}	DC current gain		I _C =12A ; V _{CE} =2V	7.0			
C _{OB}	Output capacitance		I _E =0 ; V _{CB} =10V ; f=1MHz			300	pF
f _T	Transition frequency		I _C =0.5A ; V _{CE} =10V ; f=1MHz	2.0			MHz

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PACKAGE OUTLINE

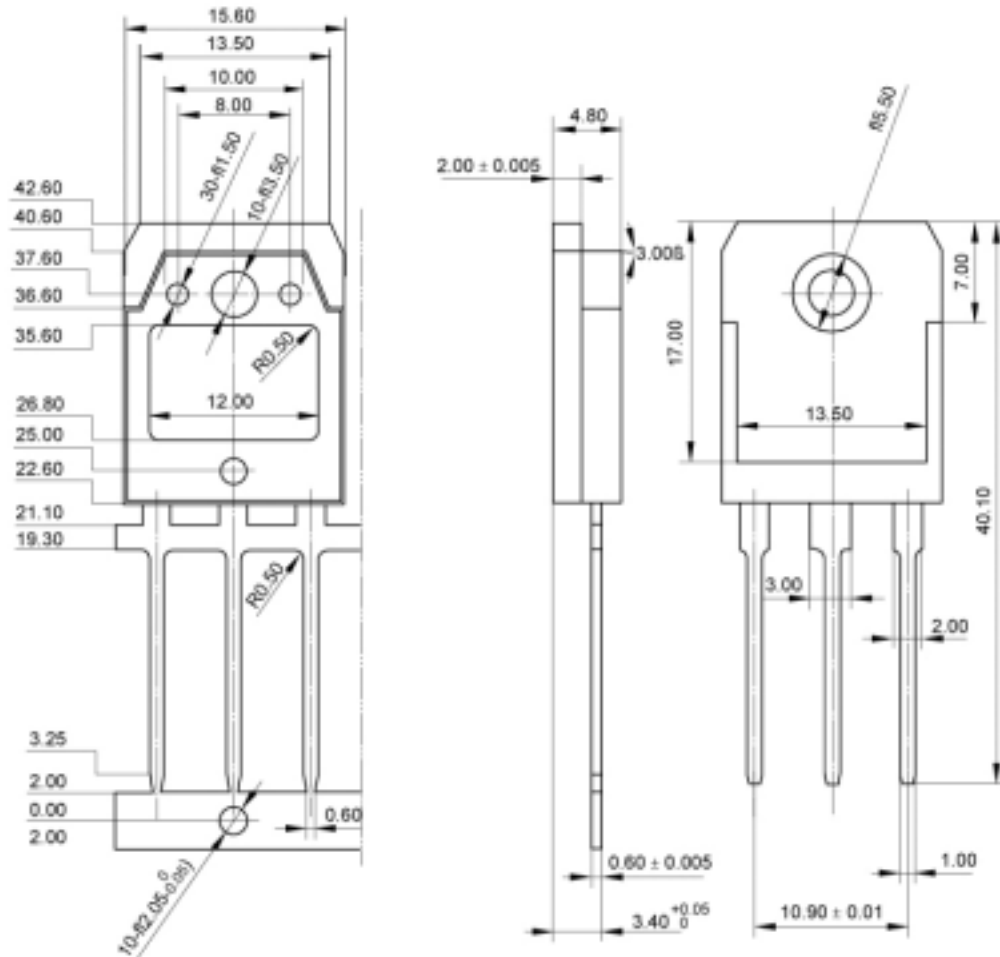


Fig.2 outline dimensions (unindicated tolerance: $\pm 0.1\text{mm}$)