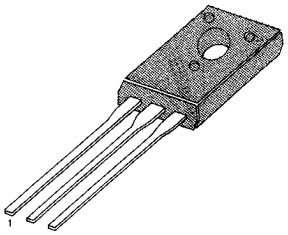
# BD434/436/438 PNP EPITAXIAL SILICON TRANSISTOR

## MEDIUM POWER LINEAR AND SWITCHING APPLICATIONS

- Complement to BD433, BD435 and BD437 respectively

TO-126



1. Emitter 2.Collector 3.Base

## ABSOLUTE MAXIMUM RATINGS

| Characteristic | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Collector Base Voltage | : BD434 | $V_{CBO}$ | - 22 | V |
| | : BD436 | | - 32 | V |
| | : BD438 | | - 45 | V |
| Collector Emitter Voltage | : BD434 | $V_{CES}$ | - 22 | V |
| | : BD436 | | - 32 | V |
| | : BD438 | | - 45 | V |
| Collector Emitter Voltage | : BD434 | $V_{CEO}$ | - 22 | V |
| | : BD436 | | - 32 | V |
| | : BD438 | | - 45 | V |
| Emitter Base Voltage | | $V_{EBO}$ | - 5 | V |
| Collector Current (DC) | | $I_C$ | - 4 | A |
| Collector Current (Pulse) | | $I_C$ | - 7 | A |
| Base Current | | $I_B$ | - 1 | A |
| Collector Dissipation ($T_C$=25°C) | | $P_C$ | 36 | W |
| Junction Temperature | | $T_J$ | 150 | °C |
| Storage Temperature | | $T_{STG}$ | -65 ~ 150 | °C |

## ELECTRICAL CHARACTERISTICS ($T_C$=25°C)

| Characteristic | | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| Collector Emitter Sustaining Voltage | : BD434 | $V_{CEO}$(sus) | $I_C$ = - 100mA, $I_B$ = 0 | - 22 | | | V |
| | : BD436 | | | - 32 | | | V |
| | : BD438 | | | - 45 | | | V |
| Collector Cutoff Current | : BD434 | $I_{CBO}$ | $V_{CB}$ = - 22V, $I_E$ = 0 | | | - 100 | µA |
| | : BD436 | | $V_{CB}$ = - 32V, $I_E$ = 0 | | | - 100 | µA |
| | : BD438 | | $V_{CB}$ = - 45V, $I_E$ = 0 | | | - 100 | µA |
| Collector Cutoff Current | : BD434 | $I_{CEO}$ | $V_{CE}$ = - 22V, $V_{BE}$ = 0 | | | - 100 | µA |
| | : BD436 | | $V_{CE}$ = - 32V, $V_{BE}$ = 0 | | | - 100 | µA |
| | : BD438 | | $V_{CE}$ = - 45V, $V_{BE}$ = 0 | | | - 100 | µA |
| Emitter Cutoff Current | | $I_{EBO}$ | $V_{EB}$ = - 5V, $I_C$ = 0 | | | - 1 | mA |
| *DC Current Gain | : BD434/436 | $h_{FE}$ | $V_{CE}$ = - 5V, $I_C$ = - 10mA | 40 | 140 | | |
| | : BD438 | | | 30 | 140 | | |
| | : ALL DEVICE | | $V_{CE}$ = - 1V, $I_C$ = - 500mA | 85 | 140 | | |
| | : BD434/436 | | $V_{CE}$ = - 1V, $I_C$ = - 2A | 50 | | | |
| | : BD438 | | | 40 | | | |
| * Collector Emitter Saturation Voltage | : BD434 | $V_{CE}$(sat) | $I_C$ = - 2A, $I_B$ = - 0.2A | | - 0.2 | - 0.5 | V |
| | : BD436 | | | | - 0.2 | - 0.5 | V |
| | : BD438 | | | | - 0.2 | - 0.6 | V |
| *Base Emitter On Voltage | : BD434 | $V_{BE}$(on) | $V_{CE}$ = - 1V, $I_C$ = - 2A | | | - 1.1 | V |
| | : BD436 | | | | | - 1.1 | V |
| | : BD438 | | | | | - 1.2 | V |
| Transition Frequency | | $f_T$ | $V_{CE}$ = - 1V, $I_C$ = - 250mA | 3 | | | MHz |

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



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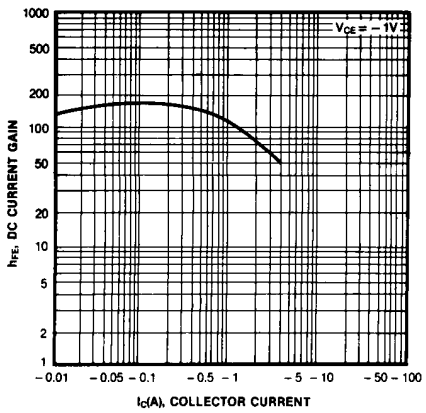
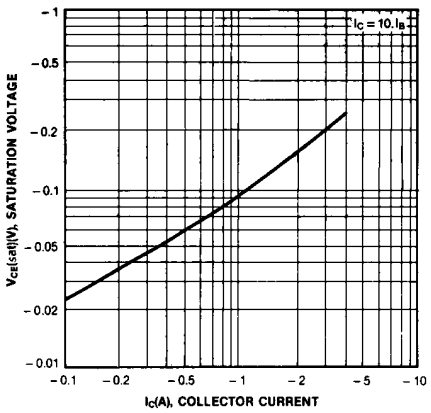
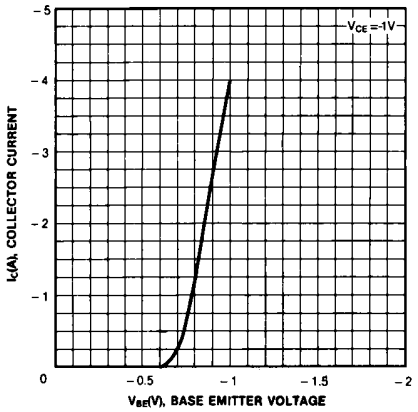
DC CURRENT GAIN



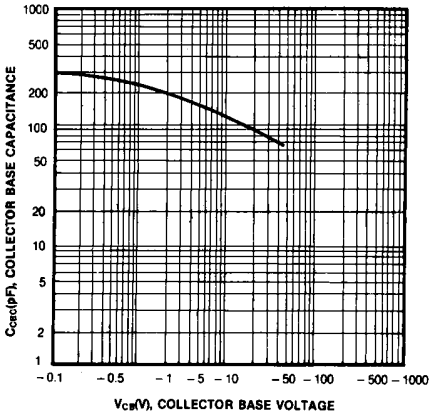

COLLECTOR EMITTER SATURATION VOLTAGE



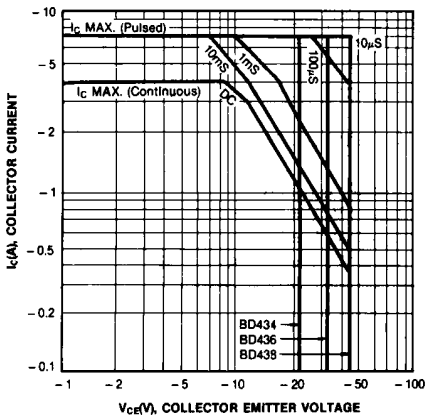

BASE EMITTER VOLTAGE



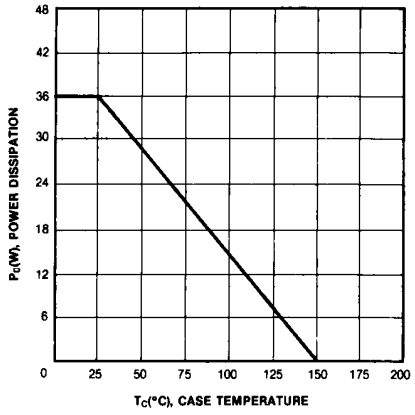

COLLECTOR BASE CAPACITANCE




SAFE OPERATING AREA




POWER DERATING

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