

BDX53, 53A, 53B, 53C

NPN PLASTIC POWER TRANSISTORS

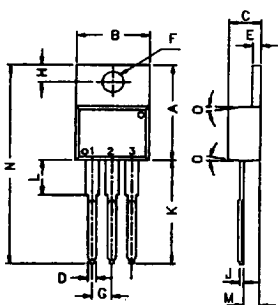
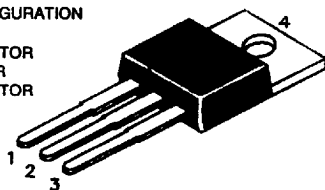
BDX54, 54A, 54B, 54C

PNP PLASTIC POWER TRANSISTORS

Power Darlingtontons for Linear and 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

		53	53A	53B	53C	
		54	54A	54B	54C	
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.		8.0		A
Total power dissipation up to $T_C = 25^\circ C$	P_{tot}	max.		60		W
Junction temperature	T_j	max.		150		$^\circ C$
Collector-emitter saturation voltage						
$I_C = 3 A; I_B = 12 mA$	V_{CEsat}	max.		2.0		V
D.C. current gain						
$I_C = 3 A; V_{CE} = 3 V$	h_{FE}	min.		750		

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

		53	53A	53B	53C	
		54	54A	54B	54C	
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.	8.0	A
Collector current (Peak value)	I_{CM}	max.	12	A
Base current	I_B	max.	0.2	A
Total power dissipation upto $T_C=25^\circ\text{C}$	P_{tot}	max.	60	W
Derate above 25°C		max.	0.48	W/ $^\circ\text{C}$
Junction temperature	T_j	max.	150	$^\circ\text{C}$
Storage temperature	T_{stg}		-65 to +150	$^\circ\text{C}$

THERMAL RESISTANCE

From junction to case	$R_{th\ j-c}$		2.08	$^\circ\text{C/W}$
From junction to ambient	$R_{th\ j-a}$		7.0	$^\circ\text{C/W}$

CHARACTERISTICS

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

			53	53A	53B	53C	
			54	54A	54B	54C	
Collector cutoff current							
$I_B = 0; V_{CB} = 45\text{ V}$	I_{CBO}	max.	0.2	-	-	-	mA
$I_B = 0; V_{CB} = 60\text{ V}$	I_{CBO}	max.	-	0.2	-	-	mA
$I_B = 0; V_{CB} = 80\text{ V}$	I_{CBO}	max.	-	-	0.2	-	mA
$I_B = 0; V_{CB} = 100\text{ V}$	I_{CBO}	max.	-	-	-	0.2	mA
$I_B = 0; V_{CE} = 22\text{ V}$	I_{CEO}	max.	0.5	-	-	-	mA
$I_B = 0; V_{CE} = 30\text{ V}$	I_{CEO}	max.	-	0.5	-	-	mA
$I_B = 0; V_{CE} = 40\text{ V}$	I_{CEO}	max.	-	-	0.5	-	mA
$I_B = 0; V_{CE} = 50\text{ V}$	I_{CEO}	max.	-	-	-	0.5	mA
Emitter cut-off current							
$I_C = 0; V_{EB} = 5\text{ V}$	I_{EBO}	max.		2.0			mA
Breakdown voltages							
$I_C = 100\text{ mA}; I_B = 0$	$V_{CEO(sus)}^*$	min.	45	60	80	100	V
$I_C = 1\text{ mA}; I_E = 0$	V_{CBO}	min.	45	60	80	100	V
$I_E = 1\text{ mA}; I_C = 0$	V_{EBO}	min.		5.0			V
Saturation voltages							
$I_C = 3\text{ A}; I_B = 12\text{ mA}$	V_{CEsat}^*	max.		2.0			V
	V_{BEsat}^*	max.		2.5			V
D.C. current gain							
$I_C = 3\text{ A}; V_{CE} = 3\text{ V}$	h_{FE}^*	min.		750			
Small signal current gain							
$I_C = 3\text{ A}; V_{CE} = 4\text{ V}; f = 1.0\text{ MHz}$	$ h_{fe} $	min.		4.0			
Output capacitance $f = 1.0\text{ MHz}$							
$I_E = 0; V_{CB} = 10\text{ V}$ NPN	C_o	max.		300			pF
PNP	C_o	max.		200			pF
Parallel-diode forward voltage							
$I_F = 3\text{ A}$	V_F	max.		2.5			V
$I_F = 8\text{ A}$	V_F	typ.		2.5			V

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