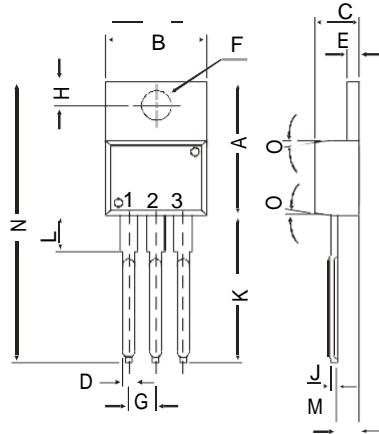
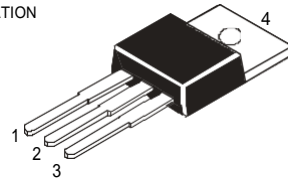


**TO-220 Plastic Package**

**BDX53, BDX53A, BDX53B, BDX53C  
BDX54, BDX54A, BDX54B, BDX54C**

BDX53, 53A, 53B, 53C      NPN PLASTIC POWER TRANSISTORS  
BDX54, 54A, 54B, 54C      PNP PLASTIC POWER TRANSISTORS  
Power **Darlington** for Linear and Switching Applications

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



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	DEG 7	

All dimensions in mm.

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

**RATINGS (at  $T_A=25^\circ\text{C}$  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

**BDX53, BDX53A, BDX53B, BDX53C  
BDX54, BDX54A, BDX54B, BDX54C**

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 $25^\circ\text{C}$		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	$^\circ\text{C}/\text{W}$
From junction to ambient	$R_{th\ j-a}$		7.0	$^\circ\text{C}/\text{W}$

**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 $f = 1.0\text{ MHz}$							
$I_E = 0; V_{CB} = 10\text{ V}$	<b>NPN</b> $C_o$	max.		300			pF
	<b>PNP</b> $C_o$	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  $\leq 300\ \mu\text{s}$ ; duty cycle  $\leq 2\%$

## Customer Notes

### Disclaimer

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