

Silicon PNP Darlington Power Transistors

TIP145/146/147

DESCRIPTION

- With TO-3PN package
- DARLINGTON
- High DC current gain
- Complement to type TIP140/141/142

APPLICATIONS

- Designed for general-purpose amplifier and low frequency switching applications.

PINNING

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

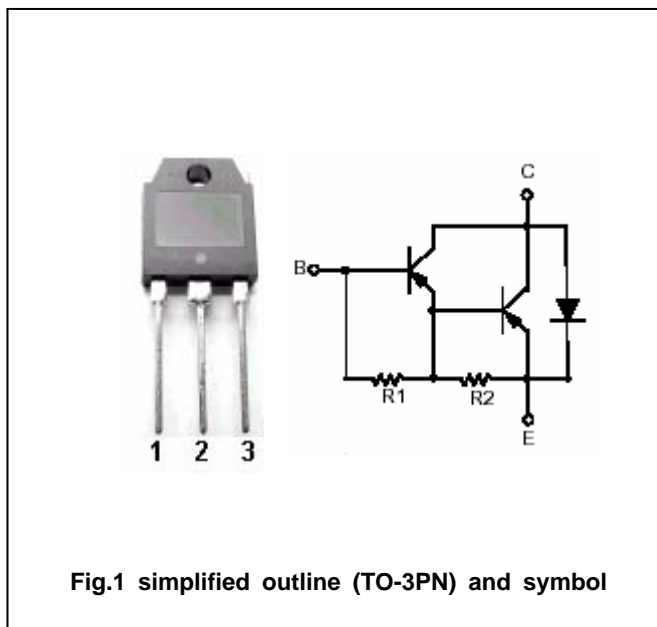


Fig.1 simplified outline (TO-3PN) and symbol

Absolute maximum ratings(Tc=25 )

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	TIP145	-60	V
		TIP146	-80	
		TIP147	-100	
V <sub>CEO</sub>	Collector-emitter voltage	TIP145	-60	V
		TIP146	-80	
		TIP147	-100	
V <sub>EBO</sub>	Emitter-base voltage	Open collector	-5	V
I <sub>C</sub>	Collector current-DC		-10	A
I <sub>CM</sub>	Collector current-peak		-15	A
I <sub>B</sub>	Base current-DC		-0.5	A
P <sub>C</sub>	Collector power dissipation	T <sub>C</sub> =25	125	W
T <sub>j</sub>	Junction temperature		150	
T <sub>stg</sub>	Storage temperature		-65~150	

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-c</sub>	Thermal resistance junction to case	1.0	/W
R <sub>th j-A</sub>	Thermal resistance case to ambient	35.7	/W

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**CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT	
V <sub>CE0(SUS)</sub>	Collector-emitter sustaining voltage	TIP145	-60			V	
		TIP146	-80				
		TIP147	-100				
V <sub>CEsat-1</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =-5A, I <sub>B</sub> =-10mA			-2.0	V	
V <sub>CEsat-2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =-10A, I <sub>B</sub> =-40mA			-3.0	V	
V <sub>BEsat</sub>	Base-emitter saturation voltage	I <sub>C</sub> =-10A, I <sub>B</sub> =-40mA			-3.5	V	
V <sub>BE</sub>	Base-emitter on voltage	I <sub>C</sub> =-10A; V <sub>CE</sub> =-4V			-3.0	V	
I <sub>CBO</sub>	Collector cut-off current	TIP145	V <sub>CB</sub> =-60V, I <sub>E</sub> =0			-1	mA
		TIP146	V <sub>CB</sub> =-80V, I <sub>E</sub> =0				
		TIP147	V <sub>CB</sub> =-100V, I <sub>E</sub> =0				
I <sub>CEO</sub>	Collector cut-off current	TIP145	V <sub>CE</sub> =-30V, I <sub>B</sub> =0			-2	mA
		TIP146	V <sub>CE</sub> =-40V, I <sub>B</sub> =0				
		TIP147	V <sub>CE</sub> =-50V, I <sub>B</sub> =0				
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =-5V; I <sub>C</sub> =0			-2	mA	
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =-5A; V <sub>CE</sub> =-4V	1000				
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =-10A; V <sub>CE</sub> =-4V	500				

Switching times

t <sub>d</sub>	Delay time	V <sub>CC</sub> = -30 V, I <sub>C</sub> = -5.0 A, I <sub>B</sub> = -20 mA Duty Cycle 20% I <sub>B1</sub> = I <sub>B2</sub> , R <sub>C</sub> & R <sub>B</sub> Varied, T <sub>J</sub> = 25		0.15		μs
t <sub>r</sub>	Rise time			0.55		μs
t <sub>stg</sub>	Storage time			2.5		μs
t <sub>f</sub>	Fall time			2.5		μs

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PACKAGE OUTLINE

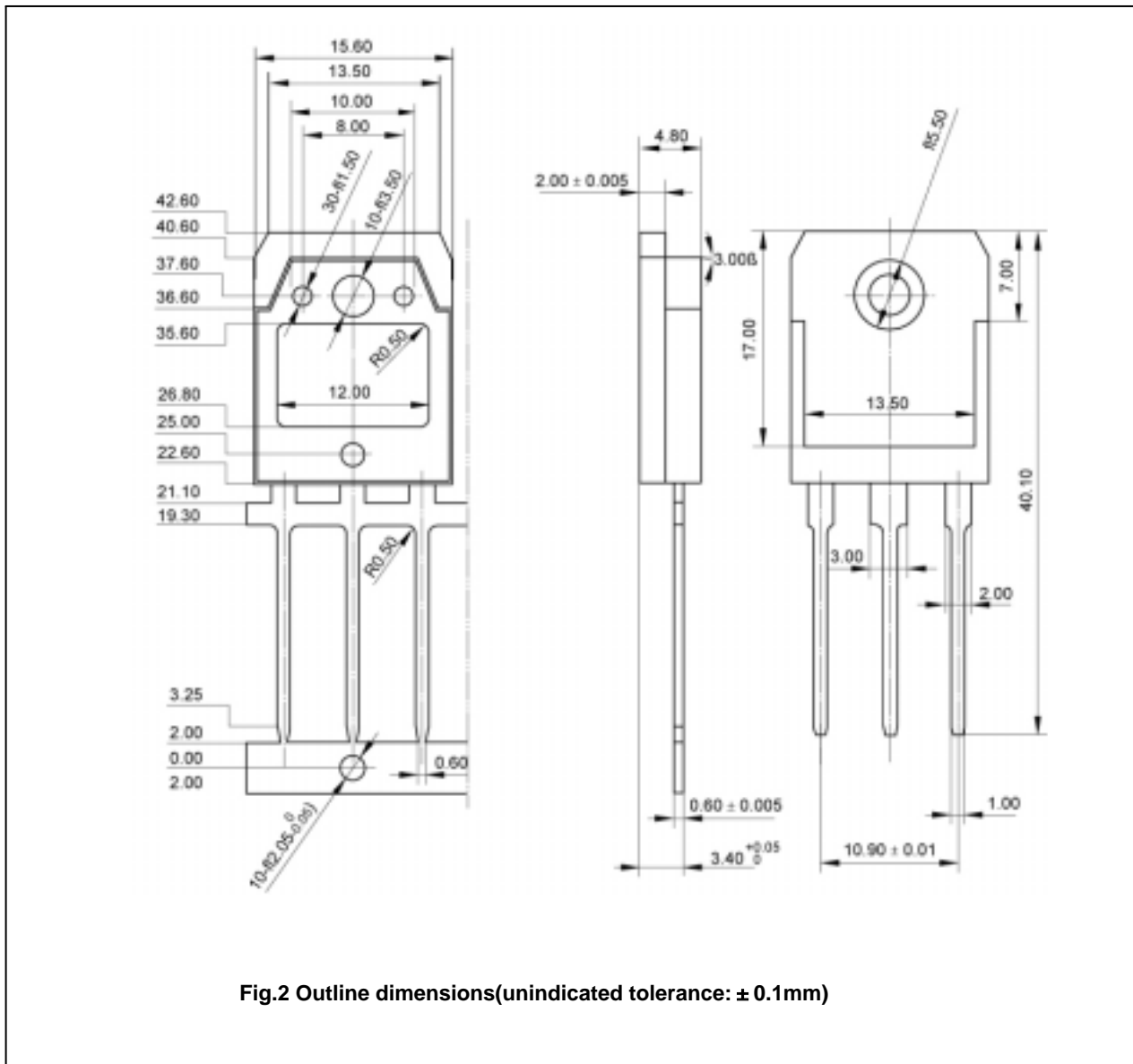


Fig.2 Outline dimensions(unindicated tolerance: ± 0.1mm)

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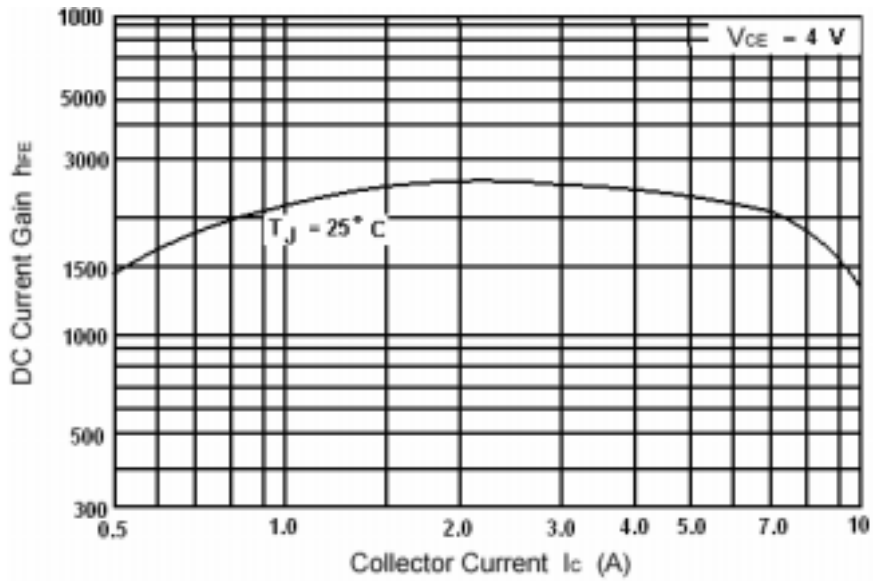


Fig.3 DC current Gain

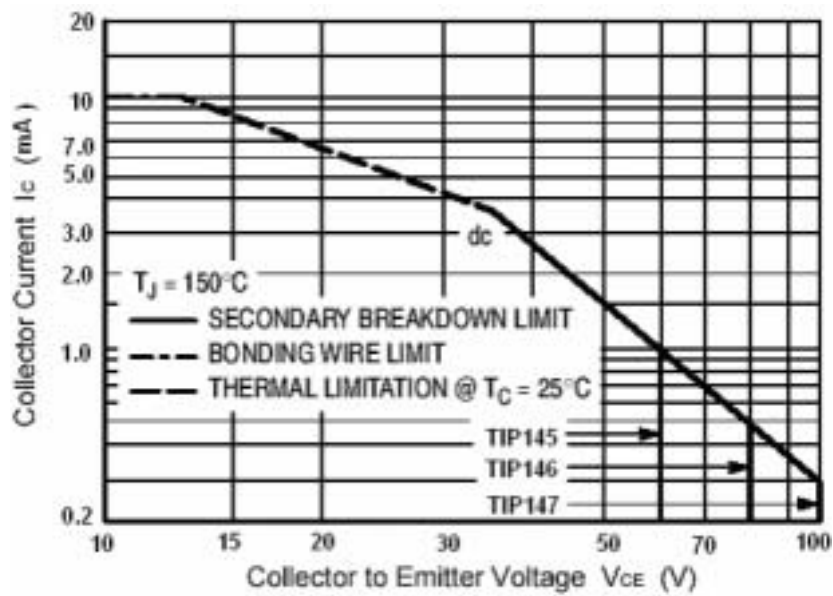


Fig.4 Safe Operating Area