

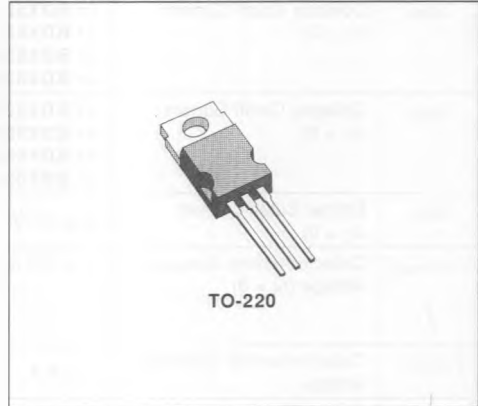


POWER DARLINGTONS

DESCRIPTION

The BDX 53, BDX 53A, BDX 53B and BDX 53C are silicon epitaxial-base NPN transistors in monolithic Darlington configuration and are mounted in Jedec TO-220 plastic package, intended for use in ham-mer drivers, audio amplifiers and other medium power linear and switching applications.

The complementary PNP types are the BDX 54, BDX 54A, BDX 54B and BDX 54C respectively.



INTERNAL SCHEMATIC DIAGRAMS



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	NPN PNP*	Value				Unit
			BDX53 BDX54	BDX53A BDX54A	BDX53B BDX54B	BDX53C BDX54C	
V _{CB0}	Collector-base Voltage (I _E = 0)		45	60	80	100	V
V _{CE0}	Collector-emitter Voltage (I _B = 0)		45	60	80	100	V
V _{EB0}	Emitter-base Voltage (I _C = 0)		5				V
I _C	Collector Current		8				A
I _{CM}	Collector Peak Current (repetitive)		12				A
I _B	Base Current		0.2				A
P _{tot}	Total Power Dissipation at T _{case} ≤ 25 °C		60				W
T _{stg}	Storage Temperature		- 65 to 150				°C
T _j	Junction Temperature		150				°C

* For PNP types voltage and current values are negative.

THERMAL DATA

$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	2.08	$^{\circ}C/W$
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	70	$^{\circ}C/W$

ELECTRICAL CHARACTERISTICS ($T_{case} = 25\ ^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current ($I_E = 0$)	for BDX53/54 $V_{CB} = 45\ V$ for BDX53A/54A $V_{CB} = 60\ V$ for BDX53B/54B $V_{CB} = 80\ V$ for BDX53C/54C $V_{CB} = 100\ V$			200 200 200 200	μA μA μA μA
I_{CEO}	Collector Cutoff Current ($I_B = 0$)	for BDX53/54 $V_{CE} = 22\ V$ for BDX53A/54A $V_{CE} = 30\ V$ for BDX53B/54B $V_{CE} = 40\ V$ for BDX53C/54C $V_{CE} = 50\ V$			500 500 500 500	μA μA μA μA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 5\ V$			2	mA
$V_{CEO(sus)}^*$	Collector-emitter Sustaining Voltage ($I_B = 0$)	$I_C = 100\ mA$ for BDX53/54 for BDX53A/54A for BDX53B/54B for BDX53C/54C	45 60 80 100			V V V V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 3\ A$ $I_B = 12\ mA$			2	V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 3\ A$ $I_B = 12\ mA$			2.5	V
h_{FE}^*	DC Current Gain	$I_C = 3\ A$ $V_{GE} = 3\ V$	750			
V_F	Parallel-diode Forward Voltage	$I_F = 3\ A$ $I_F = 8\ A$		1.8 2.5	2.5	V V

* Pulsed : pulse duration = 300 μs , duty cycle = 1.5 %.
For PNP types voltage and current values are negative.

Safe Operating Area.

