

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

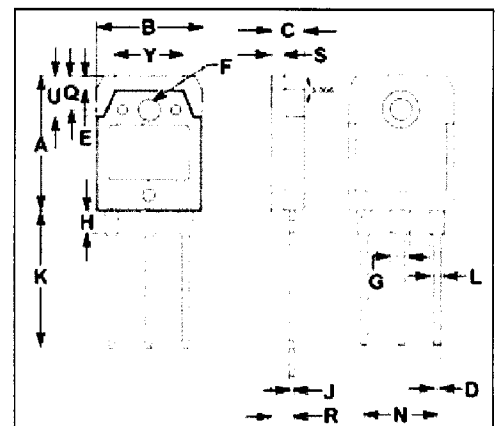
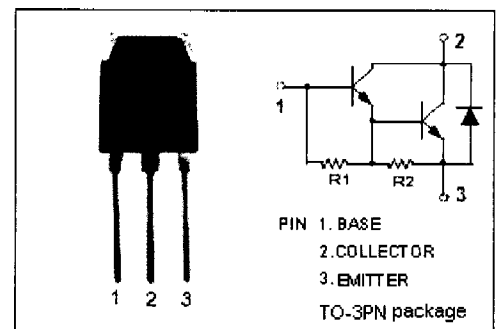
- Designed for general purpose amplifier and low speed switching applications

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

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 @ $T_a = 25^\circ C$	3.5	W	
	Collector Power Dissipation @ $T_c = 25^\circ C$	150		
T_J	Junction Temperature	150	$^\circ C$	
T_{stg}	Storage Temperature Range	-65~150	$^\circ C$	

THERMAL CHARACTERISTICS

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



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



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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	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	$V_{CB}=45V; I_E=0$ $V_{CB}=45V; I_E=0; T_C=150^\circ\text{C}$			0.5 5.0	mA
		BDW83A	$V_{CB}=60V; I_E=0$ $V_{CB}=60V; I_E=0; T_C=150^\circ\text{C}$			0.5 5.0	
		BDW83B	$V_{CB}=80V; I_E=0$ $V_{CB}=80V; I_E=0; T_C=150^\circ\text{C}$			0.5 5.0	
		BDW83C	$V_{CB}=100V; I_E=0$ $V_{CB}=100V; I_E=0; T_C=150^\circ\text{C}$			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	$I_C=10A; I_{B1}=-I_{B2}=40mA;$ $R_L=3\Omega; V_{BE(OFF)}=-4.2V$		0.9		μs	
t_{off}	Turn-off Time			7.0		μs	