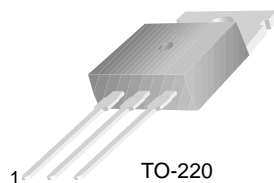


BD534/536/538

Medium Power Linear and Switching Applications

- Low Saturation Voltage
- Complement to BD533, BD535 and BD537 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 : BD534 | - 45 | V |
| | : BD536 | - 60 | V |
| | : BD538 | - 80 | V |
| V_{CEO} | Collector-Emitter Voltage : BD534 | - 45 | V |
| | : BD536 | - 60 | V |
| | : BD538 | - 80 | V |
| V_{EBO} | Emitter-Base Voltage | - 5 | V |
| I_C | Collector Current (DC) | - 8 | A |
| I_B | Base Current | - 1 | A |
| P_C | Collector Dissipation ($T_C=25^\circ\text{C}$) | 50 | 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 | |
|----------------------|--|--|--|-------|-------|---------------|--|
| I_{CBO} | Collector Cut-off Current : BD534 | $V_{CB} = - 45\text{V}, I_E = 0$ | | | - 100 | μA | |
| | : BD536 | $V_{CB} = - 60\text{V}, I_E = 0$ | | | - 100 | μA | |
| | : BD538 | $V_{CB} = - 80\text{V}, I_E = 0$ | | | - 100 | μA | |
| I_{CES} | Collector Cut-off Current : BD534 | $V_{CE} = - 45\text{V}, V_{BE} = 0$ | | | - 100 | μA | |
| | : BD536 | $V_{CE} = - 60\text{V}, V_{BE} = 0$ | | | - 100 | μA | |
| | : BD538 | $V_{CE} = - 80\text{V}, V_{BE} = 0$ | | | - 100 | μA | |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = - 5\text{V}, I_C = 0$ | | | - 1 | mA | |
| h_{FE} | * DC Current Gain : ALL DEVICE | : BD534/536 | $V_{CE} = - 2\text{V}, I_C = - 500\text{mA}$ | 40 | | | |
| | | : BD538 | $V_{CE} = - 5\text{V}, I_C = - 10\text{mA}$ | 20 | | | |
| | | : BD534/536 | $V_{CE} = - 2\text{V}, I_C = - 2\text{A}$ | 15 | | | |
| | | : BD538 | | 25 | | | |
| h_{FE} | h_{FE} Groups | J : ALL DEVICE | $V_{CE} = - 2\text{V}, I_C = - 2\text{A}$ | 30 | | 75 | |
| | | | $V_{CE} = - 2\text{V}, I_C = - 3\text{A}$ | 15 | | | |
| | | K : ALL DEVICE | $V_{CE} = - 2\text{V}, I_C = - 2\text{A}$ | 40 | | 100 | |
| | | | $V_{CE} = - 2\text{V}, I_C = - 3\text{A}$ | 20 | | | |
| $V_{CE}(\text{sat})$ | * Collector-Emitter Saturation Voltage | $I_C = - 2\text{A}, I_B = - 0.2\text{A}$ | | | - 0.8 | V | |
| | | $I_C = - 6\text{A}, I_B = - 0.6\text{A}$ | | - 0.8 | | V | |
| $V_{BE}(\text{on})$ | * Base-Emitter ON Voltage | $V_{CE} = - 2\text{V}, I_C = - 2\text{A}$ | | | - 1.5 | V | |
| f_T | Current Gain Bandwidth Product | $V_{CE} = - 1\text{V}, I_C = - 500\text{mA}$ | 3 | 12 | | MHz | |

* Pulse Test: PW = 300 μs , duty Cycle = 1.5% Pulsed

Typical Characteristics

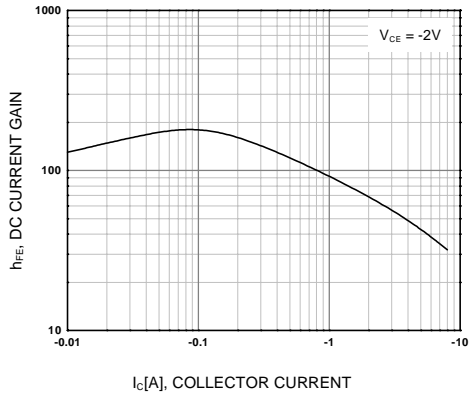


Figure 1. DC current Gain

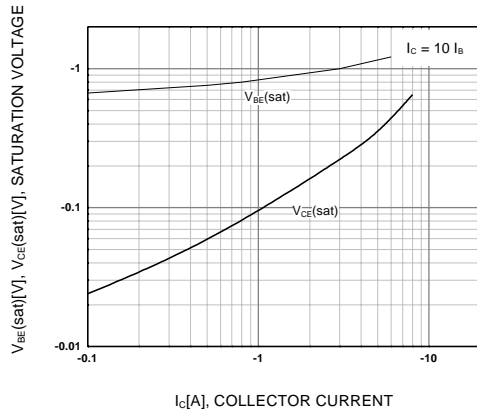


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

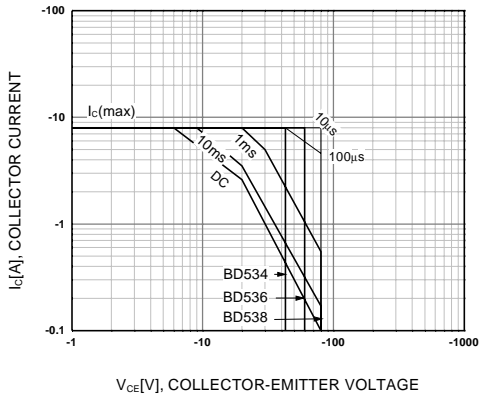


Figure 3. Safe Operating Area

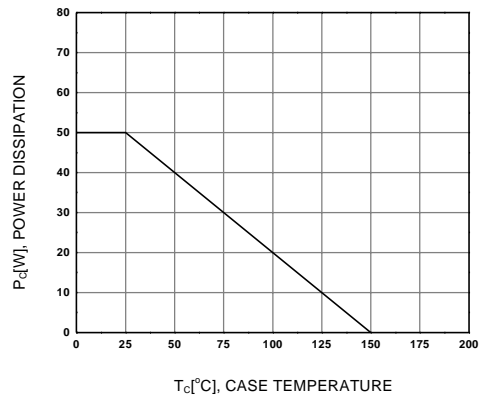


Figure 4. Power Derating

Package Dimensions

TO-220

BD534/536/538



Dimensions in Millimeters

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BD538

PNP Epitaxial Silicon Transistor

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- Low Saturation Voltage
- Complement to BD533, BD535 and BD537 respectively

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|----------|-----------------|-----------------|----------|------------------------|-------|----------------|--|
| BD538J | Full Production | Full Production | \$0.315 | TO-220 | 3 | BULK | N/A |
| BD538K | Full Production | Full Production | \$0.316 | TO-220 | 3 | BULK | Line 1: \$Y (Fairchild logo) Line 2: &3 Line 3: BD538-K |
| BD538KTU | Full Production | | \$0.316 | TO-220 | 3 | RAIL | Line 1: \$Y (Fairchild logo) Line 2: &3 Line 3: BD538-K |



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