

**Silicon PNP Darlington Power Transistors**

**TIP115/116/117**

**DESCRIPTION**

- With TO-220C package
- DARLINGTON
- High DC current gain
- Low collector saturation voltage
- Complement to type TIP110/111/112

**APPLICATIONS**

- For industrial use

**PINNING**

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

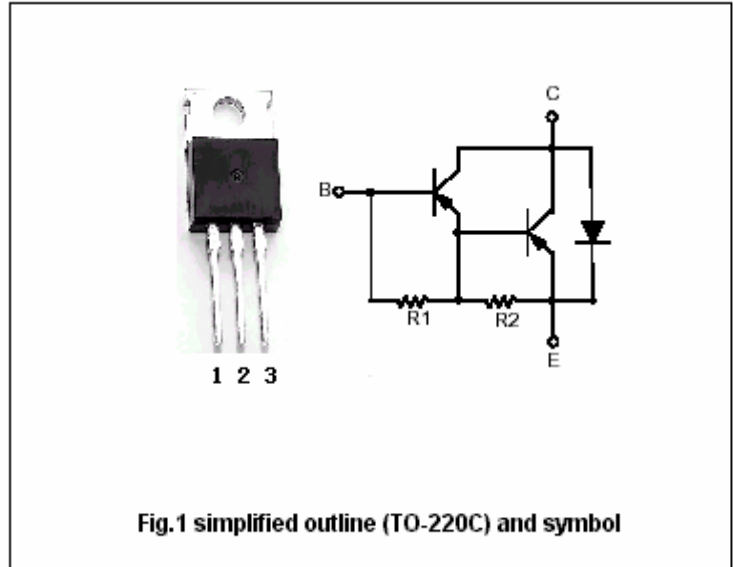


Fig.1 simplified outline (TO-220C) and symbol

**ABSOLUTE MAXIMUM RATINGS (T<sub>C</sub>=25°C)**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	TIP115	-60	V
		TIP116	-80	
		TIP117	-100	
V <sub>CEO</sub>	Collector-emitter voltage	TIP115	-60	V
		TIP116	-80	
		TIP117	-100	
V <sub>EBO</sub>	Emitter-base voltage	Open collector	-5	V
I <sub>C</sub>	Collector current-DC		-2	A
I <sub>CM</sub>	Collector current-Pulse		-4	A
I <sub>B</sub>	Base current-DC		50	mA
P <sub>C</sub>	Collector power dissipation	T <sub>C</sub> =25°C	50	W
		T <sub>a</sub> =25°C	2	
T <sub>j</sub>	Junction temperature		150	°C
T <sub>stg</sub>	Storage temperature		-65~150	°C

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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	TIP115	I <sub>C</sub> =-30mA, I <sub>B</sub> =0	-60			V
		TIP116		-80			
		TIP117		-100			
V <sub>CE(sat)</sub>	Collector-emitter saturation voltage		I <sub>C</sub> =-2A, I <sub>B</sub> =-8mA			-2.5	V
V <sub>BE</sub>	Base-emitter on voltage		I <sub>C</sub> =-2A; V <sub>CE</sub> =-4V			-2.8	V
I <sub>CBO</sub>	Collector cut-off current	TIP115	V <sub>CB</sub> =-60V, I <sub>E</sub> =0			-1	mA
		TIP116	V <sub>CB</sub> =-80V, I <sub>E</sub> =0				
		TIP117	V <sub>CB</sub> =-100V, I <sub>E</sub> =0				
I <sub>CEO</sub>	Collector cut-off current	TIP115	V <sub>CE</sub> =-30V, I <sub>B</sub> =0			-2	mA
		TIP116	V <sub>CE</sub> =-40V, I <sub>B</sub> =0				
		TIP117	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> =-1A; V <sub>CE</sub> =-4V	1000			
h <sub>FE-2</sub>	DC current gain		I <sub>C</sub> =-2A; V <sub>CE</sub> =-4V	500			
C <sub>ob</sub>	Output capacitance		I <sub>E</sub> =0; V <sub>CB</sub> =-10V, f=0.1MHz			200	pF

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PACKAGE OUTLINE

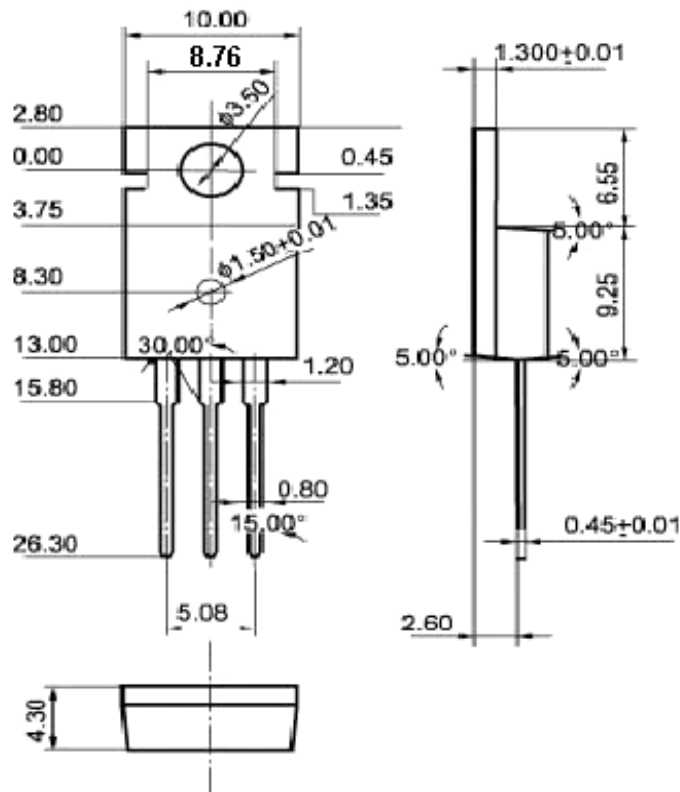


Fig.2 Outline dimensions

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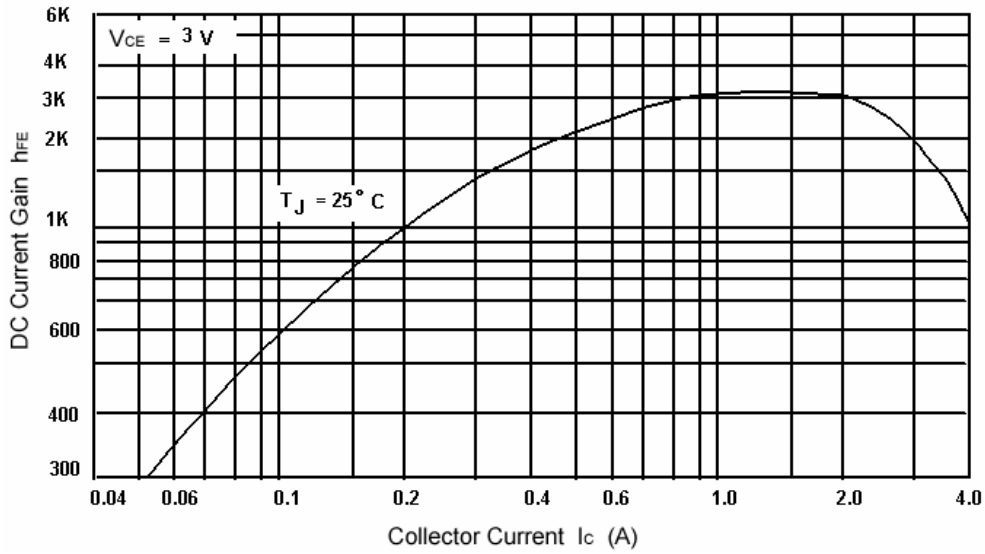


Fig.3 DC current Gain

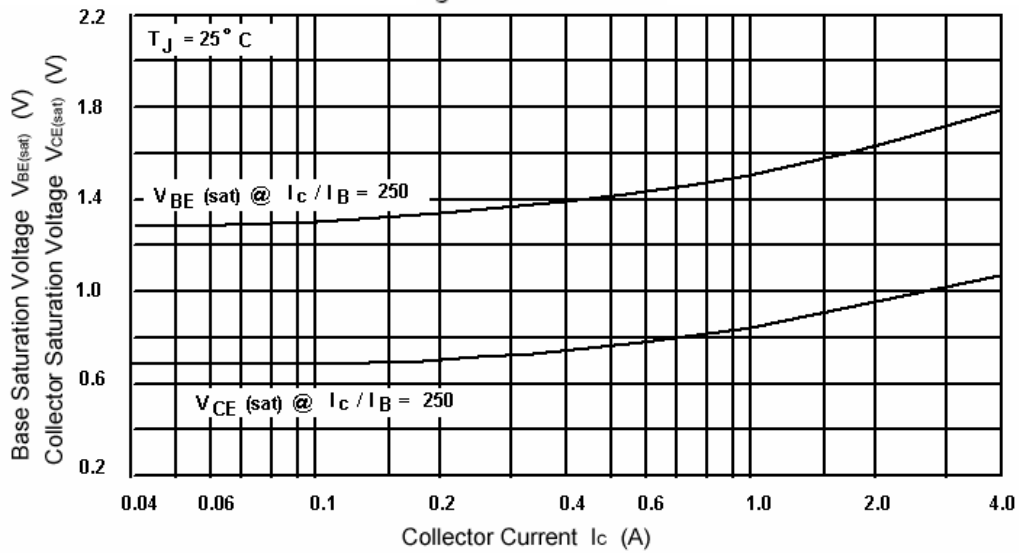


Fig.4 Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

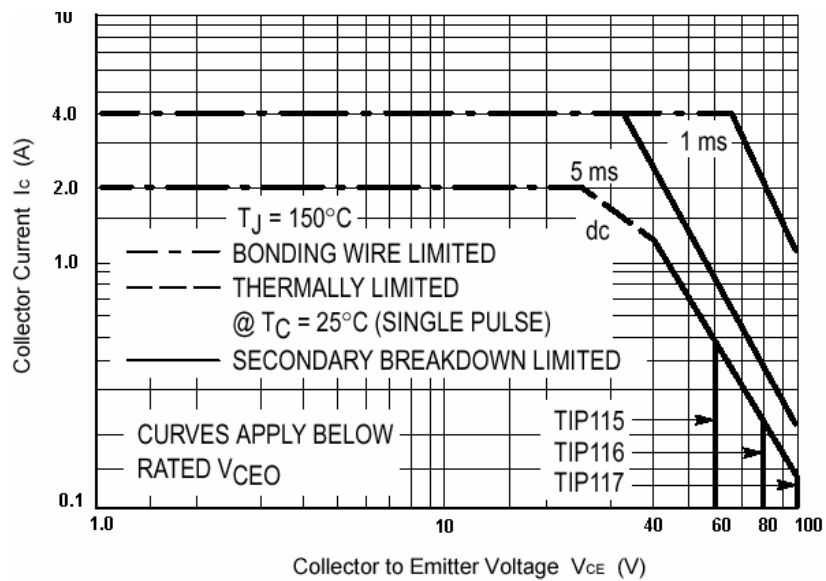


Fig.5 Safe Operating Area