

**Silicon PNP Darlington Power Transistors**

**TIP135/136/137**

**DESCRIPTION**

- With TO-220C package
- DARLINGTON
- Collector saturation voltage
- Complement to type TIP130/131/132

**APPLICATIONS**

- Designed for general-purpose amplifier and low speed switching applications

**PINNING**

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

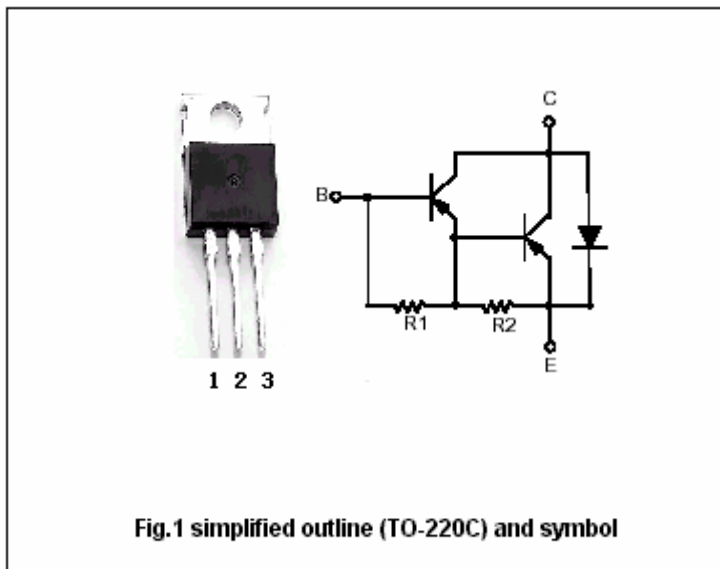


Fig.1 simplified outline (TO-220C) and symbol

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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	TIP135	-60	V
		TIP136	-80	
		TIP137	-100	
V <sub>CEO</sub>	Collector-emitter voltage	TIP135	-60	V
		TIP136	-80	
		TIP137	-100	
V <sub>EBO</sub>	Emitter-base voltage	Open collector	-5	V
I <sub>C</sub>	Collector current-DC		-8	A
I <sub>CM</sub>	Collector current-peak		-12	A
I <sub>B</sub>	Base current-DC		-0.3	A
P <sub>C</sub>	Collector power dissipation	T <sub>C</sub> =25□	70	W
T <sub>j</sub>	Junction temperature		150	□
T <sub>stg</sub>	Storage temperature		-65~150	□

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	VALUE	UNIT
R <sub>th j-c</sub>	Thermal resistance junction to case	1.785	□/W

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## TIP135/136/137

## CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT	
V <sub>CE(SUS)</sub>	Collector-emitter sustaining voltage	TIP135	-60			V	
		TIP136	-80				
		TIP137	-100				
V <sub>CE(sat)-1</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =-4A, I <sub>B</sub> =-16mA			-2.0	V	
V <sub>CE(sat)-2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =-6A, I <sub>B</sub> =-30mA			-3.0	V	
V <sub>BE</sub>	Base-emitter on voltage	I <sub>C</sub> =-4A; V <sub>CE</sub> =-4V			-2.5	V	
I <sub>CBO</sub>	Collector cut-off current	TIP135	V <sub>CB</sub> =-60V, I <sub>E</sub> =0			-0.2	mA
		TIP136	V <sub>CB</sub> =-80V, I <sub>E</sub> =0				
		TIP137	V <sub>CB</sub> =-100V, I <sub>E</sub> =0				
I <sub>CEO</sub>	Collector cut-off current	TIP135	V <sub>CE</sub> =-30V, I <sub>B</sub> =0			-0.5	mA
		TIP136	V <sub>CE</sub> =-40V, I <sub>B</sub> =0				
		TIP137	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			-5.0	mA	
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =-1A; V <sub>CE</sub> =-4V	500				
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =-4A; V <sub>CE</sub> =-4V	1000		15000		
C <sub>OB</sub>	Output capacitance	I <sub>E</sub> =0; V <sub>CB</sub> =-10V, f=0.1MHz			250	pF	

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PACKAGE OUTLINE

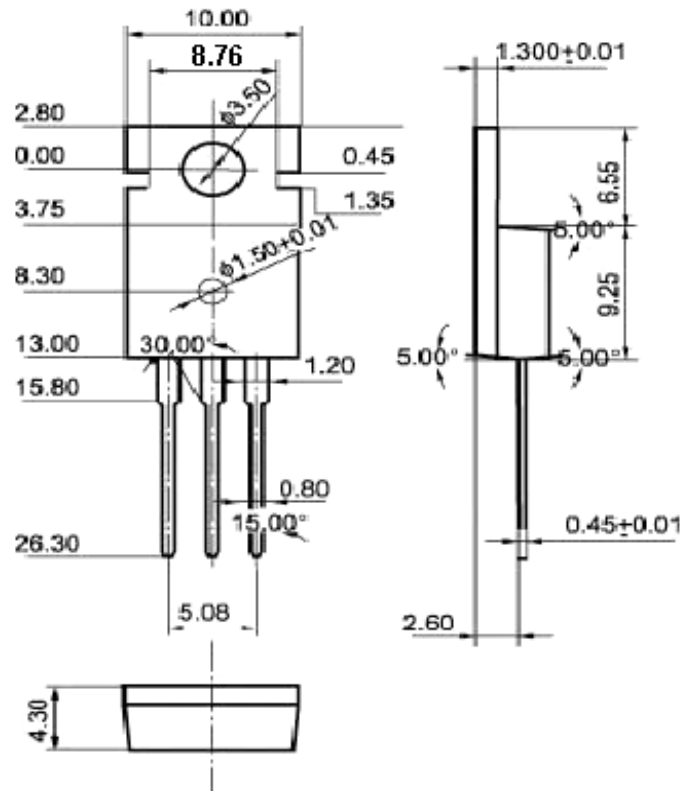


Fig.2 Outline dimensions(unindicated tolerance:±0.1mm)