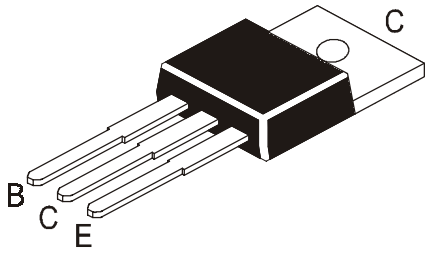


**NPN/PNP PLASTIC POWER TRANSISTORS**

**BDX33, 33A, 33B, 33C, 33D  
BDX34, 34A, 34B, 34C, 34D**



**TO-220  
Plastic Package**

**Power Darlington for Linear Switching Application**

**ABSOLUTE MAXIMUM RATINGS**

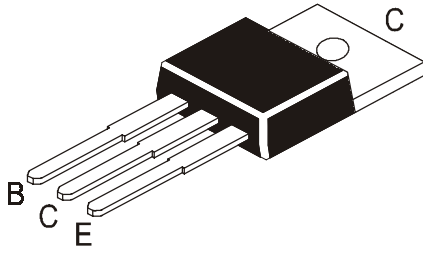
DESCRIPTION	SYMBOL	BDX33 BDX34	BDX33A BDX34A	BDX33B BDX34B	BDX33C BDX34C	BDX33D BDX34D	UNIT
Collector -Emitter Voltage	$V_{CEO}$	45	60	80	100	120	V
Collector -Base Voltage	$V_{CBO}$	45	60	80	100	120	V
Emitter -Base Voltage	$V_{EBO}$			5.0			V
Collector Current - Continuous	$I_C$			10			A
Peak	$I_{CM}$			15			A
Base Current	$I_B$			0.25			A
Device Dissipation @ $T_c=25^\circ\text{C}$	$P_D$			70			W
Derate Above $25^\circ\text{C}$				0.56			W/ $^\circ\text{C}$
Operating And Storage Junction	$T_j, T_{stg}$			-65 to +150			$^\circ\text{C}$
Temperature Range							
<b>THERMAL RESISTANCE</b>							
Junction to Case	$R_{th(j-c)}$			1.78			$^\circ\text{C/W}$

**ELECTRICAL CHARACTERISTICS ( $T_c=25^\circ\text{C}$  Unless Otherwise Specified)**

DESCRIPTION	SYMBOL	TEST CONDITION	BDX33 BDX34	BDX33A BDX34A	BDX33B BDX34B	BDX33C BDX34C	BDX33D BDX34D	UNIT
Breakdown (sus) Voltage	$V_{CEO(sus)}^*$	$I_C=100\text{mA}, I_B=0$	>45	>60	>80	>100	>120	V
	$V_{CER(sus)}^*$	$I_C=100\text{mA}, R_{BE}=100\ \Omega$	>45	>60	>80	>100	>120	V
	$V_{CEX(sus)}^*$	$I_C=100\text{mA}, V_{BE}=1.5\text{V}$	>45	>60	>80	>100	>120	V
Collector-Cut off Current	$I_{CEO}$	$V_{CE}=1/2\text{rated}$ $V_{CEO}, I_B=0$	<0.5	<0.5	<0.5	<0.5	<0.5	mA
		$T_c=100^\circ\text{C}$ $V_{CE}=1/2\text{rated}$ $V_{CEO}, I_B=0$	<10	<10	<10	<10	<10	mA
	$I_{CBO}$	$I_E=0, V_{CB}=\text{Rated}$ $V_{CBO}, T_c=100^\circ\text{C}$ $I_E=0, V_{CB}=\text{Rated}$ $V_{CBO}$	<1	<1	<1	<1	<1	mA
			<5	<5	<5	<5	<5	mA

# NPN/PNP PLASTIC POWER TRANSISTORS

**BDX33, 33A, 33B, 33C, 33D  
BDX34, 34A, 34B, 34C, 34D**



**TO-220  
Plastic Package**

## ELECTRICAL CHARACTERISTICS (Tc=25°C Unless Otherwise Specified)

DESCRIPTION	SYMBOL	TEST CONDITION	BDX33	BDX33A	BDX33B	BDX33C	BDX33D	UNIT
			BDX34	BDX34A	BDX34B	BDX34C	BDX34D	
Emitter-Cut off Current	$I_{EBO}$	$V_{EB}=5V, I_C=0$	<10	<10	<10	<10	<10	mA
Collector Emitter Saturation Voltage	$V_{CE(Sat)}^*$	$I_C=4A, I_B=8mA$	<2.5	<2.5				V
Base Emitter on Voltage	$V_{BE(on)}^*$	$I_C=3A, I_B=6mA$			<2.5	<2.5	<2.5	V
DC Current Gain	$h_{FE}^*$	$I_C=4A, V_{CE}=3V$	<2.5V	<2.5				V
		$I_C=3A, V_{CE}=3V$			<2.5	<2.5	<2.5	V
Diode Forward Voltage	$V_F$	$I_C=4A, V_{CE}=3V$	>750	>750	-	-	-	
		$I_C=3A, V_{CE}=3V$			>750	>750	>750	
SECOND BREAKDOWN		$I_C=8A$ ALL			<4			V
Secondbreakdown Collector Current With Base Forward Biased (non-repetitive)	$I_{S/b}^{**}$	$V_{CE}=25V,$ BDX33 Series			>2.8			A
		$V_{CE}=20V,$ BDX34 Series			>3.5			A
		$V_{CE}=36V,$ BDX33 Series			>1.0			A
		$V_{CE}=33V,$ BDX34 Series	—		>1.0			A

## ELECTRICAL CHARACTERISTICS (Tc=25°C Unless Otherwise Specified)

DESCRIPTION	SYMBOL	TEST CONDITION	VALUE		UNIT
			min	max	
<b>DYNAMIC CHARACTERISTICS</b>					
Small- Signal Current Gain	$ h_{fe} $	$I_C=1A, V_{CE}=5V,$ $f=1MHz$		1000	
Output Capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0,$ $f=1MHz$			
			BDX33 series		200
		BDX34 series		300	
Transition Frequency	$f_T$	$V_{CE}=5V, I_C=1A,$ $f=1MHz$ ALL		3.0	MHZ

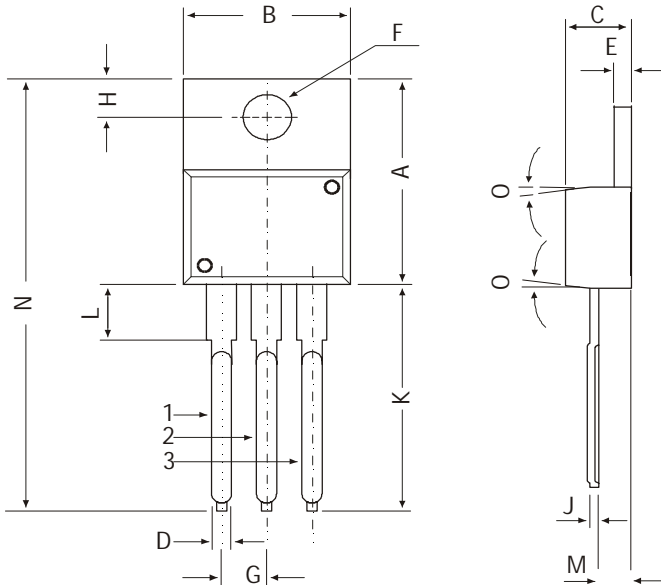
\*Pulse Test:- Pulse Width<300μs, Duty Cycle=<2%

\*\*Pulse Test non- repetitive : Pulse Width=0.25s

**BDX33, 33A, 33B, 33C, 33D  
BDX34, 34A, 34B, 34C, 34D**

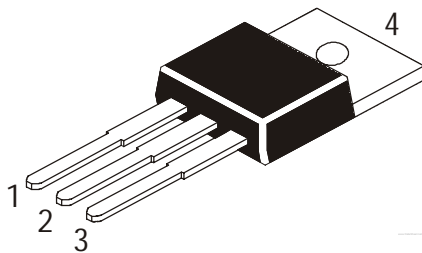
**TO-220  
Plastic Package**

**TO-220 Plastic Package**



DIM	MIN	MAX
A	14.42	16.51
B	9.63	10.67
C	3.56	4.83
D	—	0.90
E	1.15	1.40
F	3.75	3.88
G	2.29	2.79
H	2.54	3.43
J	—	0.56
K	12.70	14.73
L	2.80	4.07
M	2.03	2.92
N	—	31.24
O	7 DEG	

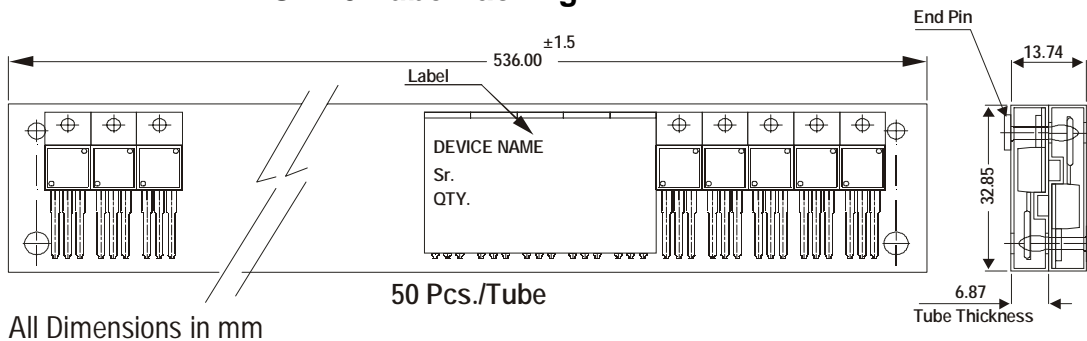
All dimensions in mm.



**Pin Configuration**

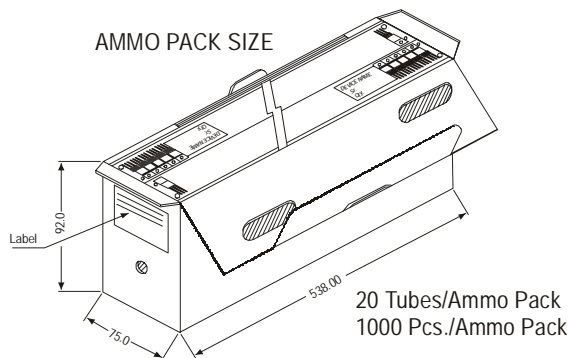
1. Base
2. Collector
3. Emitter
4. Collector

**TO-220 Tube Packing**



All Dimensions in mm

**AMMO PACK SIZE**



20 Tubes/Ammo Pack  
1000 Pcs./Ammo Pack

**Packing Detail**

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-220 / FP	200 pcs/polybag	396 gm/200 pcs	3" x 7.5" x 7.5"	1.0K	17" x 15" x 13.5"	16.0K	36 kgs
	50 pcs/tube	120 gm/50 pcs	3.5" x 3.7" x 21.5"	1.0K	19" x 19" x 19"	10.0K	29 kgs