

## 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

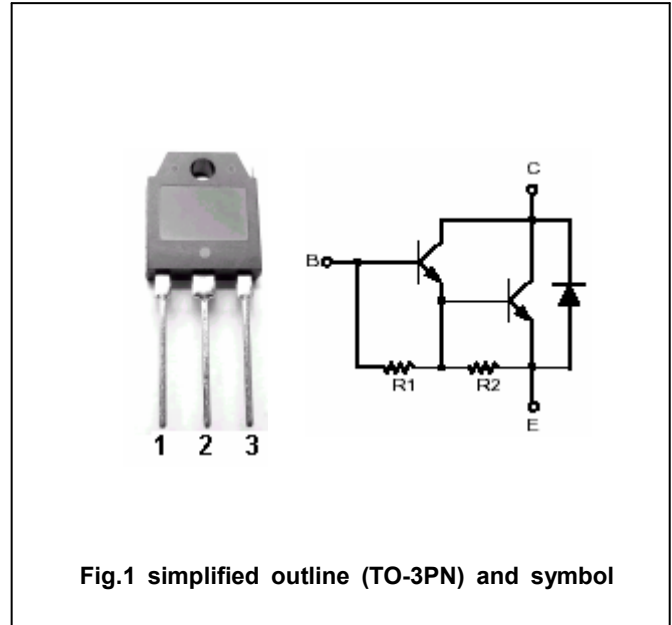


Fig.1 simplified outline (TO-3PN) and symbol

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>(BR)CEO</sub>	Collector-emitter breakdown voltage	BDW83	I <sub>C</sub> =30mA, I <sub>B</sub> =0			V
		BDW83A				
		BDW83B				
		BDW83C				
		BDW83D				
V <sub>CEsat-1</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =6A, I <sub>B</sub> =12mA			2.5	V
V <sub>CEsat-2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =15A, I <sub>B</sub> =150mA			4.0	V
V <sub>BE</sub>	Base-emitter on voltage	I <sub>C</sub> =6A; V <sub>CE</sub> =3V			2.5	V
I <sub>CBO</sub>	Collector cut-off current	BDW83	V <sub>CB</sub> =45V, I <sub>E</sub> =0 T <sub>C</sub> =150 °C			mA
		BDW83A				
		BDW83B				
		BDW83C				
		BDW83D				
I <sub>CEO</sub>	Collector cut-off current	BDW83	V <sub>CE</sub> =30V, I <sub>B</sub> =0			1
		BDW83A				
		BDW83B				
		BDW83C				
		BDW83D				
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> =6A; V <sub>CE</sub> =3V	750		20000	
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =15A; V <sub>CE</sub> =3V	100			
V <sub>EC</sub>	Diode forward voltage	I <sub>E</sub> =15A			3.5	V
t <sub>on</sub>	Turn-on time	I <sub>C</sub> = 10 A, I <sub>B1</sub> = -I <sub>B2</sub> =40 mA R <sub>L</sub> =3Ω; V <sub>BE(off)</sub> = -4.2V Duty Cycle ≤ 2%		0.9		μs
t <sub>off</sub>	Turn-off time			7.0		μs

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-c</sub>	Thermal resistance junction to case	0.83	°C/W

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PACKAGE OUTLINE

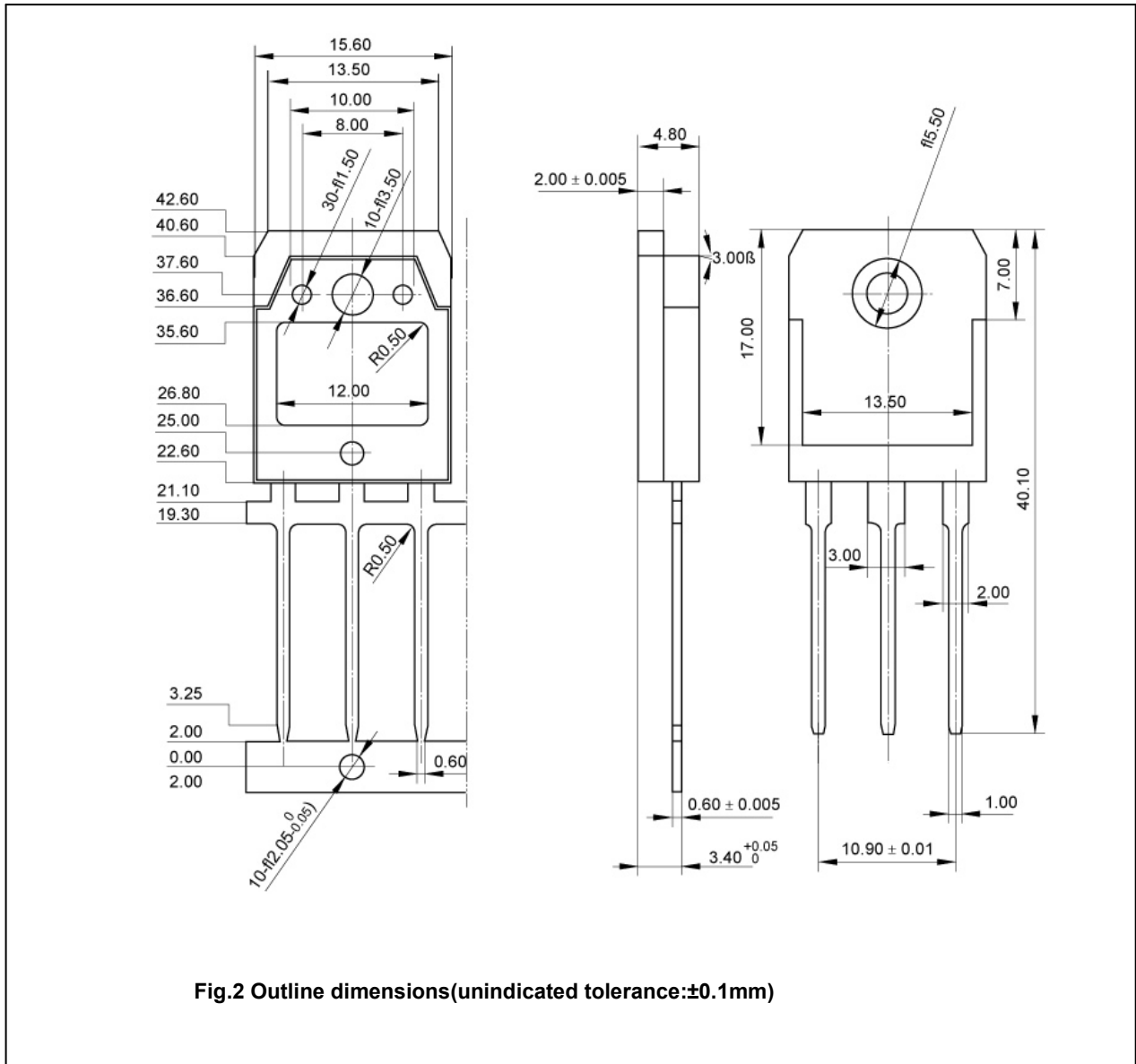


Fig.2 Outline dimensions(unindicated tolerance:±0.1mm)