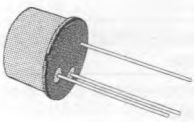
SGS-THOMSON
MICROELECTRONICS

BDW91
BDW92

MEDIUM POWER DARLINGTON

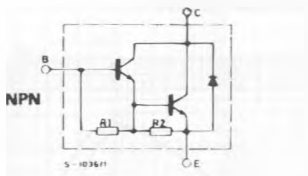
DESCRIPTION

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.

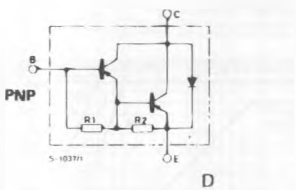


TO-39

INTERNAL SCHEMATIC DIAGRAMS



R1 Typ. 10kΩ
R2 Typ. 150Ω



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R1 Typ. 10kΩ
R2 Typ. 150Ω

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 $T_{case} \leq 25$ °C $T_{amb} \leq 25$ °C	10 1	W W
T_{stg}	Storage Temperature	– 65 to 200	°C
T_j	Junction Temperature	200	°C

For PNP type voltage and current values are negative.

THERMAL DATA

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

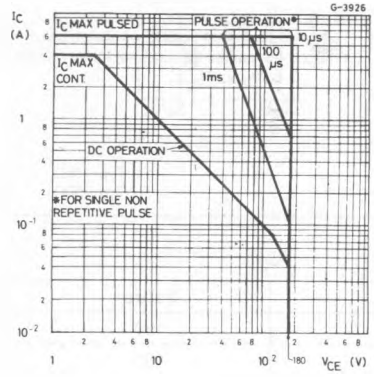
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current (I_E = 0)	V_{CB} = 180 V				50	µA
I_{CEO}	Collector Cutoff Current (I_B = 0)	V_{CE} = 90 V				50	µA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	V_{EB} = 6 V		0.4		2	mA
$V_{CEO(sus)}$*	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	V_{CE} = 5 V V_{CE} = 5 V	1000 150	3000 300		
V_F*	Parallel Diode Forward Voltage	I_F = 2 A				2.5	V
h_{fe}	Small Signal Current Current Gain	I_C = 0.5 A f = 1 MHz	V_{CE} = 2 V		20		

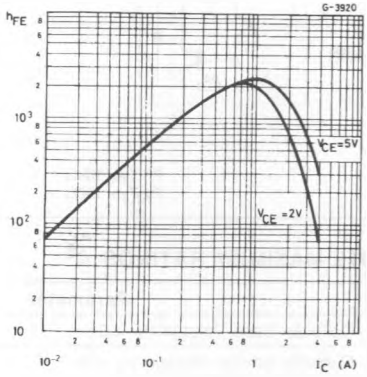
* Pulsed : pulse duration = 300 µsec, duty cycle = 1 %.

For PNP type voltage and current values are negative

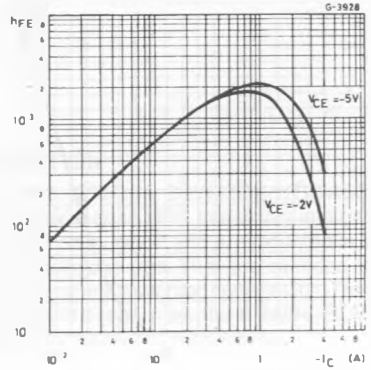
Safe Operating Area.



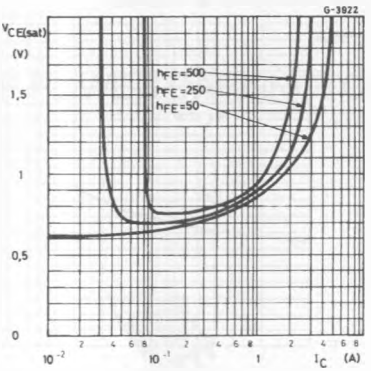
DC Current Gain (BDW91).



DC Current Gain (BDW92)



Collector–emitter Saturation Voltage (BDW91)



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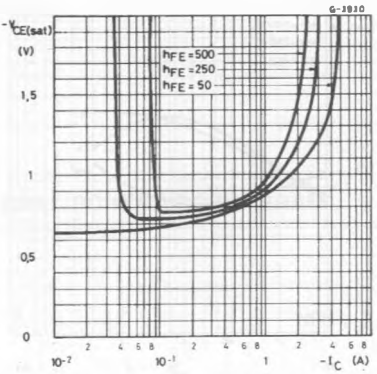

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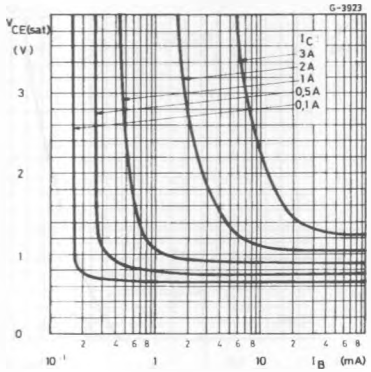

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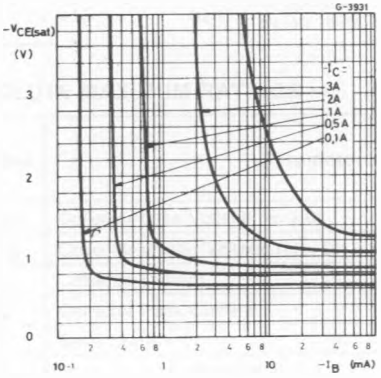
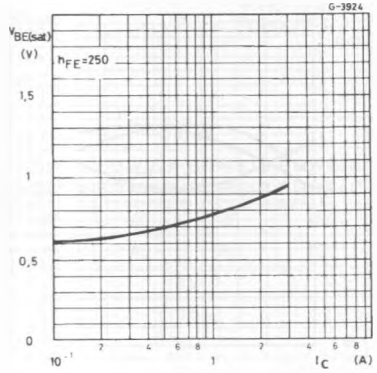
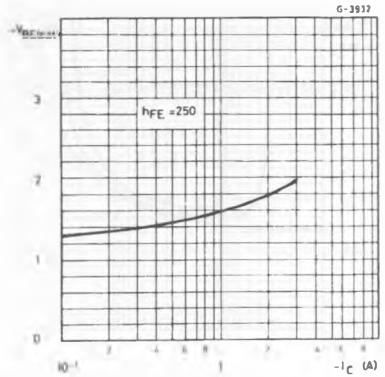


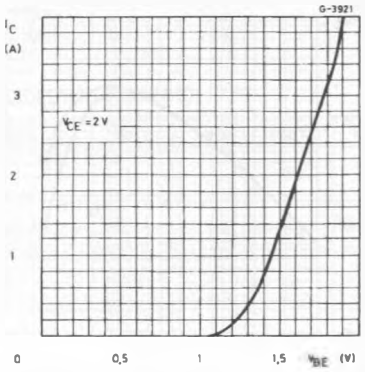
Base–emitter Saturation Voltage (BDW91)



Base–emitter Saturation Voltage (BDW92)



DC Transconductance (BDW91)



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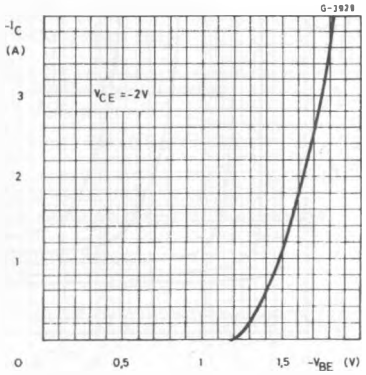
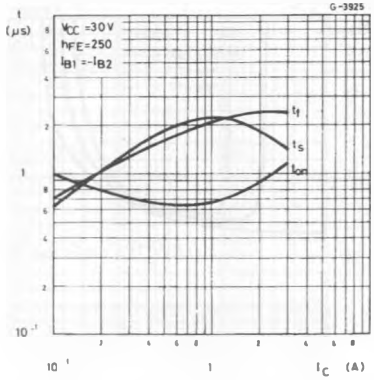


Saturated Switching Characteristics (BDW91)



Saturated Switching Characteristics (BDW92)