

Silicon PNP Power Transistors

BD646/648/650/652

DESCRIPTION

- With TO-220C package
- Complement to type BD645/647/649/651
- DARLINGTON

APPLICATIONS

- For use in output stages in audio equipment ,general amplifier,and analogue switching applications

PINNING

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

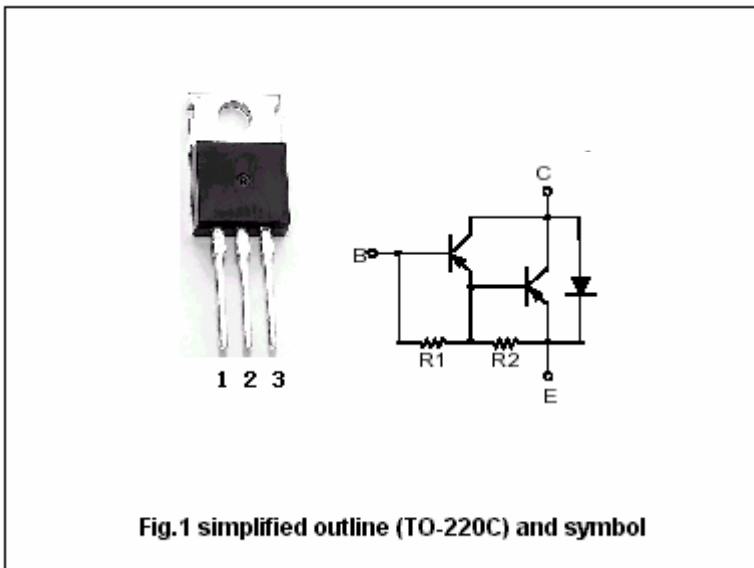


Fig.1 simplified outline (TO-220C) and symbol

Absolute maximum ratings(Ta=25 )

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT	
V <sub>CBO</sub>	Collector-base voltage	Open emitter	BD646	-80	V
			BD648	-100	
			BD650	-120	
			BD652	-140	
V <sub>CEO</sub>	Collector-emitter voltage	Open base	BD646	-60	V
			BD648	-80	
			BD650	-100	
			BD652	-120	
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-Pulse		-12	A	
I <sub>B</sub>	Base current		-150	mA	
P <sub>C</sub>	Collector power dissipation	T <sub>C</sub> =25	62.5	W	
T <sub>j</sub>	Junction temperature		150		
T <sub>stg</sub>	Storage temperature		-65~150		

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## CHARACTERISTICS

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

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage	BD646	I <sub>C</sub> =-30mA, I <sub>B</sub> =0	-60			V
		BD648		-80			
		BD650		-100			
		BD652		-120			
V <sub>CEsat-1</sub>	Collector-emitter saturation voltage		I <sub>C</sub> =-3A, I <sub>B</sub> =-12mA			-2.0	V
V <sub>CEsat-2</sub>	Collector-emitter saturation voltage		I <sub>C</sub> =-5A, I <sub>B</sub> =-50mA			-2.5	V
V <sub>BEsat</sub>	Base-emitter saturation voltage		I <sub>C</sub> =-5A, I <sub>B</sub> =-50mA			-3.0	V
V <sub>BE</sub>	Base-emitter on voltage		I <sub>C</sub> =-3A; V <sub>CE</sub> =-3V			-2.5	V
I <sub>CBO</sub>	Collector cut-off current	BD646	V <sub>CB</sub> =-60V, I <sub>E</sub> =0 V <sub>CB</sub> =-40V, I <sub>E</sub> =0; T <sub>C</sub> =150	-0.2		-2.0	mA
		BD648		V <sub>CB</sub> =-80V, I <sub>E</sub> =0 V <sub>CB</sub> =-50V, I <sub>E</sub> =0; T <sub>C</sub> =150	-0.2	-2.0	
		BD650		V <sub>CB</sub> =-100V, I <sub>E</sub> =0 V <sub>CB</sub> =-60V, I <sub>E</sub> =0; T <sub>C</sub> =150	-0.2	-2.0	
		BD652		V <sub>CB</sub> =-120V, I <sub>E</sub> =0 V <sub>CB</sub> =-70V, I <sub>E</sub> =0; T <sub>C</sub> =150	-0.2	-2.0	
I <sub>CEO</sub>	Collector cut-off current	BD646	V <sub>CE</sub> =-30V, I <sub>B</sub> =0			-0.5	mA
		BD648		V <sub>CE</sub> =-40V, I <sub>B</sub> =0			
		BD650		V <sub>CE</sub> =-50V, I <sub>B</sub> =0			
		BD652		V <sub>CE</sub> =-60V, I <sub>B</sub> =0			
I <sub>EBO</sub>	Emitter cut-off current		V <sub>EB</sub> =-5V; I <sub>C</sub> =0			-5	mA
h <sub>FE</sub>	DC current gain		I <sub>C</sub> =-3A; V <sub>CE</sub> =-3V	750			

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-c</sub>	Thermal resistance junction to case	2.0	/W

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PACKAGE OUTLINE

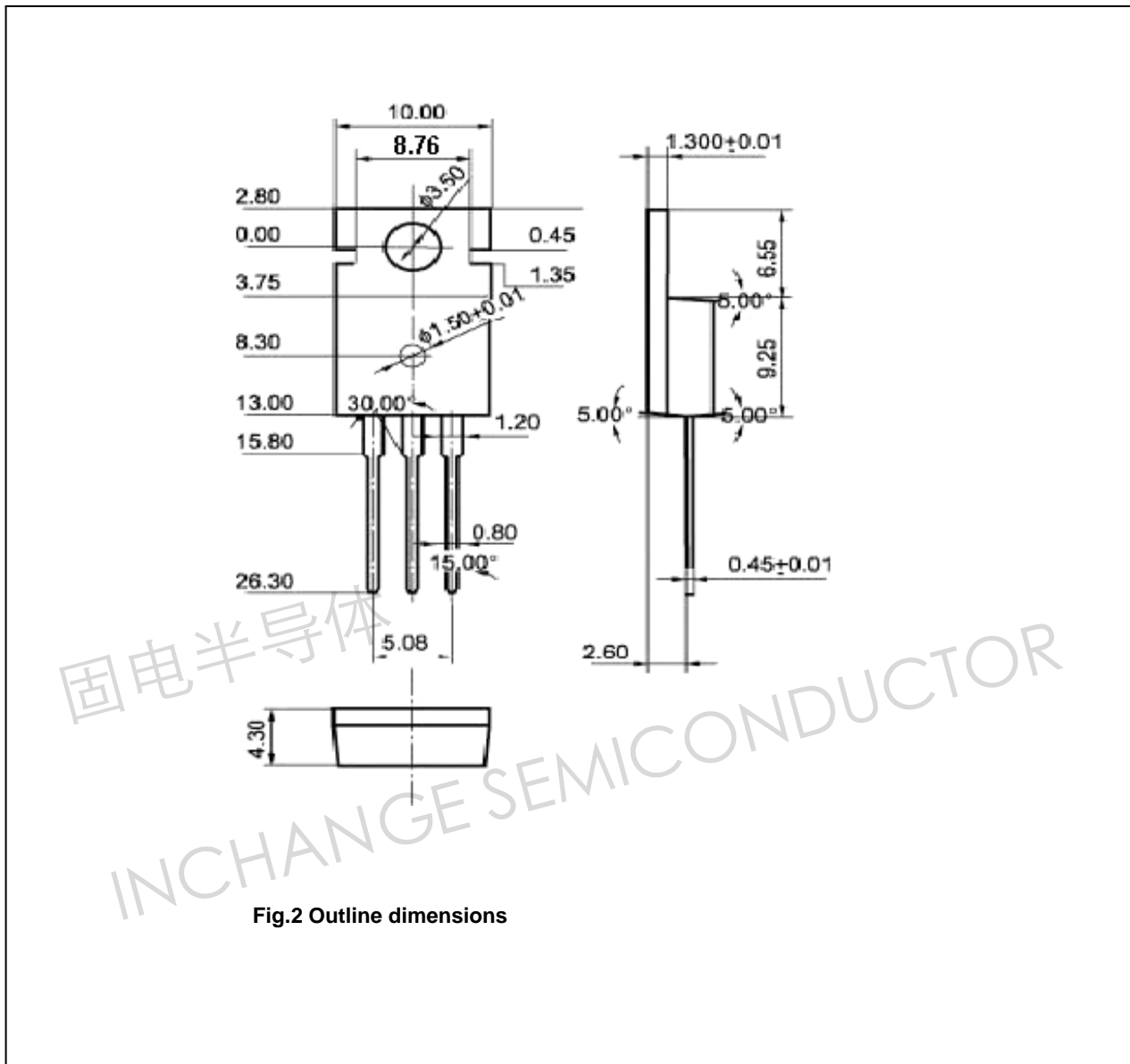


Fig.2 Outline dimensions