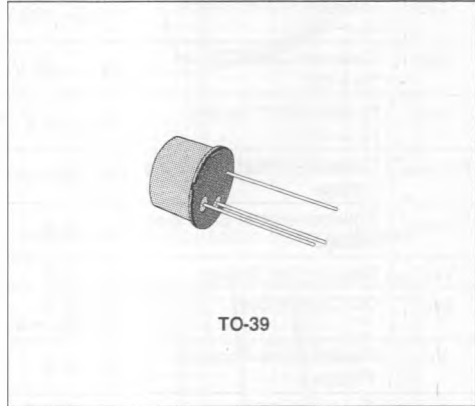


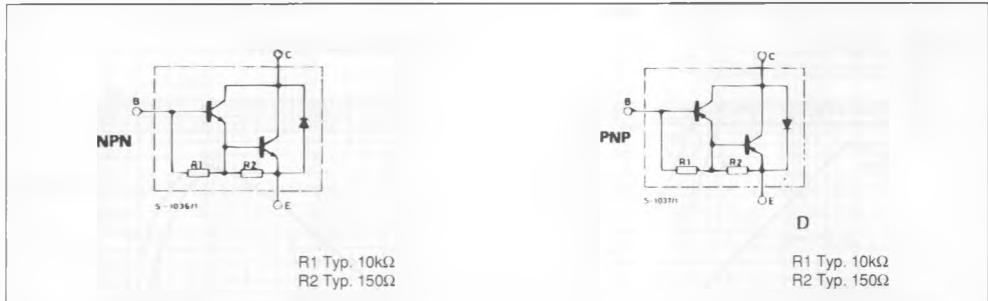
**MEDIUM POWER DARLINGTON**

**DESCRIPTION**

The BDW91 is a silicon epitaxial base NPN transistor in monolithic Darlington configuration mounted in Jedec TO-39 metal case. It is intended for use in switching and linear applications. The complementary PNP type is the BDW92.



**INTERNAL SCHEMATIC DIAGRAMS**



**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )	180	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	180	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	6	V
$I_C$	Collector Current	4	A
$I_B$	Base Current	100	mA
$P_{tot}$	Total Power Dissipation at $T_{case} \leq 25^\circ C$ $T_{amb} \leq 25^\circ C$	10 1	W W
$T_{stg}$	Storage Temperature	- 65 to 200	$^\circ C$
$T_j$	Junction Temperature	200	$^\circ C$

For PNP type voltage and current values are negative.

**THERMAL DATA**

$R_{thj-case}$	Thermal Resistance Junction-case	Max	17.5	$^{\circ}C/W$
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	175	$^{\circ}C/W$

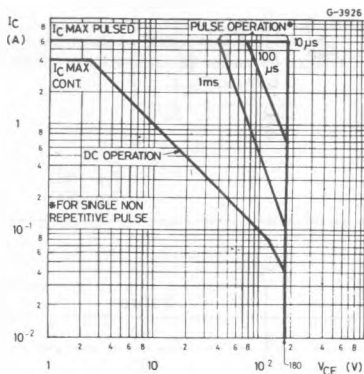
**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^{\circ}C$  unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	$V_{CB} = 180 V$			50	$\mu A$
$I_{CEO}$	Collector Cutoff Current ( $I_B = 0$ )	$V_{CE} = 90 V$			50	$\mu A$
$I_{EBO}$	Emitter Cutoff Current ( $I_C = 0$ )	$V_{EB} = 6 V$	0.4		2	mA
$V_{CE0(sus)}^*$	Collector-emitter Sustaining Voltage	$I_C = 50 mA$	180			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 2 A$ $I_B = 4 mA$			2	V
$V_{BE}^*$	Base-emitter Voltage	$I_C = 2 A$ $V_{CE} = 2 V$			2.5	V
$h_{FE}^*$	DC Current Gain	$I_C = 2 A$ $I_C = 50 mA$	1000 150	3000 300		
$V_F^*$	Parallel Diode Forward Voltage	$I_F = 2 A$			2.5	V
$h_{fe}$	Small Signal Current Gain	$I_C = 0.5 A$ $f = 1 MHz$ $V_{CE} = 2 V$		20		

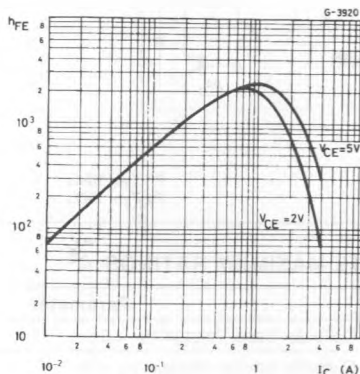
\* Pulsed : pulse duration = 300  $\mu$ sec, duty cycle = 1 %.

For PNP type voltage and current values are negative

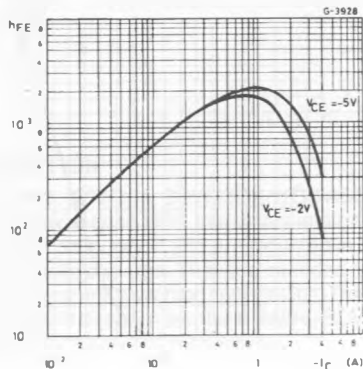
**Safe Operating Area.**



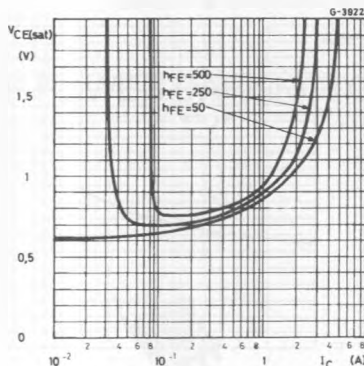
**DC Current Gain (BDW91).**



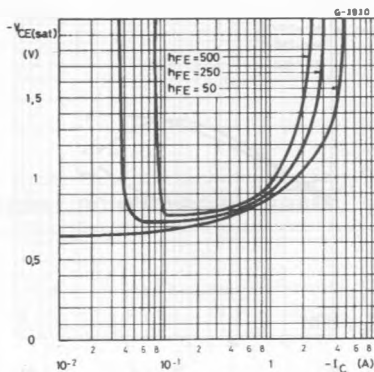
DC Current Gain (BDW92)



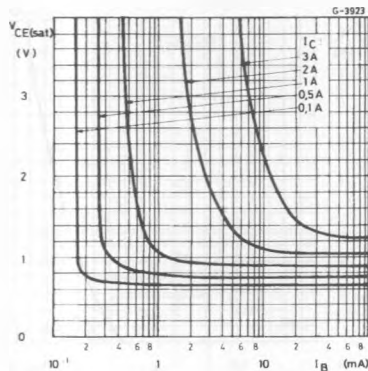
Collector-emitter Saturation Voltage (BDW91)



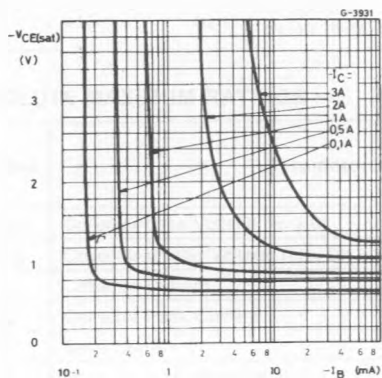
Collector-emitter Saturation Voltage (BDW92)



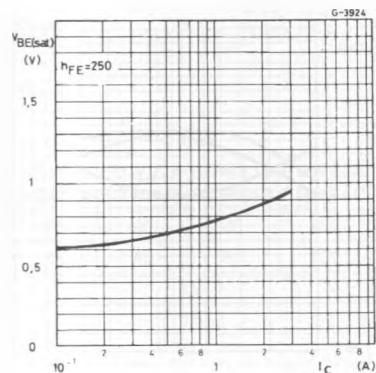
Collector-emitter Saturation Voltage (BDW91)



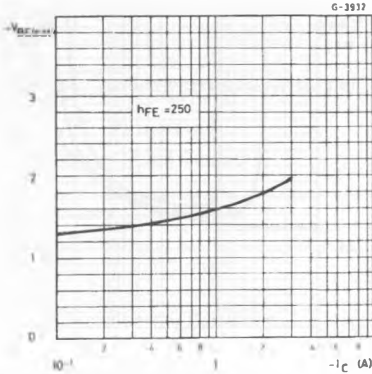
Collector-emitter Saturation Voltage (BDW92)



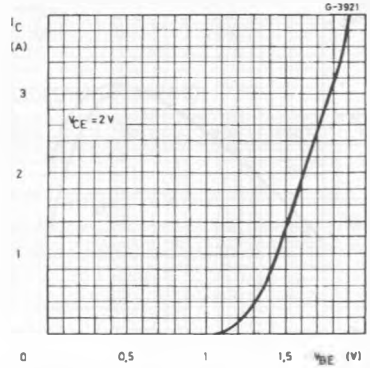
Base-emitter Saturation Voltage (BDW91)



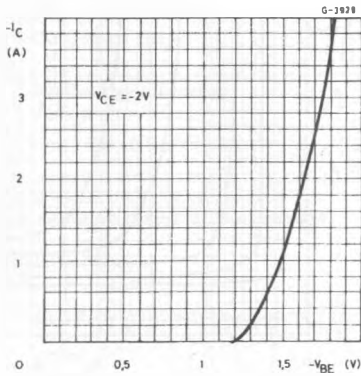
Base-emitter Saturation Voltage (BDW92)



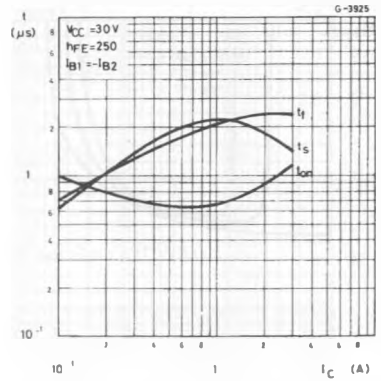
DC Transconductance (BDW91)



DC Transconductance (BDW92)



Saturated Switching Characteristics (BDW91)



Saturated Switching Characteristics (BDW92)

