

COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

- COMPLEMENTARY PNP - NPN DEVICES

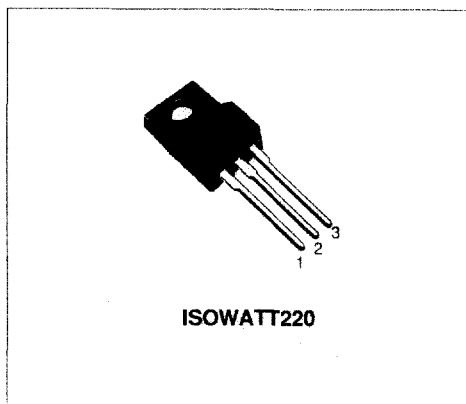
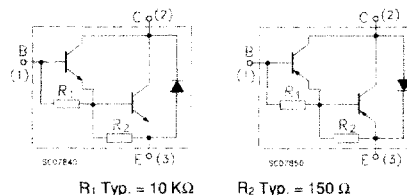
APPLICATIONS:

- GENERAL PURPOSE SWITCHING AND AMPLIFIER
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

DESCRIPTION

The BDX53BFI is silicon epitaxial-base NPN power transistor in monolithic Darlington configuration and are mounted in ISOWATT220 plastic package. It is intended for use in hammer drivers, audio amplifiers and other medium power linear and switching applications.

The complementary PNP type is the BDX54BFI.


INTERNAL SCHEMATIC DIAGRAM

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		NPN	BDX53BFI	
		PNP	BDX54BFI	
V_{CBO}	Collector-Base Voltage ($I_E = 0$)		80	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)		80	V
V_{EBO}	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 Dissipation at $T_C \leq 25^\circ\text{C}$		30	W
T_{stg}	Storage Temperature		-65 to 150	$^\circ\text{C}$
T_j	Max. Operating Junction Temperature		150	$^\circ\text{C}$

For PNP types voltage and current values are negative.

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	4.17	$^{\circ}\text{C}/\text{W}$
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	70	$^{\circ}\text{C}/\text{W}$

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current ($I_E = 0$)	$V_{CB} = 80\text{ V}$			0.2	mA
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{CB} = 40\text{ V}$			0.5	mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5\text{ V}$			2	mA
$V_{CE(sus)}^*$	Collector-Emitter Sustaining Voltage ($I_B = 0$)	$I_C = 100\text{ mA}$	80			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 3\text{ A}$ $I_B = 12\text{ mA}$			2	V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 3\text{ A}$ $I_B = 12\text{ mA}$			2.5	V
h_{FE}^*	DC Current Gain	$I_C = 3\text{ A}$ $V_{CE} = 3\text{ V}$	750			
V_F^*	Parallel-diode Forward Voltage	$I_F = 3\text{ A}$ $I_F = 8\text{ A}$		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.