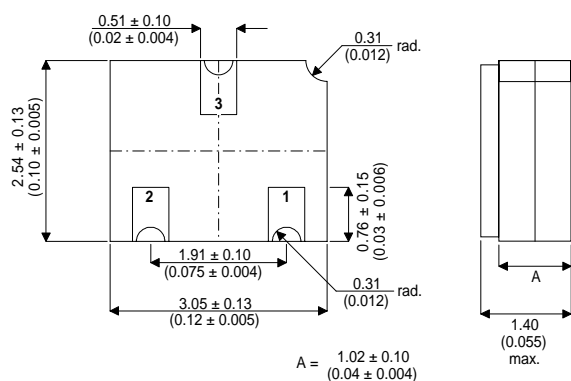


**HIGH FREQUENCY
NPN TRANSISTOR IN A
HERMETICALLY SEALED
CERAMIC SURFACE MOUNT PACKAGE
FOR HIGH RELIABILITY APPLICATIONS**

MECHANICAL DATA

Dimensions in mm (inches)



**SOT23 CERAMIC
(LCC1 PACKAGE)**

Underside View

PAD 1 – Base PAD 2 – Emitter PAD 3 – Collector

FEATURES

- SILICON NPN TRANSISTOR
- HERMETIC CERAMIC SURFACE MOUNT PACKAGE (SOT23 COMPATIBLE)
- CECC SCREENING OPTIONS

APPLICATIONS:

Hermetically sealed surface mount version of the popular 2N2857 for high reliability applications requiring small size and low weight devices.

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

| | | |
|----------------|---|------------------------------|
| V_{CBO} | Collector – Base Voltage | 30V |
| V_{CEO} | Collector – Emitter Voltage | 15V |
| V_{EBO} | Emitter – Base Voltage | 2.5V |
| I_C | Collector Current | 40mA |
| P_D | Total Device Dissipation @ $T_A = 25^\circ\text{C}$ | 200mW |
| | Derate above 25°C | 1.14mW / $^\circ\text{C}$ |
| P_D | Total Device Dissipation @ $T_C = 25^\circ\text{C}$ | 300mW |
| | Derate above 25°C | 1.72mW / $^\circ\text{C}$ |
| T_{STG}, T_J | Operating and Storage Temperature Range | -65 to +200 $^\circ\text{C}$ |

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

| Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|-----------------|--|------|---------------------------|------|---------------|
| $V_{(BR)CBO}^*$ | Collector – Base Breakdown Voltage $I_C = 1\mu\text{A}$ $I_E = 0$ | 30 | | | V |
| $V_{(BR)CEO}$ | Collector – Emitter Breakdown Voltage $I_C = 3\text{mA}$ $I_B = 0$ | 15 | | | |
| $V_{(BR)EBO}$ | Emitter – Base Breakdown Voltage $I_E = 10\mu\text{A}$ $I_C = 0$ | 2.5 | | | |
| I_{CBO} | Collector – Base Cut-off Current $V_{CB} = 15\text{V}$ $I_E = 0$ | | | 50 | μA |
| | | | | 1 | |
| $V_{CE(sat)}$ | Collector – Emitter Saturation Voltage $I_C = 10\text{mA}$ | | | 0.4 | V |
| $V_{BE(sat)}$ | Base – Emitter Saturation Voltage $I_B = 1\text{mA}$ | 0.5 | | 1 | |
| h_{FE} | DC Current Gain $V_{CE} = 1\text{V}$ $I_C = 3\text{mA}$ | | | 30 | — |
| | | | $T_A = 150^\circ\text{C}$ | 10 | |
| I_{CES} | Collector – Emitter Cut-off Current $V_{CB} = 16\text{V}$ $I_B = 0$ | | | 100 | nA |
| NF | Noise Figure $V_{CE} = 6\text{V}$ $I_C = 1.5\text{mA}$ $f = 450\text{MHz}$ $R_G = 50\Omega$ | | | 4.5 | dB |
| h_{fe} | Small Signal Current Gain $V_{CE} = 6\text{V}$ $I_C = 2\text{mA}$ | 50 | | 220 | — |
| $ h_{fe} $ | Magnitude of h_{fe} $V_{CE} = 6\text{V}$ $I_C = 5\text{mA}$ $f = 100\text{MHz}$ | 10 | | 21 | — |
| C_{cb} | Collector – Base Feedback Capacitance $V_{CB} = 10\text{V}$ $I_E = 0$ $f = 0.1$ to 1MHz | | | 1 | pF |
| G_{pe} | Small Signal Power Gain $V_{CE} = 6\text{V}$ $I_C = 1.50\text{mA}$ $f = 450\text{MHz}$ | 12.5 | | 21 | dB |
| $r_b'C_c$ | Collector – Base Time Constant $V_{CE} = 6\text{V}$ $I_E = 2\text{mA}$ $f = 31.9\text{MHz}$ | 4.0 | | 15 | ps |