

SPTECH Silicon NPN Darlington Power Transistor BDW83/A/B/C**DESCRIPTION**

- Collector Current $-I_C = 15A$
- High DC Current Gain $-h_{FE} = 750(\text{Min}) @ I_C = 6A$
- Complement to Type BDW84/A/B/C

APPLICATIONS

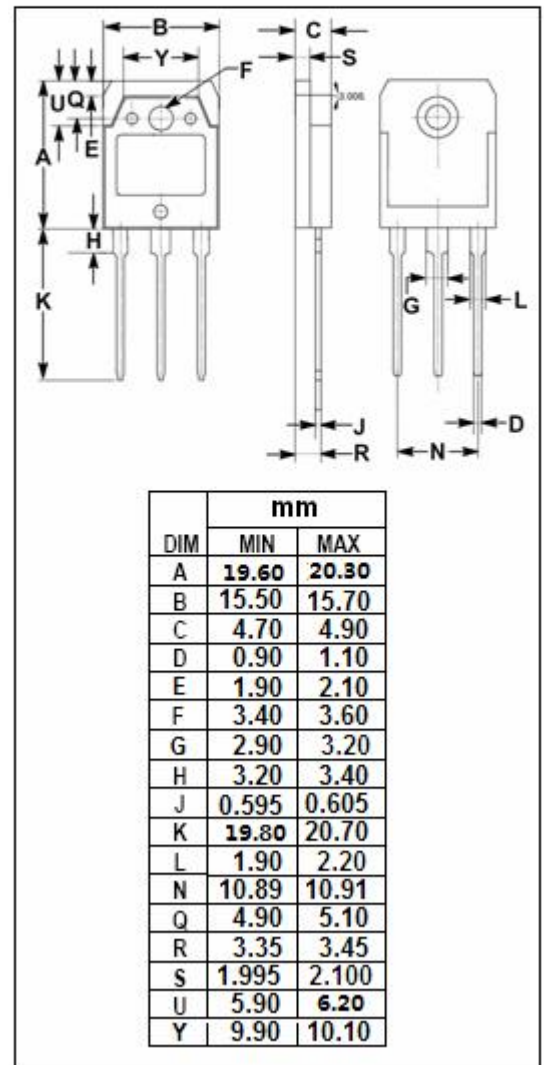
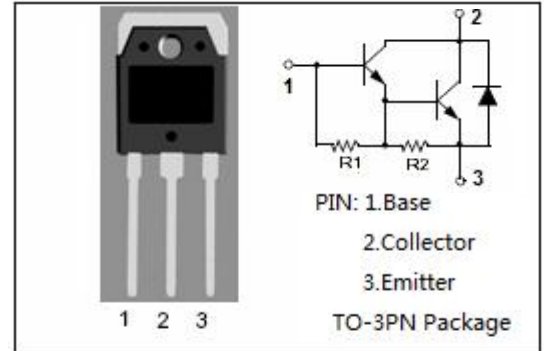
- Designed for general purpose amplifier and low speed switching applications

ABSOLUTE MAXIMUM RATINGS($T_a = 25^\circ\text{C}$)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CER}	Collector-Emitter Voltage	BDW83	45
		BDW83A	60
		BDW83B	80
		BDW83C	100
V_{CEO}	Collector-Emitter Voltage	BDW83	45
		BDW83A	60
		BDW83B	80
		BDW83C	100
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	15	A
I_B	Base Current-Continuous	0.5	A
P_C	Collector Power Dissipation @ $T_a = 25^\circ\text{C}$	3.5	W
	Collector Power Dissipation @ $T_c = 25^\circ\text{C}$	150	
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	0.83	$^\circ\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	35.7	$^\circ\text{C/W}$



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ELECTRICAL CHARACTERISTICS

$T_C=25^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	BDW83	$I_C = 30\text{mA}; I_B = 0$	45			V
		BDW83A		60			
		BDW83B		80			
		BDW83C		100			
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage		$I_C = 6\text{A}; I_B = 12\text{mA}$			2.5	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage		$I_C = 15\text{A}; I_B = 150\text{mA}$			4.0	V
$V_{BE(on)}$	Base-Emitter On Voltage		$I_C = 6\text{A}; V_{CE} = 3\text{V}$			2.5	V
V_{ECF}	C-E Diode Forward Voltage		$I_F = 15\text{A}$			3.5	V
I_{CEO}	Collector Cutoff Current	BDW83	$V_{CE} = 30\text{V}; I_B = 0$			1.0	mA
		BDW83A	$V_{CE} = 30\text{V}; I_B = 0$				
		BDW83B	$V_{CE} = 40\text{V}; I_B = 0$				
		BDW83C	$V_{CE} = 50\text{V}; I_B = 0$				
I_{CBO}	Collector Cutoff Current	BDW83	$V_{CB} = 45\text{V}; I_E = 0$ $V_{CB} = 45\text{V}; I_E = 0; T_C = 150^{\circ}\text{C}$			0.5 5.0	mA
		BDW83A	$V_{CB} = 60\text{V}; I_E = 0$ $V_{CB} = 60\text{V}; I_E = 0; T_C = 150^{\circ}\text{C}$			0.5 5.0	
		BDW83B	$V_{CB} = 80\text{V}; I_E = 0$ $V_{CB} = 80\text{V}; I_E = 0; T_C = 150^{\circ}\text{C}$			0.5 5.0	
		BDW83C	$V_{CB} = 100\text{V}; I_E = 0$ $V_{CB} = 100\text{V}; I_E = 0; T_C = 150^{\circ}\text{C}$			0.5 5.0	
I_{EBO}	Emitter Cutoff Current		$V_{EB} = 5\text{V}; I_C = 0$			2.0	mA
h_{FE-1}	DC Current Gain		$I_C = 6\text{A}; V_{CE} = 3\text{V}$	750		20000	
h_{FE-2}	DC Current Gain		$I_C = 15\text{A}; V_{CE} = 3\text{V}$	100			

Switching times

t_{on}	Turn-on Time	$I_C = 10\text{A}; I_{B1} = -I_{B2} = 40\text{mA};$ $R_L = 3\Omega; V_{BE(OFF)} = -4.2\text{V}$		0.9		μs
t_{off}	Turn-off Time			7.0		μs