

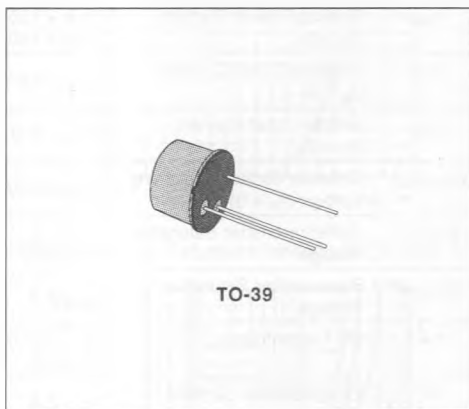
MEDIUM POWER DARLINGTONS

DESCRIPTION

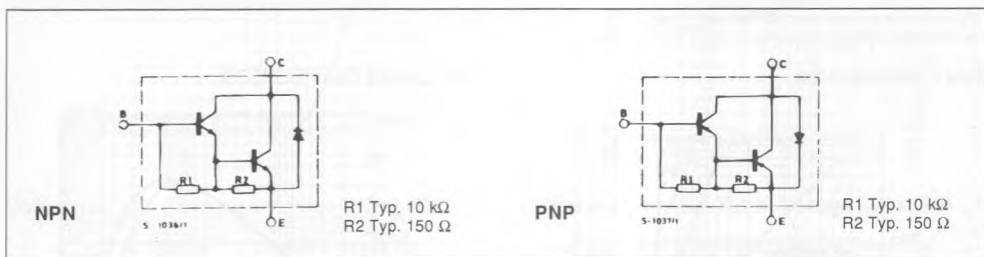
The BDX53S is a silicon epitaxial-base NPN transistor in monolithic Darlington configuration and is mounted in Jedec TO-39 metal case.

It is intended for use in medium in power linear and switching applications.

The complementary PNP type is the BDX54S.



INTERNAL SCHEMATIC DIAGRAMS



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	150	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	150	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	5	V
I_C	Collector Current	6	A
I_{CM}	Collector Peak Current	10	A
I_B	Base Current	0.2	A
P_{Tot}	Total Power Dissipation at $T_{case} \leq 25\text{ }^\circ\text{C}$ $T_{amb} \leq 25\text{ }^\circ\text{C}$	15	W
		1	W
T_{stg}	Storage Temperature	- 65 to 200	$^\circ\text{C}$
T_j	Junction Temperature	200	$^\circ\text{C}$

* For PNP types voltage and current values are negative.

THERMAL DATA

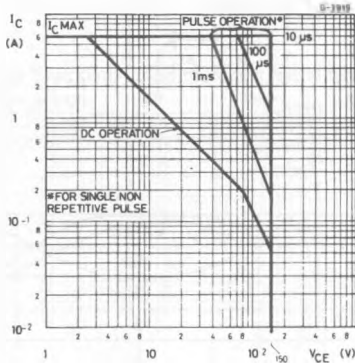
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	11.66	$^{\circ}C/W$
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	175	$^{\circ}C/W$

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

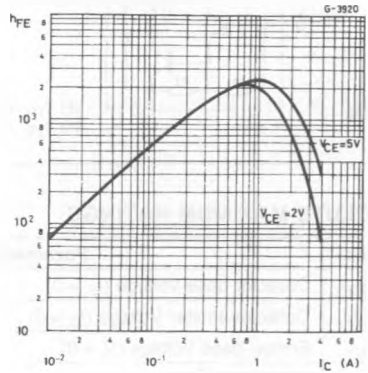
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current ($I_E = 0$)	$V_{CB} = 150\ V$ $V_{CB} = 150\ V$	$T_{case} = 125\ ^{\circ}C$			0.2 2	 mA mA
I_{CEO}	Collector Cutoff Current ($I_B = 0$)	$V_{CE} = 75\ V$				0.2	mA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 5\ V$				5	mA
$V_{CEO(sus)}^*$	Collector-emitter Sustaining Voltage ($I_B = 0$)	$I_C = 50\ mA$		150			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 2\ A$	$I_B = 8\ mA$			2	V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 2\ A$	$I_B = 8\ mA$			2.5	V
h_{FE}^*	DC Current Gain	$I_C = 100\ mA$ $I_C = 2\ A$	$V_{CE} = 5\ V$ $V_{CE} = 5\ V$	100 500			
V_F^*	Parallel Diode Forward Voltage	$I_F = 2\ A$				2.5	V
h_{ie}	Small Signal Current Gain	$I_C = 0.5\ A$ $f = 1\ MHz$	$V_{CE} = 2\ V$		20		

* Pulsed : pulse duration = 300 ms, duty cycle = 1 %.
For PNP type voltage and current values are negative.

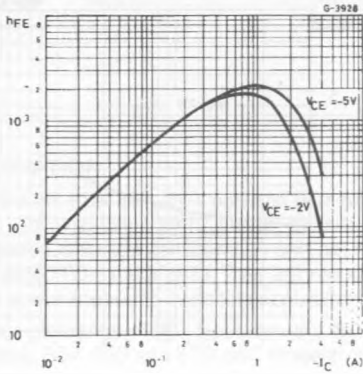
Safe Operating Area.



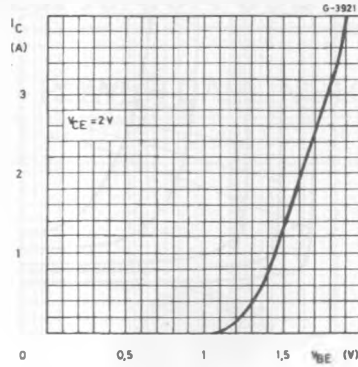
DC Current Gain (BDX53S).



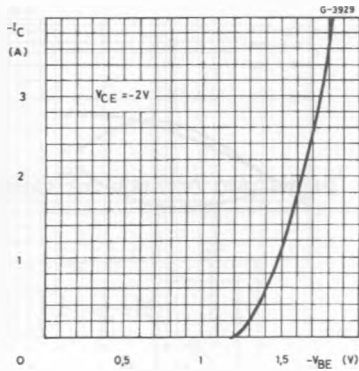
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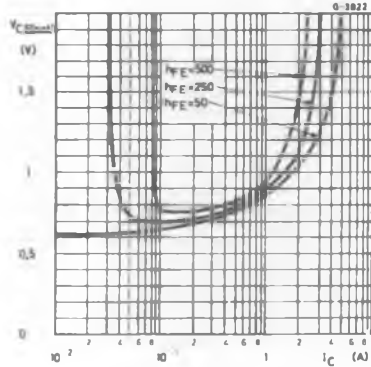
DC Transconductance (BDX53S).



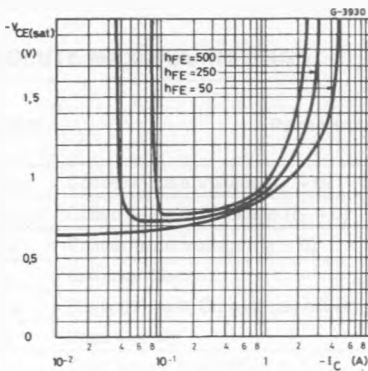
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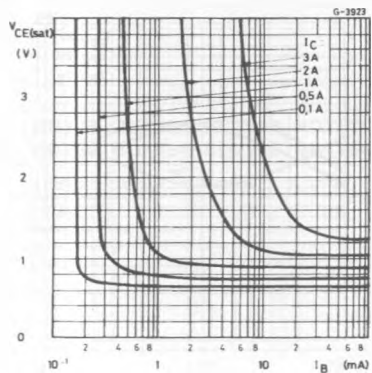
Collector-emitter Saturation Voltage (BDX53S).



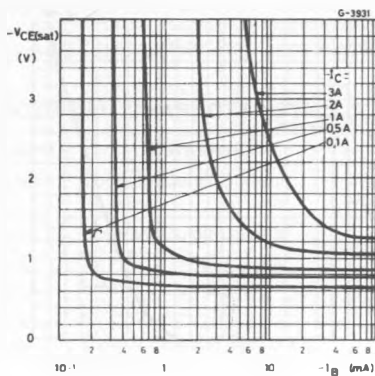
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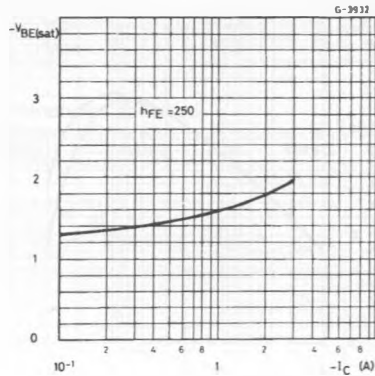
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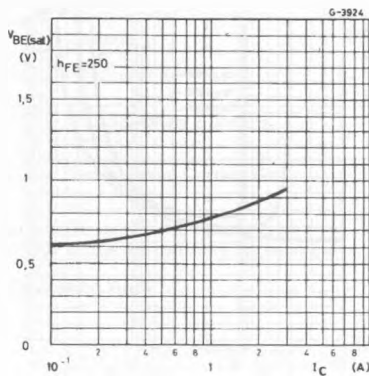
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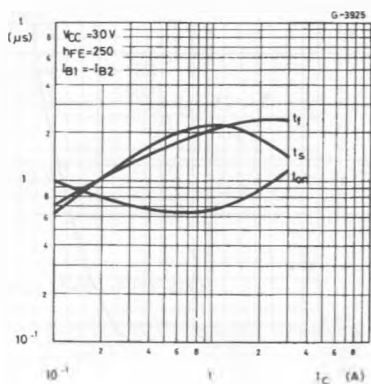
Base-emitter Saturation Voltage (BDX53S).



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Saturated Switching Characteristics (BDX53S).



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