



BDW83C BDW84C

COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

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

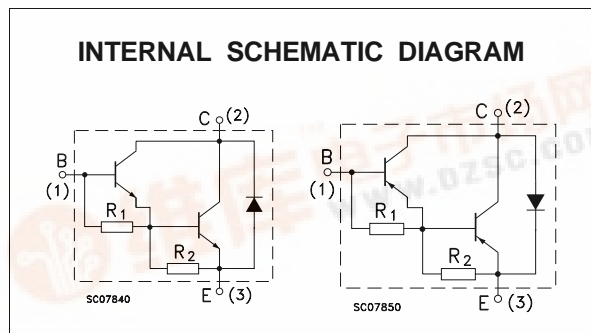
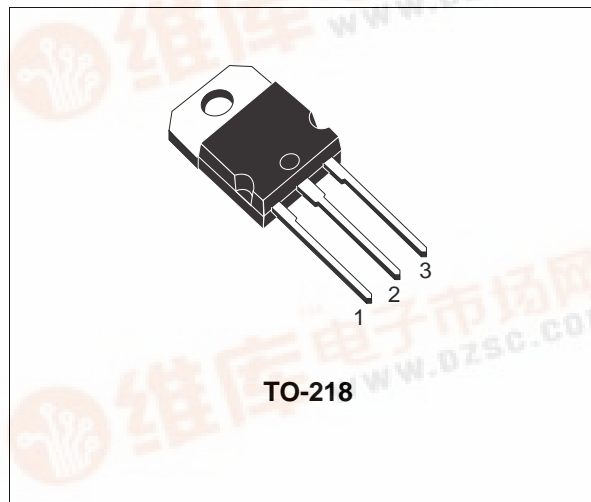
APPLICATIONS

- 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.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		NPN	BDW83C	
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 $T_c \leq 25^\circ C$		130	W
T_{stg}	Storage Temperature		-65 to 150	$^\circ C$
T_j	Max. Operating Junction Temperature		150	$^\circ C$



BDW83C / BDW84C

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	0.96	°C/W
----------------	----------------------------------	-----	------	------

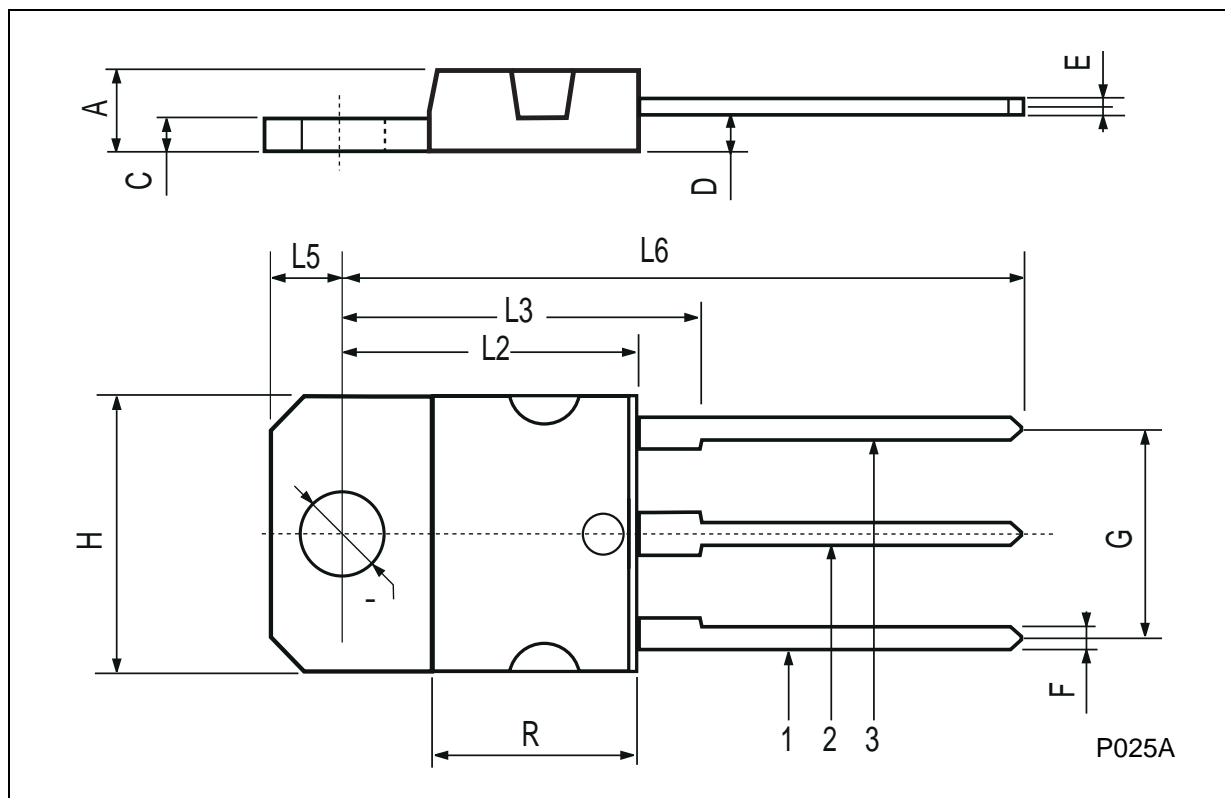
ELECTRICAL CHARACTERISTICS ($T_{case} = 25\text{ °C}$ unless otherwise specified)

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

* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %
For PNP type 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



Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specification mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a trademark of STMicroelectronics

© 2002 STMicroelectronics – Printed in Italy – All Rights Reserved
STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco -
Singapore - Spain - Sweden - Switzerland - United Kingdom - United States.

<http://www.st.com>