

Silicon PNP Darlington Transistor

BDW24B

Medium Power Linear and Switching

80V / 6A

DATASHEET

OEM –SGS Ates

Source: SGS Ates Databook 1977

EPITAXIAL-BASE PNP

**BDW 24
BDW 24A
BDW 24B
BDW 24C**

POWER DARLINGTONS

The BDW 24, BDW 24A, BDW 24B, BDW 24C are silicon epitaxial-base PNP 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.

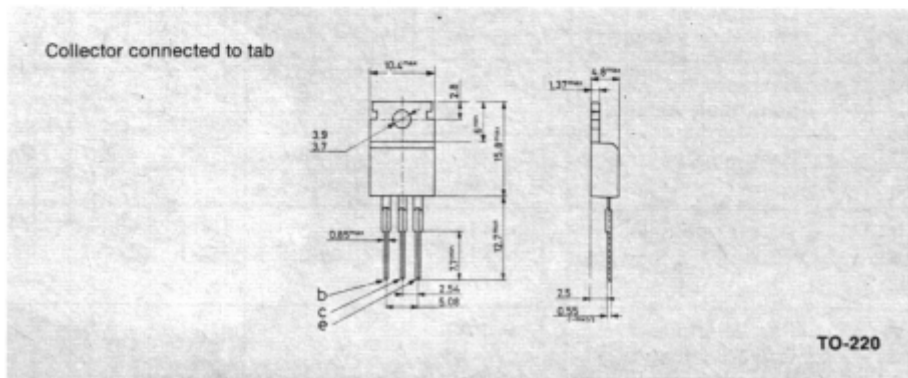
The complementary NPN types are the BDW 23, BDW 23A, BDW 23B and BDW 23C respectively.

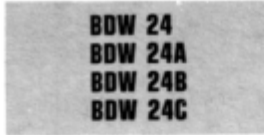
ABSOLUTE MAXIMUM RATINGS

		BDW24	BDW24A	BDW24B	BDW24C
V_{CBO}	Collector-base voltage ($I_E = 0$)	-45V	-60V	-80V	-100V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	-45V	-60V	-80V	-100V
V_{EBO}	Emitter-base voltage ($I_C = 0$)			-5V	
I_C	Collector current			-6A	
I_{CM}	Collector peak current (repetitive)			-8A	
I_B	Base current			-0.2A	
P_{tot}	Total power dissipation at $T_{case} \leq 25^\circ C$			50W	
T_{stg}	Storage temperature			-65 to 150°C	
T_J	Junction temperature			150 °C	

MECHANICAL DATA

Dimensions in mm





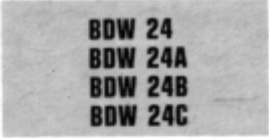
THERMAL DATA

$R_{th\ j-case}$	Thermal resistance junction-case	max	2.5	°C/W
$R_{th\ j-amb}$	Thermal resistance junction-ambient	max	70	°C/W

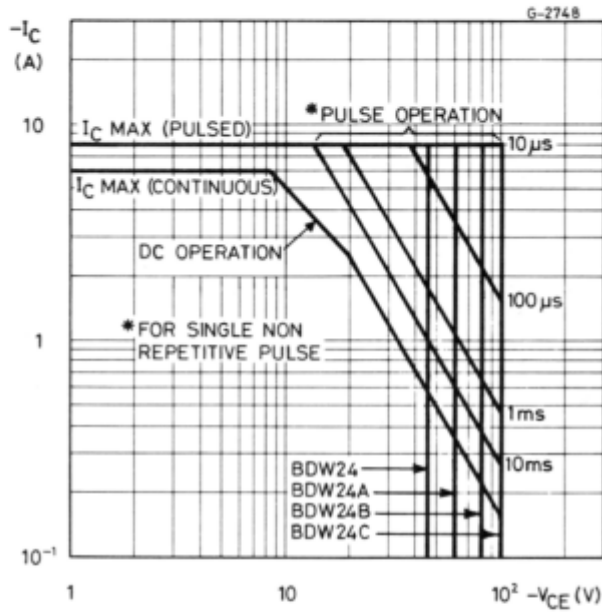
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cutoff current ($I_E = 0$)	for BDW24 for BDW24A for BDW24B for BDW24C	$V_{CB} = -45V$ $V_{CB} = -60V$ $V_{CB} = -80V$ $V_{CB} = -100V$	-200 -200 -200 -200	μA μA μA μA
I_{CEO}	Collector cutoff current ($I_B = 0$)	for BDW24 for BDW24A for BDW24B for BDW24C	$V_{CE} = -22V$ $V_{CE} = -30V$ $V_{CE} = -40V$ $V_{CE} = -50V$	-500 -500 -500 -500	μA μA μA μA
I_{EBO}	Emitter cutoff current ($I_C = 0$)	$V_{EB} = -5 V$		-2	mA
$V_{CEO(sus)}^*$	Collector-emitter sustaining voltage ($I_B = 0$)	$I_C = -100 mA$		-45 -60 -80 -100	V V V V
$V_{CE(sat)}^*$	Collector-emitter saturation voltage	$I_C = -2A$ $I_C = -6A$	$I_B = -8mA$ $I_B = -60mA$	-2 -3	V V
$V_{BE(sat)}^*$	Base-emitter saturation voltage	$I_C = -2A$	$I_B = -8mA$	-2.5	V
V_{BE}^*	Base-emitter voltage	$I_C = -1A$ $I_C = -6A$	$V_{CE} = -3V$ $V_{CE} = -3V$	-2.5 -3.0	V V
h_{FE}^*	DC current gain	$I_C = -1A$ $I_C = -2A$ $I_C = -6A$	$V_{CE} = -3V$ $V_{CE} = -3V$ $V_{CE} = -3V$	1000 750 100	20000 — —
V_F^*	Parallel-diode forward voltage	$I_F = 2A$		1.8	V

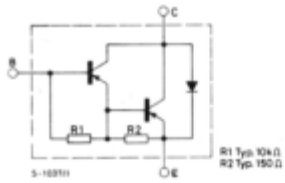
* Pulsed: pulse duration = 300 μs , duty cycle = 1.5%



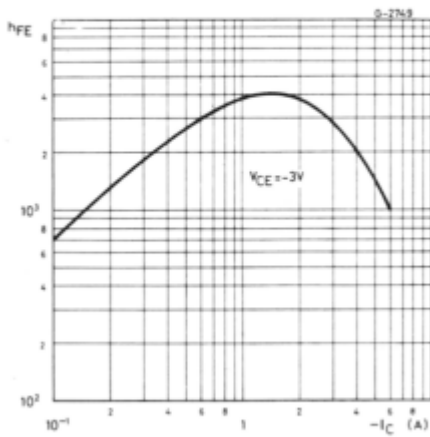
Safe operating areas



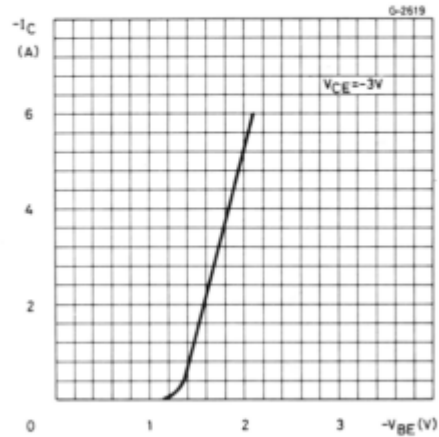
Internal circuit diagram



DC current gain

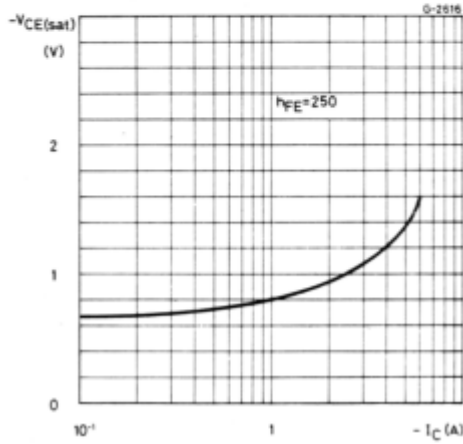


DC transconductance

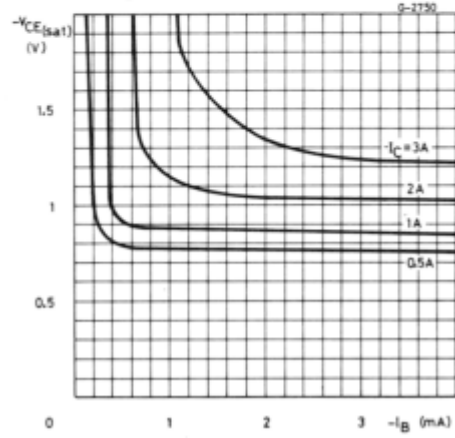




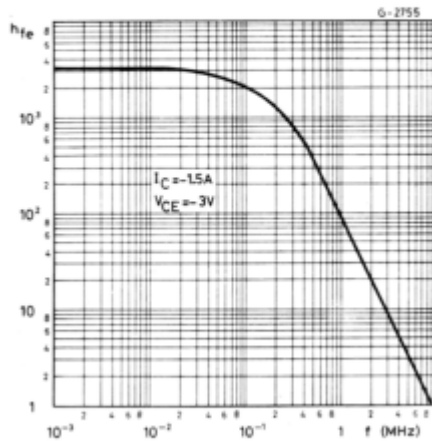
Collector-emitter saturation voltage



Collector-emitter saturation voltage



Small signal current gain



Saturated switching characteristics

