

## COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

- SGS-THOMSON PREFERRED SALESTYPES
- MONOLITHIC DARLINGTON CONFIGURATION
- COMPLEMENTARY PNP - NPN DEVICES
- INTEGRATED ANTIPARALLEL COLLECTOR-EMITTER DIODE

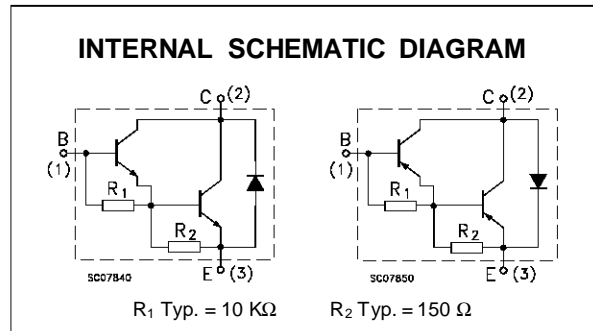
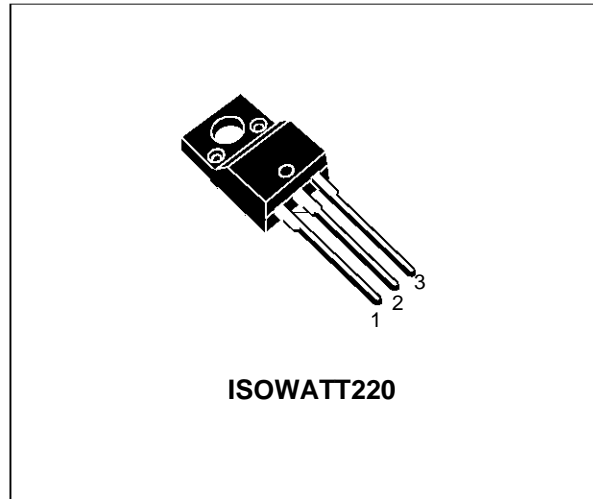
### APPLICATIONS

- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

### DESCRIPTION

The BDW93CFI, is a silicon epitaxial-base NPN transistor in monolithic Darlington configuration and is mounted in ISOWATT220 plastic package. It is intended for use in power linear and switching applications.

The complementary PNP type is the BDW94CFI.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		NPN	PNP	
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	<b>BDW93CFI</b>		V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	<b>BDW94CFI</b>		
$I_C$	Collector Current	12		A
$I_{CM}$	Collector Peak Current	15		A
$I_B$	Base Current	0.2		A
$P_{tot}$	Total Dissipation at $T_c \leq 25^\circ C$	40		W
$T_{stg}$	Storage Temperature	-65 to 150		$^\circ C$
$T_j$	Max. Operating Junction Temperature	150		$^\circ C$

For PNP types voltage and current values are negative.

# BDW93CFI / BDW94CFI

## THERMAL DATA

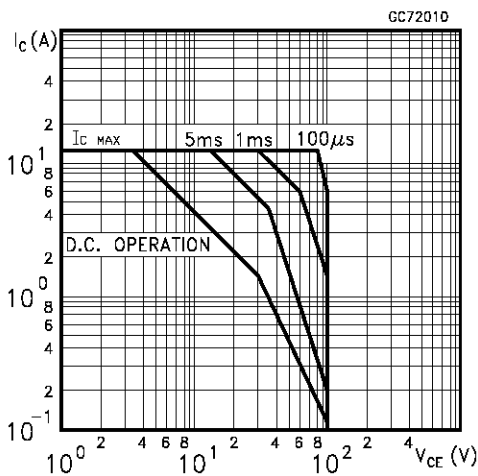
R <sub>thj-case</sub>	Thermal Resistance Junction-case	3.1	°C/W
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## ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CB0</sub>	Collector Cut-off Current (I <sub>E</sub> = 0)	V <sub>CB</sub> = 100 V V <sub>CB</sub> = 100 V T <sub>case</sub> = 150 °C			100 5	μA mA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	V <sub>CE</sub> = 80 V			1	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	100			V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 5 A I <sub>C</sub> = 10 A			2 3	V V
V <sub>BE(sat)*</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 5 A I <sub>C</sub> = 10 A			2.5 4	V V
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = 3 A I <sub>C</sub> = 5 A I <sub>C</sub> = 10 A			1000 750 100	
V <sub>F*</sub>	Parallel-diode Forward Voltage	I <sub>F</sub> = 5 A I <sub>F</sub> = 10 A		1.3 1.8	2 4	V V
h <sub>fe</sub>	Small Signal Current Gain	I <sub>C</sub> = 1 A f = 1 MHz	20			

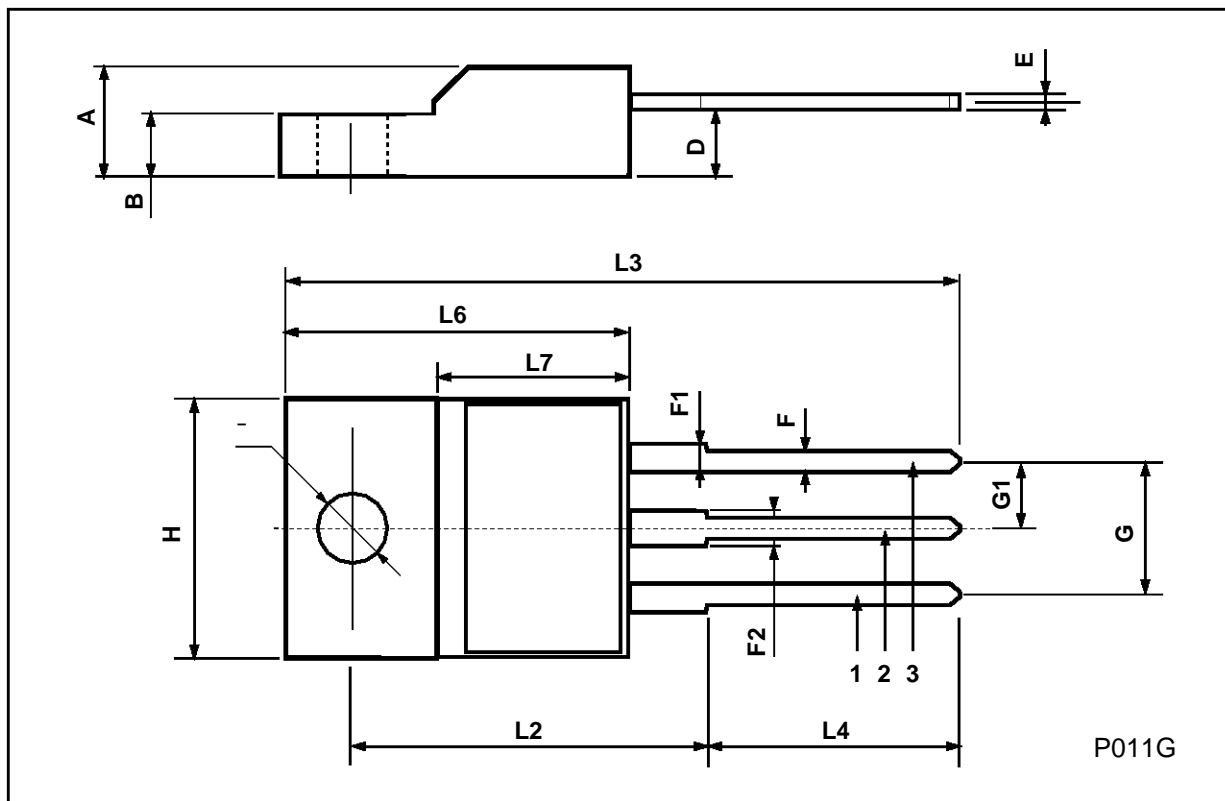
\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %  
For PNP types voltage and current values are negative.

## Safe Operating Area



## ISOWATT220 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	0.4		0.7	0.015		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
Ø	3		3.2	0.118		0.126



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