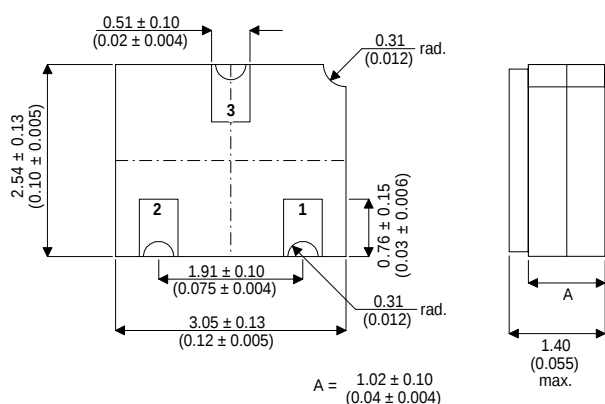


# **HIGH SPEED, MEDIUM POWER, NPN GENERAL PURPOSE TRANSISTOR IN A HERMETICALLY SEALED CERAMIC SURFACE MOUNT PACKAGE FOR HIGH RELIABILITY APPLICATIONS**

## **MECHANICAL DATA**

Dimensions in mm (inches)



## **SOT23 CERAMIC (LCC1 PACKAGE)**

### **Underside View**

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

## **FEATURES**

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

## **APPLICATIONS:**

Hermetically sealed surface mount version of the popular 2N2484 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                            | 60V                          |
| $V_{CEO}$      | Collector – Emitter Voltage                         | 60V                          |
| $V_{EBO}$      | Emitter – Base Voltage                              | 6V                           |
| $I_C$          | Collector Current                                   | 50mA                         |
| $P_D$          | Total Device Dissipation @ $T_A = 25^\circ\text{C}$ | 360mW                        |
|                | Derate above $25^\circ\text{C}$                     | 2.06mW / $^\circ\text{C}$    |
| $P_D$          | Total Device Dissipation @ $T_C = 25^\circ\text{C}$ | 1.2W                         |
|                | Derate above $25^\circ\text{C}$                     | 6.85mW / $^\circ\text{C}$    |
| $T_{STG}, T_J$ | 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   | $I_C = 10\mu\text{A}$ $I_E = 0$                         | 60   |      |      | V                |
| $V_{(BR)CEO}$ Collector – Emitter Breakdown Voltage  | $I_C = 10\text{mA}$ $I_B = 0$                           | 60   |      |      |                  |
| $V_{(BR)EBO}$ Emitter – Base Breakdown Voltage       | $I_E = 10\mu\text{A}$ $I_C = 0$                         | 6    |      |      |                  |
| $I_{CBO}$ Collector Cut-off Current                  | $V_{CB} = 45\text{V}$ $I_E = 0$                         |      |      | 10   | nA               |
| $I_{EBO}$ Emitter Cut-off Current                    | $V_{BE} = 5\text{V}$ $I_C = 0$                          |      |      | 10   |                  |
| $V_{CE(sat)}$ Collector – Emitter Saturation Voltage | $I_C = 1\text{mA}$ $I_B = 0.1\text{mA}$                 |      |      | 0.35 | V                |
| $V_{BE(on)}$ Base – Emitter On Voltage               | $I_C = 0.1\text{mA}$ $V_{CE} = 5\text{V}$               | 0.5  |      | 0.7  |                  |
| $h_{FE}$ DC Current Gain                             | $I_C = 1\mu\text{A}$ $V_{CE} = 5\text{V}$               | 30   |      |      | —                |
|                                                      | $I_C = 10\mu\text{A}$ $V_{CE} = 5\text{V}$              | 100  |      | 500  |                  |
|                                                      | $I_C = 100\mu\text{A}$ $V_{CE} = 5\text{V}$             | 175  |      |      |                  |
|                                                      | $I_C = 500\mu\text{A}$ $V_{CE} = 5\text{V}$             | 200  |      |      |                  |
|                                                      | $I_C = 1\text{mA}$ $V_{CE} = 5\text{V}$                 | 250  |      |      |                  |
|                                                      | $I_C = 10\text{mA}$ $V_{CE} = 5\text{V}$                |      |      | 800  |                  |
| $f_T$ Current Gain Bandwidth Product                 | $f = 5\text{MHz}$ $I_C = 0.05\text{mA}$                 | 15   |      |      | MHz              |
|                                                      | $f = 30\text{MHz}$ $I_C = 0.5\text{mA}$                 | 60   |      |      |                  |
| $C_{ob}$ Output Capacitance                          | $V_{CB} = 5\text{V}$ $I_E = 0$<br>$f = 140\text{kHz}$   |      |      | 6    | pF               |
| $C_{ib}$ Input Capacitance                           | $V_{BE} = 0.5\text{V}$ $I_C = 0$<br>$f = 140\text{kHz}$ |      |      | 6    | pF               |
| $h_{ie}$ Input Impedance                             | $V_{CE} = 5\text{V}$                                    | 3.5  |      | 24   | $\text{k}\Omega$ |
| $h_{re}$ Voltage Feedback Ratio                      | $I_C = 1\text{mA}$                                      |      |      | 800  | $\times 10^{-6}$ |
| $h_{fe}$ Small Signal Current Gain                   | $f = 1\text{kHz}$                                       | 150  |      | 900  | —                |

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