

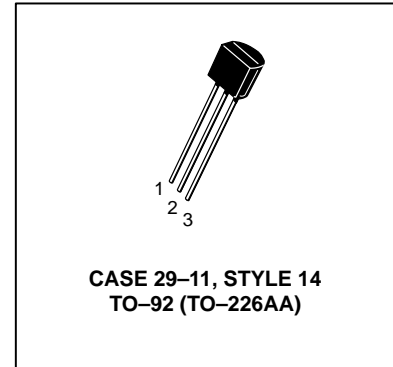
High Voltage Transistors

PNP Silicon

BF421
BF423

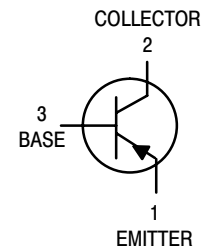
MAXIMUM RATINGS

| Rating | Symbol | BF421 | BF423 | Unit |
|---|----------------|-------------|-------|-------------------------------|
| Collector–Emitter Voltage | V_{CEO} | -300 | -250 | Vdc |
| Collector–Base Voltage | V_{CBO} | -300 | -250 | Vdc |
| Emitter–Base Voltage | V_{EBO} | -5.0 | | Vdc |
| Collector Current — Continuous | I_C | -500 | | mAdc |
| Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 625 | 5.0 | mW mW/ $^\circ\text{C}$ |
| Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C | P_D | 1.5 | 12 | Watts mW/ $^\circ\text{C}$ |
| Operating and Storage Junction Temperature Range | T_J, T_{stg} | -55 to +150 | | $^\circ\text{C}$ |



THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|-----------------|------|---------------------------|
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 200 | $^\circ\text{C}/\text{W}$ |
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 83.3 | $^\circ\text{C}/\text{W}$ |



ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic | Symbol | Min | Max | Unit |
|----------------|--------|-----|-----|------|
|----------------|--------|-----|-----|------|

OFF CHARACTERISTICS

| | | | | | |
|--|----------------|---------------|--------------|------------|-----------------|
| Collector–Emitter Breakdown Voltage ⁽¹⁾ ($I_C = -1.0 \text{ mAdc}, I_B = 0$) | BF421 BF423 | $V_{(BR)CEO}$ | -300 -250 | — — | Vdc |
| Collector–Base Breakdown Voltage ($I_C = -100 \mu\text{Adc}, I_E = 0$) | BF421 BF423 | $V_{(BR)CBO}$ | -300 -250 | — — | Vdc |
| Emitter–Base Breakdown Voltage ($I_E = -100 \mu\text{Adc}, I_C = 0$) | BF421 BF423 | $V_{(BR)EBO}$ | -5.0 -5.0 | — — | Vdc |
| Collector Cutoff Current ($V_{CB} = -200 \text{ Vdc}, I_E = 0$) | BF421 BF423 | I_{CBO} | — — | -0.01 — | μAdc |
| Emitter Cutoff Current ($V_{EB} = -5.0 \text{ Vdc}, I_C = 0$) | BF421 BF423 | I_{EBO} | — — | -100 — | nAdc |

1. Pulse Test: Pulse Width $\leq 300 \mu\text{s}$; Duty Cycle $\leq 2.0\%$.

BF421 BF423

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Continued)

| Characteristic | Symbol | Min | Max | Unit |
|---|---------------|-----|------|------|
| ON CHARACTERISTICS | | | | |
| DC Current Gain ($I_C = -25\text{ mA}$, $V_{CE} = -20\text{ Vdc}$) | h_{FE} | 50 | — | — |
| | BF421 | 50 | — | — |
| | BF423 | | | |
| Collector–Emitter Saturation Voltage ($I_C = -20\text{ mAdc}$, $I_B = -2.0\text{ mAdc}$) | $V_{CE(sat)}$ | — | -0.5 | Vdc |
| Base–Emitter Saturation Voltage ($I_C = -20\text{ mA}$, $I_B = -2.0\text{ mA}$) | $V_{BE(sat)}$ | — | -2.0 | Vdc |
| SMALL–SIGNAL CHARACTERISTICS | | | | |
| Current–Gain — Bandwidth Product ($I_C = -10\text{ mAdc}$, $V_{CE} = -10\text{ Vdc}$, $f = 20\text{ MHz}$) | f_T | 60 | — | MHz |
| Common Emitter Feedback Capacitance ($V_{CB} = -30\text{ Vdc}$, $I_E = 0$, $f = 1.0\text{ MHz}$) | C_{re} | — | 2.8 | pF |

BF421 BF423

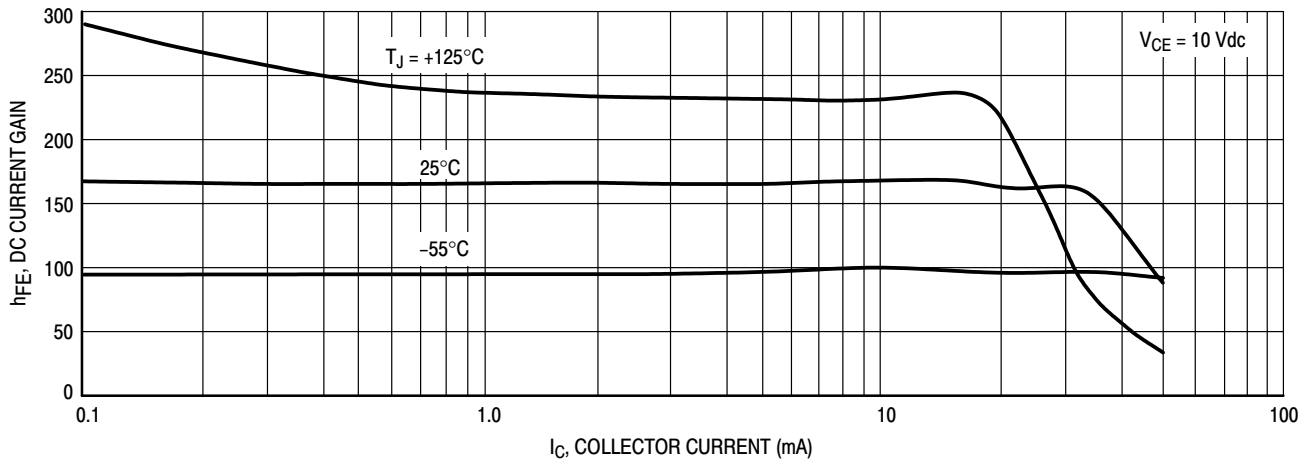


Figure 1. DC Current Gain

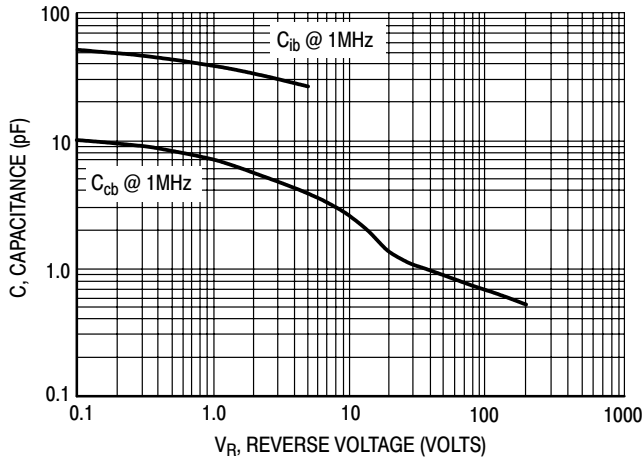


Figure 2. Capacitance

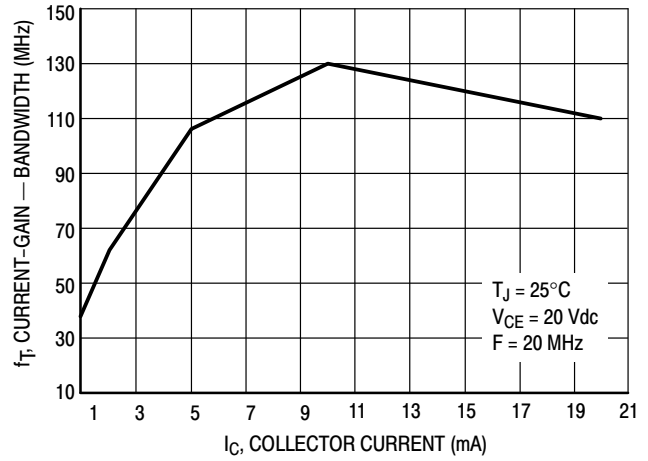


Figure 3. Current-Gain — Bandwidth

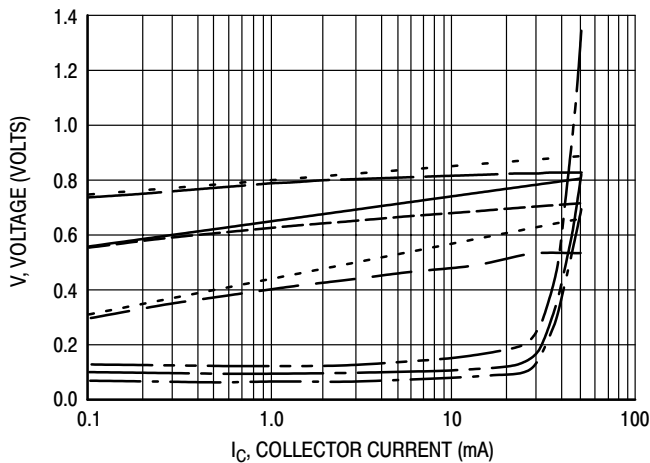


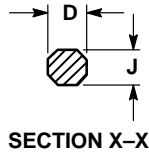
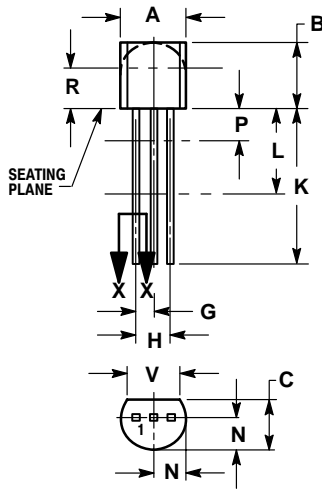
Figure 4. "ON" Voltages

- $V_{CE(sat)}$ @ 25°C , $I_C/I_B = 10$
- $V_{CE(sat)}$ @ 125°C , $I_C/I_B = 10$
- $V_{CE(sat)}$ @ -55°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 25°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 125°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ -55°C , $I_C/I_B = 10$
- $V_{BE(on)}$ @ 25°C , $V_{CE} = 10 \text{ V}$
- $V_{BE(on)}$ @ 125°C , $V_{CE} = 10 \text{ V}$
- $V_{BE(on)}$ @ -55°C , $V_{CE} = 10 \text{ V}$

BF421 BF423

PACKAGE DIMENSIONS

CASE 029-11 (TO-226AA) ISSUE AJ




STYLE 14:
PIN 1. EMITTER
2. COLLECTOR
3. BASE

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

| DIM | INCHES | | MILLIMETERS | |
|-----|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.175 | 0.205 | 4.45 | 5.20 |
| B | 0.170 | 0.210 | 4.32 | 5.33 |
| C | 0.125 | 0.165 | 3.18 | 4.19 |
| D | 0.016 | 0.021 | 0.407 | 0.533 |
| G | 0.045 | 0.055 | 1.15 | 1.39 |
| H | 0.095 | 0.105 | 2.42 | 2.66 |
| J | 0.015 | 0.020 | 0.39 | 0.50 |
| K | 0.500 | --- | 12.70 | --- |
| L | 0.250 | --- | 6.35 | --- |
| N | 0.080 | 0.105 | 2.04 | 2.66 |
| P | --- | 0.100 | --- | 2.54 |
| R | 0.115 | --- | 2.93 | --- |
| V | 0.135 | --- | 3.43 | --- |

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