BDW93, BDW94 Series

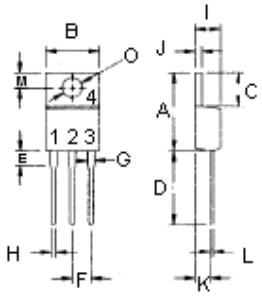
Darlington Transistors

multicomp

Features:

Designed for general-purpose amplifier and low speed switching applications.

- Collector-emitter sustaining voltage-$V_{CEO\ (sus)}$ = 80V (Minimum) - BDW93B, BDW94B
  100V (Minimum) - BDW93C, BDW94C
- Collector-emitter saturation voltage-$V_{CE\ (sat)}$ = 2.0V (Maximum) at I_C = 5.0A.
- Monolithic construction with built-in-base-emitter shunt resistor.



Pin 1. Base
2. Collector
3. Emitter
4. Collector (Case)

Dimension	Minimum	Maximum
A	14.68	15.31
B	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.20	2.97
L	0.33	0.55
M	2.48	2.98
O	3.70	3.90

Dimensions : Millimetres

NPN	PNP
BDW93B	BDW94B
BDW93C	BDW94C

12 Ampere
Darlington
Complementary Silicon
Power Transistors
45 - 100 Volts
80 Watts

TO-220

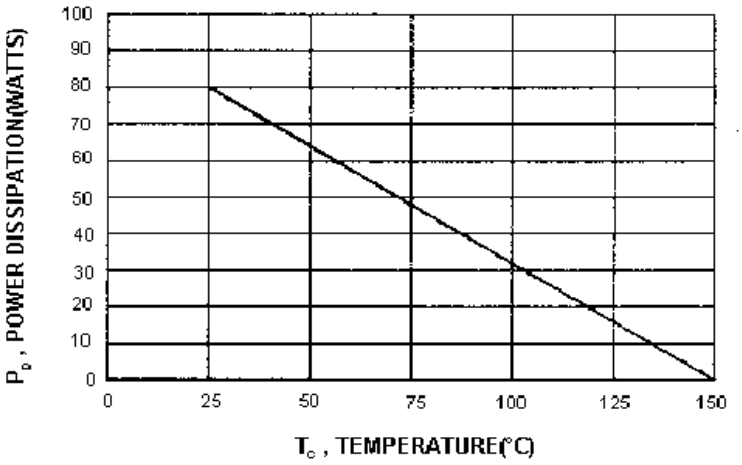
Maximum Ratings

Characteristic	Symbol	BDW93B BDW94B	BDW93C BDW94C	Unit
Collector-Emitter Voltage	V_{CEO}	80	100	V
Collector-Base Voltage	V_{CBO}			
Emitter-Base Voltage	V_{EBO}	5.0		
Collector Current-Continuous Peak	I_C I_{CM}	12 15		A
Base Current	I_B	0.2		A
Total Power Dissipation at T_C = 25°C Derate Above 25°C	P_D	80 0.64		W W/°C
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150		°C

Thermal Characteristics

Characteristic	Symbol	Maximum	Unit
Thermal Resistance Junction to Case	Rθjc	1.56	°C/W

Figure1 Power Derating

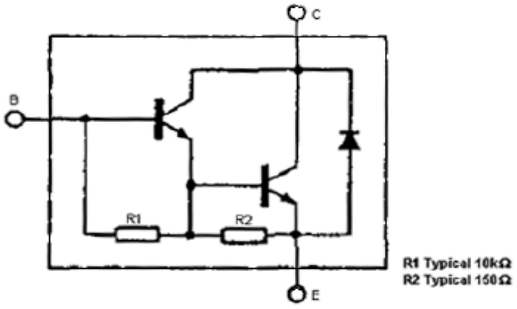


Electrical Characteristics (T_C = 25°C unless otherwise noted)

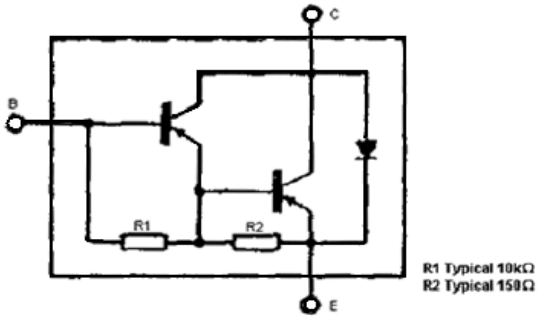
Characteristic		Symbol	Minimum	Maximum	Unit
OFF Characteristics					
Collector-Emitter Sustaining Voltage (1) (I_C = 100mA, I_B = 0)	BDW93B,BDW94B BDW93C,BDW94C	$V_{CEO\ (sus)}$	80 100	-	V
Collector Cut off Current (V_{CE} = 80V, I_B = 0)	BDW93B,BDW94B BDW93C,BDW94C	I_{CEO}	-	1.0	mA
Collector-Base Cut off Current (V_{CB} = Rated V_{CB}, I_E = 0)		I_{CBO}	-	100	µA
Emitter-Base Cut off Current (V_{EB} =5.0V, I_C = 0)		I_{EBO}	-	2.0	mA
ON Characteristics (1)					
DC Current Gain (I_C = 3.0A, V_{CE} = 3.0V) (I_C = 5.0A, V_{CE} = 3.0V) (I_C = 10A, V_{CE} = 3.0V)		hFE	1000 750 100	20,000	-
Collector-Emitter Saturation Voltage (I_C = 5.0A, I_B = 20mA) (I_C = 10A, I_B = 100mA)		$V_{CE\ (sat)}$	-	2.0 3.0	V
Base-Emitter Saturation Voltage (I_C = 5.0A, I_B = 20mA) (I_C = 10A, I_B = 100mA)		$V_{BE\ (sat)}$	-	2.5 4.0	

(1) Pulse Test: Pulse Width = 300µs, Duty Cycle ≤2.0%.

BDW93 Series NPN

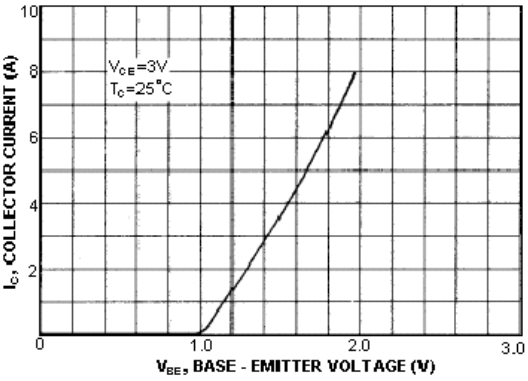


BDW94 Series PNP



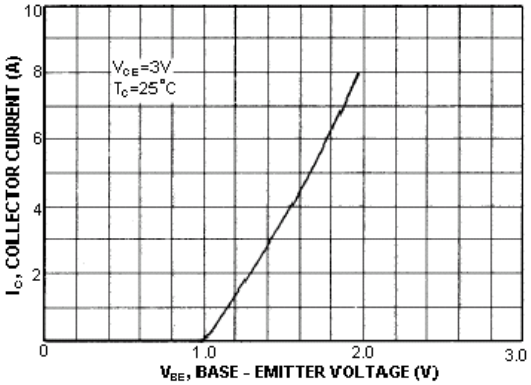
NPN BDW93B and C

I_C - V_{be}

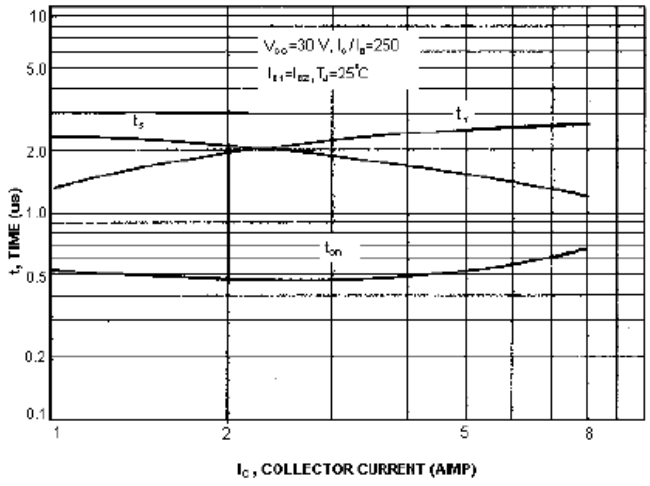


PNP BDW94B and C

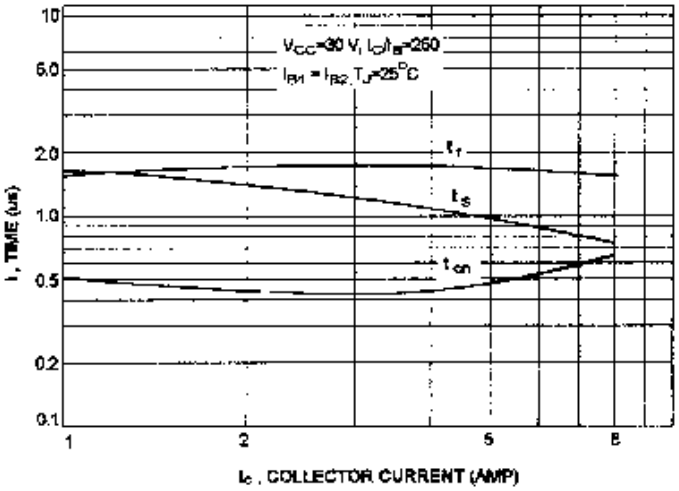
I_C - V_{be}



Switching Time

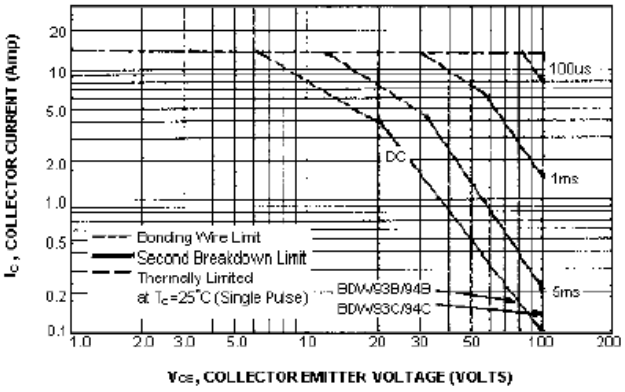


Switching Time



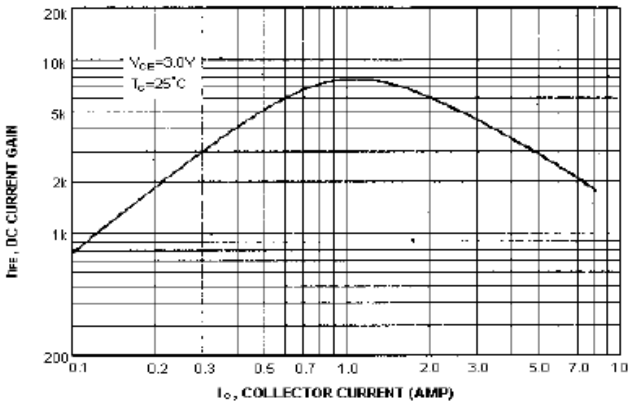
NPN BDW93B and C/PNP BDW94B and C

Active-Region Safe Operating Area (SOA)



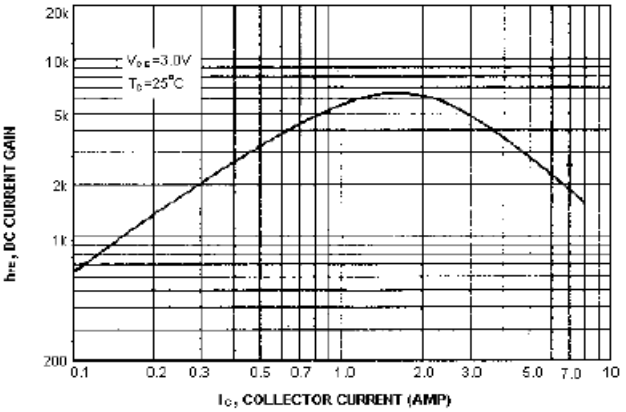
NPN BDW93B and C

DC Current Gain



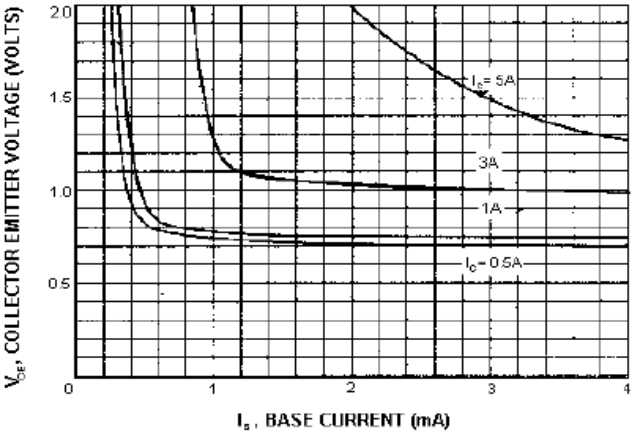
PNP BDW94B and C

DC Current Gain



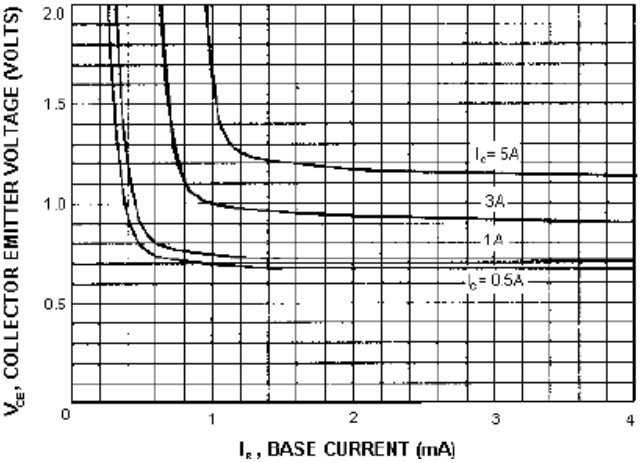
NPN BDW93B and C

Collector Saturation Region



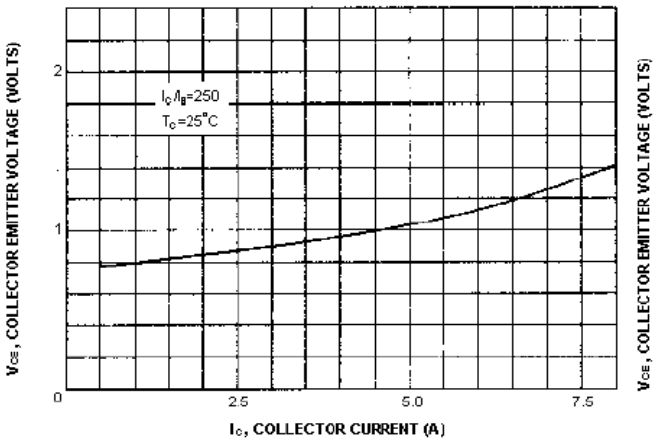
PNP BDW94B and C

Collector Saturation Region



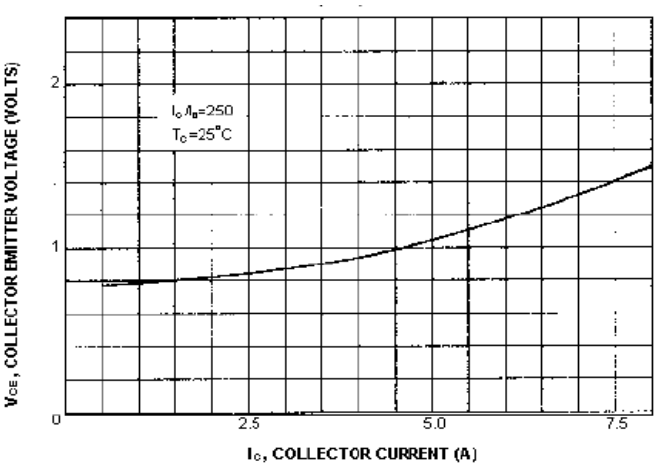
NPN BDW93B and C

$V_{CE\ (Sat)}$ - I_C



PNP BDW94B and C

$V_{CE\ (Sat)}$ - I_C



Specifications

$I_{C\ (av)}$ maximum (A)	V_{CEO} maximum V	h_{FE} minimum at I_c = 5A	P_{tot} at 25°C (W)	Package	Type	Part Number
12	80	750	80	TO-220	NPN	BDW94B
						BDW93B
	100				PNP	BDW93C
						BDW94C

Notes:

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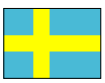

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