

BDW93CFP BDW94CFP

COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

- STMicroelectronics PREFERRED SALESTYPES
- MONOLITHIC DARLINGTON CONFIGURATION
- COMPLEMENTARY PNP NPN DEVICES
- INTEGRATED ANTIPARALLEL COLLECTOR-EMITTER DIODE
- FULLY MOLDED INSULATED PACKAGE
- 2000 V DC INSULATION (U.L. COMPLIANT)

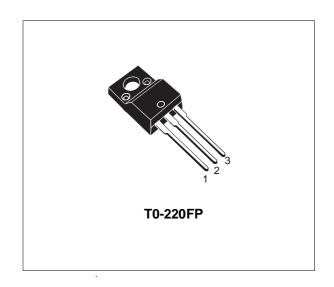
APPLICATIONS

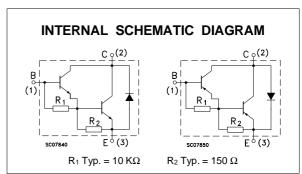
 LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

DESCRIPTION

The BDW93CFP is a silicon Epitaxial-Base NPN transistor in monolithic Darlington configuration mounted in TO-220FP fully molded insulated package. It is intented for use in power linear and switching applications.

The complementary PNP type is the BDW94CFP.





ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit	
		NPN	BDW93CFP		
		PNP	BDW94CFP		
V _{CBO}	Collector-Base Voltage (I _E = 0)		100	V	
V _{CEO}	Collector-Emitter Voltage (I _B = 0)		100	V	
Ic	Collector Current		12	А	
I _{CM}	Collector Peak Current		15	А	
Ι _Β	Base Current		0.2	А	
P _{tot}	Total Dissipation at T _c ≤ 25 °C		33	W	
T _{stg}	Storage Temperature		-65 to 150	°C	
Tj	Max. Operating Junction Temperature		150	°C	

For PNP types voltage and current values are negative.

September 2001 1/4

THERMAL DATA

R _{thj-case} Th	hermal Resistance Junction-case	Max	3.8	°C/W	
--------------------------	---------------------------------	-----	-----	------	--

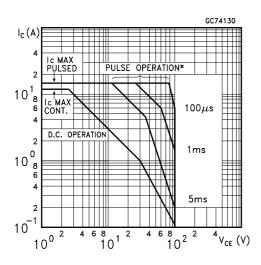
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions		Min.	Тур.	Max.	Unit
I _{CBO}	Collector Cut-off Current (I _E = 0)	V _{CB} = 100 V V _{CB} = 100 V	T _{case} = 150 °C			100 5	μA mA
I _{CEO}	Collector Cut-off Current (I _B = 0)	V _{CE} = 80 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 _B = 0)	I _C = 100 mA		100			V
$V_{CE(sat)^*}$	Collector-Emitter Saturation Voltage	I _C = 5 A I _C = 10 A	$I_B = 20 \text{ mA}$ $I_B = 100 \text{ mA}$			2 3	V V
V _{BE(sat)} *	Base-Emitter Saturation Voltage	I _C = 5 A I _C = 10 A	I _B = 20 mA I _B = 100 mA			2.5 4	V V
h _{FE} *	DC Current Gain	I _C = 3 A I _C = 5 A I _C = 10 A	V _{CE} = 3 V V _{CE} = 3 V V _{CE} = 3 V	1000 750 100		20000	
V _F *	Parallel-diode Forward Voltage	I _F = 5 A I _F = 10 A			1.3 1.8	2 4	V V
h _{fe}	Small Signal Current Gain	I _C = 1 A f = 1 MHz	V _{CE} = 10 V	20			

^{*} Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

For PNP types voltage and current values are negative.

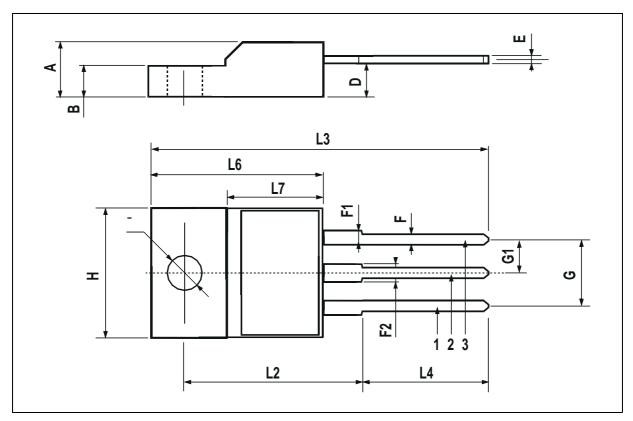
Safe Operating Area



2/4

TO-220FP MECHANICAL DATA

DIM.	mm			inch			
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
А	4.4		4.6	0.173		0.181	
В	2.5		2.7	0.098		0.106	
D	2.5		2.75	0.098		0.108	
Е	0.45		0.7	0.017		0.027	
F	0.75		1	0.030		0.039	
F1	1.15		1.7	0.045		0.067	
F2	1.15		1.7	0.045		0.067	
G	4.95		5.2	0.195		0.204	
G1	2.4		2.7	0.094		0.106	
Н	10		10.4	0.393		0.409	
L2		16			0.630		
L3	28.6		30.6	1.126		1.204	
L4	9.8		10.6	0.385		0.417	
L6	15.9		16.4	0.626		0.645	
L7	9		9.3	0.354		0.366	
Ø	3		3.2	0.118		0.126	



▲7/ 3/4

BDW93CFP / BDW94CFP

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

© 2001 STMicroelectronics – Printed in Italy – All Rights Reserved STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A.

http://www.st.com

4/4