

Silicon NPN Power Transistors

BD645/647/649/651

DESCRIPTION

- With TO-220C package
- Complement to type BD646/648/650/652
- 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

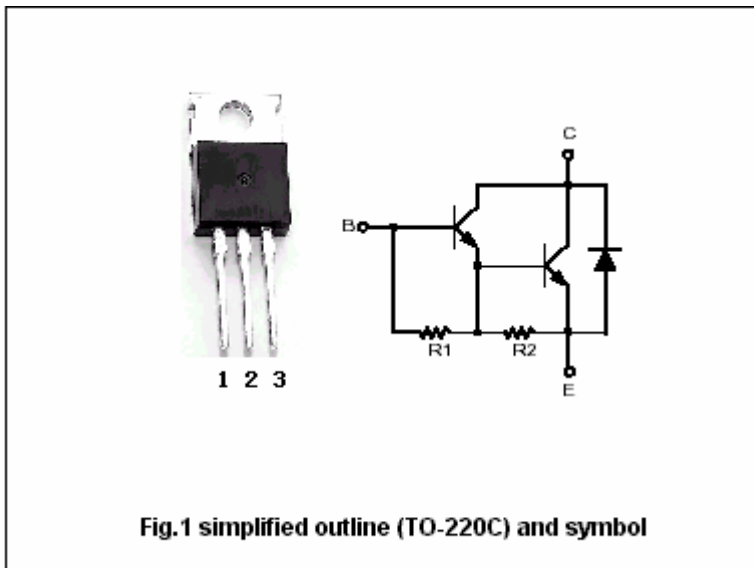


Fig.1 simplified outline (TO-220C) and symbol

Absolute maximum ratings(Ta=25°C)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT	
V _{CBO}	Collector-base voltage	Open emitter	BD645	80	V
			BD647	100	
			BD649	120	
			BD651	140	
V _{CEO}	Collector-emitter voltage	Open base	BD645	60	V
			BD647	80	
			BD649	100	
			BD651	120	
V _{EBO}	Emitter-base voltage	Open collector	5	V	
I _C	Collector current-DC		8	A	
I _{CM}	Collector current-Pulse		12	A	
I _B	Base current		0.3	mA	
P _C	Collector power dissipation	T _C =25°C	62.5	W	
T _j	Junction temperature		150	°C	
T _{stg}	Storage temperature		-65~150	°C	

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CHARACTERISTICS

T_j=25 °C unless otherwise specified

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SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT	
V _{(BR)CEO}	Collector-emitter breakdown voltage	BD645	60			V	
		BD647	80				
		BD649	100				
		BD651	120				
V _{CEsat-1}	Collector-emitter saturation voltage	I _C =3A, I _B =12mA			2.0	V	
V _{CEsat-2}	Collector-emitter saturation voltage	I _C =5A, I _B =50mA			2.5	V	
V _{BEsat}	Base-emitter saturation voltage	I _C =5A, I _B =50mA			3.0	V	
V _{BE}	Base-emitter on voltage	I _C =3A; V _{CE} =3V			2.5	V	
I _{CBO}	Collector cut-off current	BD645	V _{CB} =60V, I _E =0 V _{CB} =40V, I _E =0; T _C =150 °C			0.2 2.0	mA
		BD647	V _{CB} =80V, I _E =0 V _{CB} =50V, I _E =0; T _C =150 °C			0.2 2.0	
		BD649	V _{CB} =100V, I _E =0 V _{CB} =60V, I _E =0; T _C =150 °C			0.2 2.0	
		BD651	V _{CB} =120V, I _E =0 V _{CB} =70V, I _E =0; T _C =150 °C			0.2 2.0	
I _{CEO}	Collector cut-off current	BD645	V _{CE} =30V, I _B =0			0.5	mA
		BD647	V _{CE} =40V, I _B =0				
		BD649	V _{CE} =50V, I _B =0				
		BD651	V _{CE} =60V, I _B =0				
I _{EBO}	Emitter cut-off current	V _{EB} =5V; I _C =0			5	mA	
h _{FE}	DC current gain	I _C =3A; V _{CE} =3V	750				

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R _{th j-c}	Thermal resistance junction to case	2.0	°C/W

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PACKAGE OUTLINE

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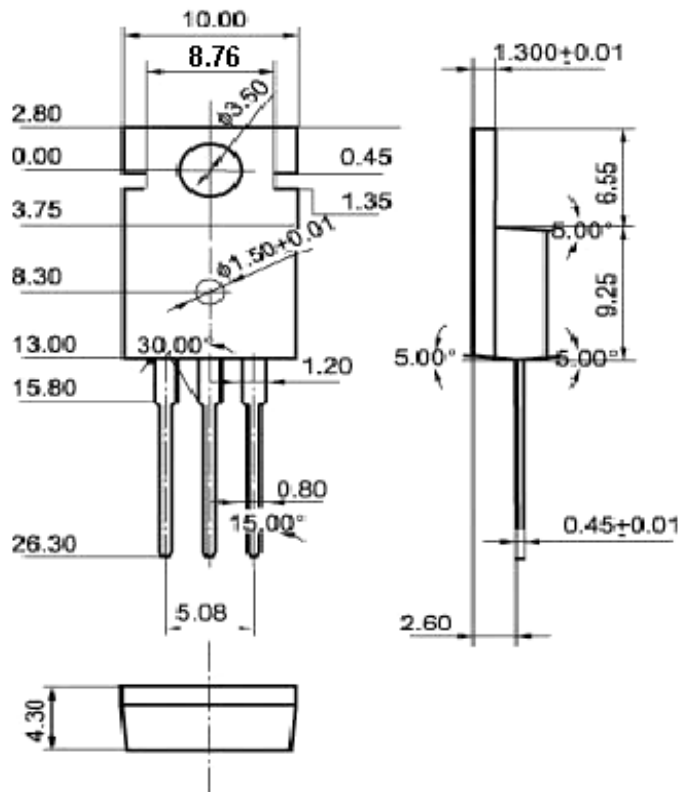


Fig.2 Outline dimensions

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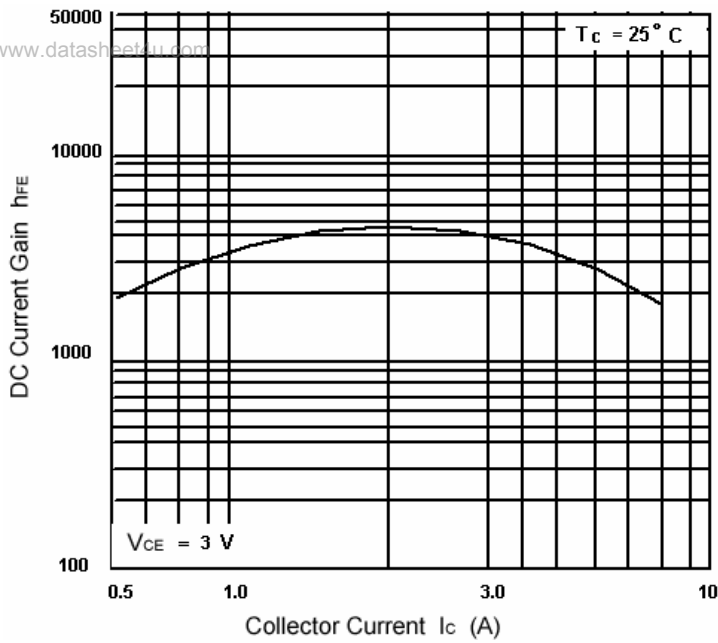


Fig.3 DC current Gain

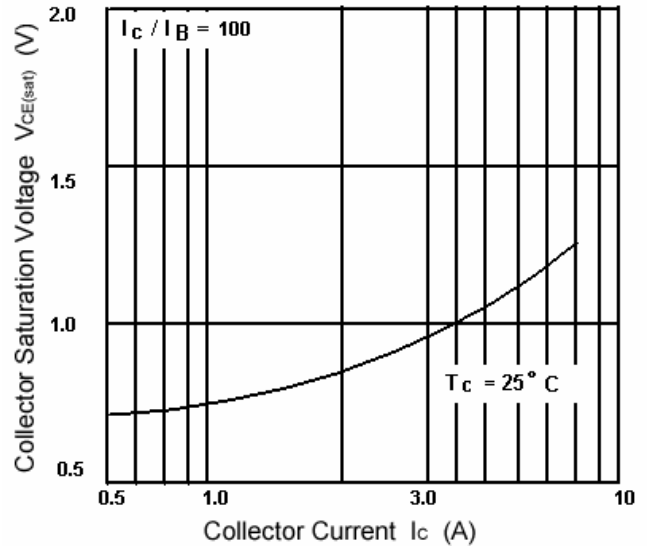


Fig.4 Collector-Emitter Saturation Voltage

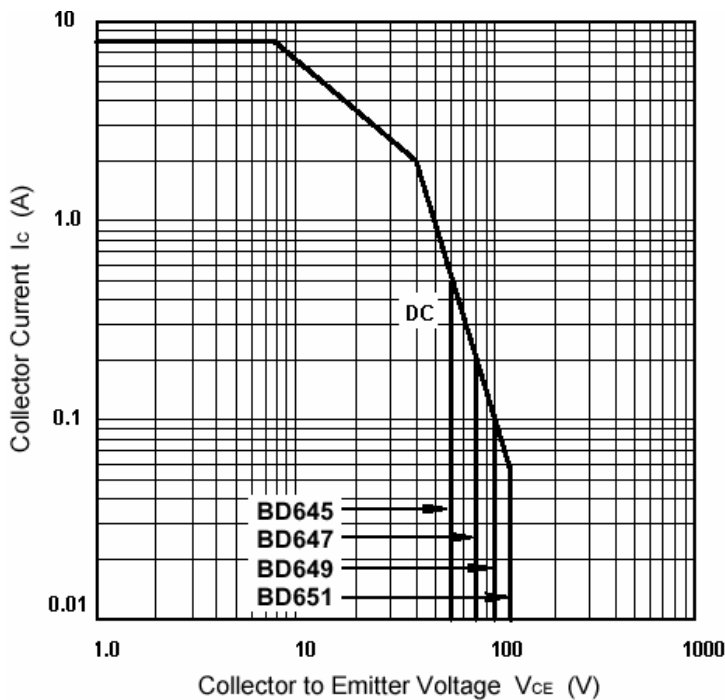


Fig.5 Safe Operating Area

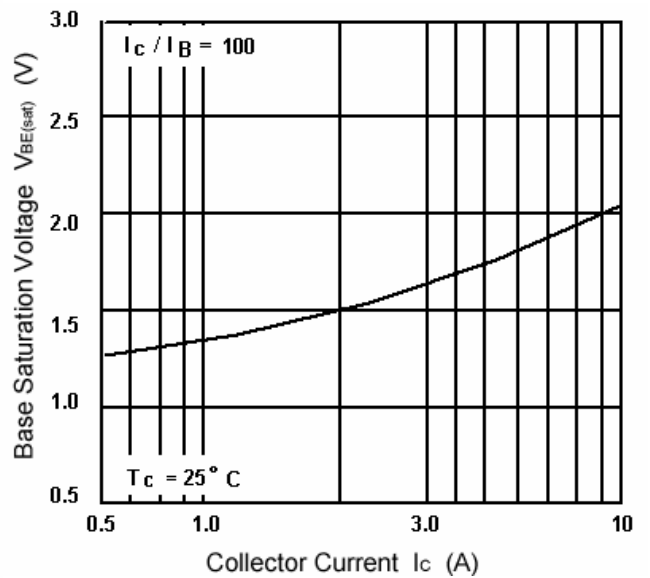


Fig.6 Base-Emitter Saturation Voltage