

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

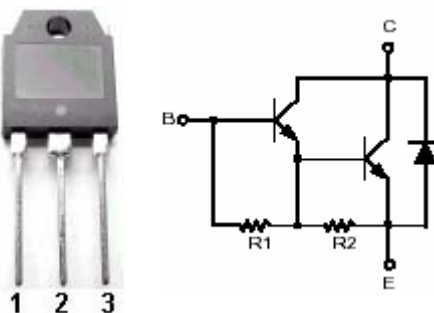


Fig.1 simplified outline (TO-3PN) and symbol

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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	Open emitter	45	V
			60	
			80	
			100	
			120	
V_{CEO}	Collector-emitter voltage	Open base	45	V
			60	
			80	
			100	
			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			V
		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	$V_{CB}=45V, I_E=0$ $T_C=150^{\circ}C$			0.5 5.0	mA
		BDW83A	$V_{CB}=60V, I_E=0$ $T_C=150^{\circ}C$			0.5 5.0	
		BDW83B	$V_{CB}=80V, I_E=0$ $T_C=150^{\circ}C$			0.5 5.0	
		BDW83C	$V_{CB}=100V, I_E=0$ $T_C=150^{\circ}C$			0.5 5.0	
		BDW83D	$V_{CB}=120V, I_E=0$ $T_C=150^{\circ}C$			0.5 5.0	
I_{CEO}	Collector cut-off current	BDW83	$V_{CE}=30V, I_B=0$			1	mA
		BDW83A	$V_{CE}=30V, I_B=0$				
		BDW83B	$V_{CE}=40V, I_B=0$				
		BDW83C	$V_{CE}=50V, I_B=0$				
		BDW83D	$V_{CE}=60V, I_B=0$				
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		$I_C = 10 A, I_{B1} = -I_{B2}=40 mA$ $R_L=3\Omega ; V_{BE(off)} = -4.2V$ Duty Cycle $\leq 2\%$		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

