

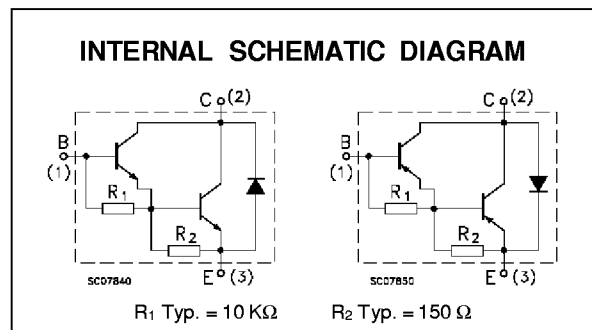
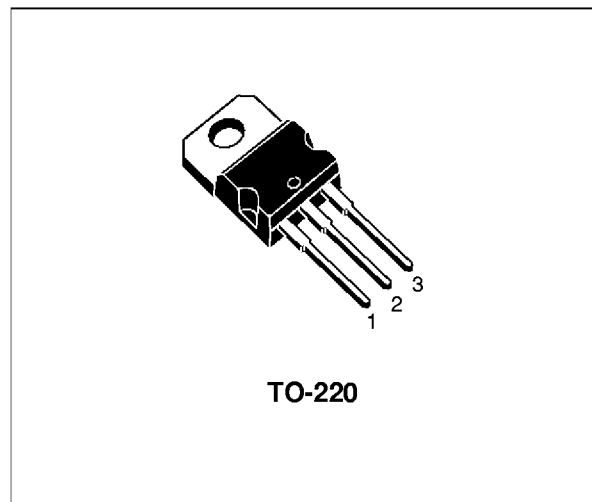
**COMPLEMENTARY SILICON POWER
DARLINGTON TRANSISTORS**

- BDX53B, BDX53C, BDX54B AND BDX54C ARE SGS-THOMSON PREFERRED SALESTYPES

DESCRIPTION

The BDX53A, BDX53B and BDX53C are silicon epitaxial-base NPN power transistors in monolithic Darlington configuration and are mounted in Jedec TO-220 plastic package. They are intended for use in hammer drivers, audio amplifiers and other medium power linear and switching applications.

The complementary PNP types are the BDX54A, BDX54B and BDX54C respectively.



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | | | | Unit |
|------------------|--|-------|--------|------------|--------|------|
| | | NPN | BDX53A | BDX53B | BDX53C | |
| | | PNP | BDX54A | BDX54B | BDX54C | |
| V _{CBO} | Collector-Base Voltage (I _E = 0) | | 60 | 80 | 100 | V |
| V _{CEO} | Collector-Emitter Voltage (I _B = 0) | | 60 | 80 | 100 | 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 ≤ 25 °C | | | 60 | | W |
| T _{stg} | Storage Temperature | | | -65 to 150 | | °C |
| T _j | Max. Operating Junction Temperature | | | 150 | | °C |

BDX53A/53B/53C-BDX54A/54B/54C

THERMAL DATA

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

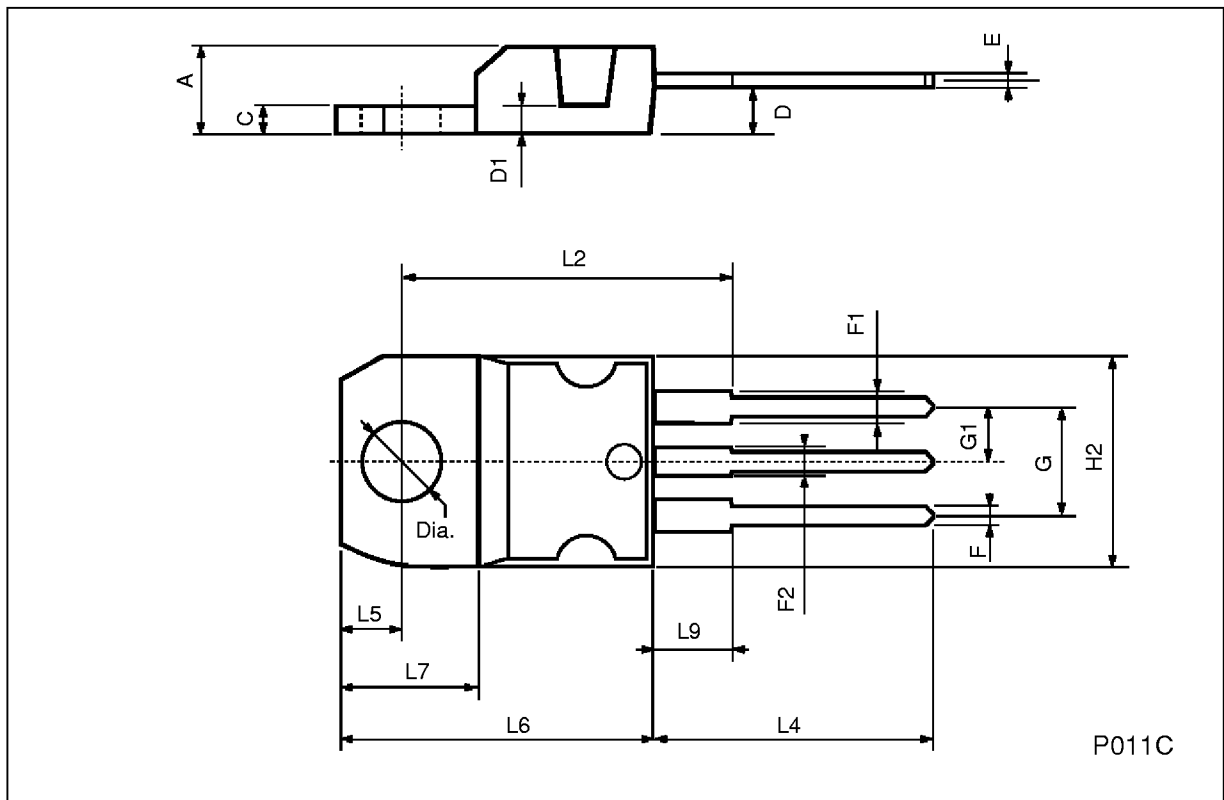
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|-----------------|--|---|-----------------|------------|-------------------|----------------|
| I_{CBO} | Collector Cut-off Current ($I_E = 0$) | for BDX53A/54A $V_{CB} = 60 V$ for BDX53B/54B $V_{CB} = 80 V$ for BDX53C/54C $V_{CB} = 100V$ | | | 0.2 0.2 0.2 | mA mA mA |
| I_{CEO} | Collector Cut-off Current ($I_B = 0$) | for BDX53A/54A $V_{CB} = 30 V$ for BDX53B/54B $V_{CB} = 40 V$ for BDX53C/54C $V_{CB} = 50V$ | | | 0.5 0.5 0.5 | mA mA mA |
| I_{EBO} | Emitter Cut-off 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 BDX53A/54A for BDX53B/53B for BDX53C/54C | 60 80 100 | | | 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 | $I_C = 3 A$ $V_{CE} = 3 V$ | 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.

TO-220 MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|-------|------|-------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 4.40 | | 4.60 | 0.173 | | 0.181 |
| C | 1.23 | | 1.32 | 0.048 | | 0.051 |
| D | 2.40 | | 2.72 | 0.094 | | 0.107 |
| D1 | | 1.27 | | | 0.050 | |
| E | 0.49 | | 0.70 | 0.019 | | 0.027 |
| F | 0.61 | | 0.88 | 0.024 | | 0.034 |
| F1 | 1.14 | | 1.70 | 0.044 | | 0.067 |
| F2 | 1.14 | | 1.70 | 0.044 | | 0.067 |
| G | 4.95 | | 5.15 | 0.194 | | 0.203 |
| G1 | 2.4 | | 2.7 | 0.094 | | 0.106 |
| H2 | 10.0 | | 10.40 | 0.393 | | 0.409 |
| L2 | | 16.4 | | | 0.645 | |
| L4 | 13.0 | | 14.0 | 0.511 | | 0.551 |
| L5 | 2.65 | | 2.95 | 0.104 | | 0.116 |
| L6 | 15.25 | | 15.75 | 0.600 | | 0.620 |
| L7 | 6.2 | | 6.6 | 0.244 | | 0.260 |
| L9 | 3.5 | | 3.93 | 0.137 | | 0.154 |
| DIA. | 3.75 | | 3.85 | 0.147 | | 0.151 |



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