



**NPN BDW83, BDW83A, BDW83B,  
BDW83C, BDW83D,**

**NPN SILICON DARLINGTONS POWER TRANSISTORS**

They are silicon epitaxial-base NPN power monolithic Darlington transistor mounted in Jedec TO-218 plastic package.

They are intended for use in power linear and switching applications.

The complementary are BDW84, BDW84A, BDW84B, BDW84C, BDW84D

Compliance to RoHS.

**ABSOLUTE MAXIMUM RATINGS**

Symbol	Ratings		Value	Unit	
$V_{CEO}$	Collector-Emitter Voltage	$I_B = 0$	BDW83	45	V
			BDW83A	60	
			BDW83B	80	
			BDW83C	100	
			BDW83D	120	
$V_{CBO}$	Collector- Emitter Voltage	$I_E = 0$	BDW83	45	V
			BDW83A	60	
			BDW83B	80	
			BDW83C	100	
			BDW83D	120	
$V_{EBO}$	Emitter-Base Voltage	$I_C = 0$	5	V	
$I_C$	Collector Current		15	A	
$I_B$	Base Current		0.5	A	
$P_t$	Total Power Dissipation	25°C case temperatur	150	W	
		25°C free aire temperatur	3.5		
$T_J$	Junction Temperature		-65 to +150	°C	
$T_{Stg}$	Storage Temperature		-65 to +150	°C	

**THERMAL CHARACTERISTICS**

Symbol	Ratings	Value	Unit
$R_{thJC}$	Junction to Case Thermal Resistance	0.83	°C/W
$R_{thJA}$	Junction to Free Air Thermal Resistance	35.7	

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### ELECTRICAL CHARACTERISTICS

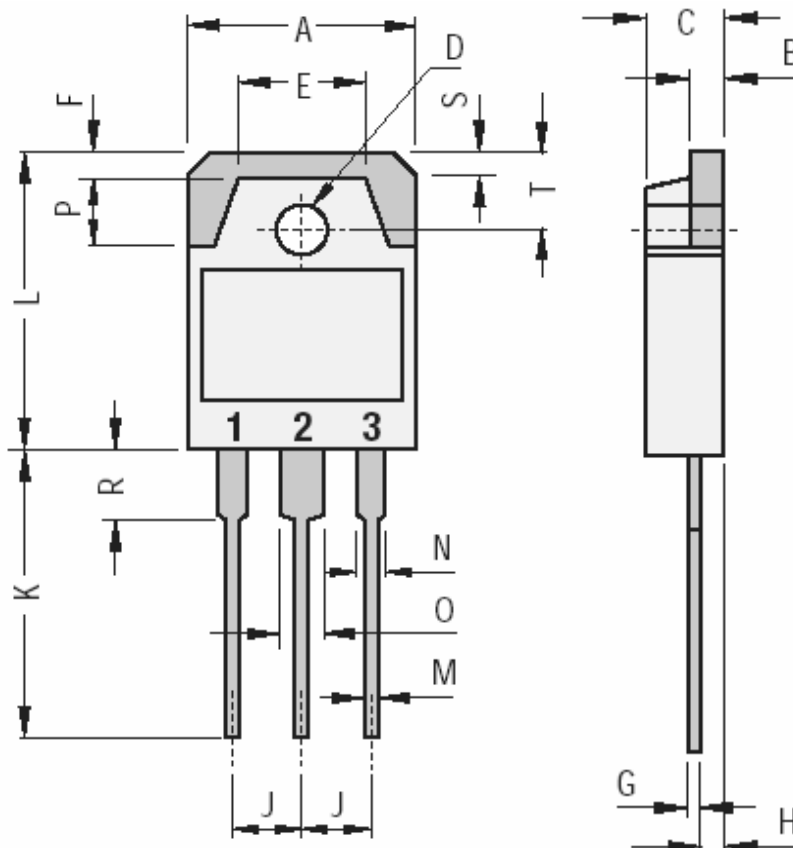
TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit			
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage (*)	$I_C=30\text{ mA}$ $I_B=0$	BDW83	45	-	-	V		
			BDW83A	60	-	-			
			BDW83B	80	-	-			
			BDW83C	100	-	-			
			BDW83D	120	-	-			
$I_{CEO}$	Collector Cutoff Current	$I_B=0, V_{CE}=30\text{ V}$	BDW83	-	-	1	mA		
			BDW83A						
			BDW83B						
			BDW83C						
			BDW83D						
$I_{CBO}$	Collector Cutoff Current	$I_E=0, V_{CB}=45\text{ V}$	BDW83	-	-	0.5	mA		
			BDW83A						
			BDW83B						
			BDW83C						
			BDW83D						
		$I_E=0, V_{CB}=60\text{ V}$	BDW83	-	-	5			
			BDW83A						
			BDW83B						
			BDW83C						
			BDW83D						
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5.0\text{ V}, I_C=0$	-	-	2	mA			
			$h_{FE}$	DC Current Gain (*)	$I_C=6\text{ A}, V_{CE}=3.0\text{ V}$	750	-	20 K	-
			$I_C=15\text{ A}, V_{CE}=3.0\text{ V}$		100	-	-		
			$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (1)	$I_C=6\text{ A}, I_B=12\text{ mA}$	-	-	2.5	V
					$I_C=15\text{ A}, I_B=150\text{ mA}$	-	-	4	
$V_{BE(on)}$	Base-Emitter Voltage (*)	$I_C=6\text{ A}, I_B=3\text{ A}$	-	-	2.5				
$V_{EC}$	Parallel Diode Forward Voltage	$I_E=15\text{ A}, I_E=0$	-	-	3.5	V			
$t_{on}$	Turn-on time	$I_C=10\text{ A}, I_{B1}=-I_{B2}=40\text{ mA}$	-	0.9	-	$\mu\text{s}$			
$t_{off}$	Turn-off time	$R_L=3\Omega; V_{BE(off)}=-4.2\text{ V}$ Duty Cycle $\leq 2\%$	-	7	-				

(\*) Pulse Duration = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2\%$

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### MECHANICAL DATA CASE TO3PN Non Isolated Plastic Package



DIMENSIONS (mm)		
	Min.	Max.
A	15.20	1600
B	1.90	2.10
C	4.60	5.00
D	3.10	3.30
E		9.60
F		2.00
G	0.35	0.55
H		1.40
J	5.35	5.55
K	20.00	
L	19.60	20.20
M	0.95	1.25
N		2.00
O		3.00
P		4.00
R		4.00
S		1.80
T	4.80	5.20

Pin 1 :	Base
Pin 2 :	Collector
Pin 3 :	Emitter

The centre pin is in electrical contact with the mounting tab.

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