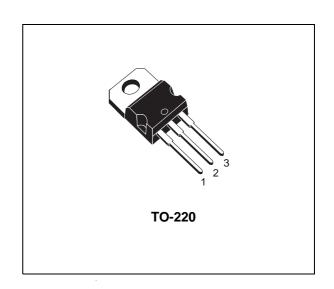


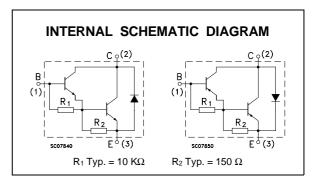
BDX33B BDX33C BDX34B BDX34C

COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

DESCRIPTION

The BDX33B and BDX33C are silicon Epitaxial-Base NPN power transistors in monolithic Darlington configuration mounted in Jedec TO-220 plastic package. They are intented for use in power linear and switching applications. The complementary PNP types are BDX34B and BDX34C respectively.





ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | | | | Unit |
|------------------|--|-----|------------|--------|------|
| | | NPN | BDX33B | BDX33C | |
| | | PNP | BDX34B | BDX34C | |
| V _{CBO} | Collector-Base Voltage (I _E = 0) | | 80 | 100 | V |
| V _{CEO} | Collector-Emitter Voltage (I _B = 0) | | 80 | 100 | V |
| Ic | Collector Current | | 10 | | Α |
| I _{CM} | Collector Peak Current | | 15 | | Α |
| I_B | Base Current | | 0.25 | | Α |
| P_{tot} | Total Dissipation at T _c ≤ 25 °C | | 70 | | W |
| T _{stg} | Storage Temperature | | -65 to 150 | | °C |
| Tj | Max. Operating Junction Temperature | | 150 | | °C |

For PNP types voltage and current values are negative.

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BDX33B BDX33C BDX34B BDX34C

THERMAL DATA

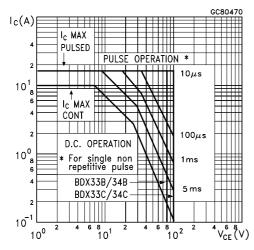
| R _{thj-case} | Thermal Resistance Junction-case | 1.78 | °C/W | |
|-----------------------|----------------------------------|------|------|--|
|-----------------------|----------------------------------|------|------|--|

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

| Symbol | Parameter | Parameter Test Conditions | | Тур. | Max. | Unit |
|-------------------------|---|--|-----------|------|-----------------|----------|
| Ісво | Collector Cut-off Current (I _E = 0) | | | | 0.2 0.2 5 | mA mA |
| | | for BDX33C/34C V _{CB} = 100 V | | | 5 | mA |
| Iceo | Collector Cut-off Current (I _B = 0) | for BDX33B/34B | | | 0.5 0.5 | mA mA |
| | | for BDX33B/34B $V_{CE} = 40 \text{ V}$ for BDX33C/34C $V_{CE} = 50 \text{ V}$ | | | 10 10 | mA mA |
| I _{EBO} | Emitter Cut-off Current (I _C = 0) | V _{EB} = 5 V | | | 5 | mA |
| V _{CEO(sus)} * | Collector-Emitter Sustaining Voltage (I _B = 0) | I _C =100 mA for BDX33B/34B for BDX33C/34C | 80 100 | | | V V |
| V _{CER(sus)} * | Collector-emitter Sustaining Voltage ($R_{BE} = 100 \Omega$) | I _C = 100 mA for BDX33B/34B for BDX33C/34C | 80 100 | | | V V |
| V _{CEV(sus)} * | Collector-emitter Sustaining Voltage (V _{BE} =-1.5 V) | I _C = 100 mA for BDX33B/34B for BDX33C/34C | 80 100 | | | V V |
| V _{CE(sat)} * | Collector-emitter Saturation Voltage | $I_C = 3 A$ $I_B = 6 mA$ | | | 2.5 | V |
| V _{BE} * | Base-emitter Voltage | $I_C = 3 A$ $V_{CE} = 3 V$ | | | 2.5 | V |
| h _{FE} * | DC Current Gain | $I_C = 3 A$ $V_{CE} = 3 V$ | 750 | | | V |
| V _F * | Parallel-Diode Forward Voltage | I _F = 8 A | | | 4 | V |
| h _{fe} | Small Signal Current Gain | $I_C = 1 A V_{CE} = 5 V f = 1MHz$ | 100 | | | |

^{*} Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

Safe Operating Area

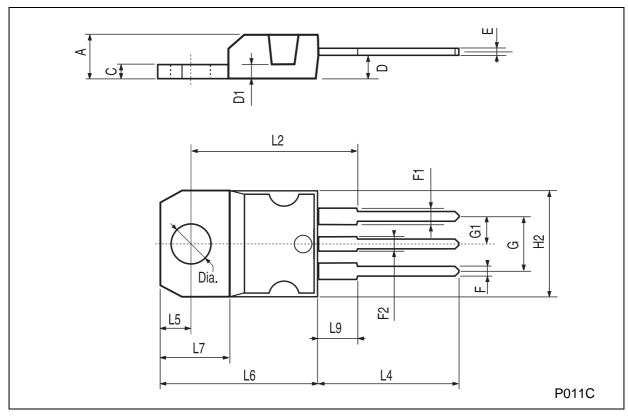


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For PNP types voltage and current values are negative.

TO-220 MECHANICAL DATA

| DIM. | mm | | | inch | | | |
|--------|-------|------|-------|-------|-------|-------|--|
| DIIVI. | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. | |
| Α | 4.40 | | 4.60 | 0.173 | | 0.181 | |
| С | 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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