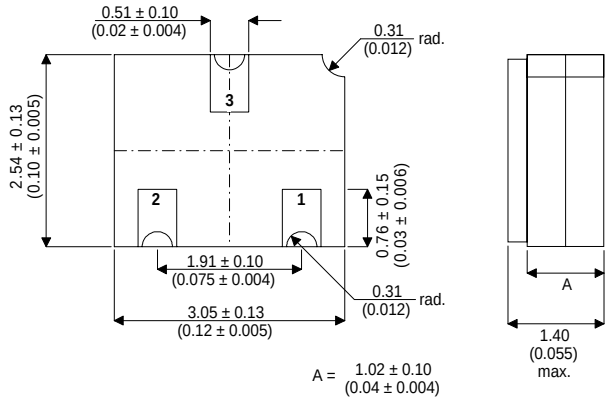
# 2N3250CSM

# GENERAL PURPOSE PNP 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 EPITAXIALPNP TRANSISTOR**
- **HERMETIC CERAMIC SURFACE MOUNT PACKAGE (SOT23 COMPATIBLE)**
- **CECC SCREENING OPTIONS**
- **SPACE QUALITY LEVELS OPTIONS**
- **HIGH SPEED SATURATED SWITCHING**

## ABSOLUTE MAXIMUM RATINGS ($T_A$ = 25°C unless otherwise stated)

| | | | |
|---|---|---|---|
| $V_{CBO}$ | Collector – Base Voltage | | -40V |
| $V_{CEO}$ | Collector – Emitter Voltage | | -50V |
| $V_{EBO}$ | Emitter – Base Voltage | | -5.0V |
| $I_C$ | Collector Current | | -200mA |
| $P_D$ | Total Device Dissipation | @ $T_A$ =25°C | 0.36W |
| | | Derate above 25°C | 2.06mW / °C |
| $P_D$ | Total Device Dissipation | @ $T_A$ =25°C | 1.2W |
| | | Derate above 25°C | 6.9mW / °C |
| $T_{STG}$ , $T_J$ | Operating and Storage Temperature Range | | –65 to +200°C |
| $R_{\theta JA}$ | Thermal Resistance Junction – Ambient | | 486°C/W |
| $R_{\theta JC}$ | Thermal Resistance Junction – Case | | 146°C/W |

**Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.**

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SEME LAB

# 2N3250CSM

## ELECTRICAL CHARACTERISTICS ($T_A$ = 25°C unless otherwise stated)

| Parameter | | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_{(BR)CEO*}$ | Collector – Emitter Breakdown Voltage | $I_C$ = -10mA | $I_B$ = 0 | -40 | | | V |
| $V_{(BR)CBO}$ | Collector – Base Breakdown Voltage | $I_C$ = 10µA | $I_E$ = 0 | -50 | | | |
| $V_{(BR)EBO}$ | Emitter – Base Breakdown Voltage | $I_E$ = 10µA | $I_C$ = 0 | -5 | | | |
| $I_{CEX}$ | Collector – Cut-off Current | $V_{CE}$ = -40V | $V_{EB}$ = -3V | | | -20 | nA |
| $I_{BL}$ | Base Cutoff Current | $V_{CE}$ = -40V | $V_{EB}$ = -3V | | | -50 | |
| **ON CHARACTERISTICS** | | | | | | | |
| $V_{CE(sat)}$ | Collector – Emitter Saturation Voltage | $I_C$ = -10mA | $I_B$ = -1mA | | | -25 | V |
| | | $I_C$ = -50mA | $I_B$ = - 5mA | | | -0.5 | |
| $V_{BE(sat)*}$ | Base – Emitter Saturation Voltage | $I_C$ = -10mA | $I_B$ = -1mA | -0.6 | | -0.9 | V |
| | | $I_C$ = -50mA | $I_B$ = - 5mA | | | -1.2 | |
| $h_{FE*}$ | DC Current Gain | $V_{CE}$ = -1V | $I_C$ = -0.1mA | 40 | | | — |
| | | $V_{CE}$ = -1V | $I_C$ = -1mA | 45 | | | |
| | | $V_{CE}$ = -1V | $I_C$ = -10mA | 50 | | 150 | |
| **SMALL SIGNAL CHARACTERISTICS** | | | | | | | |
| $f_t$ | Current Gain Bandwidth Product | $V_{CE}$ = -20V<br>f = 100MHz | $I_C$ = -10mA | 250 | | | MHz |
| $C_{obo}$ | Output Capacitance | $V_{CB}$ = -10V<br>f = 1.0MHz | $I_E$ = 0 | | | 6.0 | pF |
| $C_{ibo}$ | Input Capacitance | $V_{EB}$ = -1.0V<br>f = 1.0MHz | $I_C$ = 0 | | | 8.0 | pF |
| $h_{ie}$ | Input Impedance | $V_{CE}$ = -10V<br>f = 1.0KHz | $I_C$ = -1.0mA | 1.0 | | 6.0 | kΩ |
| $h_{re}$ | Voltage Feedback Ratio | | | | | 10 | x $10^{-4}$ |
| $h_{fe}$ | Small Signal Current Gain | | | 50 | | 300 | — |
| $h_{oe}$ | Output Admittance | | | 4.0 | | 40 | µhmos |
| $N_F$ | Noise Figure | $V_{CE}$ = -5V<br>f = 100Hz | $I_C$ = -100µA<br>$R_S$ = -1kΩ | | | 6 | dB |
| rb'$C_C$ | Collector Base Time Constant | $V_{CE}$ = -20V<br>f = 131.8MHz | $I_C$ = -100mA | | | 250 | ps |
| **SWITCHING CHARACTERISTICS** | | | | | | | |
| $t_d$ | Delay Time | $V_{CC}$ = -3V | $V_{BE}$ = 0.5V | | | 35 | ns |
| $t_r$ | Rise Time | $I_C$ = -10mA | $I_{B1}$ = -1mA | | | 35 | |
| $t_s$ | Storage Time | $V_{CC}$ = -3V | $I_C$ = -10mA | | | 175 | |
| $t_f$ | Fall Time | $I_{B1}$ = $I_{B1}$ = -1mA | | | | 50 | |

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