



BDW91
BDW92

EPITAXIAL-BASE NPN/PNP

MEDIUM POWER DARLINGTON

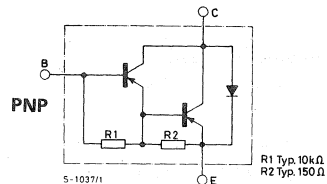
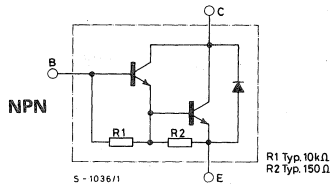
The BDW 91 is a silicon epitaxial base NPN transistor in monolithic Darlington configuration mounted in Jedec TO-39 metal case. It is intended for use in switching and linear applications. The complementary PNP type is the BDW92.

ABSOLUTE MAXIMUM RATINGS

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	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.

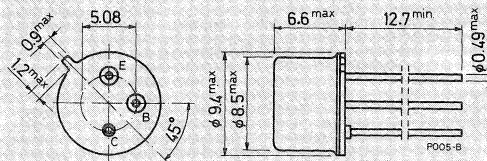
INTERNAL SCHEMATIC DIAGRAMS



MECHANICAL DATA

Dimensions in mm

Collector connected to case



TO-39



BDW91
BDW92

THERMAL DATA

$R_{th\ j-case}$	Thermal resistance junction-case	max	17.5	°C/W
$R_{th\ j-amb}$	Thermal resistance junction-ambient	max	175	°C/W

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

Parameter	Test conditions	Min.	Typ.	Max.	Unit	
I_{CBO}	Collector cutoff current ($I_E = 0$)			50	μA	
I_{CEO}	Collector cutoff current ($I_B = 0$)			50	μA	
I_{EBO}	Emitter cutoff current ($I_C = 0$)			0.4	2	mA
$V_{CEO(sus)}$	*Collector-emitter sustaining voltage			180	V	
$V_{CE(sat)}$	*Collector-emitter saturation voltage	$I_C = 2A$	$I_B = 4mA$		2	V
V_{BE}	*Base-emitter voltage	$I_C = 2A$	$V_{CE} = 2V$		2.5	V
h_{FE}	DC current gain	$I_C = 2A$ $I_C = 50mA$	$V_{CE} = 5V$ $V_{CE} = 5V$		1000 3000 150 300	— —
V_F	Parallel diode forward voltage	$I_F = 2A$			2.5	V
h_{fe}	Small signal current gain	$I_C = 0.5A$ $f = 1MHz$	$V_{CE} = 2V$		20	—

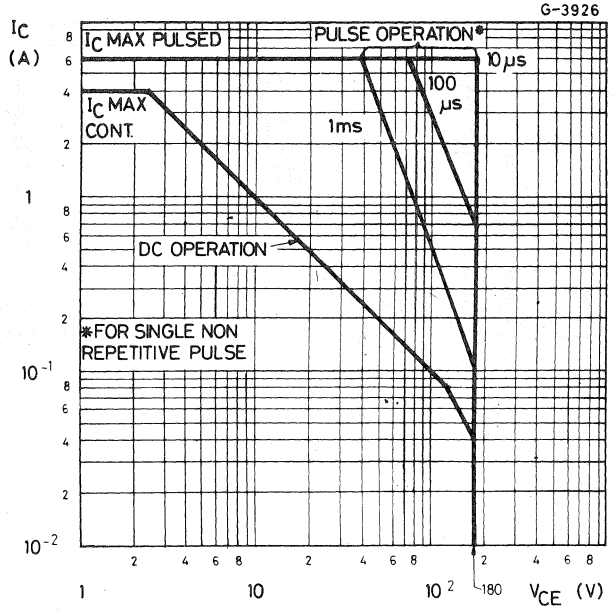
* Pulsed: pulse duration = 300 μsec , duty cycle = 1%

For PNP type voltage and current values are negative

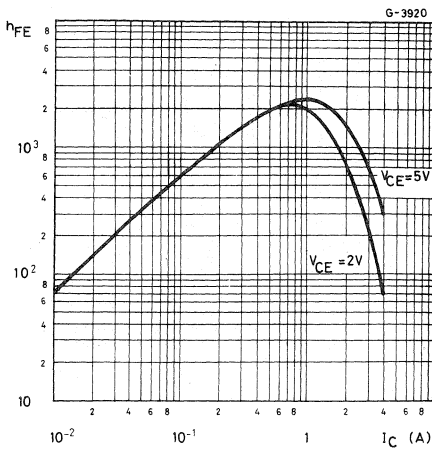


BDW91
BDW92

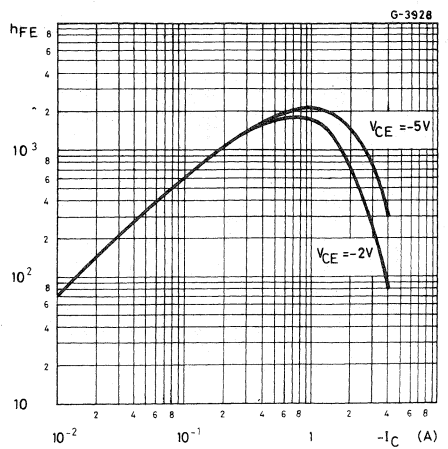
Safe operating areas



DC current gain (BDW91)



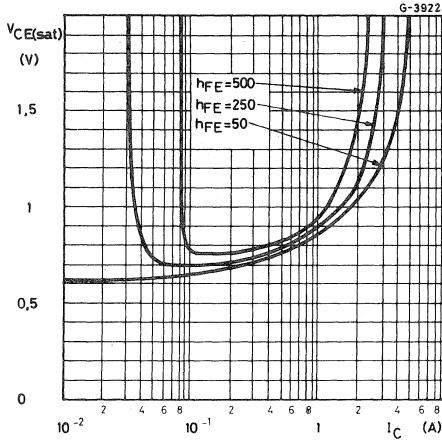
DC current gain (BDW92)



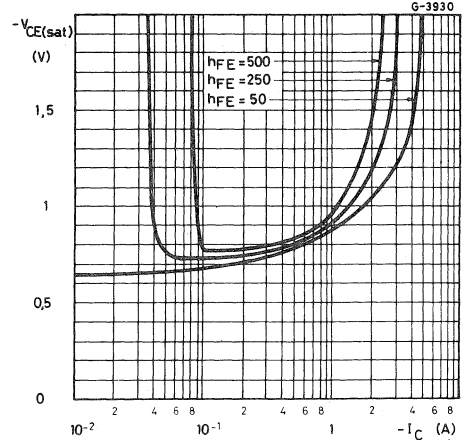


BDW91
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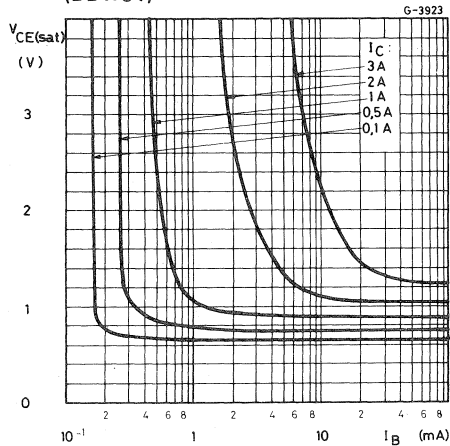
Collector-emitter saturation voltage
(BDW91)



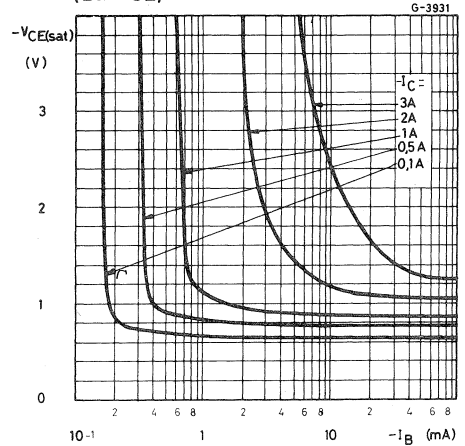
Collector-emitter saturation voltage
(BDW92)



Collector-emitter saturation voltage
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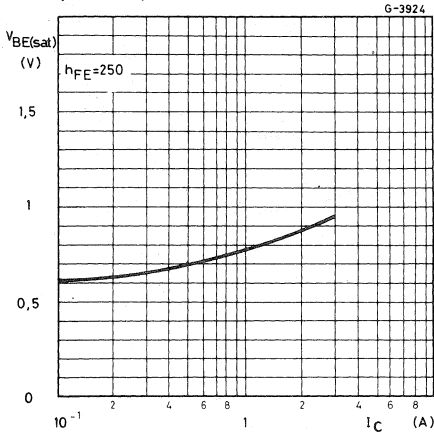
Collector-emitter saturation voltage
(BDW92)



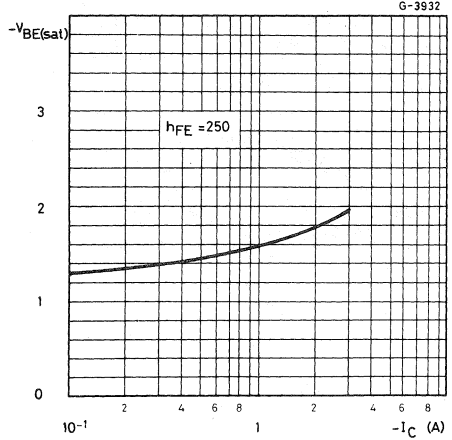


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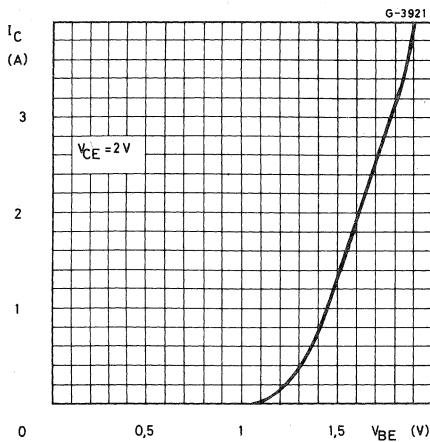
Base-emitter saturation voltage
(BDW91)



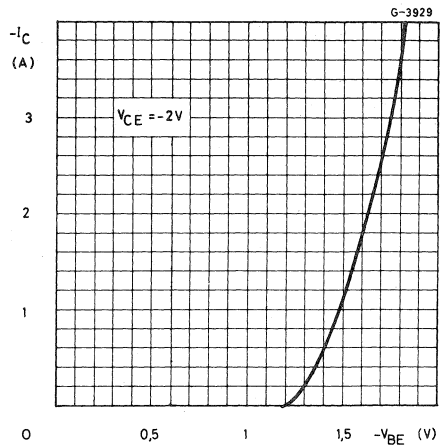
Base-emitter saturation voltage
(BDW92)



DC transconductance (BDW91)



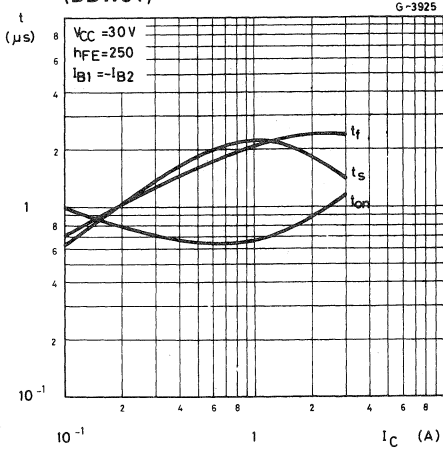
DC transconductance (BDW92)





BDW91
BDW92

Saturated switching characteristics
(BDW91)



Saturated switching characteristics
(BDW92)

