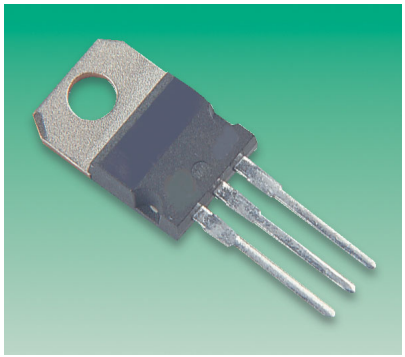
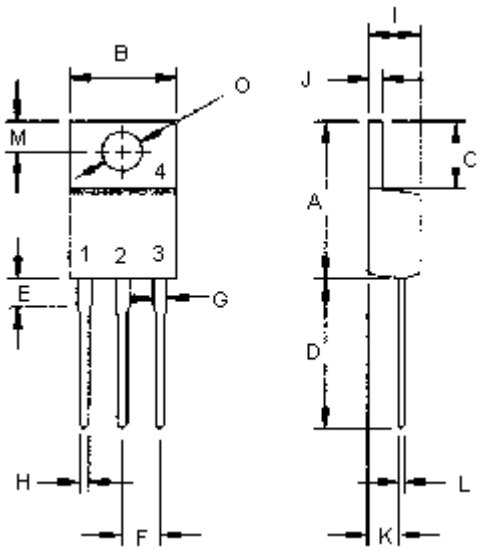
BDW93, BDW94

Darlington Transistors



Features:

- 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)

Dimensions	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 BDW93B BDW93C
PNP BDW94B BDW94C

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

TO-220

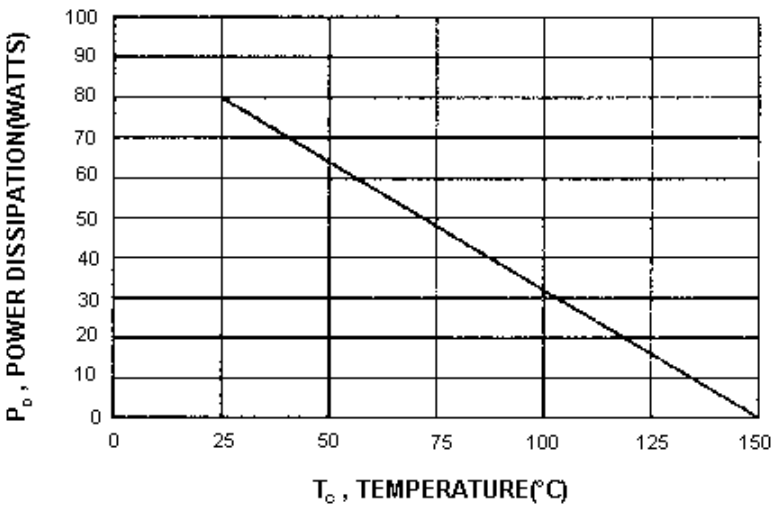
MAXIMUM RATINGS

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		
Total Power Dissipation at T_C = 25°C Derate above 25°C	P_D	80 0.64		W W/°C
Operation and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150		°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Maximum	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	1.56	°C/W

Figure-1 Power Derating

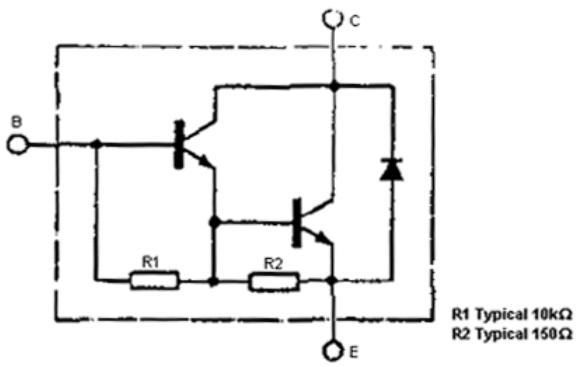


ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

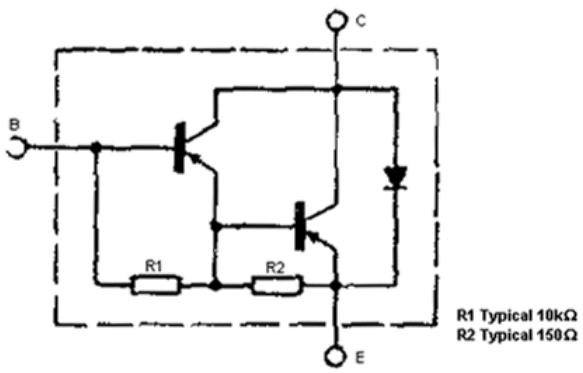
Characteristic	Symbol	Minimum	Maximum	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (1) (I_C = 100mA, I_B = 0) BDW93B, BDW94B BDW93C, BDW94C	$V_{CEO(sus)}$	80 100	-	V
Collector Cut off Current (V_{CE} = 80V, I_B = 0) BDW93B, BDW94B (V_{CE} = 80V, I_B = 0) BDW93C, BDW94C	I_{CEO}	-	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 = 5.0A, V_{CE} = 3.0V) (I_C = 3.0A, V_{CE} = 3.0V) (I_C = 10A, V_{CE} = 3.0V)	h_{FE}	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	V

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

BDW93 Series NPN

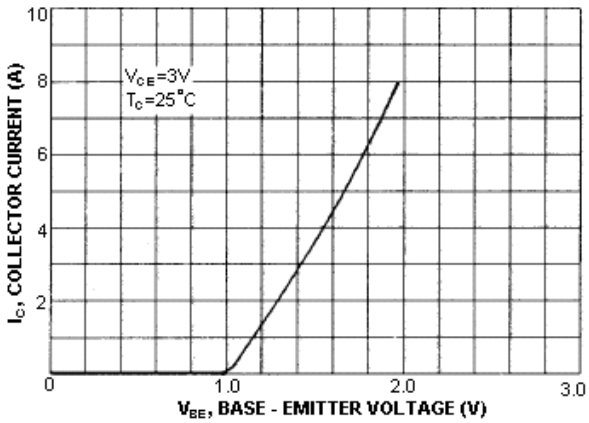


BDW94 Series PNP



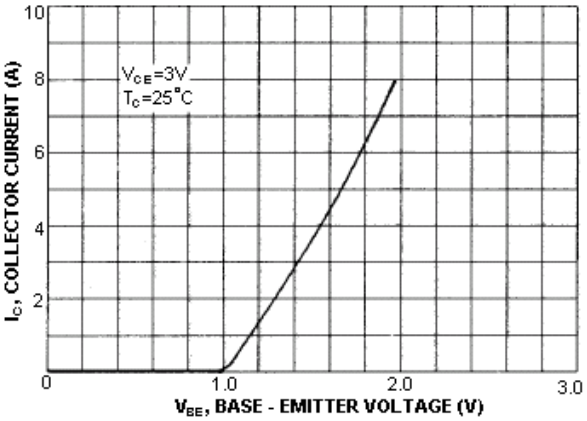
NPN BDW93B and C

I_C - V_{be}

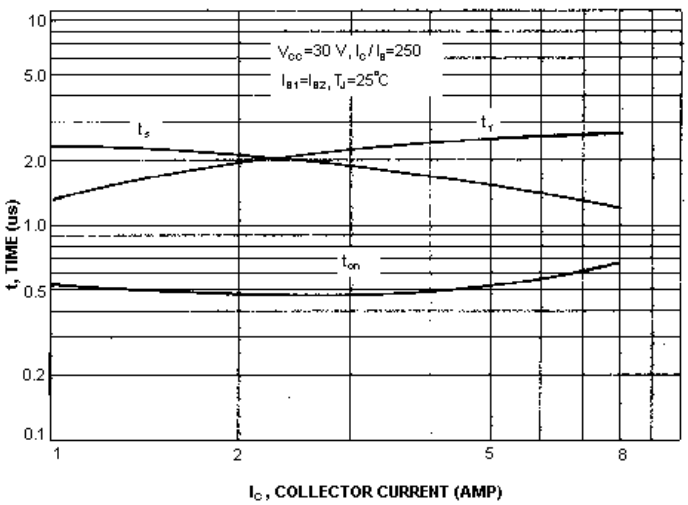


PNP BDW94B and C

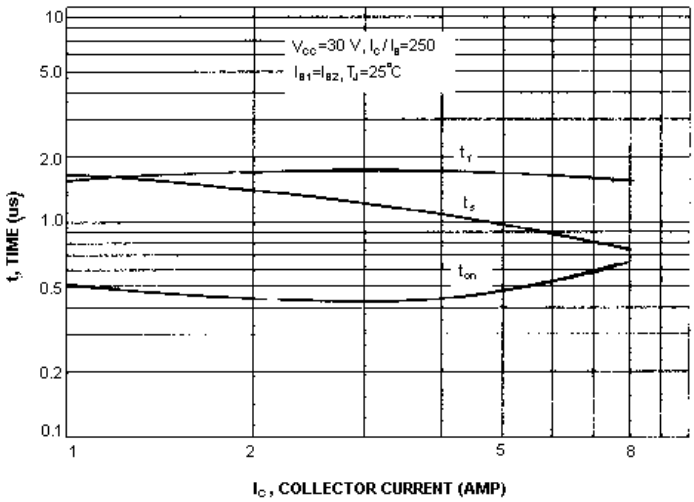
I_C - V_{be}



Switching Time

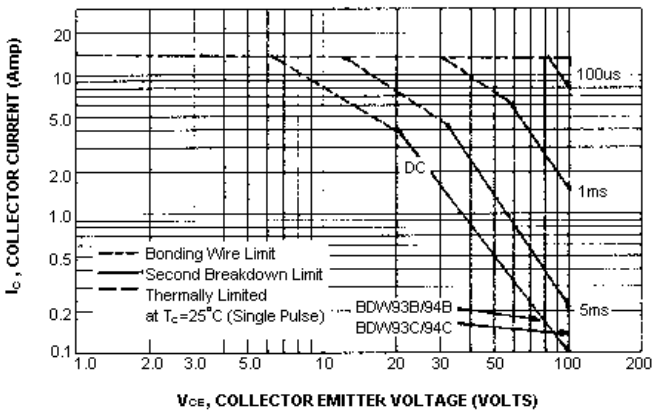


Switching Time



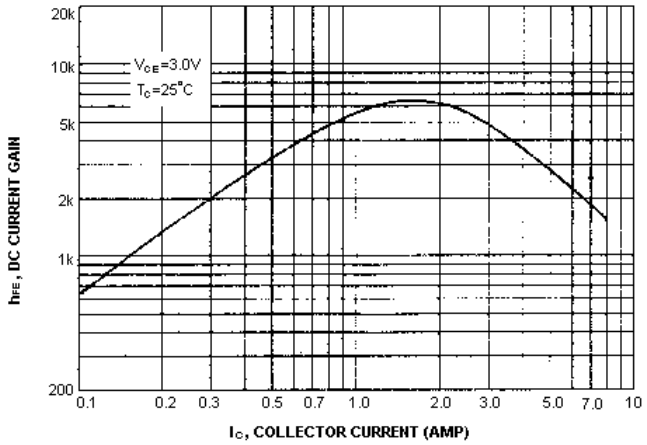
NPN BDW93B and C/PNP BDW94B and C

Active-Region Safe Operating Area (SOA)

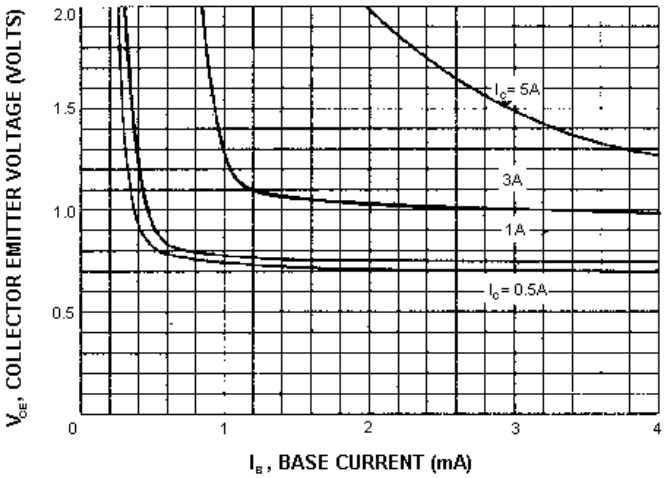


NPN BDW93B and C

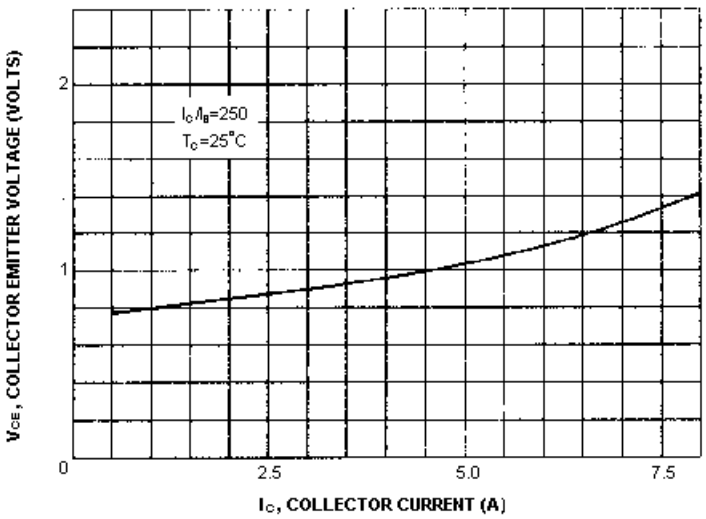
DC Current Gain



Collector Saturation Region

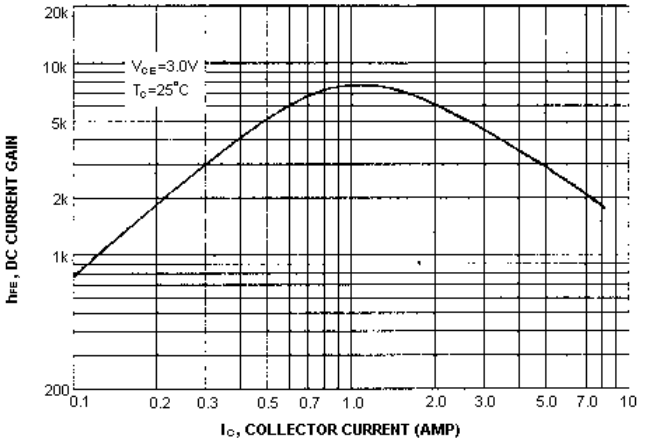


$V_{CE(Sat)}$ - I_C

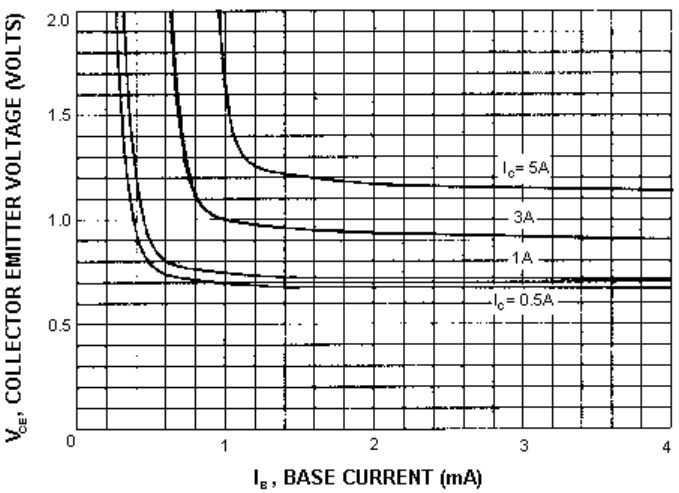


PNP BDW94B and C

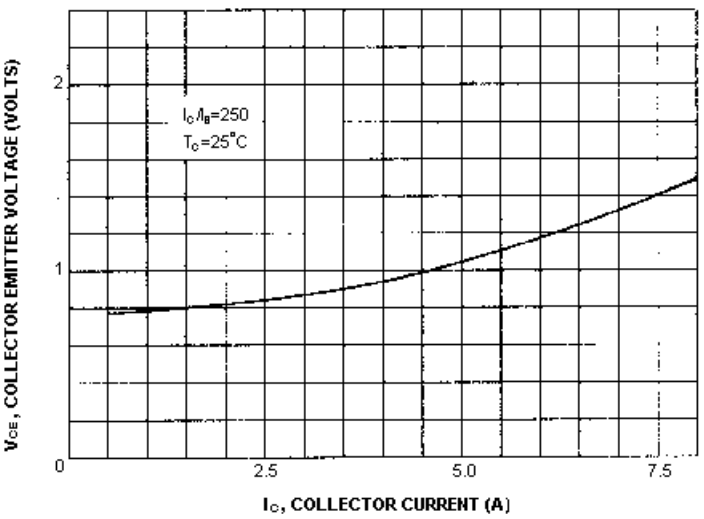
DC Current Gain



Collector Saturation Region



$V_{CE(Sat)}$ - I_C



Specifications

TYPE	Part Number
NPN	BDW93B
	BDW93C
PNP	BDW94B
	BDW94C

Notes:

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AUSTRALIA – Farnell InOne
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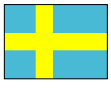

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