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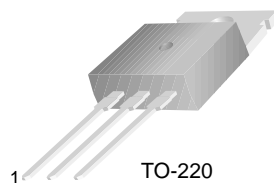
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## BDX34/A/B/C

### Power Linear and Switching Applications

- High Gain General Purpose
- Power Darlington TR
- Complement to BDX33/33A/33B/33C respectively



TO-220  
1.Base 2.Collector 3.Emitter

### PNP Epitaxial Silicon Transistor

#### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol    | Parameter  | Value      | Units            |
|-----------|--|------------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                           |            |                  |
|           | : BDX34  | - 45       | V                |
|           | : BDX34A   | - 60       | V                |
|           | : BDX34B   | - 80       | V                |
|           | : BDX34C   | - 100      | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                        |            |                  |
|           | : BDX34  | - 45       | V                |
|           | : BDX34A   | - 60       | V                |
|           | : BDX34B   | - 80       | V                |
|           | : BDX34C   | - 100      | V                |
| $I_C$     | Collector Current (DC)                           | - 10       | A                |
| $I_{CP}$  | *Collector Current (Pulse)                       | - 15       | A                |
| $I_B$     | Base Current                                     | - 0.25     | A                |
| $P_C$     | Collector Dissipation ( $T_C=25^\circ\text{C}$ ) | 70         | W                |
| $T_J$     | Junction Temperature                             | 150        | $^\circ\text{C}$ |
| $T_{STG}$ | Storage Temperature                              | - 65 ~ 150 | $^\circ\text{C}$ |

**Electrical Characteristics**  $T_C=25^\circ\text{C}$  unless otherwise noted

| Symbol         | Parameter   | Test Condition  | Min.                          | Typ. | Max.                             | Units                |
|----------------|---|---|-------------------------------|------|----------------------------------|----------------------|
| $V_{CEO(sus)}$ | * Collector-Emitter Sustaining Voltage<br>: BDX34<br>: BDX34A<br>: BDX34B<br>: BDX34C | $I_C = -100\text{mA}, I_B = 0$  | - 45<br>- 60<br>- 80<br>- 100 |      |                                  | V<br>V<br>V<br>V     |
| $V_{CER(sus)}$ | * Collector-Emitter Sustaining Voltage<br>: BDX34<br>: BDX34A<br>: BDX34B<br>: BDX34C | $I_C = -100\text{mA}, I_B = 0$<br>$R_{BE} = 100\Omega$  | - 45<br>- 60<br>- 80<br>- 100 |      |                                  | V<br>V<br>V<br>V     |
| $V_{CEV(sus)}$ | * Collector-Emitter Sustaining Voltage<br>: BDX34<br>: BDX34A<br>: BDX34B<br>: BDX34C | $I_C = -100\text{mA}, I_B = 0$<br>$V_{BE} = -1.5\text{V}$   | - 45<br>- 60<br>- 80<br>- 100 |      |                                  | V<br>V<br>V<br>V     |
| $I_{CBO}$      | Collector Cut-off Current<br>: BDX34<br>: BDX34A<br>: BDX34B<br>: BDX34C              | $V_{CB} = -45\text{V}, I_E = 0$<br>$V_{CB} = -60\text{V}, I_E = 0$<br>$V_{CB} = -80\text{V}, I_E = 0$<br>$V_{CB} = -100\text{V}, I_E = 0$ |                               |      | - 0.2<br>- 0.2<br>- 0.2<br>- 0.2 | mA<br>mA<br>mA<br>mA |
| $I_{CEO}$      | Collector Cut-off Current<br>: BDX34<br>: BDX34A<br>: BDX34B<br>: BDX34C              | $V_{CE} = -22\text{V}, I_B = 0$<br>$V_{CE} = -30\text{V}, I_B = 0$<br>$V_{CE} = -40\text{V}, I_B = 0$<br>$V_{CE} = -50\text{V}, I_B = 0$  |                               |      | - 0.5<br>- 0.5<br>- 0.5<br>- 0.5 | mA<br>mA<br>mA<br>mA |
| $I_{EBO}$      | Emitter Cut-off Current   | $V_{EB} = -5\text{V}, I_C = 0$  |                               |      | - 5                              | mA                   |
| $h_{FE}$       | * DC Current Gain<br>: BDX34/34A<br>: BDX34B/34C                                      | $V_{CE} = -3\text{V}, I_C = -4\text{A}$<br>$V_{CE} = -3\text{V}, I_C = -3\text{A}$  | 750<br>750                    |      |                                  |                      |
| $V_{CE(sat)}$  | * Collector-Emitter Saturation Voltage<br>: BDX34/34A<br>: BDX34B/34C                 | $I_C = -4\text{A}, I_B = -8\text{mA}$<br>$I_C = -3\text{A}, I_B = -6\text{mA}$  |                               |      | - 2.5<br>- 2.5                   | V<br>V               |
| $V_{BE(on)}$   | * Base-Emitter ON Voltage<br>: BDX34/34A<br>: BDX34B/34C                              | $V_{CE} = -3\text{V}, I_C = -4\text{A}$<br>$V_{CE} = -3\text{V}, I_C = -3\text{A}$  |                               |      | - 2.5<br>- 2.5                   | V<br>V               |
| $V_F$          | * Parallel Diode Forward Voltage  | $I_F = -8\text{A}$  |                               |      | - 4                              | V                    |

\* Pulse Test: PW=300 $\mu\text{s}$ , duty Cycle =1.5% Pulsed

# Typical Characteristics

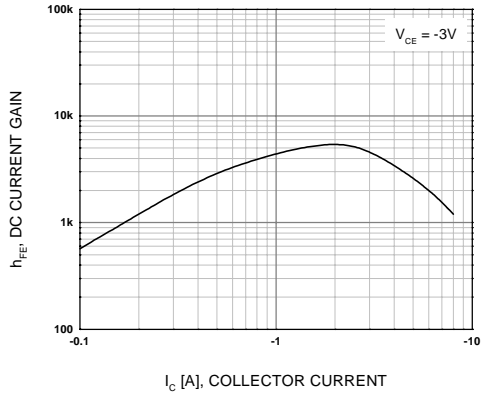


Figure 1. DC Current Gain

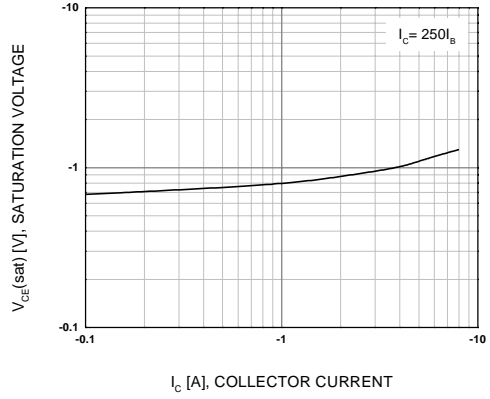


Figure 2. Collector-Emitter Saturation Voltage

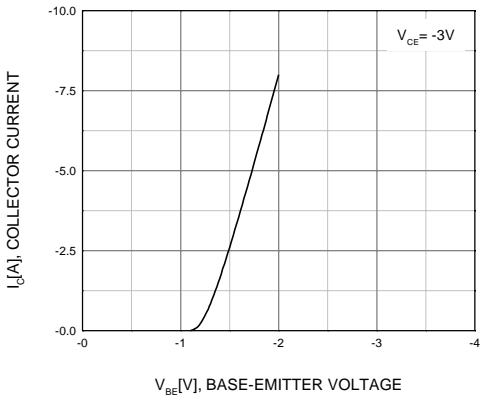


Figure 3. Base-Emitter On Voltage

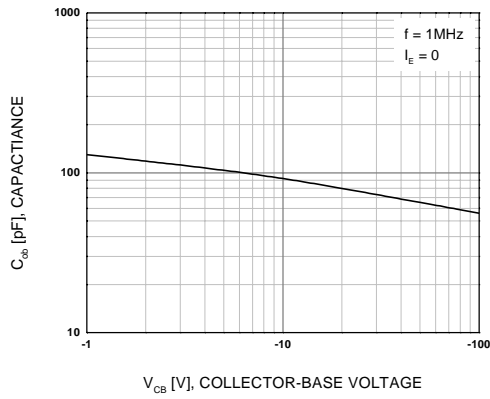


Figure 4. Output Capacitance

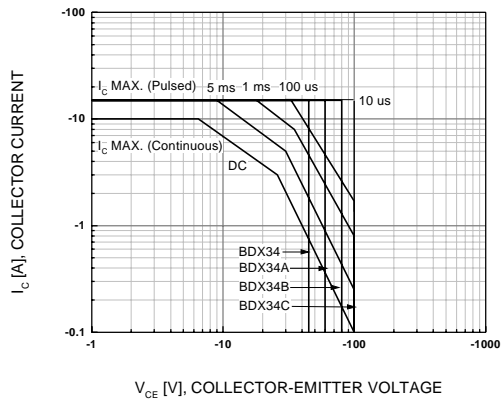


Figure 5. Safe Operating Area

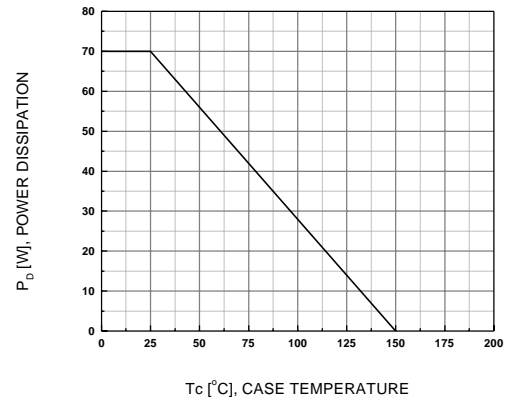
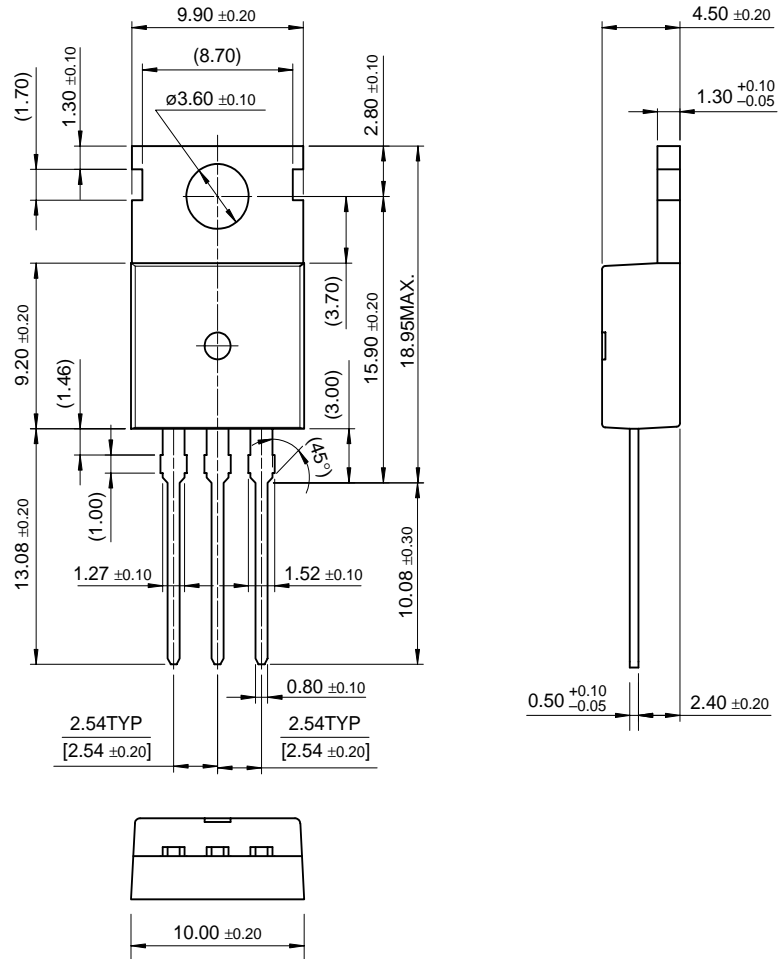


Figure 6. Power Derating

# Package Dimensions

BDX34/A/B/C

## TO-220



Dimensions in Millimeters

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| E <sup>2</sup> CMOS™ | PowerTrench®  | VCX™        |
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| FACT Quiet Series™   | QS™           |             |
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| FASTr™               | SuperSOT™-3   |             |
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