

Silicon NPN Power Transistors

TIP33/33A/33B/33C

DESCRIPTION

- With TO-3PN package
- Complement to type TIP34/34A/34B/34C
- DC current gain $h_{FE}=40(\text{Min})@I_C=1.0\text{A}$

APPLICATIONS

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

PINNING

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

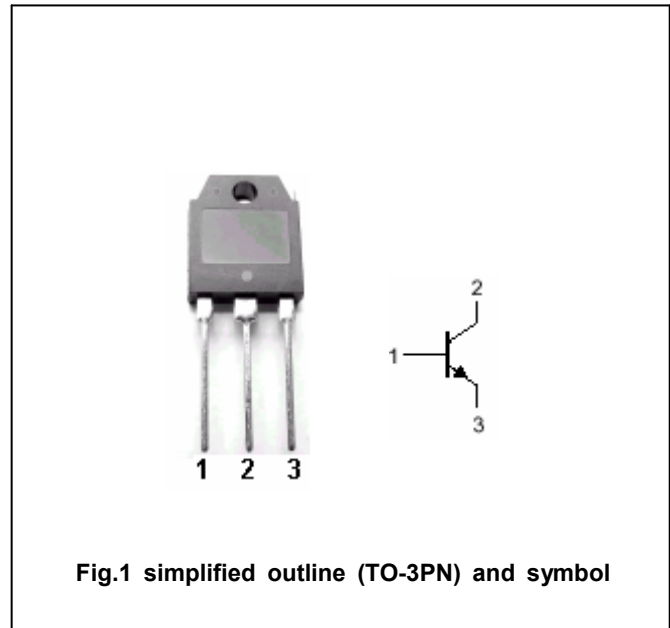


Fig.1 simplified outline (TO-3PN) and symbol

ABSOLUTE MAXIMUM RATINGS($T_C=25^\circ\text{C}$)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	TIP33	40	V
		TIP33A	60	
		TIP33B	80	
		TIP33C	100	
V_{CEO}	Collector-emitter voltage	TIP33	40	V
		TIP33A	60	
		TIP33B	80	
		TIP33C	100	
V_{EBO}	Emitter-base voltage	Open collector	5	V
I_C	Collector current		10	A
I_{CM}	Collector current-peak		15	A
I_B	Base current		3	A
P_C	Collector power dissipation	$T_C=25^\circ\text{C}$	80	W
T_j	Junction temperature		150	$^\circ\text{C}$
T_{stg}	Storage temperature		-65~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal resistance junction to case	1.56	$^\circ\text{C}/\text{W}$

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CHARACTERISTICS

T_j=25°C unless otherwise specified

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SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT	
V _{CEO(SUS)}	Collector-emitter sustaining voltage	TIP33	I _C =30mA ; I _B =0			V	
		TIP33A					
		TIP33B					
		TIP33C					
V _{CE(sat)-1}	Collector-emitter saturation voltage	I _C =3A ; I _B =0.3A			1.0	V	
V _{CE(sat)-2}	Collector-emitter saturation voltage	I _C =10A ; I _B =2.5A			4.0	V	
V _{BE-1}	Base-emitter on voltage	I _C =3A ; V _{CE} =4V			1.6	V	
V _{BE-2}	Base-emitter on voltage	I _C =10A ; V _{CE} =4V			3.0	V	
I _{CEO}	Collector cut-off current	TIP33/33A			0.7	mA	
		TIP33B/33C					V _{CE} =60V ; I _B =0
I _{CES}	Collector cut-off current	TIP33			0.4	mA	
		TIP33A					V _{CE} =60V ; V _{EB} =0
		TIP33B					V _{CE} =80V ; V _{EB} =0
		TIP33C					V _{CE} =100V ; V _{EB} =0
I _{EBO}	Emitter cut-off current	V _{EB} =5V ; I _C =0			1.0	mA	
h _{FE-1}	DC current gain	I _C =1A ; V _{CE} =4V	40				
h _{FE-2}	DC current gain	I _C =3A ; V _{CE} =4V	20		100		
f _T	Transition frequency	I _C =0.5A ; V _{CE} =10V ; f=1MHz	3.0			MHz	

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PACKAGE OUTLINE

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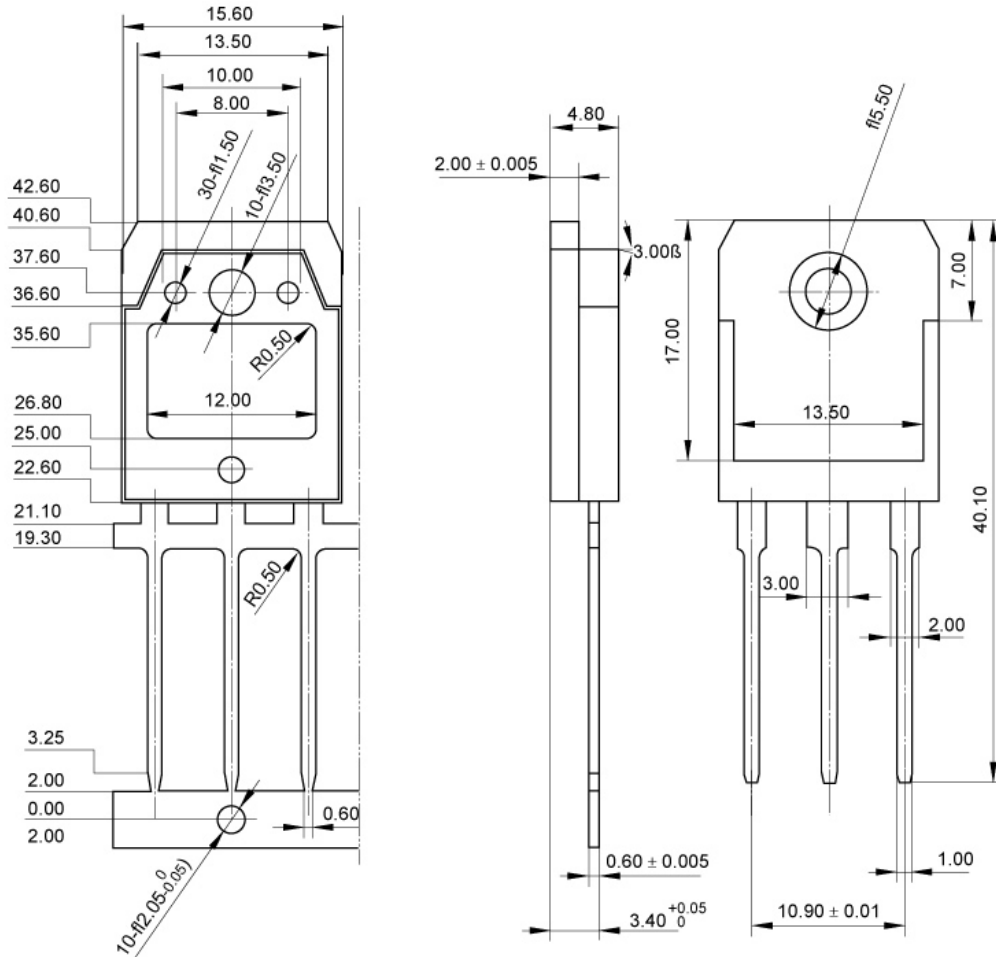


Fig.2 outline dimensions (unindicated tolerance: ± 0.1 mm)