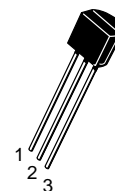
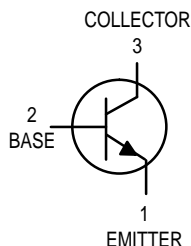


Amplifier Transistor

NPN Silicon

MPS6571



CASE 29-04, STYLE 1
TO-92 (TO-226AA)

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--|----------------|-------------|-------------------------------|
| Collector–Emitter Voltage | V_{CEO} | 20 | Vdc |
| Collector–Base Voltage | V_{CBO} | 25 | Vdc |
| Emitter–Base Voltage | V_{EBO} | 3.0 | Vdc |
| Collector Current — Continuous | I_C | 50 | 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 | Typ | Max | Unit |
|----------------|--------|-----|-----|-----|------|
|----------------|--------|-----|-----|-----|------|

OFF CHARACTERISTICS

| | | | | | |
|--|---------------|----|---|----|------|
| Collector–Emitter Breakdown Voltage ($I_C = 1.0 \text{ mAdc}, I_B = 0$) | $V_{(BR)CEO}$ | 20 | — | — | Vdc |
| Collector–Base Breakdown Voltage ($I_C = 100 \mu\text{Adc}, I_E = 0$) | $V_{(BR)CBO}$ | 25 | — | — | Vdc |
| Collector Cutoff Current ($V_{CB} = 20 \text{ Vdc}, I_E = 0$) | I_{CBO} | — | — | 50 | nAdc |
| Emitter Cutoff Current ($V_{EB(off)} = 3.0 \text{ Vdc}, I_C = 0$) | I_{EBO} | — | — | 50 | nAdc |

MPS6571

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Continued)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|----------------------|-----|-----|------|------|
| ON CHARACTERISTICS | | | | | |
| DC Current Gain (I _C = 100 μAdc, V _{CE} = 5.0 Vdc) | h _{FE} | 250 | — | 1000 | — |
| Collector–Emitter Saturation Voltage (I _C = 10 mAdc, I _B = 1.0 mAdc) | V _{CE(sat)} | — | — | 0.5 | Vdc |
| Base–Emitter On Voltage (I _C = 10 mAdc, V _{CE} = 5.0 Vdc) | V _{BE(on)} | — | — | 0.8 | Vdc |
| SMALL–SIGNAL CHARACTERISTICS | | | | | |
| Current–Gain — Bandwidth Product (I _C = 500 μAdc, V _{CE} = 5.0 Vdc, f = 20 MHz) | f _T | 50 | 175 | — | MHz |
| Output Capacitance (V _{CB} = 5.0 Vdc, I _E = 0, f = 1.0 MHz) | C _{obo} | — | — | 4.5 | pF |
| Noise Figure (I _C = 100 μAdc, V _{CE} = 5.0 Vdc, R _S = 10 k Ω, f = 100 Hz) | NF | — | 1.2 | — | dB |

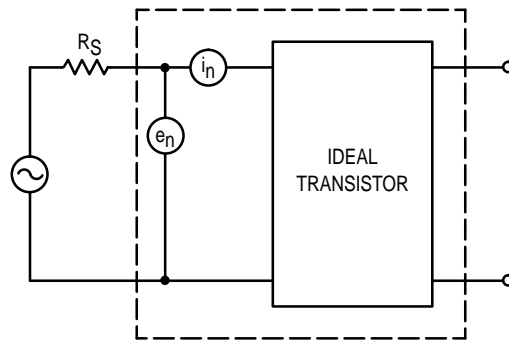


Figure 1. Transistor Noise Model

NOISE CHARACTERISTICS

($V_{CE} = 5.0 \text{ Vdc}$, $T_A = 25^\circ\text{C}$)

NOISE VOLTAGE

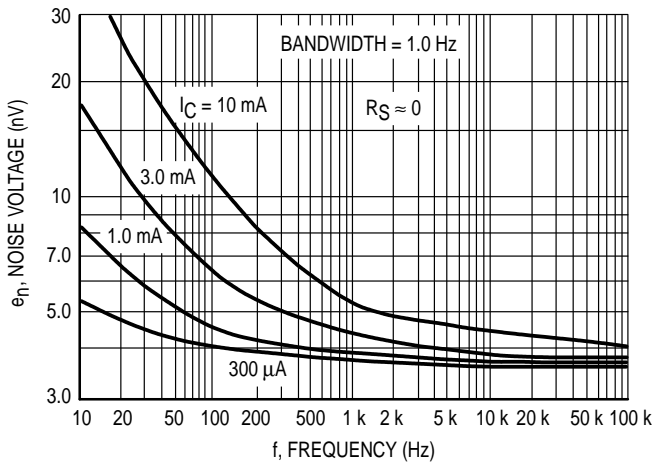


Figure 2. Effects of Frequency

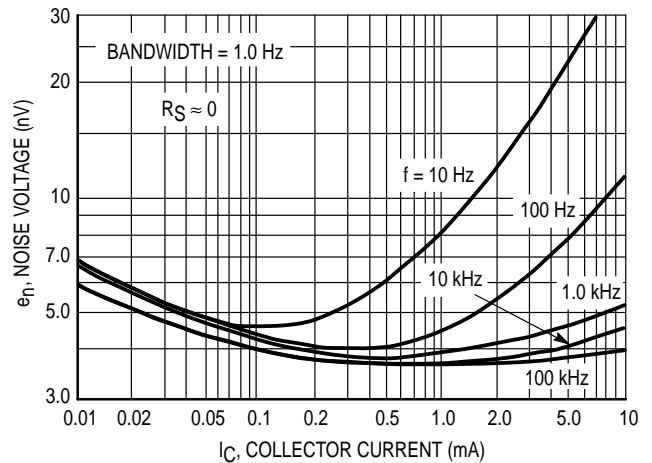


Figure 3. Effects of Collector Current

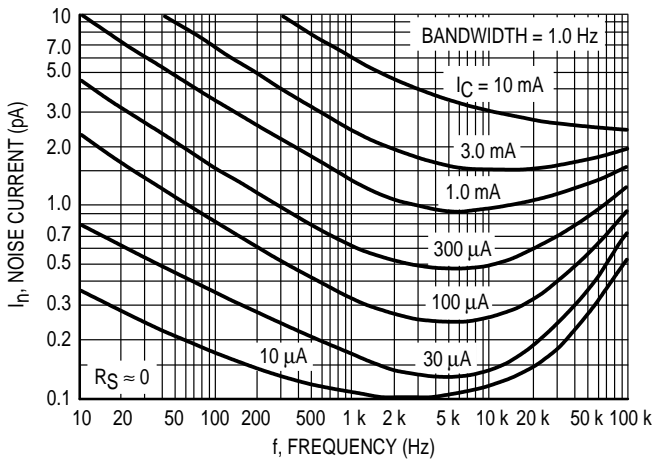


Figure 4. Noise Current

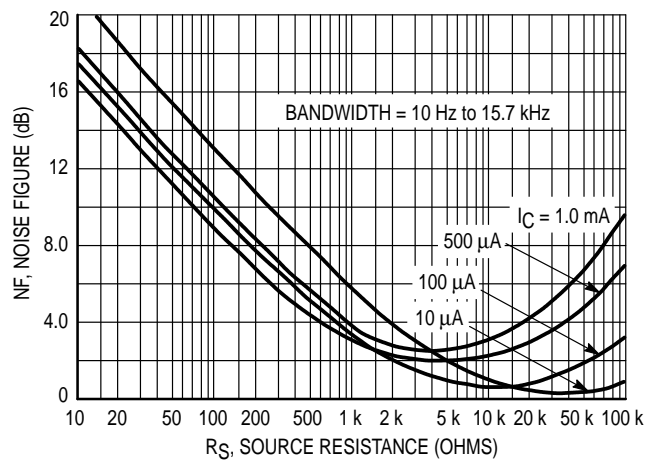


Figure 5. Wideband Noise Figure

100 Hz NOISE DATA

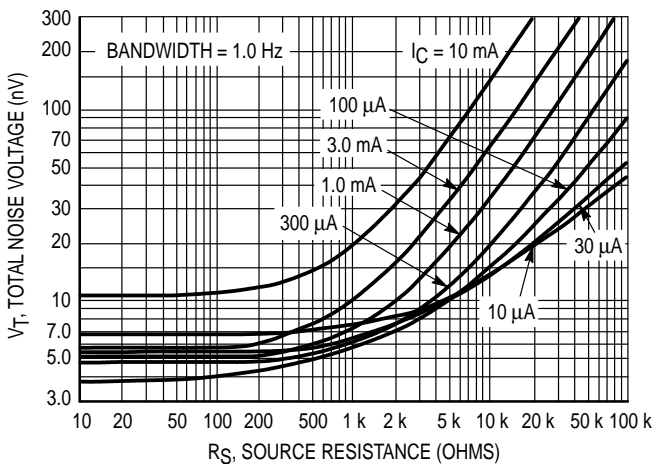


Figure 6. Total Noise Voltage

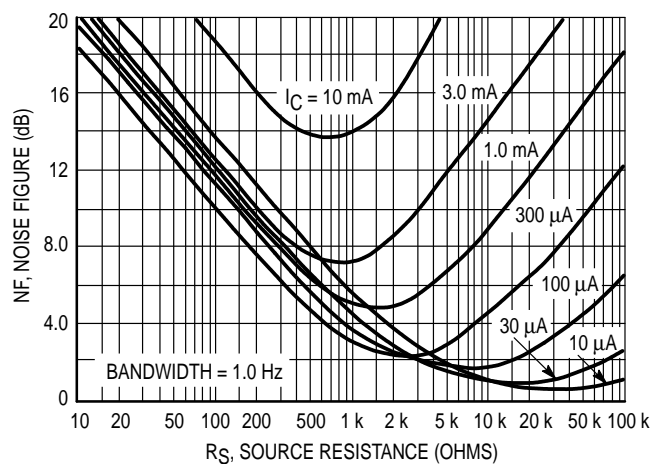


Figure 7. Noise Figure

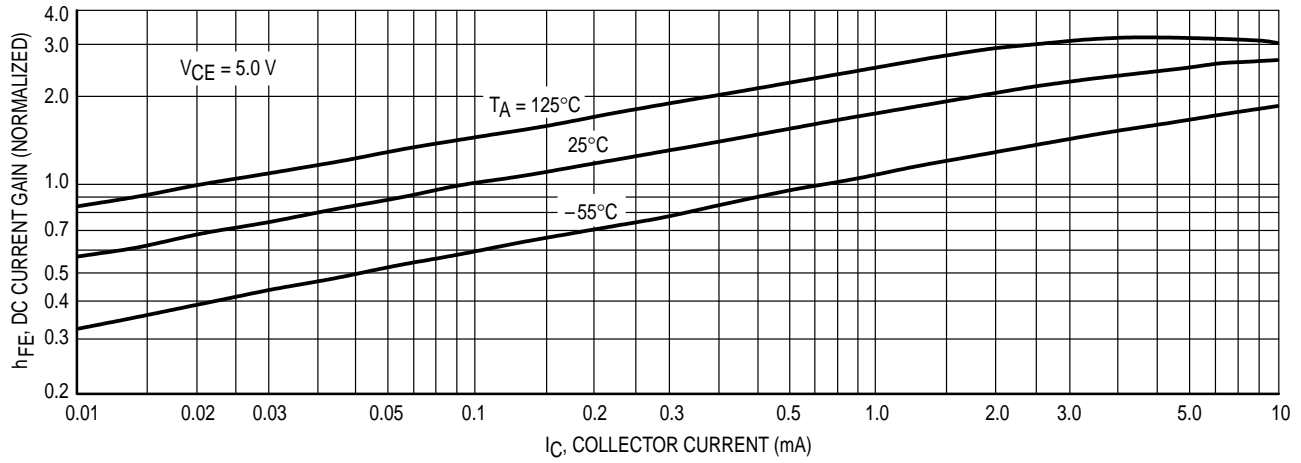


Figure 8. DC Current Gain

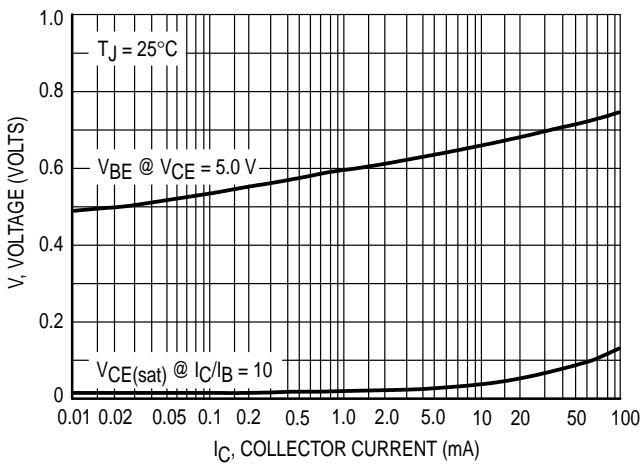


Figure 9. "On" Voltages

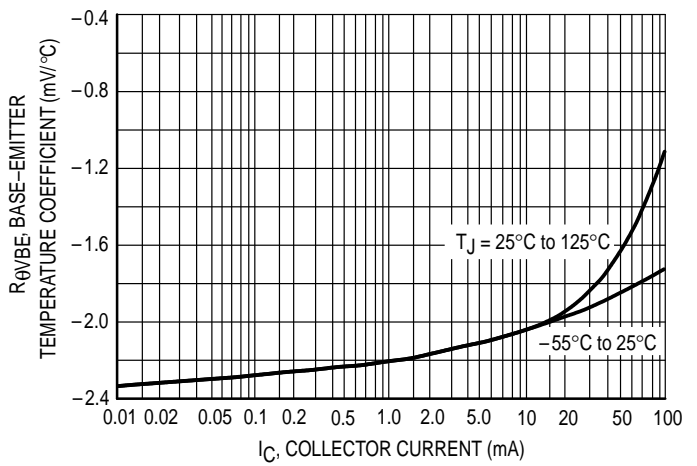


Figure 10. Temperature Coefficients

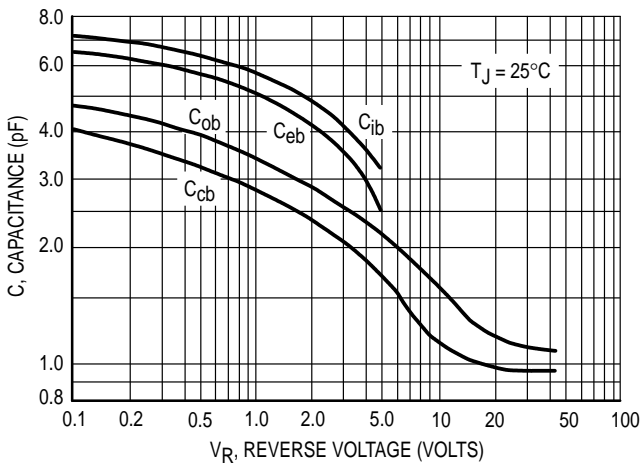


Figure 11. Capacitance

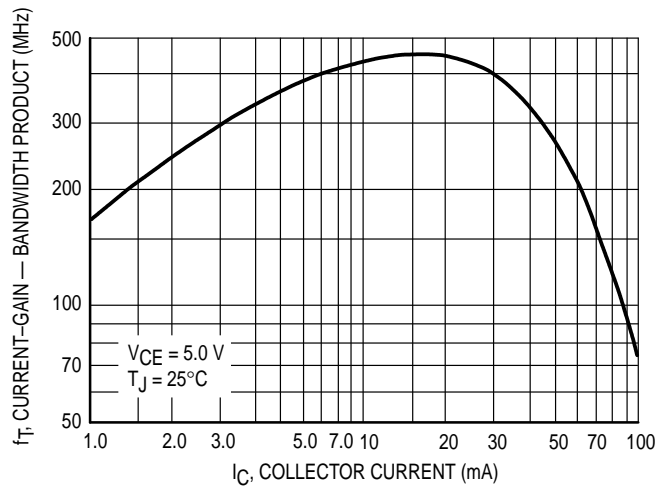
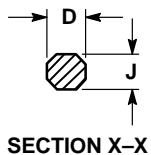
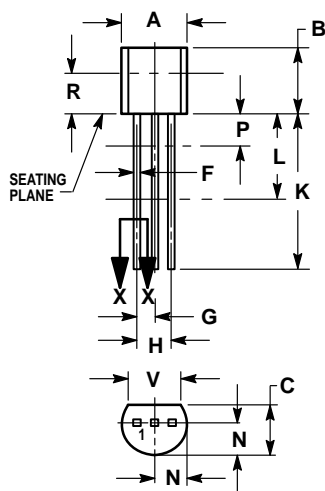


Figure 12. Current-Gain — Bandwidth Product

PACKAGE DIMENSIONS




**CASE 029-04
(TO-226AA)
ISSUE AD**

- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
 4. DIMENSION F APPLIES BETWEEN P AND L. DIMENSION D AND J APPLY BETWEEN L AND K. MINIMUM 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 | 0.022 | 0.41 | 0.55 |
| F | 0.016 | 0.019 | 0.41 | 0.48 |
| 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 | — |

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

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