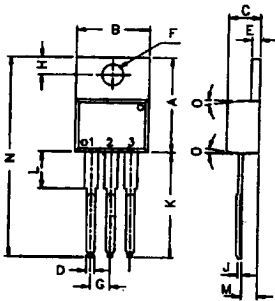
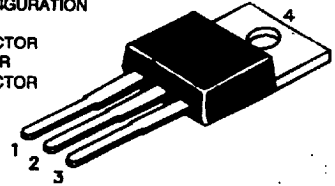


BDX33, A, B, C NPN PLASTIC POWER TRANSISTORS
BDX34, A, B, C PNP PLASTIC POWER TRANSISTORS

Power Darlington for Linear Switching Applications

PIN CONFIGURATION

1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR



ALL DIMENSIONS ARE IN M.M.

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	—	6,35
M	2,03	2,92
N	—	31,24
O	7	DEG

ABSOLUTE MAXIMUM RATINGS

			33/34	A	B	C
Collector-base voltage (open emitter)	V_{CBO}	max.	45	60	80	100 V
Collector-emitter voltage (open base)	V_{CEO}	max.	45	60	80	100 V
Collector current	I_C	max.		10		A
Total power dissipation up to $T_C = 25^\circ\text{C}$	P_{tot}	max.		70		W
Junction temperature	T_j	max.		150		$^\circ\text{C}$
Collector-emitter saturation voltage						
$I_C = 4 \text{ A}; I_B = 8 \text{ mA (BDX33, A, 34, A)}$	V_{CEsat}	max.		2.5		V
$I_C = 3 \text{ A}; I_B = 6 \text{ mA (BDX33B, C, 34B, C)}$	V_{CEsat}	max.		2.5		V
D.C. current gain						
$I_C = 4 \text{ A}; V_{CE} = 3 \text{ V (BDX33, A, 34, A)}$	h_{FE}	min.		750		
$I_C = 3 \text{ A}; V_{CE} = 3 \text{ V (BDX33B, C, 34B, C)}$		min.		750		

RATINGS (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

Limiting values			33	33A	33B	33C
			34	34A	34B	34C
Collector-base voltage (open emitter)	V_{CBO}	max.	45	60	80	100 V
Collector-emitter voltage (open base)	V_{CEO}	max.	45	60	80	100 V

Emitter-base voltage (open collector)	V_{EBO}	max.	5.0	V
Collector current	I_C	max.	10	A
Collector current (peak)	I_{CM}	max.	15	A
Base current	I_B	max.	0.25	A
Total power dissipation up to $T_C = 25^\circ\text{C}$	P_{tot}	max.	70	W
Derate above 25°C		max.	0.56	W/ $^\circ\text{C}$
Junction temperature	T_j	max.	150	$^\circ\text{C}$
Storage temperature	T_{stg}		-65 to +150	$^\circ\text{C}$

CHARACTERISTICS

$T_C = 25^\circ\text{C}$ unless otherwise specified

			33 34	33A 34A	33B 34B	33C 34C
Collector cutoff current						
$I_B = 0$; $V_{CE} = \text{half rated } V_{CEO}$	I_{CEO}	max.		0.5		mA
$I_B = 0$; $V_{CE} = \text{half rated } V_{CEO}$; $T_C = 100^\circ\text{C}$	I_{CEO}	max.		10		mA
$I_E = 0$; $V_{CB} = \text{Rated } V_{CBO}$	I_{CBO}	max.		1.0		mA
$I_E = 0$; $V_{CB} = \text{Rated } V_{CBO}$; $T_C = 100^\circ\text{C}$	I_{CBO}	max.		5.0		mA
Emitter cut-off current						
$I_C = 0$; $V_{EB} = 5\text{V}$	I_{EBO}	max.		10		mA
Breakdown sus voltages						
$I_C = 100\text{ mA}$; $I_B = 0$	$V_{CEO(sus)}^*$	min.	45	60	80	100 V
$I_C = 100\text{ mA}$; $R_{BE} = 100\ \Omega$	$V_{CER(sus)}^*$	min.	45	60	80	100 V
$I_C = 100\text{ mA}$; $V_{BE} = 1.5\text{ V}$	$V_{CEX(sus)}^*$	min.	45	60	80	100 V
Saturation voltages						
$I_C = 4\text{ A}$; $I_B = 8\text{ mA}$ (33, A, 34, A)	V_{CEsat}^*	max.		2.5		V
$I_C = 3\text{ A}$; $I_B = 6\text{ mA}$ (33B, C, 34B, C)	V_{CEsat}^*	max.		2.5		V
Base emitter voltage						
$I_C = 4\text{ A}$; $V_{CE} = 3\text{ V}$ (BDX33/A, 34, A)	$V_{BE(on)}^*$	max.		2.5		V
$I_C = 3\text{ A}$; $V_{CE} = 3\text{ V}$ (33B, C, 34B, C)	$V_{BE(on)}^*$	max.		2.5		V
Diode forward voltage						
$I_F = 8\text{ A}$	V_F	max.		4.0		V
D.C. current gain						
$I_C = 4\text{ A}$; $V_{CE} = 3\text{ V}$ (33, A, 34, A)	h_{FE}^*	min.		750		
$I_C = 3\text{ A}$; $V_{CE} = 3\text{ V}$ (33B, C, 34B, C)	h_{FE}^*	min.		750		
Small signal current gain						
$I_C = 1.0\text{ A}$; $V_{CE} = 5\text{ V}$; $f = 1\text{ MHz}$	h_{fe}	min.		1000		
Transition frequency						
$I_C = 1.0\text{ A}$; $V_{CE} = 5\text{ V}$; $f = 1\text{ MHz}$	f_T	min.		3		MHz
Second breakdown collector current with base forward biased (non-repetitive)						
$V_{CE} = 25\text{ V}$ (BDX33 series)	I_s/b^{**}	min.		2.8		A
$V_{CE} = 20\text{ V}$ (BDX34 series)	I_s/b^{**}	min.		3.5		A
$V_{CE} = 36\text{ V}$ (BDX33 series)	I_s/b^{**}	min.		1.0		A
$V_{CE} = 33\text{ V}$ (BDX34 series)	I_s/b^{**}	min.		1.0		A
Output capacitance; $f = 1\text{ MHz}$						
$V_{CB} = 10\text{V}$; $I_E = 0$ (BDX 33 series)	C_{ob}	max.		200		pF
(BDX 34 series)	C_{ob}	max.		300		pF

* Pulse test: Pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.

** Pulse test non-repetitive: pulse width 0.25 s.