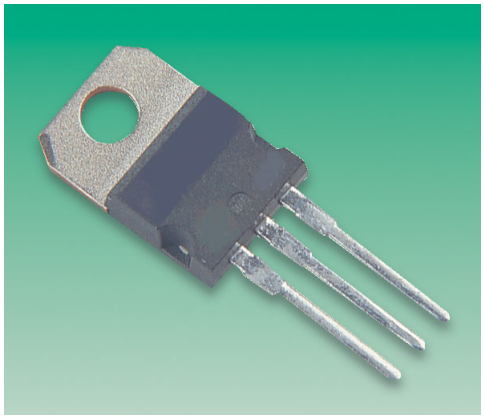
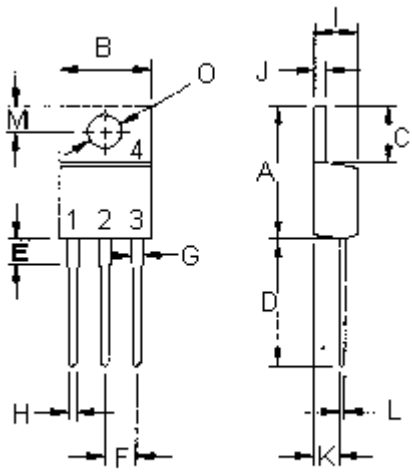
BDX33, 34

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.



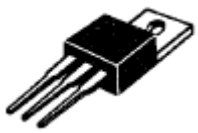
Pin 1. Base
2. Collector
3. Emitter
4. Collector(Case)

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

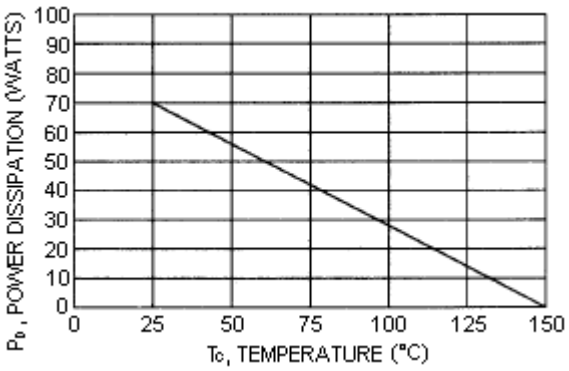
MAXIMUM RATINGS

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°C Derate above 25°C	P_D	70 0.56		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	$R_{\theta jc}$	1.78	°C/W

Figure - 1 Power Derating

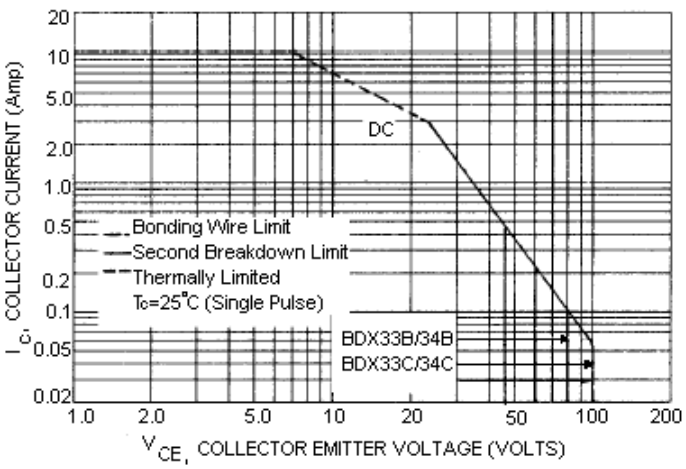


ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

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

(1) Pulse Test: Pulse Width = 300µs, Duty Cycle ≤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°C; T_C is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(PK)}$ <150°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.

Specifications

TYPE	Part Number
NPN	BDX33B
	BDX33C
PNP	BDX34B
	BDX34C

Notes:

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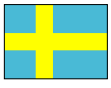

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