

Silicon NPN Power Transistors

BDW83/83A/83B/83C/83D

DESCRIPTION

- With TO-3PN package
- Complement to type BDW84/84A/84B/84C/84D
- DARLINGTON
- High DC current gain

APPLICATIONS

- For use in power linear and switching applications.

PINNING

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

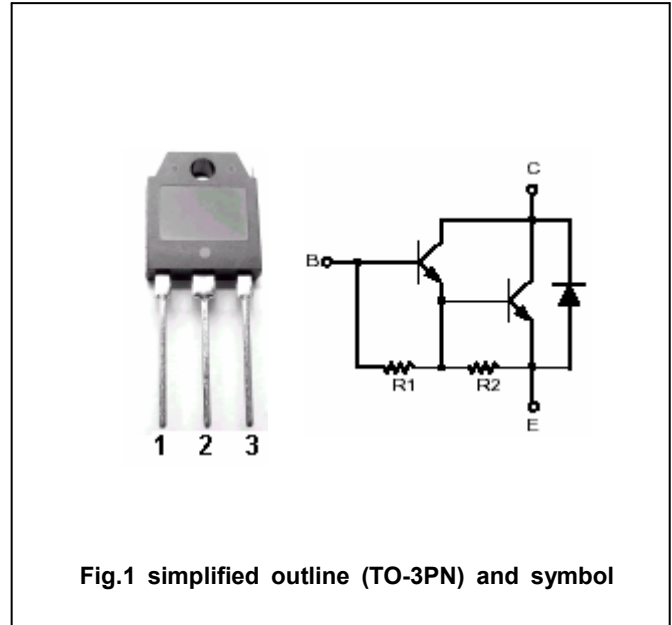


Fig.1 simplified outline (TO-3PN) and symbol

Absolute maximum ratings($T_c=25^\circ\text{C}$)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	BDW83	45	V
		BDW83A	60	
		BDW83B	80	
		BDW83C	100	
		BDW83D	120	
V_{CEO}	Collector-emitter voltage	BDW83	45	V
		BDW83A	60	
		BDW83B	80	
		BDW83C	100	
		BDW83D	120	
V_{EBO}	Emitter-base voltage	Open collector	5	V
I_C	Collector current		15	A
I_B	Base current		0.5	A
P_C	Collector power dissipation	$T_c=25^\circ\text{C}$	150	W
		$T_a=25^\circ\text{C}$	3.5	
T_j	Junction temperature		150	$^\circ\text{C}$
T_{stg}	Storage temperature		-65~150	$^\circ\text{C}$

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CHARACTERISTICS

T_j=25 °C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{(BR)CEO}	Collector-emitter breakdown voltage	BDW83	I _C =30mA, I _B =0			45
		BDW83A				60
		BDW83B				80
		BDW83C				100
		BDW83D				120
V _{CEsat-1}	Collector-emitter saturation voltage	I _C =6A, I _B =12mA			2.5	V
V _{CEsat-2}	Collector-emitter saturation voltage	I _C =15A, I _B =150mA			4.0	V
V _{BE}	Base-emitter on voltage	I _C =6A; V _{CE} =3V			2.5	V
I _{CBO}	Collector cut-off current	BDW83	V _{CB} =45V, I _E =0 T _C =150 °C			0.5
		BDW83A				0.5
		BDW83B				0.5
		BDW83C				0.5
		BDW83D				0.5
I _{CEO}	Collector cut-off current	BDW83	V _{CE} =30V, I _B =0			1
		BDW83A				1
		BDW83B				1
		BDW83C				1
		BDW83D				1
I _{EBO}	Emitter cut-off current	V _{EB} =5V; I _C =0			2	mA
h _{FE-1}	DC current gain	I _C =6A; V _{CE} =3V	750		20000	
h _{FE-2}	DC current gain	I _C =15A; V _{CE} =3V	100			
V _{EC}	Diode forward voltage	I _E =15A			3.5	V
t _{on}	Turn-on time	I _C = 10 A, I _{B1} = -I _{B2} =40 mA R _L =3Ω; V _{BE(off)} = -4.2V Duty Cycle ≤ 2%		0.9		μs
t _{off}	Turn-off time			7.0		μs

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R _{th j-c}	Thermal resistance junction to case	0.83	°C/W

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PACKAGE OUTLINE

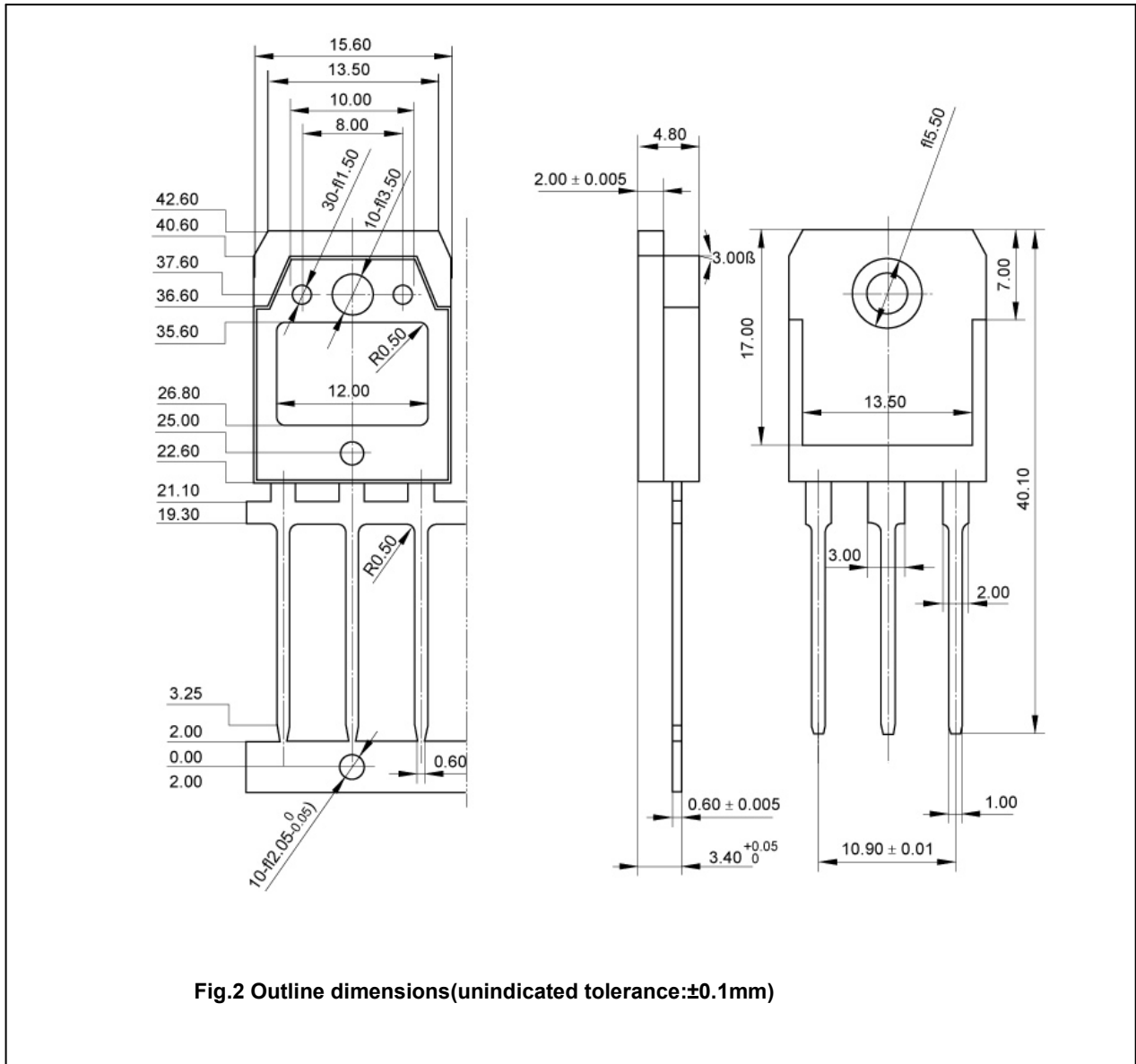


Fig.2 Outline dimensions(unindicated tolerance:±0.1mm)