# PNP BDX34 – BDX34A – BDX34B – BDX34C

# COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

The BDX34,BDX34A, BDX34B and BDX34C are silicon epitaxial-base PNP power transistors in monolithic Darlington configuration and are mounted in Jedec TO-220 plastic package. They are intented for use in power linear and switching applications.
The complementary NPN types are the BDX33, BDX33A, BDX33B and BDX33C respectively.
Compliance to RoHS.

## ABSOLUTE MAXIMUM RATINGS

| Symbol | Ratings | | | Value | Unit |
|---|---|---|---|---|---|
| $V_{CEO}$ | Collector-Emitter Voltage | $I_B$=0 | BDX34 | -45 | V |
| | | | BDX34A | -60 | |
| | | | BDX34B | -80 | |
| | | | BDX34C | -100 | |
| $V_{CBO}$ | Collector-Base Voltage | $I_E$=0 | BDX34 | -45 | V |
| | | | BDX34A | -60 | |
| | | | BDX34B | -80 | |
| | | | BDX34C | -100 | |
| $I_C$ | Collector Current | $I_{C(RMS)}$ | | -10 | A |
| | | $I_{CM}$ | | -15 | |
| $I_B$ | Base Current | | | -0.25 | A |
| $P_T$ | Power Dissipation | @ $T_C$ = 25° | | 70 | W |
| $T_J$ | Junction Temperature | | | -65 to +150 | ℃ |
| $T_S$ | Storage Temperature | | | | |

## THERMAL CHARACTERISTICS

| Symbol | Ratings | Value | Unit |
|---|---|---|---|
| $R_{thJ-C}$ | Thermal Resistance, Junction to Case | 1.78 | ℃/W |

# PNP BDX34 – BDX34A – BDX34B – BDX34C

## ELECTRICAL CHARACTERISTICS

TC=25℃ unless otherwise noted

| Symbol | Ratings | Test Condition(s) | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| $V_{CEO(SUS)}$ | Collector-Emitter Breakdown Voltage (*) | $I_C$=-100 mA | BDX34 | -45 | - | - | V |
| | | | BDX34A | -60 | - | - | |
| | | | BDX34B | -80 | - | - | |
| | | | BDX34C | -100 | - | - | |
| $V_{CER(SUS)}$ | Collector-Emitter Sustaining Voltage (*) | $I_B$=-100 mA<br>$R_{BE}$=100Ω | BDX34 | -45 | - | - | V |
| | | | BDX34A | -60 | - | - | |
| | | | BDX34B | -80 | - | - | |
| | | | BDX34C | -100 | - | - | |
| $V_{CEV(SUS)}$ | Collector-Emitter Sustaining Voltage (*) | $I_C$=1-00 mA<br>$V_{BE}$=-1.5 V | BDX34 | -45 | - | - | V |
| | | | BDX34A | -60 | - | - | |
| | | | BDX34B | -80 | - | - | |
| | | | BDX34C | -100 | - | - | |
| $I_{CEO}$ | Collector Cutoff Current | $V_{CB}$=-22V | BDX34 | - | - | -0.5 | mA |
| | | $V_{CB}$=-30V | BDX34A | - | - | | |
| | | $V_{CB}$=-40V | BDX34B | - | - | | |
| | | $V_{CB}$=-50V | BDX34C | - | - | | |
| | | $V_{CB}$=-22V, $T_C$=100℃ | BDX34 | - | - | -10 | |
| | | $V_{CB}$=-30V, $T_C$=100℃ | BDX34A | - | - | | |
| | | $V_{CB}$=-40V, $T_C$=100℃ | BDX34B | - | - | | |
| | | $V_{CB}$=-50V, $T_C$=100℃ | BDX34C | - | - | | |
| $I_{EBO}$ | Emitter Cutoff Current | $V_{BE}$=-5 V | BDX34 | - | - | -5.0 | mA |
| | | | BDX34A | | | | |
| | | | BDX34B | | | | |
| | | | BDX34C | | | | |
| $I_{CBO}$ | Collector-Base Cutoff Current | $V_{CBO}$=-45 V | BDX34 | - | - | -0.2 | mA |
| | | $V_{CBO}$=-60 V | BDX34A | - | - | | |
| | | $V_{CBO}$=-80 V | BDX34B | - | - | | |
| | | $V_{CBO}$=-100 V | BDX34C | - | - | | |
| $I_{CBO}$ | Collector-Base Cutoff Current | $V_{CBO}$=-45 V<br>$T_C$=100℃ | BDX34 | - | - | -5 | mA |
| | | $V_{CBO}$=-60 V<br>$T_C$=100℃ | BDX34A | - | - | | |
| | | $V_{CBO}$=-80 V<br>$T_C$=100℃ | BDX34B | - | - | | |
| | | $V_{CBO}$=-100 V<br>$T_C$=100℃ | BDX34C | - | - | | |

# PNP BDX34 – BDX34A – BDX34B – BDX34C

## ELECTRICAL CHARACTERISTICS

TC=25℃ unless otherwise noted

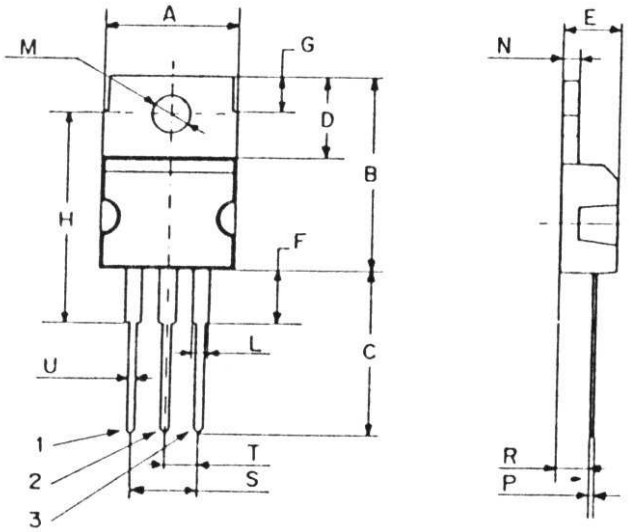
| Symbol | Ratings | Test Condition(s) | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| $V_{CE(SAT)}$ | Collector-Emitter saturation Voltage (*) | $I_C$=-4.0 A, $I_B$=-8.0 mA | BDX34 | - | - | -2.5 | V |
| | | | BDX34A | | | | |
| | | | BDX34B | | | | |
| | | | BDX34C | | | | |
| | | $I_C$=-3.0 A, $I_B$=-6.0 mA | BDX34 | - | - | -2.5 | |
| | | | BDX34A | | | | |
| | | | BDX34B | | | | |
| | | | BDX34C | | | | |
| $V_F$ | Forward Voltage (pulse method) | $I_F$=-8 A | BDX34 | - | - | 4.0 | V |
| | | | BDX34A | | | | |
| | | | BDX34B | | | | |
| | | | BDX34C | | | | |
| $V_{BE}$ | Base-Emitter Voltage (*) | $I_C$=-4.0 A, $V_{CE}$=-3.0V | BDX34 | - | - | -2.5 | V |
| | | | BDX34A | | | | |
| | | $I_C$=-3.0 A, $V_{CE}$=-3.0V | BDX34B | - | - | -2.5 | |
| | | | BDX34C | | | | |
| $h_{FE}$ | DC Current Gain (*) | $V_{CE}$=-3.0 V, $I_C$=-4.0 A | BDX34 | 750 | - | - | - |
| | | | BDX34A | | | | |
| | | $V_{CE}$=-3.0 V, $I_C$=-3.0 A | BDX34B | 750 | - | - | |
| | | | BDX34C | | | | |

(*) Pulse Width ≈ 300 μs, Duty Cycle ∠ 2.0%

# PNP BDX34 – BDX34A – BDX34B – BDX34C

## MECHANICAL DATA CASE TO-220

| DIMENSIONS (mm) | | |
|---|---|---|
| | Min. | Max. |
| A | 9,90 | 10,30 |
| B | 15,65 | 15,90 |
| C | 13,20 | 13,40 |
| D | 6,45 | 6,65 |
| E | 4,30 | 4,50 |
| F | 2,70 | 3,15 |
| G | 2,60 | 3,00 |
| H | 15,75 | 17.15 |
| L | 1,15 | 1,40 |
| M | 3,50 | 3,70 |
| N | - | 1,37 |
| P | 0,46 | 0,55 |
| R | 2,50 | 2,70 |
| S | 4,98 | 5,08 |
| T | 2.49 | 2.54 |
| U | 0,70 | 0,90 |




| | |
|---|---|
| Pin 1 : | Base |
| Pin 2 : | Collector |
| Pin 3 : | Emitter |
| Case : | Collector |

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