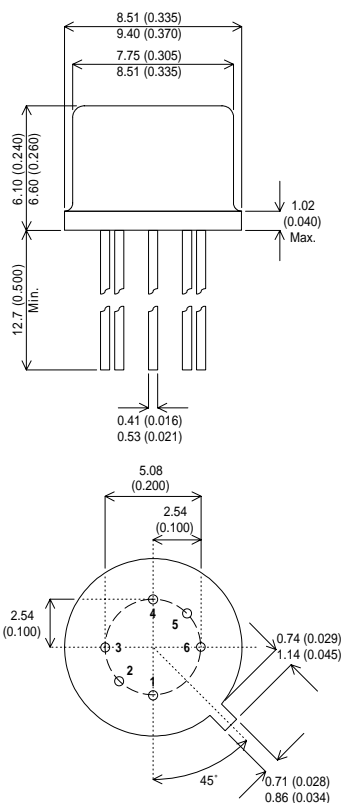


MECHANICAL DATA

Dimensions in mm (inches)



**DUAL NPN TRANSISTOR
IN TO77 HERMETIC PACKAGE**

FEATURES

- Silicon Planar Epitaxial NPN Transistor
- High Rel and Screening Options Available.

TO77 METAL PACKAGE

- PIN 1 – Collector**
- PIN 2 – Base**
- PIN 3 – Emitter**
- PIN 4 – Emitter**
- PIN 5 – Base**
- PIN 6 – Collector**

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

| | | | |
|----------------|--|-----------------|---------------------|
| V_{CEO} | Collector – Emitter Voltage | 60V | |
| V_{CER} | Collector – Emitter Voltage | 80V | |
| V_{CBO} | Collector – Base Voltage | 100V | |
| V_{EBO} | Emitter – Base Voltage | 7V | |
| I_C | Collector Current | 500mA | |
| T_J, T_{stg} | Operating and Storage Junction Temperature Range | -65 to +200°C | |
| | | Per Side | Total Device |
| P_D | Total Device Dissipation @ $T_A = 25^{\circ}C$ | 0.5W | 0.6W |
| | Derate above 25°C | 2.86mW/°C | 3.43mW/°C |
| P_D | Total Device Dissipation @ $T_C = 25^{\circ}C$ | 1.6W | 3.0W |
| | Derate above 25°C | 9.1mW/°C | 11.4mW/°C |

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

| Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|--|---|------|------|---------------------------|------------------------------|
| OFF CHARACTERISTICS | | | | | |
| $V_{\text{CER(sus)*}}$ Collector – Emitter Breakdown Voltage | $I_C = 100\text{mA}$ $R_{\text{BE}} \leq 10\Omega$ | 80 | | | V |
| $V_{\text{CEO(sus)*}}$ Collector – Emitter Sustaining Voltage | $I_C = 30\text{mA}$ $I_B = 0$ | 60 | | | V |
| $V_{(\text{BR})\text{CBO}}$ Collector – Base Breakdown Voltage | $I_C = 100\mu\text{A}$ $I_E = 0$ | 100 | | | V |
| $V_{(\text{BR})\text{EBO}}$ Emitter – Base Breakdown Voltage | $I_E = 100\mu\text{A}$ $I_C = 0$ | 7 | | | V |
| I_{CBO} Collector Cut-off Current | $V_{\text{CB}} = 80\text{V}$ $I_E = 0$ | | | 0.01 | μA |
| | | | | $T_A = 150^\circ\text{C}$ | |
| I_{EBO} Emitter Cut-off Current | $V_{\text{BE}} = 5\text{V}$ $I_C = 0$ | | | 10 | nA |
| ON CHARACTERISTICS | | | | | |
| h_{FE} DC Current Gain | $I_C = 10\mu\text{A}$ $V_{\text{CE}} = 5\text{V}$ | 15 | | | — |
| | $I_C = 100\mu\text{A}$ $V_{\text{CE}} = 5\text{V}$ | 25 | | 150 | |
| | $I_C = 10\text{mA}$ $V_{\text{CE}} = 5\text{V}$ | 50 | | 200 | |
| $V_{\text{CE(sat)}}$ Collector – Emitter Saturation Voltage | $I_C = 50\text{mA}$ $I_B = 5\text{mA}$ | | | 1.2 | V |
| $V_{\text{BE(sat)}}$ Base – Emitter Saturation Voltage | $I_C = 50\text{mA}$ $I_B = 5\text{mA}$ | | | 0.9 | |
| SMALL SIGNAL CHARACTERISTICS | | | | | |
| f_T Current Gain Bandwidth Product | $I_C = 50\text{mA}$ $V_{\text{CE}} = 10\text{V}$ $f = 20\text{MHz}$ | 50 | | | MHz |
| C_{ob} Output Capacitance | $I_E = 0$ $V_{\text{CB}} = 10\text{V}$ $f = 1\text{MHz}$ | | | 15 | pF |
| C_{ib} Input Capacitance | $I_C = 0$ $V_{\text{BE}} = 0.5\text{V}$ $f = 1\text{MHz}$ | | | 85 | pF |
| h_{ib} Input Impedance | $I_C = 1\text{mA}$ $V_{\text{CB}} = 5\text{V}$ $f = 1\text{kHz}$ | 20 | | 30 | Ω |
| h_{fe} Small Signal Current Gain | $I_C = 1\text{mA}$ $V_{\text{CE}} = 5\text{V}$ $f = 1\text{kHz}$ | 40 | | 200 | — |
| h_{oe} Output Admittance | $f = 1\text{kHz}$ | | | .05 | μmhos |
| MATCHING CHARACTERISTICS | | | | | |
| $h_{\text{FE1}}/h_{\text{FE2}}$ DC Current Gain Ratio ¹ | $I_C = 100\mu\text{A}$ $V_{\text{CE}} = 5\text{V}$ | 0.9 | | 1.0 | — |
| $ V_{\text{BE1}} - V_{\text{BE2}} $ Base – Emitter Voltage Differential | $I_C = 100\mu\text{A}$ $V_{\text{CE}} = 5\text{V}$ | | 5.0 | | mV |
| $\frac{\Delta(V_{\text{BE1}} - V_{\text{BE2}})}{\Delta T}$ Base – Emitter Voltage Differential Change Due To Temperature | $I_C = 100\mu\text{A}$ $V_{\text{CE}} = 5\text{V}$ $T_A = -55$ to $+125^\circ\text{C}$ | | | 25 | $\mu\text{V}/^\circ\text{C}$ |

* Pulse Test: $t_p \leq 300\mu\text{s}$, $\delta \leq 2\%$.

1) The lowest h_{FE} reading is taken as h_{FE1} for this ratio.

| | | |
|--|--|--|
| | | |
|--|--|--|

Part number search for devices beginning "2N2223A-JQR-B"

[Semelab Home](#)

Datasheets are downloaded as Acrobat PDF files.



Bipolar Products

| PRODUCT | Polarity | Package | V _{CEO} | I _{C(cont)} | H _{FE(min)} | H _{FE(max)} | @ V _{CE} /I _C | F _T | P _D |
|-------------------------------|----------|---------|------------------|----------------------|----------------------|----------------------|-----------------------------------|----------------|----------------|
| 2N2223A-JQR-B | NPN | TO77 | 80V | 0.5A | 50 | 200 | 5/10m | 50MHz | 0.6W |

Searched through 3084 records and found 1 products matching your criteria.

[Top of Page](#)

If you are unable to find a suitable part, please [contact us](#).

