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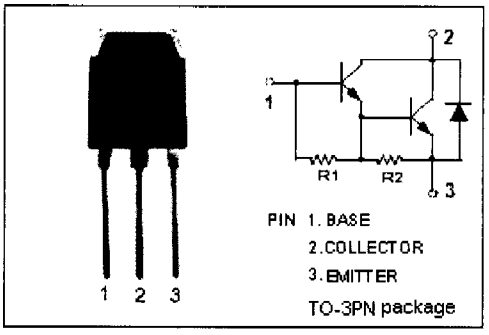
Silicon NPN Darlington Power Transistor — BDW83/A/B/C

DESCRIPTION

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

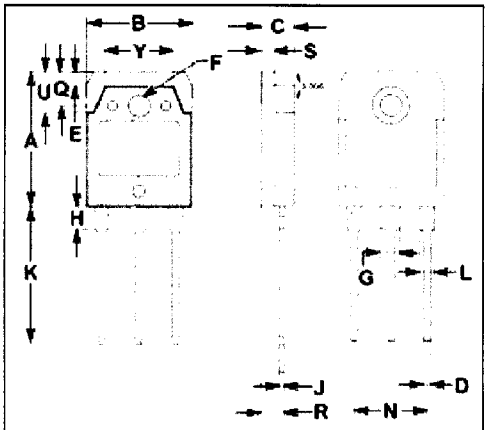
APPLICATIONS

- Designed for general purpose amplifier and low speed switching applications



ABSOLUTE MAXIMUM RATINGS(T_a=25℃)

SYMBOL	PARAMETER		VALUE	UNIT
V_{CER}	Collector-Emitter Voltage	BDW83	45	V
		BDW83A	60	
		BDW83B	80	
		BDW83C	100	
V_{CEO}	Collector-Emitter Voltage	BDW83	45	V
		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℃		3.5	W
	Collector Power Dissipation @ T_C=25℃		150	
T_J	Junction Temperature		150	℃
T_{stg}	Storage Temperature Range		-65~150	℃



DIM	mm MIN	MAX
A	19.90	20.10
B	15.50	15.70
C	4.70	4.90
D	0.90	1.10
E	1.90	2.10
F	3.40	3.60
G	2.90	3.10
H	3.20	3.40
J	0.595	0.605
K	20.50	20.70
L	1.90	2.10
N	10.89	10.91
Q	4.90	5.10
R	3.35	3.45
S	1.995	2.005
U	5.90	6.10
Y	9.90	10.10

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS

T_C=25℃ 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			
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage		I_C= 6A; I_B= 12mA			2.5	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage		I_C= 15A; I_B= 150mA			4.0	V
$V_{BE(on)}$	Base-Emitter On Voltage		I_C= 6A ; V_{CE}= 3V			2.5	V
V_{ECF}	C-E Diode Forward Voltage		I_F= 15A			3.5	V
I_{CEO}	Collector Cutoff Current	BDW83	V_{CE}= 30V; I_B= 0			1.0	mA
		BDW83A	V_{CE}= 30V; I_B= 0				
		BDW83B	V_{CE}= 40V; I_B= 0				
		BDW83C	V_{CE}= 50V; I_B= 0				
I_{CBO}	Collector Cutoff Current	BDW83	V_{CB}= 45V;I_E= 0 V_{CB}= 45V;I_E= 0;T_C= 150℃			0.5 5.0	mA
		BDW83A	V_{CB}= 60V;I_E= 0 V_{CB}= 60V;I_E= 0;T_C= 150℃			0.5 5.0	
		BDW83B	V_{CB}= 80V;I_E= 0 V_{CB}= 80V;I_E= 0;T_C= 150℃			0.5 5.0	
		BDW83C	V_{CB}= 100V;I_E= 0 V_{CB}= 100V;I_E= 0;T_C= 150℃			0.5 5.0	
I_{EBO}	Emitter Cutoff Current		V_{EB}= 5V; I_C=0			2.0	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			
Switching times							
t_{on}	Turn-on Time		I_C= 10A; I_{B1}= -I_{B2}= 40mA; R_L= 3Ω ; $V_{BE(OFF)}$= -4.2V		0.9		μs
t_{off}	Turn-off Time				7.0		μs