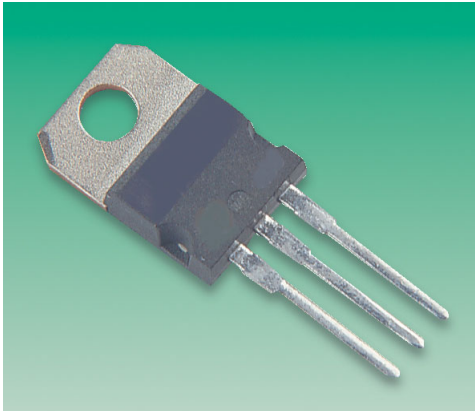


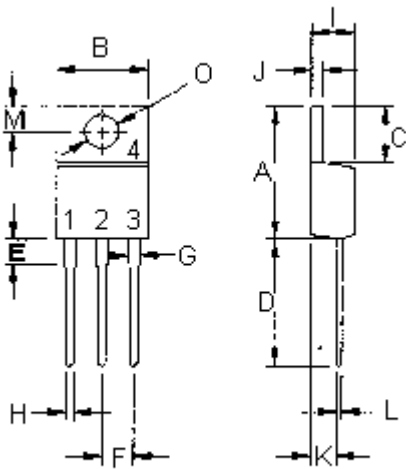
BDX33, 34

Darlington Transistors



Features:

- Collector-Emitter sustaining voltage-
 $V_{CEO(sus)}$ = 80V (Minimum) - BDX33B, BDX34B
 = 100V (Minimum) - BDX33C, BDX34C
- Monolithic construction with Built-in Base-Emitter shunt resistor.



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

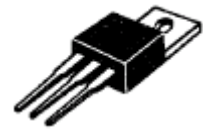
Dimensions	Minimum	Maximum
A	14.68	15.31
B	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.20	2.97
L	0.33	0.55
M	2.48	2.98
O	3.70	3.90

Dimensions : Millimetres

NPN
 BDX33B
 BDX33C

PNP
 BDX34B
 BDX34C

10 Ampere
 Complementary Silicon
 Power Transistors
 80 - 100 Volts
 70 Watts



TO-220



BDX33, 34

Darlington Transistors



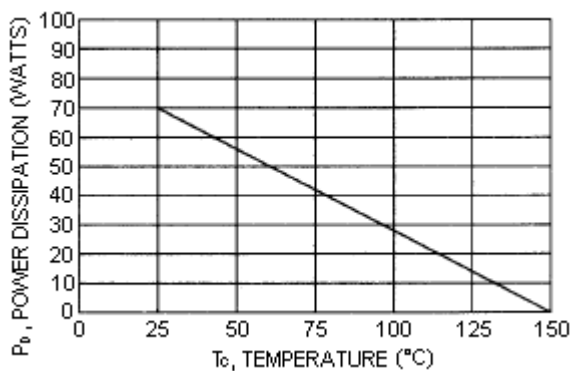
MAXIMUM RATINGS

Characteristic	Symbol	BDX33B BDX34B	BDX33C BDX34C	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}	10 15		A
Base Current	I_B	0.25		
Total Power Dissipation at $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	70 0.56		W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150		$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Maximum	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	1.78	$^\circ\text{C}/\text{W}$

Figure - 1 Power Derating



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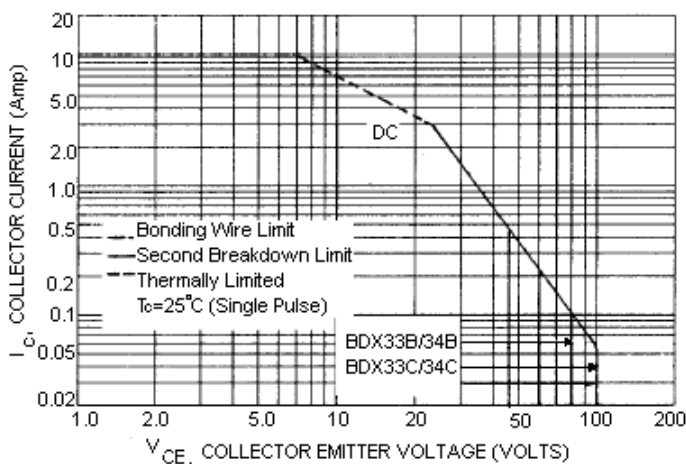


ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Minimum	Maximum	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (1) ($I_C = 100\text{mA}$, $I_B = 0$) BDX33B, BDX34B BDX33C, BDX34C	$V_{CEO(sus)}$	80 100	-	V
Collector Cut off Current ($V_{CE} = 40\text{V}$, $I_B = 0$) BDX33B, BDX34B ($V_{CE} = 50\text{V}$, $I_B = 0$) BDX33C, BDX34C	I_{CEO}	-	0.5 0.5	mA
Collector-Base Cut off Current ($V_{CB} = \text{Rated } V_{CB}$, $I_E = 0$)	I_{CBO}	-	200	μA
Emitter-Base Cut off Current ($V_{EB} = 5.0\text{V}$, $I_C = 0$)	I_{EBO}	-	10	mA
ON CHARACTERISTICS (1)				
DC Current Gain ($I_C = 3.0\text{A}$, $V_{CE} = 3.0\text{V}$) BDX33B/33C/34B/34C	hFE	750	-	-
Collector-Emitter Saturation Voltage ($I_C = 3.0\text{A}$, $I_B = 6.0\text{mA}$) BDX33B/33C/34B/34C	$V_{CE(sat)}$	-	2.5	V
Base-Emitter On Voltage ($I_C = 3.0\text{A}$, $V_{CE} = 3.0\text{V}$) BDX33B/33C/34B/34C	$V_{BE(on)}$	-	2.5	

(1) Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$

Figure - 2 Safe Operating Area



There are two limitations on the power handling ability of a transistor: average junction temperature and second breakdown safe operating area curves indicate I_C - V_{CE} limits of the transistor that must be observed for reliable operation i.e., the transistor must not be subjected to greater dissipation than the curves indicate.

The data of Figure - 2 is based on $T_{J(PK)} = 150^\circ\text{C}$; T_C is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(PK)} < 150^\circ\text{C}$. At high case temperatures, thermal limitation will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

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Specifications

TYPE	Part Number
NPN	BDX33B
	BDX33C
PNP	BDX34B
	BDX34C

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