NPN BDX33 – BDX33A – BDX33B – BDX33C
PNP BDX34 – BDX34A – BDX34B – BDX34C

COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

The BDX33B, BDX33B and BDX33C are silicon epitaxial-base NPN power transistors in monolithic Darlington configuration and are mounted in Jedec TO-220 plastic package.
They are intented for use in power linear and switching applications.

The complementary PNP types are the BDX34A, BDX34B and BDX34C respectively.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings			Value	Unit
V_{CEO}	Collector-Emitter Voltage		**BDX33** **BDX34**	45	V
			BDX33A **BDX34A**	60	
			BDX33B **BDX34B**	80	
			BDX33C **BDX34C**	100	
V_{CEV}	Collector-EmitterVoltage	I_B=0	**BDX33** **BDX34**	45	V
			BDX33A **BDX34A**	60	
			BDX33B **BDX34B**	80	
			BDX33C **BDX34C**	100	

NPN BDX33 – BDX33A – BDX33B – BDX33C
PNP BDX34 – BDX34A – BDX34B – BDX34C

Symbol	Ratings			Value	Unit
I_C	Collector Current	$I_{C(RMS)}$	**BDX33 BDX33A BDX33B BDX33C BDX34 BDX34A BDX34B BDX34C**	10	A
		I_{CM}	**BDX33 BDX33A BDX33B BDX33C BDX34 BDX34A BDX34B BDX34C**	15	
I_B	Base Current		**BDX33 BDX33A BDX33B BDX33C BDX34 BDX34A BDX34B BDX34C**	0.25	A
P_T	Power Dissipation	@ T_C = 25°	**BDX33 BDX33A BDX33B BDX33C BDX34 BDX34A BDX34B BDX34C**	70	Watts W/°C
T_J	Junction Temperature		**BDX33 BDX33A BDX33B BDX33C**	-65 to +150	°C
T_S	Storage Temperature		**BDX34 BDX34A BDX34B BDX34C**		

NPN BDX33 – BDX33A – BDX33B – BDX33C
PNP BDX34 – BDX34A – BDX34B – BDX34C

THERMAL CHARACTERISTICS

Symbol	Ratings		Value	Unit
R_{thJ-C}	Thermal Resistance, Junction to Case	**BDX33 BDX33A BDX33B BDX33C BDX34 BDX34A BDX34B BDX34C**	1.78	°C/W

ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)		Min	Typ	Mx	Unit
$V_{CEO(SUS)}$	Collector-Emitter Breakdown Voltage (*)	I_C=100 mA	**BDX33 BDX34**	45	-	-	V
			BDX33A BDX34A	60	-	-	
			BDX33B BDX34B	80	-	-	
			BDX33C BDX34C	100	-	-	
$V_{CER(SUS)}$	Collector-Emitter Sustaining Voltage (*)	I_B=100 mA, R_{BE}=100Ω	**BDX33 BDX34**	45	-	-	V
			BDX33A BDX34A	60	-	-	
			BDX33B BDX34B	80	-	-	
			BDX33C BDX34C	100	-	-	

NPN BDX33 – BDX33A – BDX33B – BDX33C
PNP BDX34 – BDX34A – BDX34B – BDX34C

Symbol	Ratings		Test Condition(s)		Min	Typ	Mx	Unit
$V_{CEV(SUS)}$	Collector-Emitter Sustaining Voltage (*)		I_C=100 mA, V_{BE}=-1.5 V	**BDX33 BDX34**	45	-	-	V
				BDX33A BDX34A	60	-	-	
				BDX33B BDX34B	80	-	-	
				BDX33C BDX34C	100	-	-	
I_{CEO}	Collector Cutoff Current	T_{CASE}=25°C	V_{CB}=22V	**BDX33 BDX34**	-	-	0.5	mA
			V_{CB}=30V	**BDX33A BDX34A**	-	-		
			V_{CB}=40V	**BDX33B BDX34B**	-	-		
			V_{CB}=50V	**BDX33C BDX34C**	-	-		
		T_{CASE}=100°C	V_{CB}=22V	**BDX33 BDX34**	-	-	10	
			V_{CB}=30V	**BDX33A BDX34A**	-	-		
			V_{CB}=40V	**BDX33B BDX34B**	-	-		
			V_{CB}=50V	**BDX33C BDX34C**	-	-		
I_{EBO}	Emitter Cutoff Current		V_{BE}=-5 V	**BDX33 BDX33A BDX33B BDX33C BDX34 BDX34A BDX34B BDX34C**	-	-	5.0	mA
I_{CBO}	Collector-Base Cutoff Current	T_{CASE}=25°C	V_{CBO}=-45 V	**BDX33 BDX34**	-	-	0.2	mA
			V_{CBO}=-60 V	**BDX33A BDX34A**	-	-		
			V_{CBO}=-80 V	**BDX33B BDX34B**	-	-		
			V_{CBO}=100 V	**BDX33C BDX34C**	-	-		

NPN BDX33 – BDX33A – BDX33B – BDX33C
PNP BDX34 – BDX34A – BDX34B – BDX34C

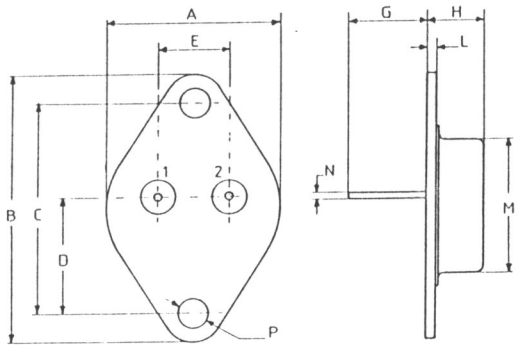
Symbol	Ratings		Test Condition(s)		Min	Typ	Mx	Unit
I_{CBO}	Collector-Base Cutoff Current	T_{CASE}=100°C	V_{CBO}=45 V	**BDX33 BDX34**	-	-	5	mA
			V_{CBO}=60 V	**BDX33A BDX34A**	-	-		
			V_{CBO}=80 V	**BDX33B BDX34B**	-	-		
			V_{CBO}=100 V	**BDX33C BDX34C**	-	-		
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)		I_C=4.0 A, I_B=8.0 mA	**BDX33 BDX33A BDX34 BDX34A**	-	-	2.5	V
			I_C=3.0 A, I_B=6.0 mA	**BDX33B BDX33C BDX34B BDX34C**	-	-	2.5	
V_F	Forward Voltage (pulse method)		I_F=8 A	**BDX33 BDX33A BDX33B BDX33C BDX34 BDX34A BDX34B BDX34C**	-	-	4.0	V
V_{BE}	Base-Emitter Voltage (*)		I_C=4.0 A, V_{CE}=3.0V	**BDX33 BDX33A BDX34 BDX34A**	-	-	2.5	V
			I_C=3.0 A, V_{CE}=-3V	**BDX33B BDX33C BDX34B BDX34C**	-	-	2.5	
h_{FE}	DC Current Gain (*)		V_{CE}=3.0 V, I_C=4.0 A	**BDX33 BDX33A BDX34 BDX34A**	750	-	-	-
			V_{CE}=3.0 V, I_C=3.0 A	**BDX33B BDX33C BDX34B BDX34C**	750	-	-	

(*) Pulse Width ≈ 300 µs, Duty Cycle ∠ 2.0%
(1) collector-Emitter voltage limited et V_{CEci} = V rated by an auxiliary circuit

NPN BDX33 – BDX33A – BDX33B – BDX33C
PNP BDX34 – BDX34A – BDX34B – BDX34C

MECHANICAL DATA CASE TO-3

DIMENSIONS		
	mm	inches
A	25,51	1,004
B	38,93	1,53
C	30,12	1,18
D	17,25	0,68
E	10,89	0,43
G	11,62	0,46
H	8,54	0,34
L	1,55	0,6
M	19,47	0,77
N	1	0,04
P	4,06	0,16



Pin 1 :	Base
Pin 2 :	Collector
Case :	Emitter