

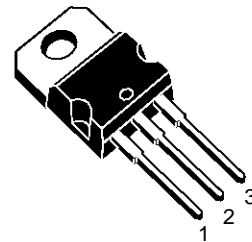
## COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

- BDX53B, BDX53C, BDX54B AND BDX54C  
ARE SGS-THOMSON PREFERRED  
SALESTYPES

### DESCRIPTION

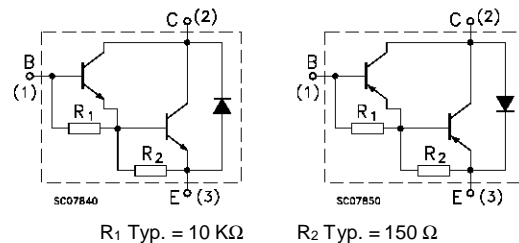
The BDX53A, BDX53B and BDX53C are silicon epitaxial-base NPN power transistors in monolithic Darlington configuration and are mounted in Jedec TO-220 plastic package. They are intended for use in hammer drivers, audio amplifiers and other medium power linear and switching applications.

The complementary PNP types are the BDX54A, BDX54B and BDX54C respectively.



TO-220

### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value				Unit
		NPN	BDX53A	BDX53B	BDX53C	
		PNP	BDX54A	BDX54B	BDX54C	
V <sub>CBO</sub>	Collector-Base Voltage (I <sub>E</sub> = 0)	60	80	100		V
V <sub>CEO</sub>	Collector-Emitter Voltage (I <sub>B</sub> = 0)	60	80	100		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	60				W
T <sub>stg</sub>	Storage Temperature	-65 to 150				°C
T <sub>j</sub>	Max. Operating Junction Temperature	150				°C

## BDX53A/53B/53C-BDX54A/54B/54C

### THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	2.08	$^{\circ}C/W$
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	70	$^{\circ}C/W$

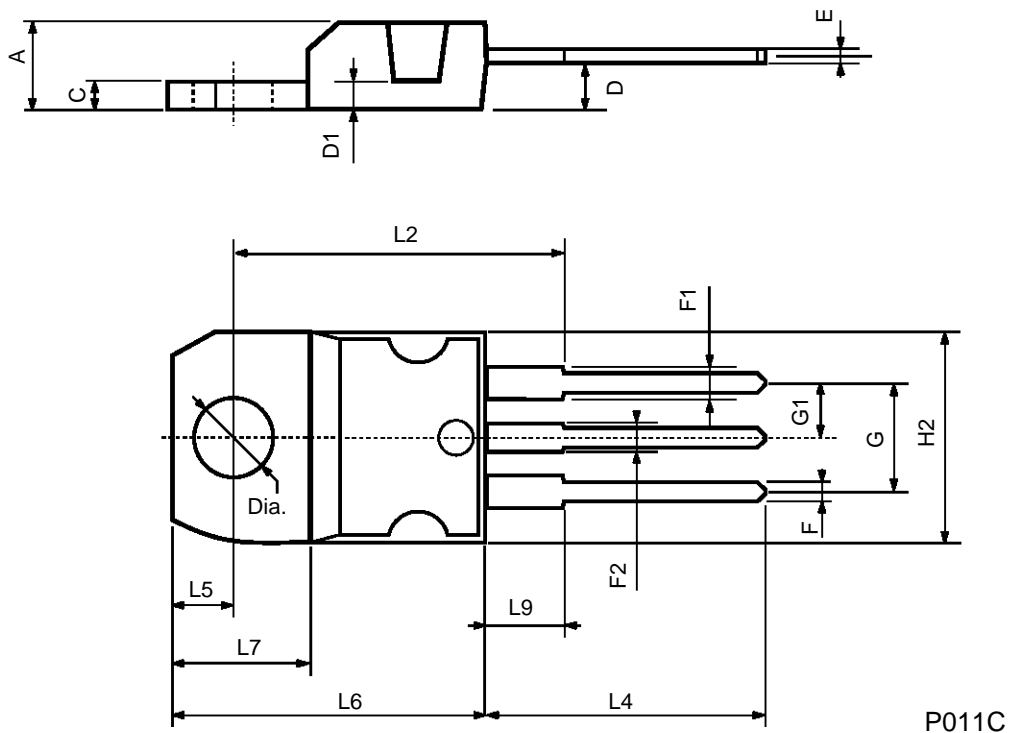
### ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cut-off Current ( $I_E = 0$ )	for <b>BDX53A/54A</b> $V_{CB} = 60 V$ for <b>BDX53B/54B</b> $V_{CB} = 80 V$ for <b>BDX53C/54C</b> $V_{CB} = 100V$			0.2 0.2 0.2	mA mA mA
$I_{CEO}$	Collector Cut-off Current ( $I_B = 0$ )	for <b>BDX53A/54A</b> $V_{CB} = 30 V$ for <b>BDX53B/54B</b> $V_{CB} = 40 V$ for <b>BDX53C/54C</b> $V_{CB} = 50V$			0.5 0.5 0.5	mA mA mA
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = 5 V$			2	mA
$V_{CEO(sus)}^*$	Collector-Emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = 100 mA$ for <b>BDX53A/54A</b> for <b>BDX53B/53B</b> for <b>BDX53C/54C</b>	60 80 100			V V V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 3 A$ $I_B = 12 mA$			2	V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 3 A$ $I_B = 12 mA$			2.5	V
$h_{FE}^*$	DC Current Gain	$I_C = 3 A$ $V_{CE} = 3 V$	750			
$V_F^*$	Parallel-diode Forward Voltage	$I_F = 3 A$ $I_F = 8 A$		1.8 2.5	2.5	V V

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

## TO-220 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151



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