

NPN	PNP
BDW93B	BDW94B
BDW93C	BDW94C
12 Amperes Darlington Complementary Silicon Power Transistors 45V - 100V 80W	

Features

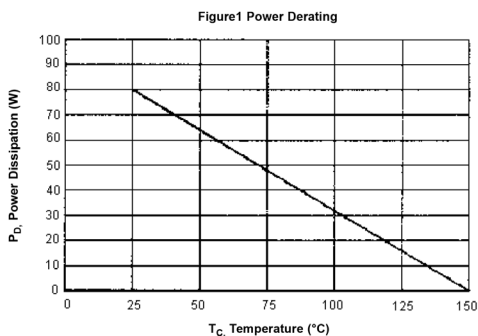
- Designed for general-purpose amplifier and low speed switching applications
- Collector-Emitter sustaining voltage
 $V_{CEO(sus)} = 80V$ (Minimum) - BDW93B, BDW94B
 $= 100V$ (Minimum) - BDW93C, BDW94C
- Collector-Emitter saturation voltage
 $V_{CE(sat)} = 2V$ (Maximum) at $I_c = 5A$
- Monolithic construction with Built-in Base-Emitter shunt resistor

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		
Collector Current - Continuous - Peak	I_c I_{CM}	12 15		A
Base Current	I_b	0.2		
Total Power Dissipation at $T_c = 25^\circ C$ Derate above $25^\circ C$	P_D	80 0.64		W W / $^\circ C$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150		$^\circ C$

Thermal Characteristics

Characteristic	Symbol	Maximum	Unit
Thermal Resistance Junction to case	$R_{\theta JC}$	1.56	$^\circ C / W$

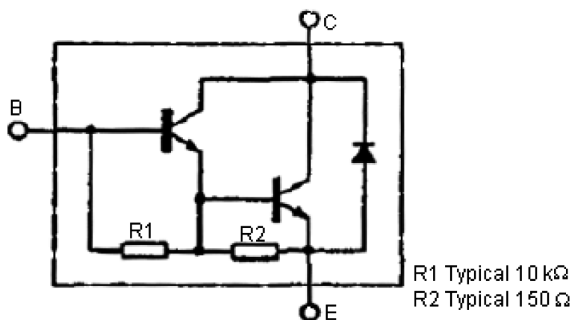


Electrical Characteristics (T_c = 25°C unless otherwise specified)

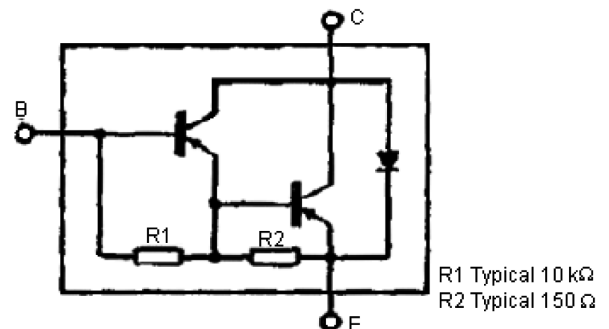
Characteristic	Symbol	Minimum	Maximum	Unit
OFF Characteristics				
Collector - Emitter Sustaining Voltage (1) (I _c = 100mA, I _B = 25mA) BDW93B, BDW94B BDW93C, BDW94C	V _{CEO (sus)}	80 100	-	V
Collector Cut off Current (V _{CE} = 80V, I _B = 0) BDW93B, BDW94B BDW93C, BDW94C	I _{CEO}	-	1	mA
Collector-Base Cut off Current (V _{CB} = Rated V _{CB} , I _E = 0)	I _{CBO}	-	100	μA
Emitter-Base Cut off Current (V _{EB} = 5V, I _C = 0)	I _{EBO}	-	2	mA
ON Characteristics (1)				
DC Current Gain (I _c = 3A, V _{CE} = 3V) (I _c = 5A, V _{CE} = 3V) (I _c = 10A, V _{CE} = 3V)	h _{FE}	1,000 750 100	20,000	-
Collector-Emitter Saturation Voltage (I _c = 5A, I _B = 20mA) (I _c = 10A, I _B = 100mA)	V _{CE (sat)}	-	2 3	V
Base-Emitter Saturation Voltage V (I _c = 5A, I _B = 20mA) (I _c = 10A, I _B = 100mA)	V _{BE (sat)}	-	2.5 4	

(1) Pulse Test : Pulse Width = 300μs, Duty Cycle = 2%

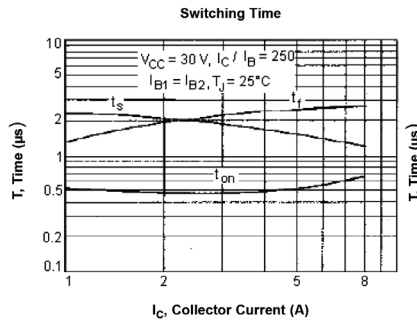
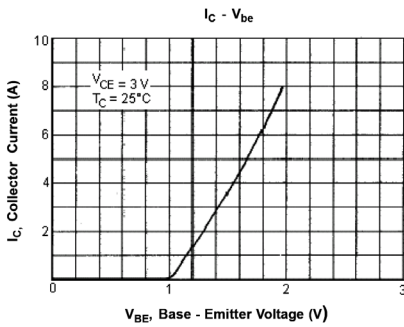
BDW93 Series NPN



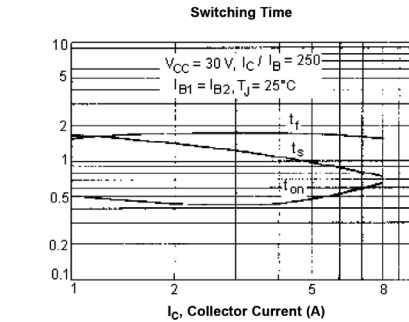
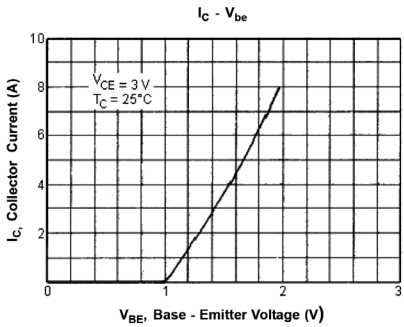
BDW94 Series PNP



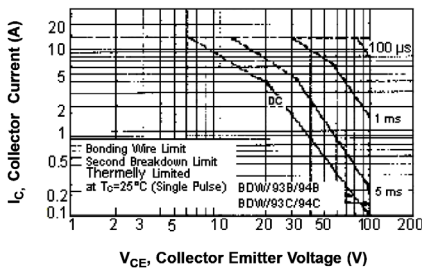
BDW93 Series NPN



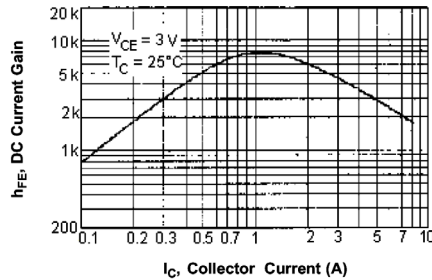
BDW94 Series PNP



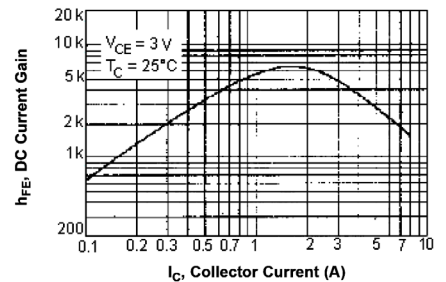
NPN BDW93B and C/PNP BDW94B and C
Active-Region Safe Operating Area (SOA)



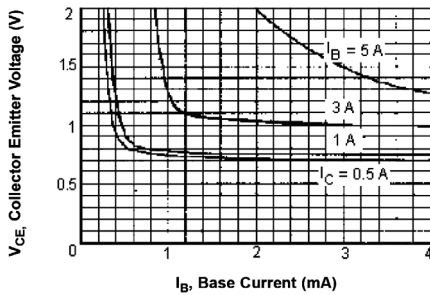
NPN BDW93B and C
DC Current Gain



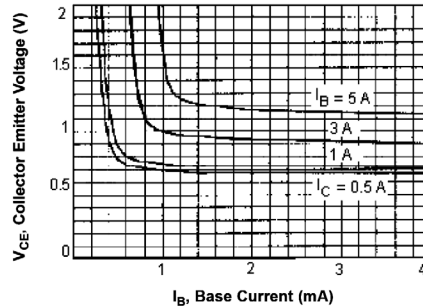
PNP BDW94B and C
DC Current Gain



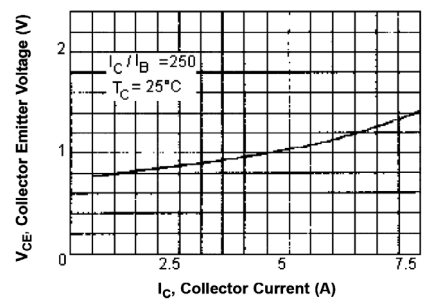
NPN BDW93B and C
Collector Saturation Region



PNP BDW94B and C
Collector Saturation Region

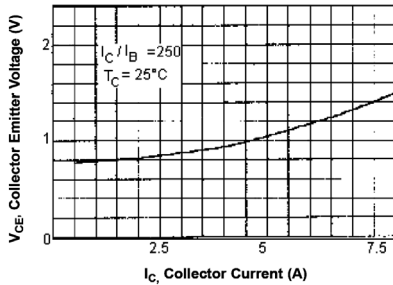


NPN BDW93B and C
VCE(sat) - IC

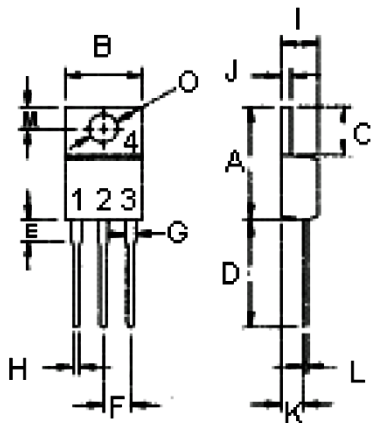


PNP BDW94B and C

$$V_{CE(sat)} - I_c$$



Diagram



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

Dimensions	Minimum	Maximum
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.2	2.97
L	0.33	0.55
M	2.48	2.98
O	3.7	3.9

Dimensions : Millimetres

Specification Table

I_c (AV) Maximum (A)	V_{CE0} 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

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