

COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

- BDW83C IS A SGS-THOMSON PREFERRED SALESTYPE
- COMPLEMENTARY PNP - NPN DEVICES
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED
- HIGH DC CURRENT GAIN

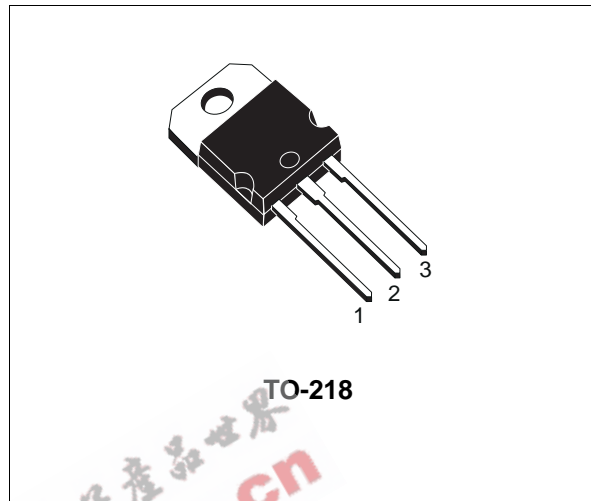
APPLICATIONS

- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

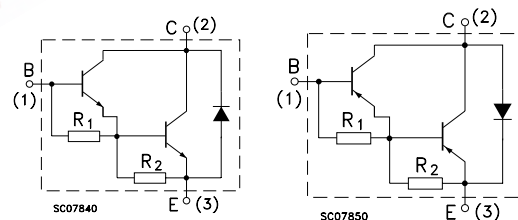
DESCRIPTION

The BDW83C is a silicon epitaxial-base NPN power monolithic Darlington transistor mounted in Jedec TO-218 plastic package. It is intended for use in power linear and switching applications.

The complementary type is BDW84C.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		NPN	BDW83C	
		PNP	BDW84C	
V_{CBO}	Collector-Base Voltage ($I_E = 0$)		100	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)		100	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)		5	V
I_C	Collector Current		15	A
I_{CM}	Collector Peak Current		40	A
I_B	Base Current		0.5	A
P_{tot}	Total Dissipation at $T_C \leq 25^\circ\text{C}$		130	W
T_{stg}	Storage Temperature		-65 to 150	$^\circ\text{C}$
T_j	Max. Operating Junction Temperature		150	$^\circ\text{C}$

BDW83C / BDW84C

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	0.96	$^{\circ}C/W$
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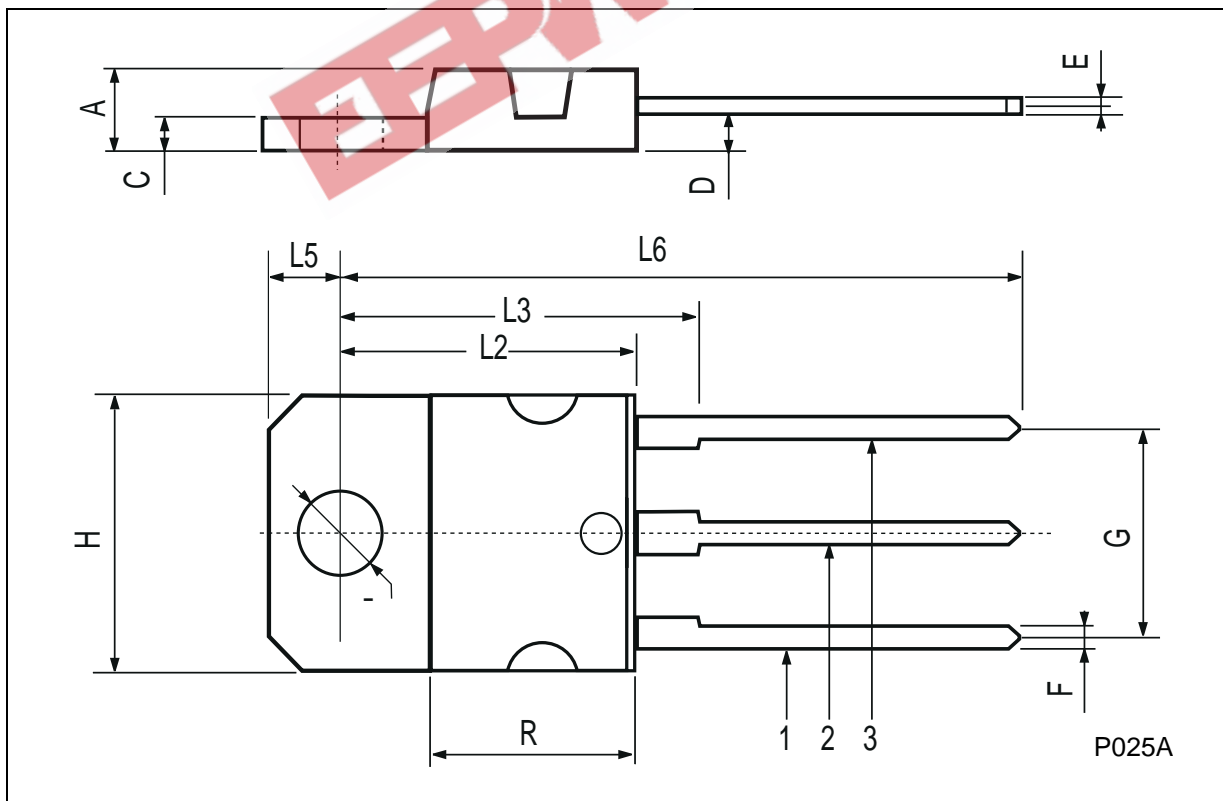
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current ($I_E = 0$)	$V_{CB} = 100 V$ $V_{CB} = 100 V$ $T_{case} = 150^{\circ}C$			500 5	μA mA
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{CE} = 40 V$			1	mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5 V$			2	mA
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage	$I_C = 30 mA$	100			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 6 A$ $I_B = 12 mA$ $I_C = 15 A$ $I_B = 150 mA$			2.5 4	V
$V_{BE(on)*}$	Base-Emitter Voltage	$I_C = 6 A$ $V_{CE} = 3 A$			2.5	V
h_{FE*}	DC Current Gain	$I_C = 6 A$ $V_{CE} = 3 V$ $I_C = 15 A$ $V_{CE} = 3 V$	750 100		20000	
V_f^*	Diode Forward Voltage	$I_F = 10 A$			4	V
t_{on} t_{off}	Turn-on Time Turn-off Time	$V_{CC} = 30 V$ $I_C = 10 A$ $R_{B1} = 300 \Omega$ $R_{B2} = 150 \Omega$ $I_{B1} = - I_{B2} = 40 mA$		0.9 6		μs μs

* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %
For PNP types voltage and current values are negative.

TO-218 (SOT-93) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.7		4.9	0.185		0.193
C	1.17		1.37	0.046		0.054
D		2.5			0.098	
E	0.5		0.78	0.019		0.030
F	1.1		1.3	0.043		0.051
G	10.8		11.1	0.425		0.437
H	14.7		15.2	0.578		0.598
L2	-		16.2	-		0.637
L3		18			0.708	
L5	3.95		4.15	0.155		0.163
L6		31			1.220	
R	-		12.2	-		0.480
Ø	4		4.1	0.157		0.161



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