



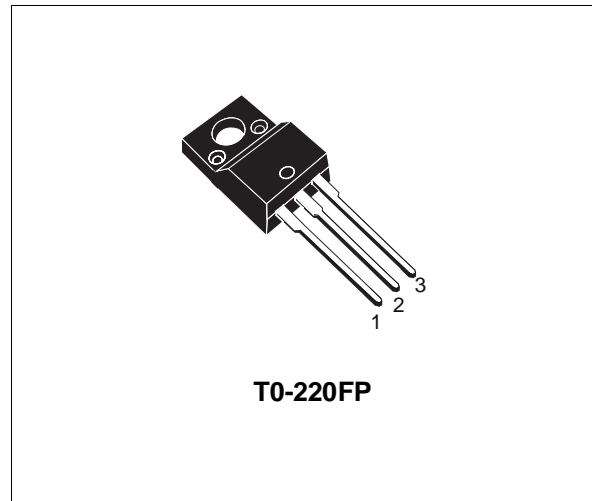
## SILICON POWER DARLINGTON TRANSISTOR

### APPLICATIONS:

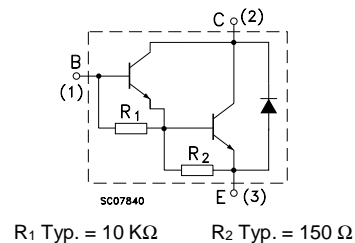
- GENERAL PURPOSE SWITCHING AND AMPLIFIER
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT
- FULLY INSULATED PACKAGE (U.L. COMPLIANT) FOR EASY MOUNTING

### DESCRIPTION

The BDX53BFP is a silicon Epitaxial-Base NPN power transistor in monolithic Darlington configuration mounted in T0-220FP fully molded isolated package. It is intended for use in hammer drivers, audio amplifiers and other medium power linear and switching applications.



### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage (I <sub>E</sub> = 0)	80	V
V <sub>CEO</sub>	Collector-Emitter Voltage (I <sub>B</sub> = 0)	80	V
V <sub>EBO</sub>	Emitter-base Voltage (I <sub>C</sub> = 0)	5	V
I <sub>C</sub>	Collector Current	8	A
I <sub>CM</sub>	Collector Peak Current (repetitive)	12	A
I <sub>B</sub>	Base Current	0.2	A
P <sub>tot</sub>	Total Dissipation at T <sub>c</sub> ≤ 25 °C	29	W
V <sub>isol</sub>	Insulation Withstand Voltage (RMS) from All Three Leads to External Heatsink	1500	V
T <sub>stg</sub>	Storage Temperature	-65 to 150	°C
T <sub>j</sub>	Max. Operating Junction Temperature	150	°C

# BDX53BFP

## THERMAL DATA

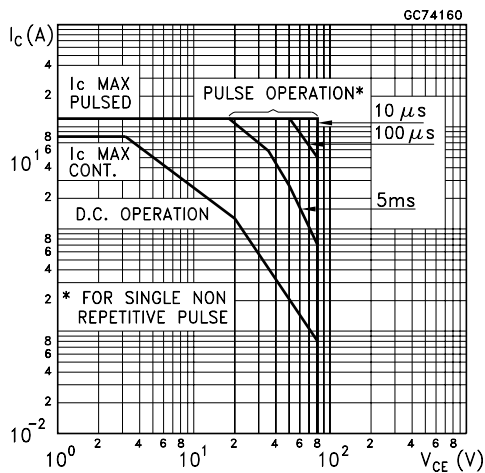
R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	4.3	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	70	°C/W

## ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CBO</sub>	Collector Cut-off Current (I <sub>E</sub> = 0)	V <sub>CB</sub> = 80 V			0.2	mA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	V <sub>CE</sub> = 40 V			0.5	mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			2	mA
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 100 mA	80			V
V <sub>CE(sat)*</sub>	Collector-emitter Saturation Voltage	I <sub>C</sub> = 3 A      I <sub>B</sub> = 12 mA			2	V
V <sub>BE(sat)*</sub>	Base-emitter Saturation Voltage	I <sub>C</sub> = 3 A      I <sub>B</sub> = 12 mA			2.5	V
h <sub>FE</sub> *	DC Current Gain	I <sub>C</sub> = 3 A      V <sub>CE</sub> = 3 V	750			
V <sub>F</sub> *	Parallel Diode Forward Voltage	I <sub>F</sub> = 3 A I <sub>F</sub> = 8 A		1.8 2.5	2.5	V V

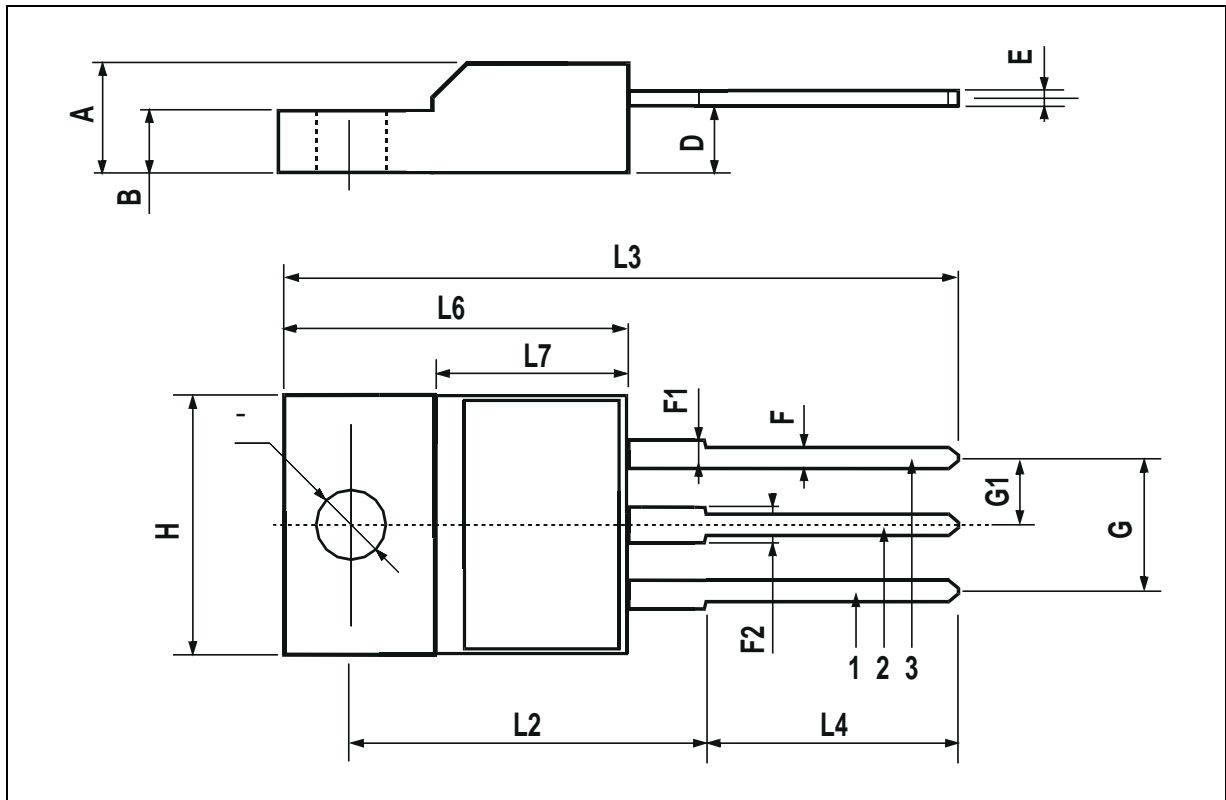
\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

## Safe Operating Area



**TO-220FP MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.4		4.6	0.173		0.181
B	2.5		2.7	0.098		0.106
D	2.5		2.75	0.098		0.108
E	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
H	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
∅	3		3.2	0.118		0.126



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

© 2003 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>